rexroth
A Bosch Company

Release Notes

ctrlX CORE

Runtime

XCR-V-0120

Edition 09

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DC-AE/EPI5 (TaDo/PiaSt)

ee275cc0261482220a347e8852bda34d, 11, en_US

Table of contents

1 About this documentation 19

2 Important information 21

2.1 Product information. . . . 21
2.2 Image update. . . . 21
2.3 LED display after an image update on a ctrlX DRIVEplus device can be incorrect. . . . 21
2.4 Notes on XCR-V-0120.9. . . . 21
2.4.1 Updating the apps to the ctrlX CORE Virtual. . . . 21
2.4.2 Updating the apps to the ctrlX CORE. . . . 22
2.5 Notes on XCR-V-0120.8. . . . 24
2.5.1 Updating the apps to the ctrlX CORE Virtual. . . . 24
2.5.2 Updating the apps to the ctrlX CORE. . . . 25
2.6 Notes on XCR-V-0120. . . . 27
2.6.1 Updating the apps to the ctrlX CORE Virtual. . . . 27
2.6.2 Updating the apps to the ctrlX CORE. . . . 28
2.7 Notes on XCR-V-0118.4. . . . 29
2.7.1 Updating the apps to the ctrlX CORE Virtual. . . . 29
2.7.2 Updating the apps to the ctrlX CORE. . . . 30
2.8 Notes onXCR-V-0118.3. . . . 31
2.8.1 Updating the apps to the ctrlX CORE Virtual. . . . 32
2.8.2 Updating the apps to the ctrlX CORE. . . . 32
2.9 Notes on XCR-V-0116.3. . . . 34
2.9.1 Updating the apps to the ctrlX CORE Virtual. . . . 34
2.9.2 Updating the apps to the ctrlX CORE. . . . 34
2.10 Notes on XCR-V-0116. . . . 36
2.10.1 Updating the apps to the ctrlX CORE Virtual. . . . 36
2.10.2 Updating the apps to the ctrlX CORE. . . . 36
2.11 Notes on XCR-V-0114. . . . 38
2.11.1 Updating the apps to the ctrlX CORE Virtual. . . . 38
2.11.2 Updating the apps to the ctrlX CORE. . . . 38

3 XCR-V-0120.9 41

3.1 Software. . . . 41
3.1.1 XCR-V-0120.9 components. . . . 41
3.1.2 Compatibility with drive-integrated control. . . . 41
3.2 Resolved defects and modifications. . . . 42
3.2.1 Device Admin. . . . 42
Bug 697159: Background service "snapd" does sporadically not respond (workaround). . . . 42
Bug 697164: Network discovery services must not be used for EoE interfaces. . . . 42

3.3 Notes on use and known restrictions. 42
3.3.1 Automation Core. 42
Bug 315404: USB Ethernet adapter is not recognized at ctrlX DRIVEplus. 42
Bug 589936: X3: Retain memory > 56kB sporadically inconsistent after switching off/onn in case of a drive-integrated control and ctrlX CORE X3 42
Bug 614685: Background service "snapd" sporadically does not respond. 43
Bug 661402: Boot process fails sporadically. 43
3.3.2 Device Admin. 43
Bug 440613: The maintenance mode has to be detected during the installation/updating of apps. 43
Bug 567467: Interface XF51 does not support jumbo frames. 43
Bug 612064: During the "Factory Reset”, the user can already log in before the process has been finished. 44
Bug 703624: Host name with brand app is lost after reboot. 44
4 XCR-V-0120.8 45
4.1 Software. 45
4.1.1 XCR-V-0120.8 components. 45
4.1.2 Compatibility with drive-integrated control. 45
4.2 Resolved defects and modifications. 46
4.2.1 Hardware support (rexroth-arch02-hw). 46
Bug 687805: Update COM.2 to FWB-XD1-COM-V-0122N.03. 46
4.2.2 Linux Kernel (rexroth-arch02-kernel). 46
Bug 656378: PLC watchdog due to blocking times caused by high-frequency msync calls. 46
4.2.3 Device Admin. 46
Bug 530439: Non-functioning entries in the sidebar following app installation. 46
Bug 667033: Network configurations are lost when downgrading the app to version 1.12. 46
Bug 667923: Interface Auto Connect mechanism of the Device Admin causes problems. 46
Bug 669648: The order for updating apps is not correct: Core has to be be updated before updating the Device Admin. 47
Bug 675075: The operating hours counter was sporadically reset by a restart of the control. 47
Bug 679472: Permanent partition is not available for K-Box B-201-CFL. 47
Bug 690665: Data Layer node *system/health* not available. 47
4.2.4 Ubuntu Core 20. 47
Bug 666326: Security update. 47

4.3 Notes on use and known restrictions. 48
4.3.1 Automation Core. 48
Bug 315404: USB Ethernet adapter is not recognized at ctrlX DRIVEplus. 48
Bug 589936: X3: Retain memory > 56kB sporadically inconsistent after switching off/onn in case of a drive-integrated control and ctrlX CORE X3 48
Bug 614685: Background service "snapd" sporadically does not respond. 48
Bug 661402: Boot process fails sporadically. 49
4.3.2 Device Admin. 49
Bug 440613: The maintenance mode has to be detected during the installation/updating of apps. 49
Bug 567467: Interface XF51 does not support jumbo frames. 49
Bug 612064: During the "Factory Reset”, the user can already log in before the process has been finished. 49
5 XCR-V-0120.4 51
5.1 Software. 51
5.1.1 XCR-V-0120.4 components. 51
5.1.2 Compatibility with drive-integrated control. 51
5.2 Resolved defects and modifications. 52
5.2.1 Hardware support (rexroth-arch02-hw). 52
Bug 663790: Watchdog reboot. 52
5.2.2 Linux Kernel (rexroth-arch02-kernel). 52
Bug 656378: PLC watchdog due to blocking times caused by high-frequency msync calls. 52
5.2.3 Automation Core. 52
Bug 637618: Large JSON requests to the Data Layer web server result in a high memory usage. 52
Bug 639063: Possible restart loop of Automation Core into safe mode. 52
5.2.4 Device Admin. 53
Bug 619279: "Factory Reset” is locked for ctrlX CORE X7 control. 53
Bug 629936: Boot process fails sporadically. 53
Bug 634099: Completion of the CORE update is not always detected reliably. 53
Bug 635814: Changes in the services of the network detection switch the control to Service State without confirmation. 53
Bug 638505: Allow all characters as Common Name (CN) in the Certificate Signing Request (CSR). 53
Bug 638750: Changes in the system report are not sorted. 54
Bug 650045: Device Admin contains outdated Ubuntu package: dnsmasq-base. 54

Bug 651980: The "ctrlX Device ID" certificate on the information page is missing in the API. 54
Bug 663907: No login possible on ctrlX CORE with base image Ubuntu Core 22. 54
5.2.5 Ubuntu Core 20. 54
Bug 667287: snapd - system partitions mounted from wrong device. 54
5.3 Notes on use and known restrictions. 55
5.3.1 Automation Core. 55
Bug 315404: USB Ethernet adapter is not recognized at ctrlX DRIVEplus. 55
Bug 589936: X3: Retain memory > 56kB sporadically inconsistent after switching off/onn in case of a drive-integrated control and ctrlX CORE X3 55
Bug 614685: Background service "snapd" sporadically does not respond. 55
Bug 661402: Boot process fails sporadically. 55
5.3.2 Device Admin. 56
Bug 440613: The maintenance mode has to be detected during the installation/updating of apps. 56
Bug 567467: Interface XF51 does not support jumbo frames. 56
Bug 612064: During the "Factory Reset”, the user can already log in before the process has been finished. 56
6 XCR-V-0120 57
6.1 Software. 57
6.1.1 Components XCR-V-0120. 57
6.1.2 Compatibility with drive-integrated control. 57
6.2 New functions. 58
6.2.1 Automation Core. 58
Feature 458990: Ensuring a safe machine state after a critical error. 58
Feature 533316: Data Layer extensions. 58
Feature 533626: Empty base snap for tests and fully statically linked snaps. 59
Feature 562213: Control identification. 59
6.2.2 Device Admin. 59
Feature 320812: mDNS name resolution added 59
Feature 420250: A device can be reset to delivery state in ctrlX OS. 59
Feature 450672: Expandable denylist for partners and customers. 59
Feature 477225: Support for multiple parallel license memory. 59
Feature 514059: UTC system time and time zone are published on the Data Layer. 60
Feature 516664: Removing revisions of apps that are no longer active. 60
Feature 546376: A device can be reset to delivery state by means of a USB stick or an SD card. 60

Feature 549398: The system report can be password-encrypted. 60
Feature 554269: DNS suffixes are supported. 60
Feature 556110: App dependencies are displayed. 60
Feature 563478: A CPU update speed of 1 second is possible. 60
Feature 566109: 404 web page is customizable via theming. 60
Feature 568565: A tooltip is displayed for CPU cores reserved for real-time tasks. 61
Feature 568992: Support for ECC-based cryptographic keys using the TPM. 61
6.2.3 Solutions. 61
Feature 347581: Extended functions for editing the configuration repository, changed write access via WebDAV interface. 61
Feature 531391: Extended loading of "App Data. 61
Feature 548844: Default copy only when app is enabled. 61
6.2.4 Setup. 61
Feature 539194: Extensions and compatibility notes. . . . 61
6.3 Resolved defects and modifications. 62
6.3.1 Automation Core. 62
Bug 349989: After the task watchdog occurred it is not possible to search the *scheduler/tasks* node. 62
Bug 605839: Scheduler configuration import from projects <= 1.12 fails due to invalid task configuration (stack size). 62
Bug 612346: Automation Task is sporadically not triggered. 62
6.3.2 Device Admin. 62
Bug 502041: Remote Logging: Host name is updated immediately after a change. 62
Bug 561414: Details in IPv4 tab are lost. 62
Bug 570233: No plugged network cable results in multiple unnecessary logbook entries. 62
Bug 573328: No manual input of link local addresses possible. 63
Bug 573663: On the "Memory" page of the ctrlX CORE X7 control, the internal partitions are visible. 63
Bug 573800: Remote logging configuration is lost when updating from 01V12 to 01V18. 63
Bug 578194: Memory reservation for real-time applications does not work correctly. 63
Bug 580422: Incorrect display of media on the ctrlX CORE X7 information page 63
Bug 589085: User without "Full access" authorization can disable user with "Full access" authorization. 63
Bug 591554: WLAN settings are lost when configuring external settings. 64
Bug 595658: Diagnostic code of "Pending Diagnostics" is sometimes not available. 64

Bug 597396: On some ctrlX CORE X7 controls, the internal partitions are displayed on the "Memory" and "Information" pages. 64
Bug 609997: WiFi settings are no longer available after a reboot. 64
Bug 612377: Image update and/or applying a setup file leads to an undefined state. 65
6.3.3 Setup. 65
Bug 573784: Autorun fails on a ctrlX CORE X7 control. . . 65
6.4 Notes on use and known limitations. 65
6.4.1 Automation Core. 65
Bug 315404: USB Ethernet adapter is not recognized at ctrlX DRIVEplus. 65
Bug 589936: X3: Retain memory > 56kB sporadically inconsistent after power off/on for ctrlX CORE X3 in ctrlX DRIVEplus and ctrlX CORE X3. 65
6.4.2 Device Admin. 66
Bug 440613: The maintenance mode has to be detected during the installation/updating of apps. 66
Bug 567467: Interface XF51 does not support jumbo frames. 66
Bug 612064: During the "Factory Reset”, the user can already log in before the process has been finished. 66
Bug 619279: "Factory Reset" locked for the ctrlX CORE X7 control. 66
Bug 629936: Boot process fails sporadically. 66
6.4.3 snapd. 67
Bug 614685: Background service "snapd" sporadically does not respond. 67
7 XCR-V-0118.4 69
7.1 Software. 69
7.1.1 XCR-V-0118.4 components. 69
7.1.2 Compatibility with drive-integrated control. 69
7.2 Resolved defects and modifications. 70
7.2.1 Ubuntu Core 20. 70
Bug 557934: Security update. 70
7.2.2 Hardware support (rexroth-arch01-hw). 70
Bug 592007: Updating the internal communication firmware. 70
7.2.3 Hardware support (rexroth-arch02-hw). 70
Bug 559987: Watchdog frames when the watchdog is idle. 70
7.2.4 Linux Kernel (rexroth-arch01-kernel). 70
Bug 583466: Security update for rexroth-arch01-kernel. . 70
7.2.5 Linux Kernel (rexroth-arch02-kernel). 71
Bug 569023: ctrlX CORE X7: XF50/XF52 sporadically not available. 71
Bug 584354: Security update for rexroth-arch02-kernel. . 71

7.2.6 Automation Core. 71
Bug 571960: Drive error following an Automation Core update. 71
Bug 575570: After switching on the ctrlX CORE X7, the system remains in SERVICE state. 71
Bug 586892: Nodes under *system/health* were not updated on ctrlX CORE X7. 71
7.2.7 Device Admin. 72
Bug 578194: Memory reservation for real-time applications does not work correctly. 72
7.3 Notes on the use and known restrictions. 72
7.3.1 Automation Core. 72
Bug 344973: To ensure the best real-time behavior possible, task and trace settings have to be correct. 72
Bug 589936: X3: Retain memory >64 kB sporadically inconsistent after power off/on with ctrlX CORE X3 and ctrlX COREplus X3. 73
7.3.2 Device Admin. 73
Bug 440613: The maintenance mode has to be detected during the installation/updating of apps. 73
Bug 561414: Details in IPv4 tab are lost. 74
Bug 567467: Interface XF51 does not support jumbo frames. 74
Bug 570233: No plugged network cable results in multiple unnecessary logbook entries. 74
Bug 570748: System report is classified as "dangerous" by Chrome browser in some cases. 74
Bug 573800: Remote logging configuration is lost when updating from 01V12 to 01V18. 74
Bug 595658: Diagnostic code of "Pending Diagnostics" is sometimes not available. 75
Bug 597396: On some ctrlX CORE X7, the internal partitions are displayed on the "Memory" and "Information" pages. 75
7.3.3 Setup. 75
Bug 589547: Automatic execution of a setup during restart can be rejected due to incorrect schema check. . 75
8 XCR-V-0118.3 77
8.1 Software. 77
8.1.1 Components XCR-V-0118.3. 77
8.1.2 Compatibility with drive-integrated control. 77
8.2 New functions. 78
8.2.1 Automation Core. 78
Feature 439835: Remote logging call has changed. 78
Feature 439841: Shutting down the Automation Core app upon an exception or F8/F9 error. 78
Feature 448193: Data Layer extensions. 78
Feature 456814: Hardware reset: Image update on the ctrlX CORE X3 control via USB. 78
Feature 504775: Scheduler extensions. 78

Feature 508496: ctrlX CORE X7 image update via "Rescue" system. 79
Feature 508616: Extensions of the Scheduler Web Interface. 80
8.2.2 Device Admin. 81
Feature 257721: Creating a ctrlX CORE system report . . 81
Feature 337742: Using micro SD card and USB stick to extend the internal memory. 81
Feature 377708: Network diagnostics - Ping. 81
Feature 400981: Web interface for WLAN hotspot. 81
Feature 466590: Change CPU update speed. 81
Feature 495933: Data on external memory media is ignored while saving or restoring. 82
Feature 503136: Reserve memory for real-time apps. . . . 82
Feature 503146: – Revision of connectivity. 82
Feature 504878: Device Admin information is shown as legible Data Layer. 82
Feature 505317: Display of processes and threads, filtering by CPU core. 82
8.2.3 Setup. 83
Feature 447379: Setup of the ctrlX CORE via a removable medium. 83
Feature 453064: ctrlX setup level 3 - Extensions. 83
Feature 459698: Autologin on removable media. 83
Feature 461721: ctrlX setup with image update from common removable media. 83
Feature 490195: List of applied ctrlX setups on the device. 83
8.3 Resolved defects and modifications. 83
8.3.1 Automation Core. 83
Bug 500635: DEBUG mode is not shown as "pending diagnosis". 83
Bug 500953: Error "Timeout when restoring the configuration" (0C7B4263) after booting the Automation Core. . 84
Bug 507182: App actions result in a missing Data Layer node and a hardware watchdog. 84
Bug 512189: Task watchdog when switching from SERVICE to SETUP. 84
Bug 512533: Timeout while writing Data Layer nodes to the Scheduler. 84
Bug 512595: Node *diagnosis/reset/all-pending*: Memory leak upon call via REST API. 85
Bug 529226: Memory leak when using subscription. . . . 85
Bug 529911: Same task priorities can cause errors. 85
Bug 529996: Resetting the same log from different sources can generate a pending error. 86
Bug 530355: Invalid or empty user ID at a Data Layer call causes an exception. 86
Bug 533957: System status is in SERVICE after booting. 86

Bug 535349: Automation Core app restart in case of critical errors. 86
Bug 548895: Exception upon configuration reset in SERVICE mode. 86
8.3.2 Device Admin. 86
Bug 278318: DHCP cannot be disabled on eth1. 86
Bug 491688: Network Discovery settings are not backed up upon backup. 87
Bug 501277: Network Discovery settings are not backed up in a ctrlX setup file. 87
Bug 506342: The new web server reports 404 after the installation. 87
Bug 507424: Uninstalling required apps via "Restore" operation. 87
Bug 508391: Insufficient display authorizations to correctly display the “Certificates and keys” page. 87
Bug 511107: Changes at NTP server have no impact. . . . 87
Bug 528848: The RAM consumption of the Device Admin process increases continuously. 87
Bug 542822: Possible increasing memory consumption due to a memory leak in the license manager. 88
Bug 546873: Network interfaces are not automatically configured upon subsequent plug-in. 88
Bug 553988: Possible memory leak, i.e. assigned memory is not released in web.taskmanager. 88
8.3.3 Ubuntu Core 20. 88
Bug 557440: Security update. 88
8.4 Notes on the use and known restrictions. 89
8.4.1 Automation Core. 89
Bug 344973: To ensure the best real-time behavior possible, task and trace settings have to be correct. 89
Bug 349989: After the task watchdog, it is not possible to search the *scheduler/tasks* node. 90
Bug 567979: Error due to a cycle time load that is too high upon startup. 90
Bug 569023: ctrlX CORE X7: XF50/XF52 sporadically not available. 91
Bug 571960: Drive error after updating the Automation Core. 91
8.4.2 Device Admin. 91
Bug 440613: The maintenance mode has to be detected during the installation/updating of apps. 91
Bug 561414: Details in the tab "IPv4" are lost. 91
Bug 567467: Interface XF51 does not support Jumbo frames. 91
Bug 570748: In some cases, Chrome browser considers system report to be "dangerous". 92
Bug 573663: Internal partitions are visible in the memory management of the ctrlX CORE X7. 92

Bug 573800: Remote logging configuration is lost when updating from 01V12 to 01V18. 92
Bug 578194: Memory reservation for real-time apps does not work properly. 93
8.4.3 Setup. 93
Bug 572501: Increased startup time after automatic setup execution. 93
Bug 573784: Autorun of a setup in json format fails on a ctrlX CORE X7. 93
9 XCR-V-0116.3 95
9.1 Software. 95
9.1.1 Changed components XCR-V-0116.3. 95
9.1.2 Compatibility with the drive-integrated control. 95
9.2 Resolved defects and modifications. 95
9.2.1 Automation Core. 95
Bug 529226: Memory leak when using subscription. . . . 95
Bug 535349: Restart of Automation Core app in case of critical errors. 95
9.2.2 Device Admin. 96
Bug 528043: Missing routes result in HTTP error 404. . . 96
Bug 528848: The RAM consumption of the device admin process increases continuously. 96
Bug 529916: The new web server reports 404 after the installation. 96
Bug 530446: Some nodes in the Data Layer sporadically vanish. 96
Bug 539290: Generating a backup via the device portal is not possible. 96
Bug 542822: Possible increasing memory consumption due to a memory leak in the license manager. 96
9.2.3 Hardware Support. 97
Bug 535019: Inconsistent data during communication between COM.2 and CORE. 97
9.2.4 Ubuntu Core 20. 97
Bug 566282: Security update. 97
9.3 Notes on the use and known restrictions. 97
9.3.1 Device Admin. 97
Bug 278318: DHCP cannot be disabled on eth1. 97
Bug 316525: Multicast only works if the gateway is set. . 97
Bug 440613: The maintenance mode has to be detected during the installation/updating of apps. 97
Bug 491688: Network Discovery settings are not backed up. 98
Bug 501277: Network Discovery settings are not backed up in a ctrlX setup file. 98
Bug 508391: Insufficient display authorizations to correctly display the “Certificates and keys” page. 98

10 XCR-V-0116 99
10.1 Software. 99
10.1.1 Components XCR-V-0116. 99
10.1.2 Compatibility with the drive-integrated control. 99
10.2 New functions. 99
10.2.1 Automation Core. 99
Feature 395940: Data Layer extensions. 99
Feature 433774: System state of the ctrlX CORE Runtime 100
Feature 435362: Handling large data volumes in the Data Layer interface. 101
Feature 448724: Diagnostic extensions for Release 1.16. 102
10.2.2 Device Admin. 102
Feature 276675: Device Discovery revised for all network interfaces. 102
Feature 349009: Certificate management via the Certificate Management Protocol (CMP). 102
Feature 394909: Device Admin information is now displayed as legible data in the Data Layer. 102
Feature 440943: Supporting license filing on a dongle. . 102
Feature 448328: Remote Logging: Filtering according to different criteria. 103
Feature 489592: Using a microSD card and a USB stick for data exchange. 103
10.2.3 Solutions. 103
Feature 443251: Improvements of the Solutions App for XCR-V-0116. 103
10.2.4 Setup. 103
Feature 441463: ctrlX setup extensions. 103
10.3 Resolved defects and modifications. 103
10.3.1 Automation Core. 103
Bug 223809: It is possible to switch ctrlX to service mode while the axes are moving. 103
Bug 345329: Modifications in the Scheduler configuration can cause errors at the Ethercat devices. 104
Bug 404930: Error when switching to service mode. . . . 104
Bug 477942: Error when reading the watchdog node. . . 104
Bug 482822: LED does not show pending diagnostics during booting. 104
Bug 491523: app.automationcore crash when browsing for a Data Layer RT area. 104
10.3.2 Device Admin. 104
Bug 230173: All Device Discovery services are only configured for eth0. 104
Bug 239182: Unlike LLMNR and UPNP, the MDNS host name is not refreshed. 105
Bug 256940: No default configuration is defined for the bridge. 105
Bug 261834: The Devicediscovery functions are only applied to eth0. 105

Bug 396024: The "managed" flag under PUT /network-manager/api/v1/interfaces/{interfaceName} is not evaluated. 105
Bug 409374: Details of two or more WLAN interfaces are not displayed correctly. 105
Bug 462705: The package manager does not detect incorrectly formatted app files. 105
Bug 462981: NTP servers can only be deleted explicitly. 106
Bug 468803: Sporadically, NTP servers can be lost during an update. 106
Bug 477564: Uploading several trial licenses or more than 100 licenses renders the device unusable. 106
10.3.3 Setup. 106
Bug 462272: Changing the proxy settings via setup requires a manual restart. 106
10.4 Notes on the use and known restrictions. 106
10.4.1 Automation Core. 106
Bug 344973: To ensure the best real-time behavior possible, task and trace settings have to be correct. 106
Bug 349989: After the task watchdog occurred it is not possible to search the *scheduler/tasks* node. 108
Bug 500953: Error in the scheduler system 108
Bug 507182: App actions result in a missing Data Layer node and a hardware watchdog. 110
Bug 512533: Timeout during writing the Data Layer node in the scheduler. 110
10.4.2 Device Admin. 111
Bug 278318: DHCP cannot be disabled on eth1. 111
Bug 316525: Multicast only works if the gateway is set. . 111
Bug 440613: The maintenance mode has to be detected during the installation/updating of apps. 111
Bug 491688: Network Discovery settings are not backed up. 112
Bug 501277: Network Discovery settings are not backed up in a ctrlX setup file. 112
Bug 506342: The new web server reports 404 after the installation. 112
Bug 508391: Insufficient display authorizations to correctly display the “Certificates and keys” page. 112
11 XCR-V-0114 113
11.1 Software. 113
11.2 New functions. 113
11.2.1 Automation Core. 113
Feature 178177: Hardware of control is observed and faulty states will be pushed to diagnosis log. 113
Feature 351477: Limit access to Data Layer using user defined scopes. 113
Feature 389625: Scheduler changes. 113
Feature 393696: Function extensions in the Data Layer interface. 114

Feature 393727: Diagnostic extensions for XCR-V-0114. . 114
Feature 394419: ctrlX CORE Diagnostic messages in English and German. 115
11.2.2 Device Admin. 115
Feature 309415: New option to edit the host table. 115
Feature 320782: Link-local for IPv4 can be enabled/disabled. 115
Feature 348879: Service-to-Service authentication for applications. 116
Feature 360219: “Date & time" additionally visualizes the date, the time and the time zone of the browser. 116
Feature 394419: ctrlX CORE Diagnostic messages in English and German. 116
Feature 400472: The access path for mounted media is displayed. 116
Feature 417127: Deactivating the ctrlX Store is possible via branding. 116
11.2.3 Setup. 116
Feature 279538: The Setup function allows a flexible transfer of settings and apps between devices. 116
11.3 Resolved defects and modifications. 116
11.3.1 Ubuntu Core 20. 116
Bug 457248: Security update. 116
11.3.2 Linux Kernel. 117
Bug 430220: Vulnerability in the Linux kernel. 117
11.3.3 Automation Core. 117
Bug 418525: High memory usage of Automation Core. . . 117
Bug 422459: Missing interface for access to storage media. 117
Bug 422462: Missing interface for access to a serial interface. 117
Bug 434084: Memory loss when reading the Data Layer node "scheduler/tasks". 117
Bug 435779: Hardware watchdog if a user with multiple rights is logged in 117
Bug 451495: Many subscriptions via NodeJS or SSE cause a crash of app.automationcore. 118
11.3.4 Device Admin. 118
Bug 290625: Backup & Restore is canceled if the browser window is refreshed. 118
Bug 375229: “Refresh all apps" is reported as completed successfully even if an error occurs. 118
Bug 386588: CPU load does not take any real-time tasks into consideration (Core 2 and Core 3). 118
Bug 391667: Following a control restart, the page is reloaded again. 118
Bug 395497: Too many open file handles after package management operations. 118
Bug 396075: Dialog "Restore" closed too early. 118

Bug 397842: Installation progress freezes or updates of the store are not continued to be executed after a reboot 119
Bug 399173: Task query in logged off state sporadically results in error entries in the logbook. 119
Bug 399561: Several parallel upload to the app memory of the control sporadically fail. 119
Bug 400157: Following a control restart, the shutdown dialog is displayed again. 119
Bug 400415: The system time cannot be set. 119
Bug 401899: In the app details, duplicate versions are displayed. 119
Bug 403489: Information task manager APIs such as "System Measurements" and "Processes" spam the logbook in *“Diagnostics → Logbook”*. 120
Bug 403489: Information task manager APIs such as "System Measurements" and "Processes" spam the logbook in *“Diagnostics → Logbook”*. 120
Bug 404019: Information task manager APIs such as "System Measurements" and "Processes” are also queried after exiting the web interface. 120
Bug 404302: Invalid characters in the hostname are not handled correctly. 120
Bug 404965: After activating/deactivating an app, the corresponding tile is not refreshed. 121
Bug 406970: Connectivity: Duplicate routes are created. 121
Bug 407525: The function "Sync with browser" uses UTC instead of the time zone of the user. 121
Bug 409024: Removing the local storage memory capacity ("Apps available on ctrlX CORE") is not persisted. 121
Bug 410760: If a time zone outside UTC +/-1 is selected, no installations can be executed via POST /packages. . . 121
Bug 411321: "Return" button cannot be used if an app is opened via the homepage. 122
Bug 416634: Name of the "Store” filter element. 122
Bug 417634: Unsaved changes in the network manager can be persisted. 122
Bug 421929: When creating or deleting network bridges, error messages are reported. 122
Bug 426588: Network and system settings are not restored after a Restore operation. 122
Bug 426605: SSH server settings are not restored. 123
Bug 431049: Update RM 21.11 to RM 21.11.b resulted in error messages. 123
Bug 433603: A battery warning was incorrectly reported in the "Date & time" window. 123
Bug 434116: Home page link did not open Node RED on a new tab. 123
Bug 435519: Switch "IP-forwarding" returns to original position after switching. 124
Bug 435831: The time is reset to a previously backed up time. 124

Bug 436809: Access to snapd is stabilized and partially accelerated. 124
Bug 443147: Defined apps of the public snap store were ignored when establishing a connection to snaps. 124
Bug 445573: Downloading disabled apps is prevented. . 124
Bug 464115: Too many open file handles after package management operations. 125
11.3.5 Setup. 125
Bug 454737: Setup config with included eoe0 adapter can not be restored to ctrlX CORE with new image. 125
11.4 Notes on the use and known restrictions. 125
11.4.1 Automation Core. 125
Bug 223809: It is possible to switch the ctrlX in service-mode while axes are moving 125
Bug 344973: To ensure the best real-time behavior possible, task and trace settings have to be correct. 125
Bug 345329: Modifications in the scheduler configuration result in errors at the EtherCAT devices. 126
Bug 349989: After the task watchdog occurred it is not possible to search the *scheduler/tasks* node. 127
Bug 404930: Error when switching to service mode. . . . 127
11.4.2 Device Admin. 127
Bug 261834: The Devicediscovery functions are only applied to eth0. 127
Bug 278318: DHCP cannot be disabled on eth1. 127
Bug 316525: Multicast only works if the gateway is set. . 127
Bug 396024: The "managed" flag under PUT /network-manager/api/v1/interfaces/{interfaceName} is not evaluated. 127
Bug 440613: The maintenance mode has to be detected during the installation/updating of apps. 127
Bug 458104: Setup: The generated radiusConfiguration contains invalid entries 128
Bug 462981: NTP servers can only be deleted explicitly. 128
11.4.3 Setup. 128
Bug 446720: Cannot activate SSH after update of Device Admin with apply.setup. 128
Bug 446916: Cannot clear list of NTP servers. 129
Bug 446928: After changing proxy settings via setup a manual reboot is required. 129
12 Service and support 130
13 Index 131

1 About this documentation

Editions of this documentation

Edition	Release date	Notes
01	2022-03	ctrlX CORE Runtime Version XCR-V-0114
02	2022-07	ctrlX CORE Runtime Version XCR-V-0116
03	2022-10	ctrlX CORE Runtime Version XCR-V-0116.3
04	2022-12	ctrlX CORE Runtime Version XCR-V-0118.3
05	2023-01	ctrlX CORE Runtime Version XCR-V-0118.4
06	2023-03	ctrlX CORE Runtime Version XCR-V-0120
07	2023-06	ctrlX CORE Runtime Version XCR-V-0120.4
08	2023-07	ctrlX CORE Runtime Version XCR-V-0120.8
09	2023-08	ctrlX CORE Runtime Version XCR-V-0120.9

Further information

- See ctrlX CORE Runtime, Application Manual
- Refer to the ctrlX AUTOMATION First Steps, Quick Start Guide
- Refer to the ctrlX DRIVE Firmware Release Notes AXS-V-03
- Refer to the ctrlX DRIVE Firmware Release Notes AXS-V-04

2 Important information

2.1 Product information

For the latest information on our products, go to ➦ https://www.boschrexroth.com.

For current security advisories, please refer to ➦ https://psirt.bosch.com/security-advisories/

2.2 Image update

If an image update is to be performed apart from the recommended app update, refer to the chapter ➦ Hardware reset of the ctrlX CORE and the ctrlX DRIVE Plus with integrated ctrlX CORE of the ctrlX CORE Runtime, Application Manual.

2.3 LED display after an image update on a ctrlX DRIVEplus device can be incorrect

During an image update, the successful update might not be displayed correctly on a ctrlX DRIVEplus device.

For example that the LED is permanently blue or flashing red after a few seconds. At this point in time, the update is still running.

Thus, wait for 10 minutes after the start of the update.

After the waiting time, the device can be switched off, the micro SD card can be removed and the device can be switched on again.

Go to the log file on the SD card to check whether the update was successful.

2.4 Notes on XCR-V-0120.9

This release is part of ctrlX CORE 01V20.4 and is provided in the context of RM 23.03.4.

2.4.1 Updating the apps to the ctrlX CORE Virtual

The setup ctrlX WORKS provides a new device ctrlX CORE Virtual compatible with the current version, including the current system apps. To convert an existing application to this version, proceed as follows:

Execute the following steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home” → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.
3. Save all available configurations by highlighting the respective configuration in the list and click on the button .
4. Create a new ctrlX CORE Virtual in ctrlX WORKS in the “Devices” window.

5. Install the application apps in ctrlX CORE.

   ℹ The application apps can be installed in the “Operating” state as long as not real-time apps (Motion, EtherCAT, PLC, PROFINET Device) are installed.
   When a real-time app is installed or available on the system, switch the“Operating” state to “Service” before the installation.

   - First install all application apps via the button ↥ “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and loaded to the control via “Install”
   - Wait until loading is completed
   - Now press the button “Update all apps”. The apps are installed

   ℹ A shared system state was introduced in 1V16 which becomes active following an update to 1V16 (see ➥ Chapter Feature 433774: System state of the ctrlX CORE Runtime on page 100).

   - Switch to the state “Service”.
   - Update all real-time apps (Motion, EtherCAT, PLC, PROFINET Device).
   - Click on “Operating”.
   - Subsequently, refresh the page to display the new system state.
     The control is ready again for operation.

6. Go to “Manage app data” and upload the relevant configuration backups via the ↥ button. Subsequently, load the configuration to be executed via the button. The update is completed.

7. Please verify that all data has been applied.

For more information, refer to the chapter ➥ Configurations – Introduction, ctrlX CORE Runtime, Application Manual.

2.4.2 Updating the apps to the ctrlX CORE

Check the version of the installed apps on the ctrlX CORE control.

The following instructions are only valid if at least release version ctrlX CORE at least the release version RM 21.11 or a subsequent software version is installed.

NOTICE	When using a ctrlX DRIVEplus with integrated ctrlX CORE, prior to updating the apps, it is mandatory to update the ctrlX DRIVE firmware to the version AXS-V-03.16.

NOTICE	**Bug 616005: Update of the drive in the drive-integrated control leads to faulty startup behavior of the integrated drive** After updating the drive-integrated control to 01V20 and the integrated drive to AXS-V-03.16, the internal drives can sporadically no longer be switched to OP. They remain in the PreOP status. The described error case can be identified with a high degree of certainty by the parameter editor of the ctrlX DRIVE Engineering displaying the error message "IDN not available" when reading out parameter S2. In case of error within the crtlX DRIVE master communication (FKM) dialog, first select a FKM different from EtherCAT SoE (e.g. Sercos). The "Reboot" button of the dialog can thus be selected. Now select the master communication (FKM) EtherCAT SoE again and then press "Reboot" to restart the control and the output side.

Preparation: The apps to be updated were copied to a local directory on the PC on which the update can be executed.

Execute the described steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home” → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.
3. Save all available configurations by highlighting the respective configuration in the list and click on the button .
4. Select the menu item *“Settings → Apps”* to go to the overview of the installed apps.
5. Install the system apps in the described order. Select the “Install from file” button to load the app to be installed on the control. Installing of an individual app is triggered via the button “Install”. Subsequently, one or several acknowledgment dialogs are displayed which are to be acknowledged with “Continue”. In this case, wait until each app installation is complete. As long as an installation is active, a progress bar is displayed below the relevant app.

   The system apps can be installed in the “Operating” state as long as not real-time apps (Motion, EtherCAT, PLC, PROFINET Device) are installed. When a real-time app is installed or available on the system, switch the“Operating” state to “Service” before the installation.

   - Download the "snapd-2.59.2.app” file. Subsequently, the entry **snapd** is listed. Press the button “Install”.
   - Download the "core20-20230622.app” file. Subsequently, the entry **core20** is shown in the list. Press the button “Install”. Reboot the control after a successful installation.
   - Load the file "Device Admin XCR-V-0120.6.app". Subsequently, the entry **Device Admin** is shown in the list. Press the button “Install”.
   - To load all further system apps to be installed or updated, select the button “Install from file”. Press the button “Install”.
   - System app update completed

   ➡ In some cases, an error (EOF) is shown when installing Core 20 or the kernel (see). The installation was still completed successfully.
6. Install the required application apps.

   The next steps are always required even if the system apps were installed via the rescue system or if the current system apps are already installed on your control. If the control is not yet in the state, press the “Service” button.

   - First install all application apps via the button “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and loaded to the control
   - Wait until loading is completed
   - In an info box, update info on the installed apps and the apps to be installed is displayed on the control. Press the button “Install” and confirm the dialog
   - Acknowledge the following messages with "Next". This starts the installation.
   - After the installation, log into the ctrlX CORE again or go to the “Apps” window.

   A shared system state was introduced in 1V16 which becomes active following an update to 1V16 (see ➥ Chapter Feature 433774: System state of the ctrlX CORE Runtime on page 100).

- Switch to the state “Service”.
- Update all real-time apps (Motion, EtherCAT, PLC, PROFINET Device).
- Click on “Operating”.
- Subsequently, refresh the page to display the new system state.
  The control is ready again for operation.

7. Go to “Manage app data” and upload the relevant configuration backups via the ↑ button. Subsequently, load the configuration to be executed via the button. The update is completed.

NOTICE Online updates of apps on ctrlX CORE and ctrlX OS devices are limited to 30 update windows in the first year and 12 update windows per device per year in subsequent years. An update window starts with the first download of an app from the online store and ends after 12 hours. Any apps can be updated during these 12 hours.

2.5 Notes on XCR-V-0120.8

This release is part of ctrlX CORE 01V20.3 and is provided in the context of RM 23.03.3.

2.5.1 Updating the apps to the ctrlX CORE Virtual

The setup ctrlX WORKS provides a new device ctrlX CORE Virtual compatible with the current version, including the current system apps. To convert an existing application to this version, proceed as follows:

Execute the following steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home" → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.
3. Save all available configurations by highlighting the respective configuration in the list and click on the button ↓.
4. Create a new ctrlX CORE Virtual in ctrlX WORKS in the “Devices” window.
5. Install the application apps in ctrlX CORE.

   The application apps can be installed in the “Operating” state as long as not real-time apps (Motion, EtherCAT, PLC, PROFINET Device) are installed.
   When a real-time app is installed or available on the system, switch the“Operating” state to “Service” before the installation.

   - First install all application apps via the button ↑ “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and loaded to the control via “Install”
   - Wait until loading is completed
   - Now press the button “Update all apps”. The apps are installed

   A shared system state was introduced in 1V16 which becomes active following an update to 1V16 (see ➥ Chapter Feature 433774: System state of the ctrlX CORE Runtime on page 100).

   - Switch to the state “Service”.
   - Update all real-time apps (Motion, EtherCAT, PLC, PROFINET Device).
   - Click on “Operating”.
   - Subsequently, refresh the page to display the new system state.
     The control is ready again for operation.

6. Go to “Manage app data” and upload the relevant configuration backups via the ↥ button. Subsequently, load the configuration to be executed via the button. The update is completed.
7. Please verify that all data has been applied.

For more information, refer to the chapter ➦ Configurations – Introduction, ctrlX CORE Runtime, Application Manual.

2.5.2 Updating the apps to the ctrlX CORE

Check the version of the installed apps on the ctrlX CORE control.

The following instructions are only valid if at least release version ctrlX CORE at least the release version RM 21.11 or a subsequent software version is installed.

NOTICE	When using a ctrlX DRIVEplus with integrated ctrlX CORE, prior to updating the apps, it is mandatory to update the ctrlX DRIVE firmware to the version AXS-V-03.16.

NOTICE	**Bug 616005: Update of the drive in the drive-integrated control leads to faulty startup behavior of the integrated drive** After updating the drive-integrated control to 01V20 and the integrated drive to AXS-V-03.16, the internal drives can sporadically no longer be switched to OP. They remain in the PreOP status. The described error case can be identified with a high degree of certainty by the parameter editor of the ctrlX DRIVE Engineering displaying the error message "IDN not available" when reading out parameter S2. In case of error within the crtlX DRIVE master communication (FKM) dialog, first select a FKM different from EtherCAT SoE (e.g. Sercos). The "Reboot" button of the dialog can thus be selected. Now select the master communication (FKM) EtherCAT SoE again and then press "Reboot" to restart the control and the output side.

Preparation: The apps to be updated were copied to a local directory on the PC on which the update can be executed.

Execute the described steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home” → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.
3. Save all available configurations by highlighting the respective configuration in the list and click on the button ↓.
4. Select the menu item *“Settings → Apps”* to go to the overview of the installed apps.

5. Install the system apps in the described order. Select the ↥ “Install from file” button to load the app to be installed on the control. Installing of an individual app is triggered via the button “Install”. Subsequently, one or several acknowledgment dialogs are displayed which are to be acknowledged with “Continue”. In this case, wait until each app installation is complete. As long as an installation is active, a progress bar is displayed below the relevant app.

   ℹ The system apps can be installed in the “Operating” state as long as not real-time apps (Motion, EtherCAT, PLC, PROFINET Device) are installed. When a real-time app is installed or available on the system, switch the“Operating” state to “Service” before the installation.

   - Download the "snapd-2.59.2.app” file. Subsequently, the entry **snapd** is listed. Press the button “Install”.
   - Download the "core20-20230622.app” file. Subsequently, the entry **core20** is shown in the list. Press the button “Install”. Reboot the control after a successful installation.
   - Load the file "Device Admin XCR-V-0120.5.app". Subsequently, the entry **Device Admin** is shown in the list. Press the button “Install”.
   - To load all further system apps to be installed or updated, select the button ↥ “Install from file”. Press the button “Install”.
   - System app update completed

   ➡ ℹ In some cases, an error (EOF) is shown when installing Core 20 or the kernel (see). The installation was still completed successfully.

6. Install the required application apps.

   The next steps are always required even if the system apps were installed via the rescue system or if the current system apps are already installed on your control. If the control is not yet in the state, press the “Service” button.

   - First install all application apps via the button ↥ “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and loaded to the control
   - Wait until loading is completed
   - In an info box, update info on the installed apps and the apps to be installed is displayed on the control. Press the button “Install” and confirm the dialog
   - Acknowledge the following messages with "Next". This starts the installation.
   - After the installation, log into the ctrlX CORE again or go to the “Apps” window.

   ℹ A shared system state was introduced in 1V16 which becomes active following an update to 1V16 (see ➦ Chapter Feature 433774: System state of the ctrlX CORE Runtime on page 100).

   - Switch to the state “Service”.
   - Update all real-time apps (Motion, EtherCAT, PLC, PROFINET Device).
   - Click on “Operating”.
   - Subsequently, refresh the page to display the new system state.
     The control is ready again for operation.

7. Go to “Manage app data” and upload the relevant configuration backups via the ↑ button. Subsequently, load the configuration to be executed via the button. The update is completed.

NOTICE Online updates of apps on ctrlX CORE and ctrlX OS devices are limited to 30 update windows in the first year and 12 update windows per device per year in subsequent years. An update window starts with the first download of an app from the online store and ends after 12 hours. Any apps can be updated during these 12 hours.

2.6 Notes on XCR-V-0120

This release is part of ctrlX CORE 01V20 and is provided in the context of RM 23.03.

2.6.1 Updating the apps to the ctrlX CORE Virtual

The setup ctrlX WORKS provides a new device ctrlX CORE Virtual compatible with the current version, including the current system apps. To convert an existing application to this version, proceed as follows:

Execute the following steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home” → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.
3. Save all available configurations by highlighting the respective configuration in the list and click on the button ↓.
4. Create a new ctrlX CORE Virtual in ctrlX WORKS in the “Devices” window.
5. Install the application apps in ctrlX CORE.

   The application apps can be installed in the “Operating” state as long as not real-time apps (Motion, EtherCAT, PLC, PROFINET Device) are installed.
   When a real-time app is installed or available on the system, switch the“Operating” state to “Service” before the installation.
   - First install all application apps via the button ↑ “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and loaded to the control via “Install”
   - Wait until loading is completed
   - Now press the button “Update all apps”. The apps are installed

   A shared system state was introduced in 1V16 which becomes active following an update to 1V16 (see ➦ Chapter Feature 433774: System state of the ctrlX CORE Runtime on page 100).
   - Switch to the state “Service”.
   - Update all real-time apps (Motion, EtherCAT, PLC, PROFINET Device).
   - Click on “Operating”.
   - Subsequently, refresh the page to display the new system state.
     The control is ready again for operation.
6. Go to “Manage app data” and upload the relevant configuration backups via the ↑ button. Subsequently, load the configuration to be executed via the button. The update is completed.
7. Please verify that all data has been applied.

For more information, refer to the chapter ➦ Configurations – Introduction, ctrlX CORE Runtime, Application Manual.

2.6.2 Updating the apps to the ctrlX CORE

Check the version of the installed apps on the ctrlX CORE control.

The following instructions are only valid if at least release version ctrlX CORE at least the release version RM 21.11 or a subsequent software version is installed.

NOTICE	When using a ctrlX DRIVEplus with integrated ctrlX CORE, prior to updating the apps, it is mandatory to update the ctrlX DRIVE firmware to the version AXS-V-03.16.

NOTICE	**Bug 616005: Update of the drive in the drive-integrated control leads to faulty startup behavior of the integrated drive** After updating the drive-integrated control to 01V20 and the integrated drive to AXS-V-03.16, the internal drives can sporadically no longer be switched to OP. They remain in the PreOP status. The described error case can be identified with a high degree of certainty by the parameter editor of the ctrlX DRIVE Engineering displaying the error message "IDN not available" when reading out parameter S2. In case of error within the crtlX DRIVE master communication (FKM) dialog, first select a FKM different from EtherCAT SoE (e.g. Sercos). The "Reboot" button of the dialog can thus be selected. Now select the master communication (FKM) EtherCAT SoE again and then press "Reboot" to restart the control and the output side.

Preparation: The apps to be updated were copied to a local directory on the PC on which the update can be executed.

Execute the described steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home" → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.
3. Save all available configurations by highlighting the respective configuration in the list and click on the button .
4. Select the menu item *“Settings → Apps”* to go to the overview of the installed apps.
5. Install the system apps in the described order. Select the “Install from file” button to load the app to be installed on the control. Installing of an individual app is triggered via the button “Install”. Subsequently, one or several acknowledgment dialogs are displayed which are to be acknowledged with “Continue”. In this case, wait until each app installation is complete. As long as an installation is active, a progress bar is displayed below the relevant app.

   The system apps can be installed in the “Operating” state as long as not real-time apps (Motion, EtherCAT, PLC, PROFINET Device) are installed. When a real-time app is installed or available on the system, switch the“Operating” state to “Service” before the installation.

   - Download the "snapd-2.58.2.app” file. Subsequently, the entry **snapd** is listed. Press the button “Install”.
   - Load the "Device Admin XCR-V-0120.0.app” file. Subsequently, the entry **Device Admin** is shown in the list. Press the button “Install”.

- To load all further system apps to be installed or updated, select the button ↥ “Install from file”. Press the button “Install”.
- System app update completed

➡ ℹ In some cases, an error (EOF) is shown when installing Core 20 or the kernel (see). The installation was still completed successfully.

6. Install the required application apps.

   The next steps are always required even if the system apps were installed via the rescue system or if the current system apps are already installed on your control. If the control is not yet in the state, press the “Service” button.

   - First install all application apps via the button ↥ “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and loaded to the control
   - Wait until loading is completed
   - In an info box, update info on the installed apps and the apps to be installed is displayed on the control. Press the button “Install” and confirm the dialog
   - Acknowledge the following messages with "Next". This starts the installation.
   - After the installation, log into the ctrlX CORE again or go to the “Apps” window.

   ℹ A shared system state was introduced in 1V16 which becomes active following an update to 1V16 (see ➦ Chapter Feature 433774: System state of the ctrlX CORE Runtime on page 100).

   - Switch to the state “Service”.
   - Update all real-time apps (Motion, EtherCAT, PLC, PROFINET Device).
   - Click on “Operating”.
   - Subsequently, refresh the page to display the new system state.
     The control is ready again for operation.

7. Go to “Manage app data” and upload the relevant configuration backups via the ↥ button. Subsequently, load the configuration to be executed via the button. The update is completed.

   NOTICE Online updates of apps on ctrlX CORE and ctrlX OS devices are limited to 30 update windows in the first year and 12 update windows per device per year in subsequent years. An update window starts with the first download of an app from the online store and ends after 12 hours. Any apps can be updated during these 12 hours.

2.7 Notes on XCR-V-0118.4

This release is part of ctrlX CORE 01V18.2 and is provided in the context of RM 22.11.2.

2.7.1 Updating the apps to the ctrlX CORE Virtual

The setup ctrlX WORKS provides a new device ctrlX CORE Virtual compatible with the current version, including the current system apps. To convert an existing application to this version, proceed as follows:

Execute the following steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home” → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.

3. Save all available configurations by highlighting the respective configuration in the list and click on the button .
4. Create a new ctrlX CORE Virtual in ctrlX WORKS in the “Devices” window.
5. Install the application apps in ctrlX CORE.

   The application apps can be installed in the “Operating” state as long as not real-time apps (Motion, EtherCAT, PLC, PROFINET Device) are installed.
   When a real-time app is installed or available on the system, switch the“Operating” state to “Service” before the installation.

   - First install all application apps via the button “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and loaded to the control via “Install”
   - Wait until loading is completed
   - Now press the button “Update all apps”. The apps are installed

   A shared system state was introduced in 1V16 which becomes active following an update to 1V16 (see Chapter Feature 433774: System state of the ctrlX CORE Runtime on page 100).

   - Switch to the state “Service”.
   - Update all real-time apps (Motion, EtherCAT, PLC, PROFINET Device).
   - Click on “Operating”.
   - Subsequently, refresh the page to display the new system state.
     The control is ready again for operation.
6. Go to “Manage app data” and upload the relevant configuration backups via the button. Subsequently, load the configuration to be executed via the button. The update is completed.
7. Please verify that all data has been applied.

For more information, refer to the chapter Configurations – Introduction, ctrlX CORE Runtime, Application Manual.

2.7.2 Updating the apps to the ctrlX CORE

Check the version of the installed apps on the ctrlX CORE control.

The following handling instruction is only valid if at least the release version RM21.11 or a following software version is installed on ctrlX CORE.

NOTICE	When using a ctrlX DRIVEplus with integrated ctrlX CORE, prior to updating the apps, it is mandatory to update the ctrlX DRIVE firmware to the version AXS-V-03.14.

Preparation: The apps to be updated were copied to a local directory on the PC on which the update can be executed.

Execute the described steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home” → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.
3. Save all available configurations by highlighting the respective configuration in the list and click on the button .
4. Select the menu item *“Settings → Apps”* to go to the overview of the installed apps.

5. Install the system apps in the described order. Select the ↥ “Install from file” button to load the app to be installed on the control. Installing of an individual app is triggered via the button “Install”. Subsequently, one or several acknowledgment dialogs are displayed which are to be acknowledged with “Continue”. In this case, wait until each app installation is complete. As long as an installation is active, a progress bar is displayed below the relevant app.

   ℹ The system apps can be installed in the “Operating” state as long as not real-time apps (Motion, EtherCAT, PLC, PROFINET Device) are installed. When a real-time app is installed or available on the system, switch the“Operating” state to “Service” before the installation.

   - Download the "snapd-2.58.app” file. Subsequently, the entry **snapd** is listed. Press the button “Install”.
   - Load the "Device Admin XCR-V-0118.3.app” file. Subsequently, the entry **Device Admin** is shown in the list. Press the button “Install”.
   - To load all further system apps to be installed or updated, select the button ↥ “Install from file”. Press the button “Install”.
   - System app update completed

   ➡ ℹ In some cases, an error (EOF) is shown when installing Core 20 or the kernel (see). The installation was still completed successfully.

6. Install the required application apps.

   The next steps are always required even if the system apps were installed via the rescue system or if the current system apps are already installed on your control. If the control is not yet in the state, press the “Service” button.

   - First install all application apps via the button ↥ “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and loaded to the control
   - Wait until loading is completed
   - In an info box, update info on the installed apps and the apps to be installed is displayed on the control. Press the button “Install” and confirm the dialog
   - Acknowledge the following messages with "Next". This starts the installation.
   - After the installation, log into the ctrlX CORE again or go to the “Apps” window.

   ℹ A shared system state was introduced in 1V16 which becomes active following an update to 1V16 (see ➦ Chapter Feature 433774: System state of the ctrlX CORE Runtime on page 100).

   - Switch to the state “Service”.
   - Update all real-time apps (Motion, EtherCAT, PLC, PROFINET Device).
   - Click on “Operating”.
   - Subsequently, refresh the page to display the new system state.
     The control is ready again for operation.

7. Go to “Manage app data” and upload the relevant configuration backups via the ↥ button. Subsequently, load the configuration to be executed via the button. The update is completed.

2.8 Notes onXCR-V-0118.3

This release is part of ctrlX CORE 01V18 and is provided in RM 22.11.

2.8.1 Updating the apps to the ctrlX CORE Virtual

The setup ctrlX WORKS provides a new device ctrlX CORE Virtual compatible with the current version, including the current system apps. To convert an existing application to this version, proceed as follows:

Execute the following steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home” → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.
3. Save all available configurations by highlighting the respective configuration in the list and click on the button .
4. Create a new ctrlX CORE Virtual in ctrlX WORKS in the “Devices” window.
5. Install the application apps in ctrlX CORE.

   The application apps can be installed in the “Operating” state as long as not real-time apps (Motion, EtherCAT, PLC, PROFINET Device) are installed.
   When a real-time app is installed or available on the system, switch the“Operating” state to “Service” before the installation.
   - First install all application apps via the button “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and loaded to the control via “Install”
   - Wait until loading is completed
   - Now press the button “Update all apps”. The apps are installed

   A shared system state was introduced in 1V16 which becomes active following an update to 1V16 (see ➥ Chapter Feature 433774: System state of the ctrlX CORE Runtime on page 100).
   - Switch to the state “Service”.
   - Update all real-time apps (Motion, EtherCAT, PLC, PROFINET Device).
   - Click on “Operating”.
   - Subsequently, refresh the page to display the new system state.
     The control is ready again for operation.
6. Go to “Manage app data” and upload the relevant configuration backups via the button. Subsequently, load the configuration to be executed via the button. The update is completed.
7. Please verify that all data has been applied.

For more information, refer to the chapter ➥ Configurations – Introduction, ctrlX CORE Runtime, Application Manual.

2.8.2 Updating the apps to the ctrlX CORE

Check the version of the installed apps on the ctrlX CORE control.

The following handling instruction is only valid if at least the release version RM 21.11 or a following software version is installed on ctrlX CORE.

NOTICE	When using a ctrlX DRIVEplus with integrated ctrlX CORE, prior to updating the apps, it is mandatory to update the ctrlX DRIVE firmware to the version AXS-V-03.14.

Preparation: The apps to be updated were copied to a local directory on the PC on which the update can be executed.

Execute the described steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home” → tile "Manage app data”*.

2. Back up current app data via “Save to archive”.
3. Save all available configurations by highlighting the respective configuration in the list and click on the button .
4. Select the menu item *“Settings → Apps”* to go to the overview of the installed apps.
5. Install the system apps in the described order. Select the “Install from file” button to load the app to be installed on the control. Installing an individual app is triggered via the button “Install”. Subsequently, one or several acknowledgment dialogs are displayed to be acknowledged with “Continue”. In this case, wait until each app installation is complete. As long as an installation is active, a progress bar is displayed below the relevant app.

   The system apps can be installed in the “Operating” state as long as not real-time apps (Motion, EtherCAT, PLC, PROFINET Device) are installed. When a real-time app is installed or available on the system, switch the“Operating” state to “Service” before the installation.

   - Load the "snapd-2.57.5+git30087.g6e2ca49.app" file. Subsequently, the entry **snapd** is listed. Press the button “Install”.
   - Load the file "Device Admin XCR-V-0118.2.app". Subsequently, the entry **Device Admin** is shown in the list. Press the button “Install”.
   - To load all further system apps to be installed or updated, select the button “Install from file”. Press the button “Install”.
   - System app update completed

   ➡ In some cases, an error (EOF) is shown when installing Core 20 or the kernel (see). The installation was still completed successfully.
6. Install the required application apps.

   The next steps are always required even if the system apps were installed via the rescue system or if the current system apps are already installed on your control. If the control is not yet in the state, press the “Service” button.

   - First install all application apps via the button “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and loaded to the control
   - Wait until loading is completed
   - In an info box, update info on the installed apps and the apps to be installed is displayed on the control. Press the button “Install” and confirm the dialog
   - Acknowledge the following messages with "Next". This starts the installation.
   - After the installation, log into the ctrlX CORE again or go to the “Apps” window.

   A shared system state was introduced in 1V16 which becomes active following an update to 1V16 (see ➦ Chapter Feature 433774: System state of the ctrlX CORE Runtime on page 100).

   - Switch to the state “Service”.
   - Update all real-time apps (Motion, EtherCAT, PLC, PROFINET Device).
   - Click on “Operating”.
   - Subsequently, refresh the page to display the new system state.
     The control is ready again for operation.
7. Go to “Manage app data” and upload the relevant configuration backups via the button. Subsequently, load the configuration to be executed via the button. The update is completed.

2.9 Notes on XCR-V-0116.3

This release is part of ctrlX CORE 01V16 and is provided in RM 22.07.

2.9.1 Updating the apps to the ctrlX CORE Virtual

The setup ctrlX WORKS provides a new device ctrlX CORE Virtual compatible with the current version, including the current system apps. If an existing application is to be converted to this version, proceed as follows:

Execute the following steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home" → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.
3. Save all available configurations by highlighting the respective configuration in the list and click on the button .
4. Create a new ctrlX CORE Virtual in ctrlX WORKS in the “Devices” window.
5. Install the application apps in ctrlX CORE. Click on “Service mode”.
   - First install all application apps via the button “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and transmitted to the control via “Install”
   - Wait until loading is completed
   - Now press the button “Update all apps”. The apps are installed

   A shared system state was introduced in 1V16 which becomes active following an update to 1V16 (see Chapter Feature 433774: System state of the ctrlX CORE Runtime on page 100).
   - Update all real-time apps (Motion, EtherCAT, PLC, PROFINET Device) before switching to “Operation mode”.
   - Click on “Operation mode”.
   - Subsequently, refresh the page to display the new system state. The control is ready for operation again.
6. Go to “Manage app data” and upload the relevant configuration backups via the button. Subsequently, load the configuration to be executed via the button. The update is completed.
7. Please verify that all data has been applied.

For more information, refer to the chapter Configurations – Introduction, ctrlX CORE Runtime, Application Manual.

2.9.2 Updating the apps to the ctrlX CORE

Check the version of the installed apps on the ctrlX CORE control.

The following handling instruction is only valid if at least the release version RM 21.11 or a following software version is installed on ctrlX CORE.

NOTICE	When using a ctrlX DRIVEplus with integrated ctrlX CORE, prior to updating the apps, it is mandatory to update the ctrlX DRIVE firmware to the version AXS-V-03.12.

Preparation: The apps to be updated were copied to a local directory on the PC on which the update can be executed.

Execute the described steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home" → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.

3. Save all available configurations by highlighting the respective configuration in the list and click on the button ⭳.
4. Select the menu item *“Settings → Apps”* to go to the overview of the installed apps.
5. Press the button “Service mode”. The control goes into a safe state. Subsequently, the button display changes to “Operation mode”.
6. Install the system apps in the described order. Select the ⭱ “Install from file” button to load the app to be installed on the control. Installing of an individual app is triggered via the button “Install”. Subsequently, one or several acknowledgment dialogs are displayed which are to be acknowledged with “Continue”. In this case, wait until each app installation is complete. As long as an installation is active, a progress bar is displayed below the relevant app.
   - Load the "Device Admin XCR-V-0116.5.app” file. Subsequently, the entry **Device Admin** is shown in the list. Press the button “Install”.
   - Wait until the control can be contacted again via the web browser. Log in again and go to the *“Settings → Apps”* site
   - To load all further system apps to be installed or updated, select the button ⭱ “Install from file”. Press the button “Install”.
   - System app update completed

   ➡ 🛈
   - If you have updated via image update (the image contains Device Admin 1.16.4), please update Device Admin to version 1.16.5.
   - In some cases an error (EOF) when installing Core 20 or the kernel (see). The installation was still completed successfully.
7. Install the required application apps.

   The next steps are always required even if the system apps were installed via the rescue system or if the current system apps are already installed on your control. If the control is not yet in the state, press the “Service mode” button.
   - First install all application apps via the button ⭱ “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and transmitted to the control
   - Wait until loading is completed
   - In an info box, update info on the installed apps and the apps to be installed is displayed on the control. Press the button “Install” and confirm the dialog
   - Acknowledge the following messages with Next. This starts the installation.
   - After the installation, log into the ctrlX CORE again or go to the “Apps” window.

   🛈 A shared system state was introduced in 1V16 which becomes active following an update to 1V16 (see ➦ Chapter Feature 433774: System state of the ctrlX CORE Runtime on page 100).
   - Update all real-time apps (Motion, EtherCAT, PLC, PROFINET Device) before switching to “Operation mode”.
   - Click on “Operation mode”.
   - Subsequently, refresh the page to display the new system state.

     The control is ready for operation again.
8. Go to “Manage app data” and upload the relevant configuration backups via the ⭱ button. Subsequently, load the configuration to be executed via the 🗀 button. The update is completed.

2.10 Notes on XCR-V-0116

This release is part of ctrlX CORE 01V16 and is provided in RM 22.07.

2.10.1 Updating the apps to the ctrlX CORE Virtual

The setup ctrlX WORKS provides a new device ctrlX CORE Virtual compatible with the current version, including the current system apps. If an existing application is to be converted to this version, proceed as follows:

Execute the following steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home" → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.
3. Save all available configurations by highlighting the respective configuration in the list and click on the button .
4. Create a new ctrlX CORE Virtual in ctrlX WORKS in the “Devices” window.
5. Install the application apps in ctrlX CORE. Click on “Service mode”.
   - First install all application apps via the button “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and transmitted to the control via “Install”
   - Wait until loading is completed
   - Now press the button “Update all apps”. The apps are installed

   A shared system state was introduced in 1V16 which becomes active following an update to 1V16 (see Chapter Feature 433774: System state of the ctrlX CORE Runtime on page 100).
   - Update all real-time apps (Motion, EtherCAT, PLC, PROFINET Device) before switching to “Operation mode”.
   - Click on “Operation mode”.
   - Subsequently, refresh the page to display the new system state. The control is ready for operation again.
6. Go to “Manage app data” and upload the relevant configuration backups via the button. Subsequently, load the configuration to be executed via the button. The update is completed.
7. Please verify that all data has been applied.

For more information, refer to the chapter Configurations – Introduction, ctrlX CORE Runtime, Application Manual.

2.10.2 Updating the apps to the ctrlX CORE

Check the version of the installed apps on the ctrlX CORE control.

The following handling instruction is only valid if at least the release version RM 21.11 or a following software version is installed on ctrlX CORE.

NOTICE	When using a ctrlX DRIVEplus with integrated ctrlX CORE, prior to updating the apps, it is mandatory to update the ctrlX DRIVE firmware to the version AXS-V-03.12.

Preparation: The apps to be updated were copied to a local directory on the PC on which the update can be executed.

Execute the described steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home" → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.

3. Save all available configurations by highlighting the respective configuration in the list and click on the button ⭳.
4. Select the menu item *“Settings → Apps”* to go to the overview of the installed apps.
5. Press the button “Service mode”. The control goes into a safe state. Subsequently, the button display changes to “Operation mode”.
6. Install the system apps in the described order. Select the ⭱ “Install from file” button to load the app to be installed on the control. Installing of an individual app is triggered via the button “Install”. Subsequently, one or several acknowledgment dialogs are displayed which are to be acknowledged with “Continue”. In this case, wait until each app installation is complete. As long as an installation is active, a progress bar is displayed below the relevant app.
   - Load the file "Device Admin XCR-V-0116.0.app". Subsequently, the entry **Device Admin** is shown in the list. Press the button “Install”.
   - Wait until the control can be contacted again via the web browser. Log in again and go to the *“Settings → Apps”* site
   - To load all further system apps to be installed or updated, select the button ⭱ “Install from file”. Press the button “Install”.
   - System app update completed

   ➡ ℹ In some cases an error (EOF) when installing Core 20 or the kernel (see). The installation was still completed successfully.
7. Install the required application apps.

   The next steps are always required even if the system apps were installed via the rescue system or if the current system apps are already installed on your control. If the control is not yet in the state, press the “Service mode” button.
   - First install all application apps via the button ⭱ “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and transmitted to the control
   - Wait until loading is completed
   - In an info box, update info on the installed apps and the apps to be installed is displayed on the control. Press the button “Install” and confirm the dialog
   - Acknowledge the following messages with Next. This starts the installation.
   - After the installation, log into the ctrlX CORE again or go to the “Apps” window.

   ℹ A shared system state was introduced in 1V16 which becomes active following an update to 1V16 (see ➦ Chapter Feature 433774: System state of the ctrlX CORE Runtime on page 100).
   - Update all real-time apps (Motion, EtherCAT, PLC, PROFINET Device) before switching to “Operation mode”.
   - Click on “Operation mode”.
   - Subsequently, refresh the page to display the new system state. The control is ready for operation again.
8. Go to “Manage app data” and upload the relevant configuration backups via the ⭱ button. Subsequently, load the configuration to be executed via the 🗀 button. The update is completed.

2.11 Notes on XCR-V-0114

This release is part of ctrlX CORE 01V14 and is provided in RM 22.03.

2.11.1 Updating the apps to the ctrlX CORE Virtual

The setup ctrlX WORKS provides a new device ctrlX CORE Virtual compatible with the current version, including the current system apps. If an existing application is to be converted to this version, proceed as follows:

Execute the following steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home" → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.
3. Save all available configurations by highlighting the respective configuration in the list and click on the button .
4. Create a new ctrlX CORE Virtual in ctrlX WORKS in the “Devices” window.
5. Install the application apps in ctrlX CORE. Click on “Service mode”.
   - First install all application apps via the button “Install from file”
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and transmitted to the control via “Install”
   - Wait until loading is completed
   - Now press the button “Update all apps”. The apps are installed
   - Click on “Operation mode”. The control is ready for operation again
6. Go to “Manage app data” and upload the relevant configuration backups via the button. Subsequently, load the configuration to be executed via the button. The update is completed.
7. Please verify that all data has been applied.

For more information, refer to the chapter ➦ Configurations – Introduction, ctrlX CORE Runtime, Application Manual.

2.11.2 Updating the apps to the ctrlX CORE

Check the version of the installed apps on the ctrlX CORE control.

The following handling instruction is only valid if at least the release version RM 21.11 or a subsequent software version is installed on ctrlX CORE.

NOTICE	When using a ctrlX DRIVEplus with integrated ctrlX CORE, prior to updating the apps, it is mandatory to update the ctrlX DRIVE firmware to the version AXS-V-03.08.

Preparation: The apps to be updated were copied to a local directory on the PC on which the update can be executed.

Execute the described steps in the described sequence:

1. First connect to the ctrlX CORE and go to menu item “Manage app data” via in the header or via *“Home" → tile "Manage app data”*.
2. Back up current app data via “Save to archive”.
3. Save all available configurations by highlighting the respective configuration in the list and click on the button .
4. Select the menu item *“Settings → Apps”* to go to the overview of the installed apps.
5. Press the button “Service mode”. The control goes into a safe state. Subsequently, the button display changes to “Operation mode”.

6. Install the system apps in the described order. Select the ↥ "Install from file" button to load the app to be installed on the control. Installing of an individual app is triggered via the button "Install". Subsequently, one or several acknowledgment dialogs are displayed which are to be acknowledged with "Continue". In this case, wait until each app installation is complete. As long as an installation is active, a progress bar is displayed below the relevant app.
   - Load the file "Device Admin XCR-V-0114.0.app". Subsequently, the entry **Device Admin** is shown in the list. Press the button "Install".
   - Wait until the control can be contacted again via the web browser. Log in again and go to the *"Settings → Apps"* site
   - To load all further system apps to be installed or updated, select the button ↥ "Install from file". Press the button "Install".
   - System app update completed

   ➡ ℹ In some cases an error (EOF) when installing Core 20 or the kernel (see). The installation was still completed successfully.
7. Install the required application apps.

   The next steps are always required even if the system apps were installed via the rescue system or if the current system apps are already installed on your control. If the control is not yet in the state, press the "Service mode" button.
   - First install all application apps via the button ↥ "Install from file"
   - Highlight all application apps and confirm them in the following file drop-down box. Subsequently, these apps are bundled and transmitted to the control
   - Wait until loading is completed
   - In an info box, update info on the installed apps and the apps to be installed is displayed on the control. Press the button "Install" and confirm the dialog
   - Acknowledge the following messages with Next. This starts the installation.
   - After the installation, log into the ctrlX CORE again or go to the "Apps" window.
   - Click on "Operation mode". The control is ready for operation again
8. Go to "Manage app data" and upload the relevant configuration backups via the ↥ button. Subsequently, load the configuration to be executed via the button. The update is completed.

3 XCR-V-0120.9

3.1 Software

3.1.1 XCR-V-0120.9 components

Table 1: Included components XCR-V-0120.9

Short name	Software	Version	Additional notes
ctrlX Apps			
XCR-V-0120.9	arch01.firstboot	1.20.9	
	arch02.uc20	1.20.9	
	core20	20230622 arm64 Revision: 1977 amd64 Revision: 1974	
	rexroth-arch01-hw (Hardware support)	1.20.2	
	rexroth-arch02-hw (Hardware support)	1.20.1	
	rexroth-arch01-kernel (Linux kernel)	1.20.1 (5.4.221-rt79-ctrlx13)	
	rexroth-arch02-kernel (Linux kernel)	1.20.2 (5.10.153-rt76-arch02-16.1)	
	rexroth-automationcore	1.20.1	● ➦Note on use and known restrictions
	rexroth-deviceadmin	1.20.6	● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-solutions	1.20.0	
	rexroth-setup	1.20.0	
	rexroth-version-guard	1.20.0	
	bare	1.0	
	snapd	2.59.2	
SDK-V-0120.0	ctrlX SDK	1.20.5	➦https://github.com/boschrexroth/ctrlx-automation-sdk

3.1.2 Compatibility with drive-integrated control

In case of a drive-integrated control, ensure that the control version matches the drive firmware version.

The following table shows the combination options:

Control XCR	Drive firmware
1.12	AXS-V-0306
1.12.15 and higher (RM21.11.6)	AXS-V-0308
1.14	AXS-V-0308
1.16	AXS-V-0312
1.18	AXS-V-0314
1.20	AXS-V-0316 and AXS-V-0402

3.2 Resolved defects and modifications

3.2.1 Device Admin

Bug 697159: Background service "snapd" does sporadically not respond (workaround)

Description

Sporadically, the background service "snapd" does not respond.

This means that the following functions are restricted:

- App functionalities (listing, installing, updating ...)
- Licensing interface
- Creating system reports
- Process list

Bugfix

The background service "snapd" is monitored manually in Device Admin. If the service is no longer accessible, it is restarted.

The workaround does not affect the real-time behavior. As soon as a solution is available in "snapd", the workaround is removed again, see bug 614685.

Bug 697164: Network discovery services must not be used for EoE interfaces

Description

If network discovery services (e.g., MDNS, LLMNR, UPNP) are enabled, EoE interfaces may experience real-time capability issues.

Bugfix

The network discovery services are not executed for EoE interfaces.

3.3 Notes on use and known restrictions

3.3.1 Automation Core

Bug 315404: USB Ethernet adapter is not recognized at ctrlX DRIVEplus

Description

A USB Ethernet adapter (type I-tec USB-C Metal 3-Port HUB Gigabit Ethernet Adapter) is connected via the USB port of the drive panel to the ctrlX CORE M3, but the Linux system of ctrlX CORE does not detect it.

Workaround

The USB Ethernet adapter cannot be used with a drive-integrated control.

Bug 589936: X3: Retain memory > 56kB sporadically inconsistent after switching off/onn in case of a drive-integrated control and ctrlX CORE X3

Description

If more than 56 kB of retain data is used for the ctrlX CORE application(s), this can result in an incorrect backup of the variables stored in this area above the 56 kB limit when the application is switched off. As a result, incorrect data is restored the next time the controller is switched on.

The behavior can occur with the hardware variants drive-integrated control (manufactured before May 2022) as well as ctrlX CORE X3 (manufactured before January 2022).

Workaround

Do not use more than 56 kB of retain data with the hardware variants mentioned.

Bug 614685: Background service "snapd" sporadically does not respond

Description

Sporadically, the background service "snapd" does not respond. This means that the following functions are restricted:

- App functionalities (listing, installing, updating ...)
- Licensing interface
- Creating system reports
- Process list

Workaround

The background service "snapd" responds again after an unspecified period of time. This can take several hours. Optionally, the control can also be restarted.

Bug 661402: Boot process fails sporadically

Description

If a certain "Race Condition" occurs, the boot process of the device fails. In this case, access to the web interface is not possible. This condition occurs sporadically and only during the boot process.

Workaround

Restart the control.

3.3.2 Device Admin

Bug 440613: The maintenance mode has to be detected during the installation/updating of apps

Description

The snapd returns the maintenance mode in case of certain operations. These operations are a restart of the snapd service or a system restart.

Due to this restart, attempts to connect to the snapd failed. Thus, a detection of the maintenance mode is required.

Currently, the snapd only returns the restart of the service. The system restart was not reported.

Workaround

Certain connection errors are ignored in the current implementation.

Bug 567467: Interface XF51 does not support jumbo frames

Description

The MTU size cannot be changed for the interface XF51. The driver used does not support this functionality. Using Jumbo frames on the interface XF51 is thus not possible.

Workaround

Use the interface XF10 or a USB Ethernet device for Jumbo frames.

Bug 612064: During the "Factory Reset”, the user can already log in before the process has been finished

Description

The "Factory Reset" process consists of several sections:

1. Preparing the reset
2. Resetting the device to the time of ctrlX OS creation
3. Loading post-installed and updated apps

Approximately 12 minutes elapse before step 2 is completed. It is then already possible to log in to the device. Step 3 will start when the interface is reachable again. However, this step can take several minutes depending on the amount of apps installed ex works. Thus, a potentially false intermediate state is possible, which, among other things, leads to a temporary incorrect interface display in the case of "fire" devices.

Bug 703624: Host name with brand app is lost after reboot

Description

If the host name of the device is changed directly after installing a brand app, this host name is lost again following the next reboot. This is the case when a host name is set via a brand app.

Workaround

Upon successful firmware replacement, restart the device. Subsequently, the change is retained. This is the case for all devices manufactured in production, since the brand app is installed in the production department. The first restart at the customer's site is therefore sufficient.

Special cases:

- Factory reset (reset to factory settings)
- Installing the brand app at the customer

In both cases, prior to changing the host name, restart the device.

4 XCR-V-0120.8

4.1 Software

4.1.1 XCR-V-0120.8 components

Table 2: Included components XCR-V-0120.8

Short name	Software	Version	Additional notes
ctrlX Apps			
XCR-V-0120.8	arch01.firstboot	1.20.8	
	arch02.uc20	1.20.8	
	core20	20230622 arm64 Revision: 1977 amd64 Revision: 1974	● ➦Resolved defects and modifications
	rexroth-arch01-hw (Hardware support)	1.20.2	● ➦Resolved defects and modifications
	rexroth-arch02-hw (Hardware support)	1.20.1	
	rexroth-arch01-kernel (Linux kernel)	1.20.1 (5.4.221-rt79-ctrlx13)	
	rexroth-arch02-kernel (Linux kernel)	1.20.2 (5.10.153-rt76-arch02-16.1)	● ➦Resolved defects and modifications
	rexroth-automationcore	1.20.1	● ➦Note on use and known restrictions
	rexroth-deviceadmin	1.20.5	● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-solutions	1.20.0	
	rexroth-setup	1.20.0	
	rexroth-version-guard	1.20.0	
	bare	1.0	
	snapd	2.59.2	
SDK-V-0120.0	ctrlX SDK	1.20.5	➦https://github.com/boschrexroth/ctrlx-automation-sdk

4.1.2 Compatibility with drive-integrated control

In case of a drive-integrated control, ensure that the control version matches the drive firmware version.

The following table shows the combination options:

Control XCR	Drive firmware
1.12	AXS-V-0306
1.12.15 and higher (RM21.11.6)	AXS-V-0308
1.14	AXS-V-0308
1.16	AXS-V-0312
1.18	AXS-V-0314
1.20	AXS-V-0316 and AXS-V-0402

4.2 Resolved defects and modifications

4.2.1 Hardware support (rexroth-arch02-hw)

Bug 687805: Update COM.2 to FWB-XD1-COM-V-0122N.03

Description

Components COM.2 has been updated to FWB-XD1-COM-V-0122N.03.

4.2.2 Linux Kernel (rexroth-arch02-kernel)

Bug 656378: PLC watchdog due to blocking times caused by high-frequency msync calls

Description

The NVRAM is provided to the user via a file system interface.

Faulty pages are written back when the user runs msync. However, the msync call is blocked for the duration of the write-back. During the write-back process, the faulty pages are locked by the kernel, preventing write access to these pages. A large number of faulty pages as well as a high frequency of Msync calls can lead to longer blocking times.

Bugfix

The NVRAM driver has been updated to prevent blocking during msync calls. In addition, the time for blocking write access has been minimized.

4.2.3 Device Admin

Bug 530439: Non-functioning entries in the sidebar following app installation

Description

After installing an app, the routes to the app's resources may be updated but not activated.

From the user's perspective, this means that an "HTTP 404" error can be reported after clicking on the app entry in the sidebar. A reboot might be required to fix the problem.

Bug 667033: Network configurations are lost when downgrading the app to version 1.12

Description

If a device is downgraded to version 1.12 via an app update, the network settings are lost.

The device is then only accessible via IPv6 link-local (fe80:..) or IPv4 DHCP.

The reason for this is the renaming of the network interfaces, from "eth0" in version 1.12 to "XF10" from version 1.20 onwards.

Optionally, a device can be downgraded via Backup/Restore if a backup file is available.

Likewise, a device can be reset by uploading an image.

Bug 667923: Interface Auto Connect mechanism of the Device Admin causes problems

Description

The interface auto-connect mechanism may cause certain snapd interfaces (i2c, iio, uio, serial-port, bool-file) to be connected multiple times.

Bugfix

As with the bool-file interface, now not only the type of the interface but also the name is checked.

This results in i2c-0 only being connected to the remote station i2c-0.

Bug 669648: The order for updating apps is not correct: Core has to be be updated before updating the Device Admin

Description

For example, batch updating Device Admin, Core and other apps does not ensure that the "Core" app is updated before the Device Admin. This is necessary to update the Device Admin.

Bugfix

The order will be considered. The apps "Snapd" and "Core" are updated before "Device Admin" is updated.

Bug 675075: The operating hours counter was sporadically reset by a restart of the control

Description

By restarting the control, the operating hours counter of the control could be reset sporadically.

Bugfix

The operating hours counter cannot be reset anymore.

Bug 679472: Permanent partition is not available for K-Box B-201-CFL

Description

There is no entry for permanent storage in the settings under "Certificates & Keys".

Bugfix

In the settings under "Certificates & Keys", the entry for the permanent storage is available.

Bug 690665: Data Layer node *system/health* not available

Description

In some cases the *system/health* node was not displayed.

4.2.4 Ubuntu Core 20

Bug 666326: Security update

Description

The vulnerabilities listed below and classified as high risk (CVSS score >= 7.5) were fixed:

- https://ubuntu.com/security/notices/USN-5801-1
- https://ubuntu.com/security/notices/USN-5812-1
- https://ubuntu.com/security/notices/USN-5825-1
- https://ubuntu.com/security/notices/USN-5825-2
- https://ubuntu.com/security/notices/USN-5828-1
- https://ubuntu.com/security/notices/USN-5844-1
- https://ubuntu.com/security/notices/USN-5900-1
- https://ubuntu.com/security/notices/USN-5901-1
- https://ubuntu.com/security/notices/USN-5960-1
- https://ubuntu.com/security/notices/USN-5963-1
- https://ubuntu.com/security/notices/USN-5959-1

- https://ubuntu.com/security/notices/USN-5995-1
- https://ubuntu.com/security/notices/USN-6026-1
- https://ubuntu.com/security/notices/USN-6039-1
- https://ubuntu.com/security/notices/USN-6099-1

For the sake of completeness, the list includes all vulnerabilities with a CVSS score >= 7.5 that were fixed as part of the core20 package.

However, this does not mean that these vulnerabilities actually affect the ctrlX CORE.

4.3 Notes on use and known restrictions

4.3.1 Automation Core

Bug 315404: USB Ethernet adapter is not recognized at ctrlX DRIVEplus

Description

A USB Ethernet adapter (type I-tec USB-C Metal 3-Port HUB Gigabit Ethernet Adapter) is connected via the USB port of the drive panel to the ctrlX CORE M3, but the Linux system of ctrlX CORE does not detect it.

Workaround

The USB Ethernet adapter cannot be used with a drive-integrated control.

Bug 589936: X3: Retain memory > 56kB sporadically inconsistent after switching off/onn in case of a drive-integrated control and ctrlX CORE X3

Description

If more than 56 kB of retain data is used for the ctrlX CORE application(s), this can result in an incorrect backup of the variables stored in this area above the 56 kB limit when the application is switched off. As a result, incorrect data is restored the next time the controller is switched on.

The behavior can occur with the hardware variants drive-integrated control (manufactured before May 2022) as well as ctrlX CORE X3 (manufactured before January 2022).

Workaround

Do not use more than 56 kB of retain data with the hardware variants mentioned.

Bug 614685: Background service "snapd" sporadically does not respond

Description

Sporadically, the background service "snapd" does not respond. This means that the following functions are restricted:

- App functionalities (listing, installing, updating ...)
- Licensing interface
- Creating system reports
- Process list

Workaround

The background service "snapd" responds again after an unspecified period of time. This can take several hours. Optionally, the control can also be restarted.

Bug 661402: Boot process fails sporadically

Description

If a certain "Race Condition" occurs, the boot process of the device fails. In this case, access to the web interface is not possible. This condition occurs sporadically and only during the boot process.

Workaround

Restart the control.

4.3.2 Device Admin

Bug 440613: The maintenance mode has to be detected during the installation/updating of apps

Description

The snapd returns the maintenance mode in case of certain operations. These operations are a restart of the snapd service or a system restart.

Due to this restart, attempts to connect to the snapd failed. Thus, a detection of the maintenance mode is required.

Currently, the snapd only returns the restart of the service. The system restart was not reported.

Workaround

Certain connection errors are ignored in the current implementation.

Bug 567467: Interface XF51 does not support jumbo frames

Description

The MTU size cannot be changed for the interface XF51. The driver used does not support this functionality. Using Jumbo frames on the interface XF51 is thus not possible.

Workaround

Use the interface XF10 or a USB Ethernet device for Jumbo frames.

Bug 612064: During the "Factory Reset”, the user can already log in before the process has been finished

Description

The "Factory Reset" process consists of several sections:

1. Preparing the reset
2. Resetting the device to the time of ctrlX OS creation
3. Loading post-installed and updated apps

Approximately 12 minutes elapse before step 2 is completed. It is then already possible to log in to the device. Step 3 will start when the interface is reachable again. However, this step can take several minutes depending on the amount of apps installed ex works. Thus, a potentially false intermediate state is possible, which, among other things, leads to a temporary incorrect interface display in the case of "fire" devices.

5 XCR-V-0120.4

5.1 Software

5.1.1 XCR-V-0120.4 components

Table 3: Included components XCR-V-0120.4

Short name	Software	Version	Additional notes
ctrlX Apps			
XCR-V-0120.4	arch01.firstboot	1.20.4	
	arch02.uc20	1.20.4	
	core20	20230126 arm64 Revision: 1826 amd64 Revision: 1822	
	rexroth-arch01-hw (Hardware support)	1.20.1	
	rexroth-arch02-hw (Hardware support)	1.20.1	● ➦Resolved defects and modifications
	rexroth-arch01-kernel (Linux kernel)	1.20.1 (5.4.221-rt79-ctrlx13)	
	rexroth-arch02-kernel (Linux kernel)	1.20.1 (5.10.153-release.1-20-patch.3)	● ➦Resolved defects and modifications
	rexroth-automationcore	1.20.1	● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-deviceadmin	1.20.1	● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-solutions	1.20.0	
	rexroth-setup	1.20.0	
	rexroth-version-guard	1.20.0	
	bare	1.0	
	snapd	2.59.2	● ➦Resolved defects and modifications ➦https://github.com/snapcore/snapd/blob/master/packaging/ubuntu-16.04/changelog
SDK-V-0120.0	ctrlX SDK	1.20.0	➦https://github.com/boschrexroth/ctrlx-automation-sdk

5.1.2 Compatibility with drive-integrated control

In case of a drive-integrated control, ensure that the control version matches the drive firmware version.

The following table shows the combination options:

Control XCR	Drive firmware
1.12	AXS-V-0306
1.12.15 and higher (RM21.11.6)	AXS-V-0308
1.14	AXS-V-0308
1.16	AXS-V-0312
1.18	AXS-V-0314
1.20	AXS-V-0316

5.2 Resolved defects and modifications

5.2.1 Hardware support (rexroth-arch02-hw)

Bug 663790: Watchdog reboot

Description

Even if the reboot function of automationcore is enabled, the device does not reboot automatically, even if the watchdog time has expired.

Bugfix

The reboot functionality was missing and was implemented in the logic software.

5.2.2 Linux Kernel (rexroth-arch02-kernel)

Bug 656378: PLC watchdog due to blocking times caused by high-frequency msync calls

Description

The NVRAM is provided to the user via a file system interface.

Faulty pages are written back when the user runs msync. However, the msync call is blocked for the duration of the write-back. During the write-back process, the faulty pages are locked by the kernel, preventing write access to these pages. A large number of faulty pages as well as a high frequency of Msync calls can lead to longer blocking times.

Bugfix

The NVRAM driver has been updated to prevent blocking during msync calls. In addition, the time for blocking write access has been minimized.

5.2.3 Automation Core

Bug 637618: Large JSON requests to the Data Layer web server result in a high memory usage

Description

When large JSON requests were made to the Data Layer web server, this resulted in high memory usage.

Bugfix

The maximum size of JSON requests to the Data Layer web server has been limited to the size configured in the data layer node datalayer/server/websettings "maxJsonInput" .

Bug 639063: Possible restart loop of Automation Core into safe mode

Description

When a critical error occurs (F8 error, F9 error, exception), the Automation Core restarts in safe mode. To exit the same mode, manually restart the Automation Core app or the control. Under certain circumstances, the control always reboots to safe mode if something unexpected happened while handling critical errors. There is no option to disable this behavior.

Bugfix

Critical error handling has been adjusted so that the control does not restart into safe mode if it has already been in safe mode once.

5.2.4 Device Admin

Bug 619279: "Factory Reset” is locked for ctrlX CORE X7 control

Description

Resetting to factory settings is not possible on a ctrlX CORE X7 control. Calling the page in the settings returns a corresponding message. The function is released in a later release.

Bug 629936: Boot process fails sporadically

Description

If a certain "Race Condition" occurs, the boot process of the device fails. Access to the web interface is not possible. This condition occurs sporadically and only during the boot process.

Bugfix

The error was fixed in the corresponding routine.

Bug 634099: Completion of the CORE update is not always detected reliably

Description

If the core20 apps are updated, the completion of the update may not be detected correctly. This is only the case if further installations/updates are to be performed after the core20 update.

Bugfix

In the implementation, the existing tasks are deserialized for updates/installations. All loaded tasks are checked to see if they are currently running or pending. Currently running updates/installations are monitored until the process has been completed. Any outstanding operations are rescheduled for execution. As part of the monitoring, an asynchronous process is started in which the status is checked at the end and set, if necessary. An error has occurred into this asynchronous monitoring, where a pointer is set to a subsequent task at runtime and thus not the status of the actually still running update of the core20 is checked and set, but the status of the subsequent task. Troubleshooting ensures that the status of the correct task is updated.

Bug 635814: Changes in the services of the network detection switch the control to Service State without confirmation

Description

If the control is in Operation State and the user starts or stops a service in the network detection, the control is switched to Service State without confirmation.

Bugfix

No state switching is required to start or stop a network discovery service.

Bug 638505: Allow all characters as Common Name (CN) in the Certificate Signing Request (CSR)

Description

The frontend does not allow some characters (e.g. spaces) as part of the common name when generating a Certificate Signing Request (CSR).

Bugfix

The validation rules for entering the Common Name have been relaxed.

Bug 638750: Changes in the system report are not sorted

Description

The system report contains a json file with all snap changes of the system. The changes in this file are not sorted by any recognizable field. For this reason, it is almost impossible to track the changes in the system to find potential problems

Bugfix

Snap changes in the file are now sorted by change number ("id").

Bug 650045: Device Admin contains outdated Ubuntu package: dnsmasq-base

Description

Device Admin contains outdated Ubuntu package: dnsmasq-base

Bugfix

The dnsmasq-base package has been updated to the latest version.

Bug 651980: The "ctrlX Device ID" certificate on the information page is missing in the API

Description

The "ctrlX Device ID" certificate in the system information is missing in the API and in the backend.

Bugfix

API was extended and the device certificate "ctrlX Device ID" was provided.

Bug 663907: No login possible on ctrlX CORE with base image Ubuntu Core 22

Description

The default PAM configuration on Ubuntu Core 22 has changed compared to Ubuntu Core 20. This makes logging in to an Ubuntu Core 22 base system with a Device Admin based on Ubuntu Core 20 impossible.

Bugfix

The PAM configuration of Ubuntu Core 20 is provided by the Device Admin and thus enables logging in again.

5.2.5 Ubuntu Core 20

Bug 667287: snapd - system partitions mounted from wrong device

Description

In snapd versions prior to 2.59, mounting system partitions was purely related to file system names. On systems where the file system names were duplicated, the mount process was not reliable and the system could be damaged.

Bugfix

In snapd 2.59, a parameter was introduced to specify the device from which the file systems are mounted.

5.3 Notes on use and known restrictions

5.3.1 Automation Core

Bug 315404: USB Ethernet adapter is not recognized at ctrlX DRIVEplus

Description

A USB Ethernet adapter (type I-tec USB-C Metal 3-Port HUB Gigabit Ethernet Adapter) is connected via the USB port of the drive panel to the ctrlX CORE M3, but the Linux system of ctrlX CORE does not detect it.

Workaround

The USB Ethernet adapter cannot be used with a drive-integrated control.

Bug 589936: X3: Retain memory > 56kB sporadically inconsistent after switching off/onn in case of a drive-integrated control and ctrlX CORE X3

Description

If more than 56 kB of retain data is used for the ctrlX CORE application(s), this can result in an incorrect backup of the variables stored in this area above the 56 kB limit when the application is switched off. As a result, incorrect data is restored the next time the controller is switched on.

The behavior can occur with the hardware variants drive-integrated control (manufactured before May 2022) as well as ctrlX CORE X3 (manufactured before January 2022).

Workaround

Do not use more than 56 kB of retain data with the hardware variants mentioned.

Bug 614685: Background service "snapd" sporadically does not respond

Description

Sporadically, the background service "snapd" does not respond. This means that the following functions are restricted:

- App functionalities (listing, installing, updating ...)
- Licensing interface
- Creating system reports
- Process list

Workaround

The background service "snapd" responds again after an unspecified period of time. This can take several hours. Optionally, the control can also be restarted.

Bug 661402: Boot process fails sporadically

Description

If a certain "Race Condition" occurs, the boot process of the device fails. In this case, access to the web interface is not possible. This condition occurs sporadically and only during the boot process.

Workaround

Restart the control.

5.3.2 Device Admin

Bug 440613: The maintenance mode has to be detected during the installation/updating of apps

Description

The snapd returns the maintenance mode in case of certain operations. These operations are a restart of the snapd service or a system restart.

Due to this restart, attempts to connect to the snapd failed. Thus, a detection of the maintenance mode is required.

Currently, the snapd only returns the restart of the service. The system restart was not reported.

Workaround

Certain connection errors are ignored in the current implementation.

Bug 567467: Interface XF51 does not support jumbo frames

Description

The MTU size cannot be changed for the interface XF51. The driver used does not support this functionality. Using Jumbo frames on the interface XF51 is thus not possible.

Workaround

Use the interface XF10 or a USB Ethernet device for Jumbo frames.

Bug 612064: During the "Factory Reset", the user can already log in before the process has been finished

Description

The "Factory Reset" process consists of several sections:

1. Preparing the reset
2. Resetting the device to the time of ctrlX OS creation
3. Loading post-installed and updated apps

Approximately 12 minutes elapse before step 2 is completed. It is then already possible to log in to the device. Step 3 will start when the interface is reachable again. However, this step can take several minutes depending on the amount of apps installed ex works. Thus, a potentially false intermediate state is possible, which, among other things, leads to a temporary incorrect interface display in the case of "fire" devices.

6 XCR-V-0120

6.1 Software

6.1.1 Components XCR-V-0120

Table 4: Included components XCR-V-0120

Short name	Software	Version	Additional notes
ctrlX Apps			
XCR-V-0120.0	arch01.firstboot	1.20.0	
	arch02.uc20	1.20.0	
	core20	20230126 arm64 Revision: 1826 amd64 Revision: 1822	
	rexroth-arch01-hw (Hardware support)	1.20.0	
	rexroth-arch02-hw (Hardware support)	1.20.0	
	rexroth-arch01-kernel (Linux kernel)	1.20.0 (5.4.221-rt79-ctrlx11)	
	rexroth-arch02-kernel (Linux kernel)	1.20.0 (5.10.153-rt76-arch02-16)	
	rexroth-automationcore	1.20.0	● ➦New functions ● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-deviceadmin	1.20.0	● ➦New functions ● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-solutions	1.20.0	● ➦New functions
	rexroth-setup	1.20.0	● ➦New functions ● ➦Resolved defects and modifications
	rexroth-version-guard	1.20.0	
	snapd	2.58.2	● ➦Note on use and known restrictions ➦https://github.com/snapcore/snapd/blob/master/packaging/ubuntu-16.04/changelog
SDK-V-0120.0	ctrlX SDK	1.20.0	➦https://github.com/boschrexroth/ctrlx-automation-sdk

6.1.2 Compatibility with drive-integrated control

In case of a drive-integrated control, ensure that the control version matches the drive firmware version.

The following table shows the combination options:

Control XCR	Drive firmware
1.12	AXS-V-0306
1.12.15 and higher (RM21.11.6)	AXS-V-0308
1.14	AXS-V-0308
1.16	AXS-V-0312
1.18	AXS-V-0314

Control XCR	Drive firmware
1.20	AXS-V-0316

6.2 New functions

6.2.1 Automation Core

Feature 458990: Ensuring a safe machine state after a critical error

Description

If an exception or a critical error of error class F8 or F9 occurs, a safe machine state and the diagnosability of the cause is ensured.

Description of the current behavior in case of an exception or F8/F9 error:

- If a critical error occurs, it is responded as follows:
  - If there is an exception or an F8 error, the Automation Core app is shut down and restarted automatically.
  - If there is an F9 error, the ctrlX CORE is shut down and has to be restarted by a voltage cycle.
- In the subsequent startup process of the Automation Core App, the critical error that has occurred is detected and
  - the cause is documented in the logbook of the ctrlX CORE -> diagnosability for the user is ensured
  - an F6 error (080F60B0 "Condition detected that led to safe machine condition") with variable detailed diagnostics is sent, indicating the cause of the critical error -> Safe machine condition is ensured for the user (e.g. axes cannot be moved)
- Additionally, the Automation Core App currently starts in Safe Mode, i.e. the Automation Core App does not start completely and thus, the dependent apps (e.g. Motion App, PLC App, EtherCAT Master App) do not start either.
  - Safe mode can be detected by the diagnostics 080F00B0 "Condition detected that led to safe mode"/0C7B4305 "Automation Core did not start completely due to an error upon the start of the app. See diagnostic outputs for more detailed information. Restart Automation Core".
  - In this state, only some basic functionalities of the Automation Core App are available.
  - The safe mode can be terminated by restarting the Automation Core App or by restarting ctrlX CORE.
  - The functionality is extended in further releases.

Feature 533316: Data Layer extensions

Description

- If nodes below the *devices/remote* node are subscribed to, this data is no longer read cyclically by the remote control, but is also recorded by a subscription.
- Loss-free subscriptions to values of an RT node can be used. These are defined by specifying samplingInterval=0.
- In a MemoryMap of RT data, metadata can optionally be specified for a variable.
- A Data Layer client is used in the REST web server for the Data Layer. For this client, the time can now be set until it cancels a Data Layer request. The setting can be accessed under the *datalayer/server/websettings* node.

Feature 533626: Empty base snap for tests and fully statically linked snaps

Description

The bare snap contains an empty folder structure for building snaps that are completely statically linked and do not depend on any library within the CORE snaps.

Feature 562213: Control identification

Description

By executing the method under the Data Layer node *system/identify*, the identification of the controller can be started. The control identifies itself by flashing the LED.

6.2.2 Device Admin

Feature 320812: mDNS name resolution added

Description

Previously, ctrlX OS was not able to resolve .local addresses using mDNS. These addresses have only been published so far. Through this feature, the name resolution of .local addresses can be enabled in ctrlX OS under "Network Discovery".

Feature 420250: A device can be reset to delivery state in ctrlX OS

Description

On the "Reset to factory settings" page, a device can be reset with ctrlX OS:

- All settings (e.g. network, SSH settings) are reset to their default values.
- All apps are removed that were newly installed by the user.
- All preinstalled apps are retained in the currently installed version.
- Certificates and keys are retained in the "Permanent Storage".
- Licenses remain.

The "Reset to factory settings" function is available on all hardware variants except for ctrlX CORE X7.

Feature 450672: Expandable denylist for partners and customers

Description

A list of snapd interfaces not approved by Rexroth is stored in ctrlX CORE, which must not be used by unsigned apps.

Customers/partners with customized applications also need the option of defining their individual interfaces and restricting their use. With the help of the expandable denylist, this can now be realized by customers/partners.

Feature 477225: Support for multiple parallel license memory

Description

Since this release, the license management supports multiple (parallel) license memories.

This means:

- Both licenses on the device and on a dongle can be used in parallel.
- At runtime, licenses can be assigned to both the device memory and the dongle.

Feature 514059: UTC system time and time zone are published on the Data Layer

Description

The current system time and the set time zone are published on the Data Layer.

The nodes are:

- *system/info/time*
- *system/info/timezone*

Feature 516664: Removing revisions of apps that are no longer active

Description

The memory space of the ctrlX CORE X3 is very limited. Thus, it is required that as much space of this memory as possible is available.

Ubuntu Core allows a minimal retention of only one old app revision. However, since there are currently no mechanisms implemented to use this old revision, the remaining revision can also be deleted.

Feature 546376: A device can be reset to delivery state by means of a USB stick or an SD card

Description

Using a USB stick or SD card with an image file, an optional ctrlX setup file and the appropriate boot loader, a device with ctrlX OS can be reset to the delivery state. Upon a reboot, the image and the ctrlX setup file are automatically detected and installed.

Feature 549398: The system report can be password-encrypted

Description

The system report is created as a ZIP archive with encrypted content. The created archive can be used with standard ZIP tools, e.g. 7-zip, specifying the password.

Feature 554269: DNS suffixes are supported

Description

DNS suffixes, also DNS search domains are now supported by the ctrlX CORE.

Feature 556110: App dependencies are displayed

Description

On the “Apps” page, when installing an app and in the details for an already installed app, you can see the dependencies that this app requires for correct operation. Currently, this is only a display. It is not checked for dependencies.

Feature 563478: A CPU update speed of 1 second is possible

Description

On the "Information" page under the "Performance" tab, the CPU refresh rate has been changed. One second is selected for “high”. The diagram and the CPU values are subsequently updated every second.

Feature 566109: 404 web page is customizable via theming

Description

If a web page does not respond, a static 404 page is displayed. This website is customizable via theming.

Feature 568565: A tooltip is displayed for CPU cores reserved for real-time tasks

Description

On the Information page in the CPU Usage tab, a tooltip "Reserved to process real-time task" is displayed for CPU cores that are reserved for real-time tasks.

Feature 568992: Support for ECC-based cryptographic keys using the TPM

Description

ECC keys (P-256) can now be generated using the TPM.

6.2.3 Solutions

Feature 347581: Extended functions for editing the configuration repository, changed write access via WebDAV interface

Description

The following extensions are available:

- Deleting files and directories
- Uploading files
- Editing files
- Display of hidden files
- Optional display of file properties

In the App Data section, changes could be made via WebDAV interface without synchronizing the corresponding apps. Write access is no longer allowed.

Feature 531391: Extended loading of "App Data

Description

Loading to "App Data" saves the resulting state of the apps in the "App Data" file repository.

For this purpose, the loading process is completed with a final "Save" command to the apps.

Feature 548844: Default copy only when app is enabled

Description

When loading a configuration, folders optionally assigned to the app are copied. It is only copied if the app is enabled. To load a configuration completely, all required apps have to be installed and enabled first.

6.2.4 Setup

Feature 539194: Extensions and compatibility notes

Description

The following extensions are available:

- The setup supports password hashes. This transfers the validity of the user passwords.
- WiFi hotspots are supported.
- The setup contains HSM-based certificate keys.
- Uninstalling apps is supported.

6.3 Resolved defects and modifications

6.3.1 Automation Core

Bug 349989: After the task watchdog occurred it is not possible to search the *scheduler/tasks* node

Description

After a task watchout, the Data Layer node *scheduler/tasks* did not respond anymore.

Bug 605839: Scheduler configuration import from projects <= 1.12 fails due to invalid task configuration (stack size)

Description

Importing projects from versions <= 1.12 fails due to invalid task configuration (stack size), as the minimum stack size used to create a task with default is '16384' bytes up to and including version 1.12, but '131072' bytes from version 1.14. The problem also occurs up to and including version 1.16 when importing a project created on a virtual control to a real control.

Bug 612346: Automation Task is sporadically not triggered

Description

If several simultaneous interrupts occur, an interrupt is sporadically lost and the automation task is not triggered.

Bugfix

The problem was fixed in the interrupt queue. Thus, no interrupt is lost.

6.3.2 Device Admin

Bug 502041: Remote Logging: Host name is updated immediately after a change

Description

When changing the host name of ctrlX CORE, a restart was required to apply the change also for remote logging.

Bugfix

A change of the hostname becomes active immediately, even during remote logging. Logs sent to the remote server include the new host name.

Bug 561414: Details in IPv4 tab are lost

Description

If you select the "IPv4" tab in the network interfaces and you expand the details, further setting options are provided. If you make changes in these details and collapse the details without saving, the changes are lost.

Bug 570233: No plugged network cable results in multiple unnecessary logbook entries

Description

If no network cable is plugged in, one entry per second is made in the logbook, indicating that some network services cannot find a network interface.

Bug 573328: No manual input of link local addresses possible

Description

It is not possible to manually enter a link local address for a network interface. Only by activating the "Link-local" switch, such an address can be assigned to the interface. However, this address is determined automatically and there is no influence on the exact value.

Bug 573663: On the "Memory" page of the ctrlX CORE X7 control, the internal partitions are visible

Description

On the ctrlX CORE X7 control, internal partitions were visible and could also be partially formatted, "unmounted", etc. by the user. This resulted in an undefined system behavior and can also cause a total failure.

Bugfix

On the ctrlX CORE X7 control, the internal partitions are no longer visible. Only the system partition is displayed, but it cannot be formatted or unmounted.

Bug 573800: Remote logging configuration is lost when updating from 01V12 to 01V18

Description

When updating from 01V12 to 01V18, the remote logging configuration is lost.

Thus, note down the relevant settings, e.g. target IP address, port and protocol before updating.

As the remote logging is not completely supported in 01V12, further settings (e.g. filter) are not affected.

Bug 578194: Memory reservation for real-time applications does not work correctly

Description

If the user selects a high value, this value was reserved for the basic apps instead of the real-time apps.

Bugfix

Memory reservation works as described:

The value set for the real-time app is also reserved for the real-time apps.

Bug 580422: Incorrect display of media on the ctrlX CORE X7 information page

Description

The names of the media and also the media of the ctrlX CORE X7 itself were displayed incorrectly on the information page.

Bugfix

The correct names and media are displayed.

Bug 589085: User without "Full access" authorization can disable user with "Full access" authorization

Description

A user who is authorized to manage "User & permissions" could not delete users with "Full Access" authorization, but could disable them.

Bugfix

A user without "Full access" authorization cannot disable user accounts with "Full access" authorization.

Bug 591554: WLAN settings are lost when configuring external settings

Description

If "use external settings" was enabled in the configuration of one or both Ethernet devices, ctrlX OS forgets the configuration for the WLAN after booting.

Bug 595658: Diagnostic code of "Pending Diagnostics" is sometimes not available

Description

Sporadically, the diagnostic codes for the "Pending Diagnostics" are not registered.

In this case, the following is reported in the diagnostics (only in case of an FPGA update on ctrlX CORE X7):

Error in diagnostic system

Detailed diagnostic number is not registered

Not registered detailed diagnosis code 0C64101B related to main diagnosis code 080E0510

The reason is that at the time of error registration, the Data Layer is not yet available.

Bugfix

The diagnostic codes can be registered multiple times on the Data Layer.

Therefore, the diagnostic codes are now registered again before each setting.

Bug 597396: On some ctrlX CORE X7 controls, the internal partitions are displayed on the "Memory" and "Information" pages

Description

The internal partitions are encrypted. During decryption, a so-called mapper device is created. To determine the system partition, it is necessary to read out on which partition the operating system can be found. A regex is used which has to detect all supported devices correctly. This regex expected a number as the last digit in the mapper device name. As the name of this device always ends with a UUID, sporadically, the last character is a letter (a-f).

In this case, the operating system partition is not detected correctly and no "system data" is displayed, but all internal partitions are displayed.

Bug 609997: WiFi settings are no longer available after a reboot

Description

After restarting the control, the WiFi interface data is no longer available, so that the interfaces cannot be connected automatically. The user has to re-enter the data to connect the interfaces.

Bugfix

After restarting the control, all WiFi interface data is retained.

Bug 612377: Image update and/or applying a setup file leads to an undefined state

Description

Under certain circumstances, the database of users/groups can be corrupted, rendering the device unusable. Registration was no longer possible. This condition could occur, for example, during the image update in combination with the installation of a setup file or during the restoration of a backup.

Bugfix

Routines for adding, deleting and modifying users and groups have been updated to be safe against corruption.

6.3.3 Setup

Bug 573784: Autorun fails on a ctrlX CORE X7 control

Description

Autorun of a setup in JSON format fails on a ctrlX CORE X7 control.

6.4 Notes on use and known limitations

6.4.1 Automation Core

Bug 315404: USB Ethernet adapter is not recognized at ctrlX DRIVEplus

Description

A USB Ethernet adapter (type I-tec USB-C Metal 3-Port HUB Gigabit Ethernet Adapter) is connected via the USB port of the drive panel to the ctrlX CORE M3, but the Linux system of ctrlX CORE does not detect it.

Workaround

The USB Ethernet adapter cannot be used with a drive-integrated control.

Bug 589936: X3: Retain memory > 56kB sporadically inconsistent after power off/on for ctrlX CORE X3 in ctrlX DRIVEplus and ctrlX CORE X3

Description

If more than 56 kB of retain data is used for the ctrlX CORE application(s) (e.g. in PLC applications), this may lead to an incorrect saving of retain variables stored in this area above the 56 kB limit when switching off.

Effect:

As a result, incorrect retain data is restored the next time the control is switched on.

Affected products:

The behavior can occur with the hardware variants ctrlX CORE X3 in ctrlX DRIVEplus (FD before 18/22) as well as ctrlX CORE X3 (FD before 01/22).

Workaround

Do not use more than 56 kB of retain data with the hardware variants mentioned.

6.4.2 Device Admin

Bug 440613: The maintenance mode has to be detected during the installation/updating of apps

Description

The snapd returns the maintenance mode in case of certain operations. These operations are a restart of the snapd service or a system restart.

Due to this restart, attempts to connect to the snapd failed. Thus, a detection of the maintenance mode is required.

Currently, the snapd only returns the restart of the service. The system restart was not reported.

Workaround

Certain connection errors are ignored in the current implementation.

Bug 567467: Interface XF51 does not support jumbo frames

Description

The MTU size cannot be changed for the interface XF51. The driver used does not support this functionality. Using Jumbo frames on the interface XF51 is thus not possible.

Workaround

Use the interface XF10 or a USB Ethernet device for Jumbo frames.

Bug 612064: During the "Factory Reset", the user can already log in before the process has been finished

Description

The "Factory Reset" process consists of several sections:

1. Preparing the reset
2. Resetting the device to the time of ctrlX OS creation
3. Loading post-installed and updated apps

Approximately 12 minutes elapse before step 2 is completed. It is then already possible to log in to the device. Step 3 will start when the interface is reachable again. However, this step can take several minutes depending on the amount of apps installed ex works. Thus, a potentially false intermediate state is possible, which, among other things, leads to a temporary incorrect interface display in the case of "fire" devices.

Bug 619279: "Factory Reset" locked for the ctrlX CORE X7 control

Description

Resetting to factory settings is not possible on a ctrlX CORE X7 control. Calling the page in the settings returns a corresponding message. The function is released in a later release.

Bug 629936: Boot process fails sporadically

Description

If a certain race condition occurs, the boot process of the device fails. Access to the web interface is not possible. This condition occurs sporadically and only during the boot process.

Workaround

Another reboot fixes the problem.

6.4.3 snapd

Bug 614685: Background service "snapd" sporadically does not respond

Description

Sporadically, the background service "snapd" does not respond.

This means that the following functions are restricted:

- App functionalities (listing, installing, updating ...)
- Licensing interface
- Creating system reports
- Process list

Workaround

The background service "snapd" responds again after an unspecified period of time. This can take several hours. If this is not sufficient, the control can also be restarted.

7 XCR-V-0118.4

7.1 Software

7.1.1 XCR-V-0118.4 components

Table 5: Components included XCR-V-0118.4

Short name	Software	Version	Additional notes
ctrlX Apps			
XCR-V-0118.4	arch01.firstboot	1.18.4	
	arch02.uc20	1.18.6	
	core20	20221212 arm64 Revision: 1782 amd64 Revision: 1778	● ➦Resolved defects and modifications
	rexroth-arch01-hw (Hardware support)	1.18.2	● ➦Resolved defects and modifications
	rexroth-arch02-hw (Hardware support)	1.18.3	● ➦Resolved defects and modifications
	rexroth-arch01-kernel (Linux kernel)	5.4.221-rt79-ctrlx11 (1.18.1)	● ➦Resolved defects and modifications
	rexroth-arch02-kernel (Linux kernel)	5.10.153-rt76-arch02-15 (1.18.1)	● ➦Resolved defects and modifications
	rexroth-automationcore	1.18.1	● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-deviceadmin	1.18.3	● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-solutions	1.18.1	
	rexroth-setup	1.18.1	● ➦Note on use and known restrictions
	rexroth-version-guard	1.18.0	
	snapd	2.58	➦https://github.com/snapcore/snapd/blob/master/packaging/ubuntu-16.04/changelog
SDK-V-0118.0	ctrlX SDK	1.18.0	➦https://github.com/boschrexroth/ctrlx-automation-sdk

7.1.2 Compatibility with drive-integrated control

In case of a drive-integrated control, ensure that the control version matches the drive firmware version.

The following table shows the combination options:

Control XCR	Drive firmware
1.12	AXS-V-0306
1.12.15 and higher (RM21.11.6)	AXS-V-0308
1.14	AXS-V-0308
1.16	AXS-V-0312
1.18	AXS-V-0314

7.2 Resolved defects and modifications

7.2.1 Ubuntu Core 20

Bug 557934: Security update

Description

The vulnerabilities listed below and classified as high risk (CVSS score >= 7.5) were fixed:

- https://ubuntu.com/security/notices/USN-5638-2
- https://ubuntu.com/security/notices/USN-5638-3
- https://ubuntu.com/security/notices/USN-5699-1
- https://ubuntu.com/security/notices/USN-5716-1
- https://ubuntu.com/security/notices/USN-5753-1
- https://ubuntu.com/security/notices/USN-5761-1
- https://ubuntu.com/security/notices/USN-5767-1

Bugfixing

The core20 component has been updated to version 20221212. The snapd component has been updated to version 2.58.

7.2.2 Hardware support (rexroth-arch01-hw)

Bug 592007: Updating the internal communication firmware

Description

ctrlX DRIVEplus with integrated ctrlX CORE in version 1.18.0 does not contain the latest firmware for the internal communication component between the ctrlX CORE and the drive.

The current integrated version is:

FWB-XD1-COM-V-0120N.00

Bugfixing

After updating to the new version of rexroth-arch01-hw, the internal communication firmware should have the following version:

FWB-XD1-COM-V-0120N.01

7.2.3 Hardware support (rexroth-arch02-hw)

Bug 559987: Watchdog frames when the watchdog is idle

Description

EtherCAT IP Core sends watchdog frames when the watchdog goes into idle state. However, watchdog frames should only be sent when the watchdog enters the error state.

7.2.4 Linux Kernel (rexroth-arch01-kernel)

Bug 583466: Security update for rexroth-arch01-kernel

Description

Several Linux kernel WLAN vulnerabilities were found in the mac80211 framework:

- ➦ https://lwn.net/ml/oss-security/20221013101046.GB20615@suse.de/
- ➦ https://lwn.net/ml/oss-security/ff7256bc-418b-e833-18d8-bc9700f6d77e@seemoo.tu-darmstadt.de/
- ➦ https://www.heise.de/news/Schwachstelle-im-Linux-Kernel-ermoeglicht-Codeschmuggel-im-WLAN-7309762.html

Bugfixing

The kernel has been updated to version 5.4.221-rt79.

7.2.5 Linux Kernel (rexroth-arch02-kernel)

Bug 569023: ctrlX CORE X7: XF50/XF52 sporadically not available

Description

The devices */sys/class/net/XF50* and */sys/class/net/XF52* are sporadically not available after restarting the ctrlX CORE X7.

Bug 584354: Security update for rexroth-arch02-kernel

Description

Several Linux kernel WLAN vulnerabilities were found in the mac80211 framework:

- ➦ https://lwn.net/ml/oss-security/20221013101046.GB20615@suse.de/
- ➦ https://lwn.net/ml/oss-security/ff7256bc-418b-e833-18d8-bc9700f6d77e@seemoo.tu-darmstadt.de/
- ➦ https://www.heise.de/news/Schwachstelle-im-Linux-Kernel-ermoeglicht-Codeschmuggel-im-WLAN-7309762.html

Bugfixing

The kernel has been updated to version 5.10.153-rt76.

7.2.6 Automation Core

Bug 571960: Drive error following an Automation Core update

Description

Following an update of the Automation Core app, the drives sporadically reported the errors "F2067 Synchronization to master communication faulty" or "C5251 Error synchronizing to master communication".

Bugfixing

The systick PTP driver has been extended by the functionality to reinitialize the internal DPLL of the FGPA. The reinitialization is performed upon the Automation Core system app start.

Bug 575570: After switching on the ctrlX CORE X7, the system remains in SERVICE state

Description

After switching on ctrlX CORE X7, the system sporadically remained in the SERVICE state and did not switch to the target state.

Bug 586892: Nodes under *system/health* were not updated on ctrlX CORE X7

Description

Nodes under *system/health* were not updated on ctrlX CORE X7. This meant that no errors were reported if, for example, the battery was flat.

7.2.7 Device Admin

Bug 578194: Memory reservation for real-time applications does not work correctly

Description

If the user selects a high value, this value was reserved for the basic apps instead of the real-time apps.

Bugfixing

Memory reservation works as described. The value set for the real-time app is also reserved for the real-time apps.

7.3 Notes on the use and known restrictions

7.3.1 Automation Core

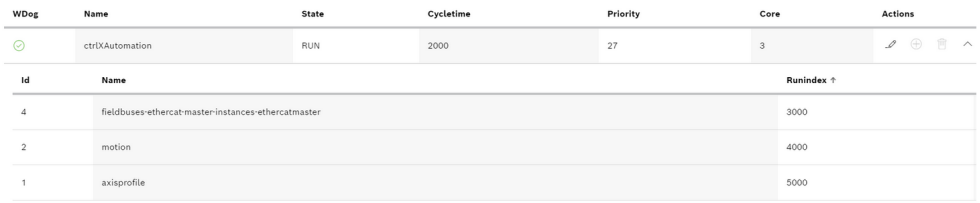
Bug 344973: To ensure the best real-time behavior possible, task and trace settings have to be correct

Description

- The callables of 'Ethercat', 'Motion' and 'Axisprofile' should run within the same task
  - Due to locks on other cores, these callables might not be executed in the correct sequence if they do not run in one task
    See Bug 206983 and Product Backlog Item 225458.
- All traces of 'rexroth-automationcore' should be disabled
  - Active traces can result in task watchdogs of the real-time task, e.g. ctrlXAutomation or plcEvent07
- The priorities of all PLC tasks should be lower than the priority of the ‘ctrlXAutomation’ task
  - Locks on other cores than on the core on which the task 'ctrlXAutomation' is running can lead to task watchdogs of the 'ctrlXAutomation’ task

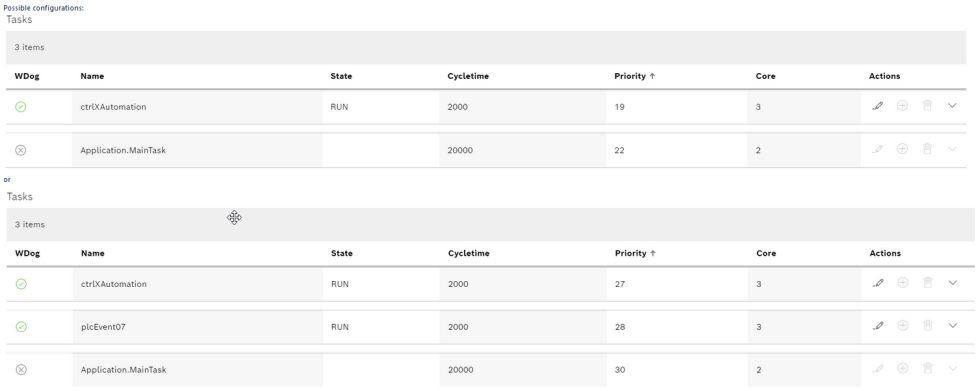
Workaround

- These callables have to run within one task to ensure that the execution sequence is complied with which corresponds to the standard configuration.



- All traces should be disabled. If traces are required for error search, disable these traces again.
  - All active traces might already be saved. To ensure that all traces are disabled, write “false” to ’trace/rexroth-automationcore/units' via the Data Layer.

- Only us priorities higher than the priority of the ctrlX Automation task for the PLC task.
  - The default priority of a PLC task is 30 and the default priority of the ctrlX Automation task is 27. These default priorities are already correct.
  - To change the priority of already configured tasks, either set the priority of the PLC tasks lower than the priority of the ctrlX Automation task or set the priority of the ctrlX Automation task higher than the PLC tasks.



Bug 589936: X3: Retain memory >64 kB sporadically inconsistent after power off/on with ctrlX CORE X3 and ctrlX COREplus X3

Description

If more than 64 kB of retain data is used for the ctrlX CORE application(s), this can result in an incorrect backup of the variables stored in this area above the 64 kB limit when the application is switched off. As a result, incorrect data is restored the next time the controller is switched on.

The behavior can occur with the hardware variants ctrlX CORE X3 and ctrlX COREplus X3.

Workaround

Do not use more than 64 kB of retain data with the hardware variants ctrlX CORE X3 and ctrlX COREplus X3.

7.3.2 Device Admin

Bug 440613: The maintenance mode has to be detected during the installation/updating of apps

Description

The snapd returns the maintenance mode in case of certain operations. These operations are a restart of the snapd service or a system restart.

Due to this restart, attempts to connect to the snapd failed. Thus, a detection of the maintenance mode is required.

Currently, the snapd only returns the restart of the service. The system restart was not reported.

Workaround

Certain connection errors are ignored in the current implementation.

Bug 561414: Details in IPv4 tab are lost

Description

If you select the "IPv4" tab in the network interfaces and you expand the details, further setting options are provided. If you make changes in these details and collapse the details without saving, the changes are lost.

Workaround

If you want to retain the changes in the “IPv4” tab under Details, save them before closing.

Bug 567467: Interface XF51 does not support jumbo frames

Description

The MTU size cannot be changed for the interface XF51. The driver used does not support this functionality. Using Jumbo frames on the interface XF51 is thus not possible.

Workaround

Use the interface XF10 or a USB Ethernet device for Jumbo frames.

Bug 570233: No plugged network cable results in multiple unnecessary logbook entries

Description

If no network cable is plugged in, one entry per second is made in the logbook, indicating that some network services cannot find a network interface.

Bug 570748: System report is classified as "dangerous" by Chrome browser in some cases

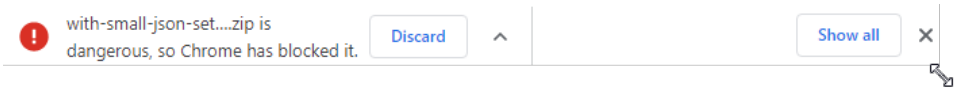
Description

If a system report is created and a Chrome browser is used, it can incorrectly consider the created file as "dangerous".

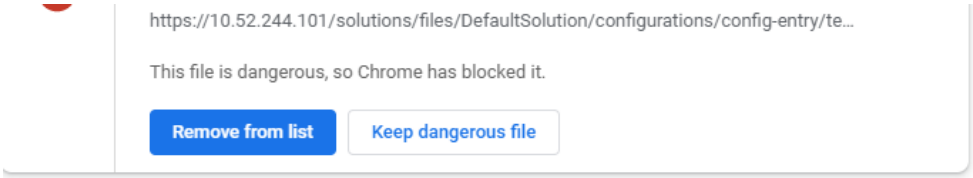
This results from the structure of the report file and can additionally be affected by the subnet distribution and the SSL certification of the device.

Workaround

Go to the footer of the browser and select "Show all" for the download.



Select "Keep malicious file" to keep the downloaded file on the computer.



Optionally, another browser can remedy the situation.

Bug 573800: Remote logging configuration is lost when updating from 01V12 to 01V18

Description

When updating from 01V12 to 01V18, the remote logging configuration is lost.

Thus, note down the relevant settings, e.g. target IP address, port and protocol before updating.

As the remote logging is not completely supported in 01V12, further settings (e.g. filter) are not affected.

Bug 595658: Diagnostic code of "Pending Diagnostics" is sometimes not available

Description

Sporadically, the diagnostic codes for the "Pending Diagnostics" are not registered.

In this case, the following is reported in the diagnostics (only in case of an FPGA update on ctrlX CORE X7):

```
Error in diagnostic system
Detailed diagnostic number is not registered
Not registered detailed diagnosis code 0C64101B related to main diagnosis code 080E0510
```

The reason is that at the time of error registration, the Data Layer is not yet available.

Workaround

The diagnostic codes can be registered multiple times on the Data Layer.

Therefore, the diagnostic codes are now registered again before each setting.

Bug 597396: On some ctrlX CORE X7, the internal partitions are displayed on the "Memory" and "Information" pages

Description

The internal partitions are encrypted. During decryption, a so-called mapper device is created. To determine the system partition, it is necessary to read out on which partition the operating system can be found. A regex is used which has to detect all supported devices correctly. This regex expected a number as the last digit in the mapper device name. As the name of this device always ends with a UUID, sporadically, the last character is a letter (a-f). In this case, the operating system partition is not detected correctly and no "system data" is displayed, but all internal partitions are displayed.

7.3.3 Setup

Bug 589547: Automatic execution of a setup during restart can be rejected due to incorrect schema check

Description

If a setup for automatic execution is available on a removable disk in json format, the execution of the setup may be rejected due to incorrect content validation (schema validation).

Workaround

Provide the setup as "setup.zip" on the removable disk. "setup.json" has to be available as "ctrlx-setup.json" in the root directory of the zip archive.

8 XCR-V-0118.3

8.1 Software

8.1.1 Components XCR-V-0118.3

Table 6: Contained components XCR-V-0118.3

Short name	Software	Version	Additional notes
ctrlX Apps			
XCR-V-0118.3	arch01.firstboot	1.18.3	
	arch02.uc20	1.18.3	
	core20	20221027 arm64 Revision: 1699 amd64 Revision: 1695	● ➦Resolved defects and modifications
	rexroth-arch01-hw (Hardware support)	1.18.1	New: comm.appcom2 1.20.0 Renaming Ethernet connection
	rexroth-arch02-hw (Hardware support)	1.18.0	
	rexroth-arch01-kernel (Linux kernel)	5.4.143-rt63-ctrlx10 (1.18.0)	Consolidation battery, fan and thermal driver
	rexroth-arch02-kernel (Linux kernel)	5.10.120-rt70-arch02-12 (1.18.0)	
	rexroth-automationcore	1.18.0	● ➦New functions ● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-deviceadmin	1.18.2	● ➦New functions ● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-solutions	1.18.1	
	rexroth-setup	1.18.1	● ➦New functions ● ➦Note on use and known restrictions
	rexroth-version-guard	1.18.0	
	snapd	2.57.5+git30087.g6e2ca49	➦https://github.com/snapcore/snapd/blob/master/packaging/ubuntu-16.04/changelog
SDK-V-0118.0	ctrlX SDK	1.18.0	➦https://github.com/boschrexroth/ctrlx-automation-sdk

8.1.2 Compatibility with drive-integrated control

In case of a drive-integrated control, ensure that the control version matches the drive firmware version.

The following table shows the combination options:

Control XCR	Drive firmware
1.12	AXS-V-0306
1.12.15 and higher (RM21.11.6)	AXS-V-0308
1.14	AXS-V-0308
1.16	AXS-V-0312
1.18	AXS-V-0314

8.2 New functions

8.2.1 Automation Core

Feature 439835: Remote logging call has changed

Description

The menu item "Diagnostics/Remote logging" does not exist anymore.

This function can be called via the logbook instead.

Enable the function "Show remote logging" in the "Settings" dialog first. Thus, the "Remote logging" button is shown in the command line. It can be used to start the function.

Feature 439841: Shutting down the Automation Core app upon an exception or F8/F9 error

Description

Description of the current behavior in case of an exception or F8/F9 error:

- The "Automation Core" app is shut down and does not restart
- This ensures a secure machine state (e.g. axes cannot be traversed anymore)
- This state can be diagnosed as follows:
  Only the LED remains red and only the start page of the control cannot be accessed

Feature 448193: Data Layer extensions

Description

The bulk access allows multiple Data Layer requests with one collective inquiry.

This interface is part of all supported programming languages. It is also available as REST interface.

Feature 456814: Hardware reset: Image update on the ctrlX CORE X3 control via USB

Description

The hardware (image update) can now be reset d via a USB stick on the ctrlX CORE X3 control.

The image update is performed as described in chapter ➦ Hardware Reset for ctrlX CORE and ctrlX DRIVE Plus with integrated ctrlX CORE of the ctrlX CORE Runtime, Application Manual, with the difference that a USB stick can now also be used.

Note:

To use this function, update the bootloader of the ctrlX CORE X3 control to the version 1.18.0 first.

There are two options to update the bootloader:

- Make the first image update via the SD card. The bootloader is automatically updated upon the initial boot.
- Update the "Hardware Support" app to the version 1.18.0. The bootloader is automatically updated after a restart.

Known problems

- The compatibility of USB flash drives is limited.
- Adding a HUB between X3 and the flash drive can improve compatibility.

Feature 504775: Scheduler extensions

Description

- **Extended information and configuration of the switching**
  Switching the state can be checked via the Data Layer node. The node *scheduler/admin/state/switching* is TRUE when switching is active. The *scheduler/admin/state/info* node contains the initial state, the current state and the target state. Since callables require different times for switching but the switch itself is also monitored by the scheduler in terms of time, it may be necessary to adjust the limits of the monitoring times via the *scheduler/admin/state/callable-timeout* node.
- **Display of the synchronization points**
  To create a callable, use synchronization points to specify the processing sequence in a program. Apart from specifying the processing sequence via a RUN index, synchronization points allow that a callable is always running before or after a certain callable. This also applies if further applications with new callables are installed. The configuration of the synchronization points of a callable consists of the lists "after" and " before".
  The "after" list defines after which synchronization points the callable is called, while the "before" list defines before which synchronization points the callable is called. The synchronization points can be read out via the Data Layer node *scheduler/tasks/<task-name>/program/<id>/ synchronization-points* and *scheduler/tasks/<task-name>/synchronization-points*.
- **Selecting an initial CPU core**
  For automated commissioning or for the GUIs, it might be required to suggest an initial CPU core for real-time processes or non-real-time processes. For this purpose, the Scheduler provides respective Data Layer nodes. The initial CPU cores can be retrieved via the Data Layer node *scheduler/admin/info/cpu-cores*.
- **Scheduler load**
  As the same user programs can be used on different hardware platforms (with different performance), it can be useful to monitor the Scheduler load in addition to the task watchdog for the user tasks. The node *scheduler/admin/utilization/max* provided in the Data Layer shows the percentage of available runtime of the Scheduler cycle that is required by the Scheduler itself. Due to unfavorable selection of cycle times for the user tasks (e.g. 3 ms and 7 ms), it might be required that the Scheduler has to run at a much higher cycle rate (e.g. 1 ms) than apparently necessary. This causes an unnecessarily high load on less performant systems.

Feature 508496: ctrlX CORE X7 image update via "Rescue" system

Description

The hardware reset (image update) allows to set the ctrlX CORE X7 control to a defined initial state using a USB stick.

The control goes into its initial state. It is mandatory to back up relevant data for the restoration before.

Required elements

- USB stick with a remaining capacity of at least 4 GB
- Rescue system binary file: bootx64.efi
- XCR image in ova format: rexroth-arch02.ova

Known problems

- Trigger UEFI/BIOS via the keyboard to detect newly plugged-in USB sticks.
- UEFI/BIOS does currently not support USB3 sticks.

Preparing the USB stick

1. Connect the USB stick to the engineering PC.
2. Delete the existing files on the USB stick and partition the USB stick if required. The USB stick may only have one partition formatted as FAT32.
3. Create the following folder structure on the USB stick:

   |-- EFI/

   |----- boot/

   |-- rescue/
4. Copy the "Rescue" system file bootx64.efi to the folder /EFI/boot.
5. Copy the image file rexroth-arch02.ova to the folder /rescue.

Updating to the ctrlX CORE X7 control

1. Plug in the USB stick to the USB port of the XF01C.
2. Switch on the ctrlX CORE X7.

   ➡ Info:

   Due to a known error in the UEFI/BIOS (see "Known problems" above), only USB 2.0 sticks function, but are not automatically detected as boot device.

   Workaround:

   - Connect a USB keyboard to one of the other USB ports (or use a USB hub) and a monitor to the display port interface.
   - Press F7 (BIOS boot menu) while booting -> the BIOS password dialog opens -> BIOS password does not have to be entered
   - Press CTRL + ALT + Del to restart the ctrlX CORE X7 control.
   - The image update should now start automatically from the USB stick.
3. The image update should start automatically.

   ℹ During the image update, the ctrlX CORE control will boot multiple times. Do not switch off the control until the update is complete.

   ➡ The update is completed when the LED is constantly green or flashing yellow (if a diagnostics is pending): Commissioning executed successfully

After the successful initialization, the device can be reached under the standard IP address 192.168.1.1.

Additional information on the content of the USB stick after the update

There are different files on the USB stick after the image update:

- /rescue/.done
  This file indicates that the update does not have to be executed again.
- /rescue/flash.log
  Information on the update process

To perform the image update again on the same device or on another device, delete the .done file and the backup folder (if available).

Feature 508616: Extensions of the Scheduler Web Interface

Description

Due to the extended functionality of the Scheduler, the web interface now consist of two tabs:

- "Configuration" tab:

The functionality did not change, but one extension was added. Synchronization points can now be specified when creating callables.

- "Overview" tab.
  This tab is new. It contains an overview on all tasks and their time measurements. The time measurements can be started, stopped or reset.
  The "schedMain" properties are not shown separately anymore, but as top entry in the table like all other tasks. Specific Scheduler properties can be set via the "Settings" dialog in the web interface of the Scheduler.

8.2.2 Device Admin

Feature 257721: Creating a ctrlX CORE system report

Description

The ctrlX CORE system report contains additional information on the error search or error analysis. The ctrlX CORE system report is provided as ZIP archive for download and includes for example settings, logbook entries, app version information, etc.

Feature 337742: Using micro SD card and USB stick to extend the internal memory

Description

A micro SD card or a USB stick can be used to extend the internal memory.

The memory medium is formatted and encrypted with EXT4 when mounted. All data on the partition is deleted. The process is completed upon device restart. The removable medium can only be used on the control on which is was mounted.

The memory medium can be removed safely.

Caution: The data cannot be used anymore. The safe removal of such a memory medium is also completed when restarting the device.

Every app can store data on the memory medium. Apps cannot be installed in this section.

A directory is provided on the memory medium for each app. It cannot be read or overwritten by other apps.

Data on the internal memory extension are not part of "Backup & Restore".

Feature 377708: Network diagnostics - Ping

Description

Ping is a diagnostic tool used to check whether a specific host is reachable in an IP network. The connectivity on IP level is checked by sending ICMP echo request messages. The reception of the respective echo response messages is shown together with the packet round trip time (rtt).

Feature 400981: Web interface for WLAN hotspot

Description

A WLAN interface can now also be configured as WLAN hotspot via the ctrlX web interface.

Feature 466590: Change CPU update speed

Description

The CPU update speed can be changed in the window "Information" under the tab "Performance":

- High (2 seconds)
- Normal (5 seconds)
- Low (10 seconds)

The selection also affects the update speed of the tile "CPU Usage" on the tab "Resources".

Feature 495933: Data on external memory media is ignored while saving or restoring

Description

Data on external memory media is ignored while saving or restoring.

Feature 503136: Reserve memory for real-time apps

Beschreibung

Memory can be reserved for real-time apps (Motion, EtherCAT, PLC, PROFINET Device) in the window "Information", under tab "Resources" in the tile "Memory usage". The reserved memory value can be selected from a given range.

Es kann Speicher für Echtzeit-Apps (Motion, EtherCAT, PLC, PROFINET Device) im Fenster "Informationen" unter der Registerkarte "Ressourcen" in der Kachel "Speicherverwendung" reserviert werden. Der Wert des reservierten Speichers kann aus einem vorgegebenen Bereich ausgewählt werden.

Feature 503146: – Revision of connectivity

Description

The "Connectivity" site was revised and is now called "Network interfaces".

New functions were also added:

- Setting the MTU (Jumbo frames)
- Support of DCHP options (e.g. using NTP)
- Configuration of a WLAN interface as WLAN hotspot

Feature 504878: Device Admin information is shown as legible Data Layer

Description

Information on different Device Admin section are shown in the Data Layer:

- *system/apps/installed* node:
  Information on each installed app
- *system/resources/cpu* node
  Current load of each CPU
- *system/resources/memory* node
  Available and used memory
- *system/resources/storage* node
  Information on the internal and external memory media
- *system/resources/network/interfaces* node
  Information on each network interface

All information is contained as legible data in the Data Layer.

Feature 505317: Display of processes and threads, filtering by CPU core

Description

In the window "Information" under tab "Processes", processes and threads are displayed in different colors to be able to distinguish them.

Threads can be hidden with the button "Hide Threads".

In the view "More details" the columns "Priority" and "CPU core" are displayed.

Sorting is possible by clicking on the table header.

Filtering by apps and CPU core is possible.

8.2.3 Setup

Feature 447379: Setup of the ctrlX CORE via a removable medium

Description

The ctrlX CORE can be set up via a removable medium.

Feature 453064: ctrlX setup level 3 - Extensions

Description

- Licenses can be loaded via the ctrlX setup (license capability files).
- Ethernet interfaces are assigned to the changed names.
- WIFI settings can be loaded. A new password has to be added explicitly for new interfaces.
- Theming settings can be loaded via the ctrlX setup.
- The activations of the network search services can be loaded via the ctrlX setup.
- The PKI settings can be loaded via the ctrlX setup.
- Fine-granular selection of the content when creating a setup via the command line.
- Users without admin rights can also create a setup.

Feature 459698: Autologin on removable media

Description

An authorization can be stored on a removable medium to enable the automatic execution of a ctrlX setup.

Feature 461721: ctrlX setup with image update from common removable media

Description

A ctrlX setup can be executed from a common removable medium together with an image update.

Only a limited image update is available for ctrlX CORE X7 devices.

Feature 490195: List of applied ctrlX setups on the device

Description

There is a list of applied ctrlX setups on the device.

8.3 Resolved defects and modifications

8.3.1 Automation Core

Bug 500635: DEBUG mode is not shown as "pending diagnosis"

Description

Using the DEBUG mode was not shown as "pending diagnosis", but only once as simple warning and it could be confirmed (deleted).

Bugfix

Using the DEBUG mode is permanently shown as warning for the period used.

Bug 500953: Error "Timeout when restoring the configuration" (0C7B4263) after booting the Automation Core

Description

If placeholder callables are available after booting, a configurable time is waited in the Scheduler until all components are loaded completely. If there are still placeholder callables after this time, the error "Timeout when restoring the configuration" (0C7B4263) is issued.

Bugfix

If there are still placeholder callables after loading a configuration, the error "One or multiple callables are configured, but not available" (0C7B4286) is issued. Apart from the error, missing callables are also displayed. The error provides a detailed troubleshooting description.

Bug 507182: App actions result in a missing Data Layer node and a hardware watchdog

Description

By app actions (update/installation/uninstallation/enable/disable), nodes in the Data Layer are sporadically not displayed anymore. Amongst others, these nodes can affect the */system/admin/busy* and *opc-ua* nodes. The nodes can only be restored via a restart.

The */system/admin/busy* node signalizes that a service activity (e.g. an app installation) is currently executed. To avoid conflicts between service activities and real-time applications, it is not possible to switch the system from the “service” state if this node is “true”.

If by mistake, the node is not available, a hardware watchdog can occur when installing several apps (e.g. Motion, OPC UA and PLC). However, the watchdog only occurs if the “Motion” app is installed initially, together with more apps (previously, there was no “Motion” app installed).

Bug 512189: Task watchdog when switching from SERVICE to SETUP

Description

Sometimes, there is a task watchdog when switching from SERVICE to SETUP. This error only occurs in the first switching cycle and does not have any impact on the operation of the control.

Bug 512533: Timeout while writing Data Layer nodes to the Scheduler

Description

The error message "DL_TIMEOUT" can result when writing Data Layer nodes.

Amongst others, these affect the following Data Layer nodes:

- *scheduler/admin/state*
- *scheduler/tasks/<task_name>/program*
- *scheduler/admin/cfg/load*

The error can occur during the following actions:

- If a Profinet instance is created in the system state “Operating”, an error message is output.

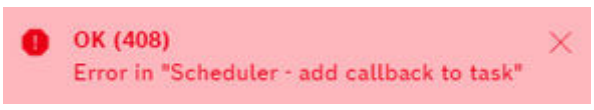


Fig. 1: Bug512533_01.png

- Loading a configuration

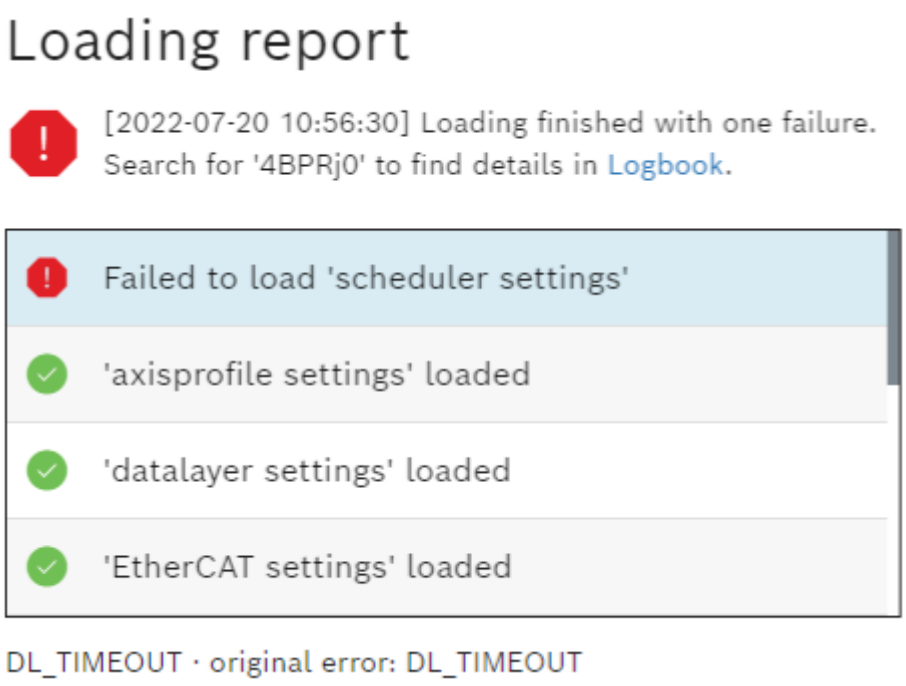


Fig. 2: Bug512533_02.png

Bug 512595: Node *diagnosis/reset/all-pending*: Memory leak upon call via REST API

Description

If the Data Layer node *diagnosis/reset/all-pending* is called via REST API (create), a memory leak results if the user does not clean properly (by deleting the created child nodes or by browsing the node *diagnosis/reset/all-pending*), as the created child node still exists. Each further call adds a child node and blocks memory.

Bugfix

At the beginning of each call of the Data Layer address *diagnosis/reset/all-pending*, the already completed tasks (child nodes) are cleaned. Thus, the tasks added via REST API are also removed and no memory leaks remain.

Bug 529226: Memory leak when using subscription

Description

The Automation Core app provides the option to display existing subscriptions under the *datalayer/subscriptions* node. Sporadically, completed subscriptions cannot be deleted in this display and this could thus lead to a memory leak.

Bug 529911: Same task priorities can cause errors

Description

Tasks with the priorities "high", "mid", "low" or "nrt" cannot be affected in their processing sequence if the same priority value (e.g. "mid") is used for multiple tasks, The currently possible specifications "high", "mid", "low" and "nrt" are strongly restrictive.

To better adjust the processing sequence, the task priorities "high", "mid", "low" and "nrt" can be supplemented by a positive or negative offset (e.g. "mid-2" or "high+1").

Due to the same priorities, tasks might not be called in the intended sequence. The task "motionHighPrep" can for example run before the task "ctrlXAutomation". If this is the case, a task watchdog on the task "ctrlXAutomation" can result when commanding axes.

Bug 529996: Resetting the same log from different sources can generate a pending error

Description

When resetting an already reset error or warning (or an error that does not exist or a warning in the list of pending diagnostics), a pending error is generated by the diagnostic system.

Bugfix

When resetting an already reset error or warning (or an error that does not exist or a warning in the list of pending diagnostics), no pending error, but a trace warning is generated.

Bug 530355: Invalid or empty user ID at a Data Layer call causes an exception

Description

When using one of the Data Layer methods *diagnosis/set/set-active*, *diagnosis/set/reset-active* or *diagnosis/set/set-and-reset*, an empty or invalid user ID (the user ID should be a 32 bit unsigned integer) causes an exception in the "Automation Core" app.

Bugfix

If one of the respective Data Layer methods are called with an invalid or empty user ID, an error is returned.

Bug 533957: System status is in SERVICE after booting

Description

If placeholder callables are deleted, the Automation Core remains in SERVICE and does not switch to OPERATING after booting.

Bug 535349: Automation Core app restart in case of critical errors

Description

If a critical error occurs in the system (F8/9 error or exception), the Automation Core app restarts and switches to the target state. No error was output during a restart and thus, no diagnostics was pending.

Bugfix

If a critical error occurs in the system, the Automation Core app is closed and does not restart.

Bug 548895: Exception upon configuration reset in SERVICE mode

Description

If an app with callables (e.g. Motion) was uninstalled in SERVICE mode and then (still in SERVICE mode) the configuration was reset, an exception resulted.

8.3.2 Device Admin

Bug 278318: DHCP cannot be disabled on eth1

Description

Even if DHCP is explicitly disabled for eth1, DHCPv6Discover queries are sent.

Bug 491688: Network Discovery settings are not backed up upon backup

Description

The current settings of the Network Discovery services (LLMNR, UPNP and MDNS) are not backed up. Following a restore operation, the services have the same settings as the settings on the device and not as expected on the device the backup was created with.

Bug 501277: Network Discovery settings are not backed up in a ctrlX setup file

Description

The current settings of the Network Discovery services (LLMNR, UPNP and MDNS) are not backed up during the ctrlX setup. After applying a ctrlX setup file, the services have the same settings as the settings on the device and not as expected on the device the ctrlX setup file was created with.

Bug 506342: The new web server reports 404 after the installation

Description

When trying to contact the new web server following an installation, the error message 404 is reported. The message is retained in Firefox as the browser cache remembers the information.

Bug 507424: Uninstalling required apps via "Restore" operation

Description

A "Restore" operation uninstalls apps labeled as required.

Bug 508391: Insufficient display authorizations to correctly display the “Certificates and keys” page

Description

The authorizations “View certificates and keys”, "View keys" or "Manage certificates” do not suffice to correctly display the “Certificates and keys” page. An error message is displayed when opening the page and the extension status is not displayed.

Bug 511107: Changes at NTP server have no impact

Description

While saving, the "Save" button was still active.

Bugfix

The "Save" button can only be selected once.

Bug 528848: The RAM consumption of the Device Admin process increases continuously

Description

The RAM consumption increases considerably within time (several MB per day). This behavior is reinforced if many new threads are created and deleted. The list containing the CPU load of the individual threads could not be cleared.

The error is in the component querying the RAM consumption and the CPU load.

Bugfix

Threads that do not exist anymore are regularly removed from the thread list

Bug 542822: Possible increasing memory consumption due to a memory leak in the license manager

Description

Due to a potential storage error in the license manager, the memory consumption can increase with time if it is tried to successively get licenses.

Bug 546873: Network interfaces are not automatically configured upon subsequent plug-in

Description

If an already configured USB network interface is connected after the system start, it is not configured. If the network configuration is changed (also at other network interfaces), the configuration for the newly plugged-in interface is active.

Bugfix

A wired network interface is now immediately active after plugging in with the previously defined configuration. The behavior of wireless network interfaces does not change. The workaround applies.

Workaround

Change the network configuration or restart the control.

Bug 553988: Possible memory leak, i.e. assigned memory is not released in web.taskmanager

Description

The memory was assigned for some resources in v3/process/process_darwin_cgo.go, but not released.

Bugfix

The memory allocation was released.

8.3.3 Ubuntu Core 20

Bug 557440: Security update

Description

The vulnerabilities listed below and classified as high risk (CVSS score >= 7.5) were fixed:

- ➦https://ubuntu.com/security/notices/USN-5627-1
- ➦https://ubuntu.com/security/notices/USN-5615-1
- ➦https://ubuntu.com/security/notices/USN-5672-1
- ➦https://ubuntu.com/security/notices/USN-5689-1
- ➦https://ubuntu.com/security/notices/USN-5699-1
- ➦https://ubuntu.com/security/notices/USN-5702-1
- ➦https://ubuntu.com/security/notices/USN-5716-1

Bugfix

The core20 component has been updated to version 20221027.

8.4 Notes on the use and known restrictions

8.4.1 Automation Core

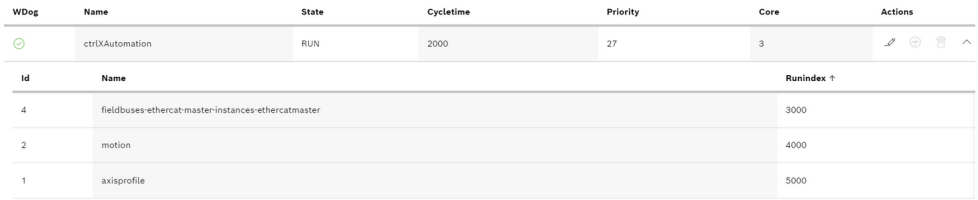
Bug 344973: To ensure the best real-time behavior possible, task and trace settings have to be correct

Description

- The callables of 'Ethercat', 'Motion' and 'Axisprofile' should run within the same task
  - Due to locks on other cores, these callables might not be executed in the correct sequence if they do not run in one task
    See Bug 206983 and Product Backlog Item 225458.
- All traces of 'rexroth-automationcore' should be disabled
  - Active traces can result in task watchdogs of the real-time task, e.g. ctrlXAutomation or plcEvent07
- The priorities of all PLC tasks should be lower than the priority of the ‘ctrlXAutomation’ task
  - Locks on other cores than on the core on which the task 'ctrlXAutomation' is running can lead to task watchdogs of the 'ctrlXAutomation’ task

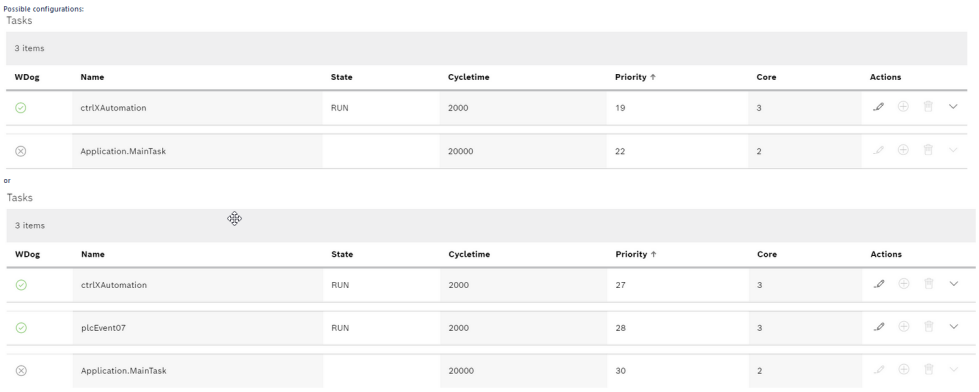
Workaround

- These callables have to run within one task to ensure that the execution sequence is complied with which corresponds to the standard configuration.



- All traces should be disabled. If traces are required for error search, disable these traces again.
  - All active traces might already be saved. To ensure that all traces are disabled, write “false” to ’trace/rexroth-automationcore/units' via the Data Layer.

- Only us priorities higher than the priority of the ctrlX Automation task for the PLC task.
  - The default priority of a PLC task is 30 and the default priority of the ctrlX Automation task is 27. These default priorities are already correct.
  - To change the priority of already configured tasks, either set the priority of the PLC tasks lower than the priority of the ctrlX Automation task or set the priority of the ctrlX Automation task higher than the PLC tasks.



Bug 349989: After the task watchdog, it is not possible to search the *scheduler/tasks* node

Description

After a task watchout, the Data Layer node *scheduler/tasks* does not respond anymore.

Bug 567979: Error due to a cycle time load that is too high upon startup

Description

Upon system startup, an error or a warning might result when the cycle time load is too high. If an error is issued, the system startup can be aborted after OPERATING and the system remains in the SERVICE state.

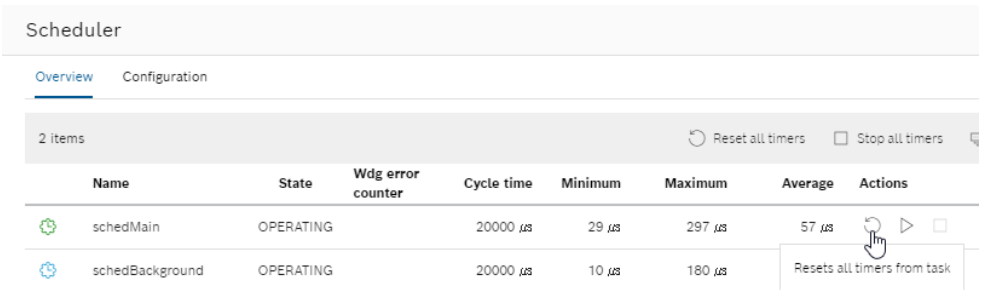
The following errors can be issued:

- 080E0023 007B4279: The maximum load of the cycle time of the Scheduler exceeded the limit value with a warning
- 080F6023 007B4280: The maximum load of the cycle time of the Scheduler exceeded the limit value with an error
- 080F6019 007B4281: The maximum load of the cycle time of the Scheduler exceeded the limit value with a fatal error. The system switches to the SERVICE state

Workaround

- Warning: 080E0023 007B4279
  - Reset of the time computations of the "schedMain" task
- Errors: 080F6023 007B4280 & 080F6019 007B4281
  - Reset of the time computations of the "schedMain" task
  - Deleting errors
  - Switching to OPERATING if required
- The control can also be restarted in all error cases.

The step sequence for troubleshooting may not be changed.



Bug 569023: ctrlX CORE X7: XF50/XF52 sporadically not available

Description

The devices */sys/class/net/XF50* and */sys/class/net/XF52* are sporadically not available after restarting the ctrlX CORE X7.

Workaround

A voltage cycle (switching off and on) fixes the sporadic problem.

Bug 571960: Drive error after updating the Automation Core

Description

After an "Automation Core" app update, drives might report the errors "F2067 Synchronization on master communication faulty" or "C5251 Error when synchronizing to master communication".

Workaround

To troubleshoot the error, a power cycle is required.

8.4.2 Device Admin

Bug 440613: The maintenance mode has to be detected during the installation/updating of apps

Description

The snapd returns the maintenance mode in case of certain operations. These operations are a restart of the snapd service or a system restart.

Due to this restart, attempts to connect to the snapd failed. Thus, a detection of the maintenance mode is required.

Currently, the snapd only returns the restart of the service. The system restart was not reported.

Workaround

Certain connection errors are ignored in the current implementation.

Bug 561414: Details in the tab "IPv4" are lost

Description

If you select the "IPv4" tab in the network interfaces and you expand the details, further setting options are provided. If you make changes in these details and collapse the details without saving, the changes are lost.

Workaround

If you want to keep the changes in the tab "IPv4" under details, then save them before closing.

Bug 567467: Interface XF51 does not support Jumbo frames

Description

The MTU size cannot be changed for the interface XF51. The driver used does not support this functionality. Using Jumbo frames on the interface XF51 is thus not possible.

Workaround

Use the interface XF10 or a USB Ethernet device for Jumbo frames.

Bug 570748: In some cases, Chrome browser considers system report to be "dangerous"

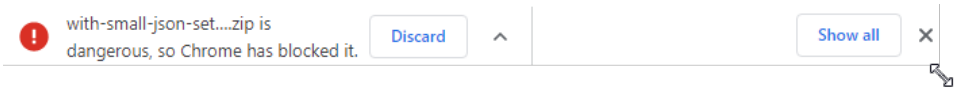
Description

If a system report is created and a Chrome browser is used, it can incorrectly consider the created file as "dangerous".

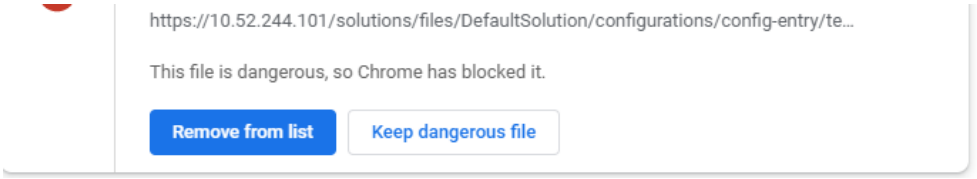
This results from the structure of the report file and can additionally be affected by the subnet distribution and the SSL certification of the device.

Workaround

Go to the footer of the browser and select "Show all" for the download.



Select "Keep malicious file" to keep the downloaded file on the computer.



Alternatively, a different browser can help.

Bug 573663: Internal partitions are visible in the memory management of the ctrlX CORE X7

Description

Internal partitions are visible on the ctrlX CORE X7 and can also be partially formatted, unmounted, etc. by the user. This results in an undefined system behavior and can also cause a total failure.

Workaround

The user may not perform any actions with the internal partitions.

These are:

- nvme0n1p1
- ctrlx-vault
- ubuntu-seed
- rescue-system
- ubuntu-boot
- ubuntu-save-enc
- ubuntu-data-enc

Bug 573800: Remote logging configuration is lost when updating from 01V12 to 01V18

Description

When updating from 01V12 to 01V18, the remote logging configuration is lost.

Thus, note down the relevant settings, e.g. target IP address, port and protocol before updating.

As the remote logging is not completely supported in 01V12, further settings (e.g. filter) are not affected.

Bug 578194: Memory reservation for real-time apps does not work properly

Description

If the user sets a high value, it will be reserved for the base apps instead of the real-time apps.

8.4.3 Setup

Bug 572501: Increased startup time after automatic setup execution

Description

An external file system remains mounted after the automatically executed setup. This increases the system startup time by one minute if the medium was removed.

Workaround

Safely remove the file system of the external memory medium after the automatically executed setup, see *“Settings → Memory”*.

Bug 573784: Autorun of a setup in json format fails on a ctrlX CORE X7

Description

Autorun of a setup in json format fails on a ctrlX CORE X7 control.

Workaround

Provide the setup file as ZIP archive on the data carrier.

9 XCR-V-0116.3

9.1 Software

9.1.1 Changed components XCR-V-0116.3

Short name	Software	Version	Additional notes
ctrlX Apps			
XCR-V-0116.3	rexroth-automationcore	1.16.2	● ➦Resolved defects and modifications
	rexroth-deviceadmin	1.16.4	● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-arch01-hw	1.16.3	● ➦Resolved defects and modifications
	core20	20221027 (Rev: 1699)	● ➦Resolved defects and modifications

9.1.2 Compatibility with the drive-integrated control

In case of a drive-integrated control, it has to be ensured that the control version matches the drive firmware version.

The following table shows the combination options:

Control XCR	Drive firmware
1.12	AXS-V-0306
1.12.15 and higher (RM21.11.6)	AXS-V-0308
1.14	AXS-V-0308
1.16	AXS-V-0312

9.2 Resolved defects and modifications

9.2.1 Automation Core

Bug 529226: Memory leak when using subscription

Description

The Automation Core app provides the option to display existing subscriptions under the *datalayer/subscriptions* node. Sporadically, completed subscriptions cannot be deleted in this display and this could thus lead to a memory leak.

Bug 535349: Restart of Automation Core app in case of critical errors

Description

If a critical error occurs in the system (F8/9 error or exception), the Automation Core app restarts and switches to the target state. No error was output during a restart and thus, no diagnostics was output.

Bugfix

If a critical error occurs in the system, the Automation Core app is closed and does not restart.

9.2.2 Device Admin

Bug 528043: Missing routes result in HTTP error 404

Description

The web server routes are reset during the installation, uninstallation, activation and deactivation of an applications. Sporadically, an error occurred. Due to this error, new routes could not be registered and existing routes could be deleted. Consequently, the web servers of the applications do not respond anymore (HTTP error 404).

Bugfix

The affected core component was updated to a version containing a bugfix for this problem.

Bug 528848: The RAM consumption of the device admin process increases continuously

Description

The RAM consumption increases considerably within time (several MB per day). This behavior is reinforced if many new threads are created and deleted. The list containing the CPU load of the individual threads could not be cleared.

The error is in the component querying the RAM consumption and the CPU load.

Bugfix

Threads that do not exist anymore are regularly removed from the thread list.

Bug 529916: The new web server reports 404 after the installation

Description

When trying to contact the new web server following an installation, the error message 404 is reported. The message is retained in Firefox as the browser cache remembers the information.

Bugfix

Caching was disabled for all 404 pages so that the pages are reloaded in the central web server following an update of the routes.

Bug 530446: Some nodes in the Data Layer sporadically vanish

Description

Some nodes in the Data Layer sporadically vanish.

Bugfix

By updating the connection library to the Data Layer, this problem is fixed.

Bug 539290: Generating a backup via the device portal is not possible

Description

The “Activity overview” window in the device portal displays the message "/var/tmp/rda-backup is not a valid target directory".

Bug 542822: Possible increasing memory consumption due to a memory leak in the license manager

Description

Due to a potential storage error in the license manager, the memory consumption can increase with time if it is tried to successively get licenses.

9.2.3 Hardware Support

Bug 535019: Inconsistent data during communication between COM.2 and CORE

Description

During communication between COM.2 and CORE, unwanted changes in the data stream could occur. This resulted in incorrect data in the data layer and in the internal management interface of the COM.2.

Bugfix

The timing of data transfer has been improved to ensure data consistency on the interface between COM.2 and CORE in all use cases.

9.2.4 Ubuntu Core 20

Bug 566282: Security update

Description

The vulnerabilities listed below and classified as high risk (CVSS score >= 7.5) were fixed:

- https://ubuntu.com/security/notices/USN-5627-1
- https://ubuntu.com/security/notices/USN-5615-1
- https://ubuntu.com/security/notices/USN-5672-1
- https://ubuntu.com/security/notices/USN-5689-1
- https://ubuntu.com/security/notices/USN-5699-1
- https://ubuntu.com/security/notices/USN-5702-1
- https://ubuntu.com/security/notices/USN-5716-1

Bugfix

The core20 component has been updated to version 20221027, revision 1699.

9.3 Notes on the use and known restrictions

9.3.1 Device Admin

Bug 278318: DHCP cannot be disabled on eth1

Description

Even if DHCP is explicitly disabled for eth1, DHCPv6Discover queries are sent.

Bug 316525: Multicast only works if the gateway is set

Description

Multicast messages are only sent if a gateway (or a route) is defined in the multicast address range.

Bug 440613: The maintenance mode has to be detected during the installation/updating of apps

Description

The snapd returns the maintenance mode in case of certain operations. These operations are a restart of the snapd service or a system restart.

Due to this restart, attempts to connect to the snapd failed. Thus, a detection of the maintenance mode is required.

Currently, the snapd only returns the restart of the service. The system restart was not reported.

Preliminary solution

Certain connection errors are ignored in the current implementation.

Bug 491688: Network Discovery settings are not backed up

Description

The current settings of the Network Discovery services (LLMNR, UPNP and MDNS) are not backed up. Following a restore operation, the services have the same settings as the settings on the device and not as expected on the device the backup was created with.

Bug 501277: Network Discovery settings are not backed up in a ctrlX setup file

Description

The current settings of the Network Discovery services (LLMNR, UPNP and MDNS) are not backed up during the ctrlX setup. After applying a ctrlX setup file, the services have the same settings as the settings on the device and not as expected on the device the ctrlX setup file was created with.

Bug 508391: Insufficient display authorizations to correctly display the “Certificates and keys” page

Description

The authorizations “View certificates and keys”, "View keys" or "Manage certificates” do not suffice to correctly display the “Certificates and keys” page. An error message is displayed when opening the page and the extension status is not displayed.

Preliminary solution

Currently, the workaround is to assign the authorization “Manage certificates & keys” or “Manage keys” to allow access to the page.

10 XCR-V-0116

10.1 Software

10.1.1 Components XCR-V-0116

Table 7: Contained components XCR-V-0116

Short name	Software	Version	Additional notes
ctrlX Apps			
XCR-V-0116.2	arch01.firstboot	1.16.2	Image
	core20	20220527(Rev: 1522)	
	rexroth-arch01-hw (Hardware support)	1.16.2	
	rexroth-arch01-kernel	5.4.143-rt63-ctrlx8	
	rexroth-automationcore	1.16.0	● ➦New functions ● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-deviceadmin	1.16.1	● ➦New functions ● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-solutions	1.16.0	● ➦New functions
	rexroth-setup	1.16.0	● ➦New functions ● ➦Resolved defects and modifications ●
	snapd	2.56	➦https://github.com/snapcore/snapd/blob/master/packaging/ubuntu-16.04/changelog
	rexroth-version-guard	1.16.0	
SDK-V-0116.0	ctrlX SDK	1.16.0	➦https://github.com/boschrexroth/ctrlx-automation-sdk

10.1.2 Compatibility with the drive-integrated control

In case of a drive-integrated control, it has to be ensured that the control version matches the drive firmware version.

The following table shows the combination options:

Control XCR	Drive firmware
1.12	AXS-V-0306
1.12.15 and higher (RM21.11.6)	AXS-V-0308
1.14	AXS-V-0308
1.16	AXS-V-0312

10.2 New functions

10.2.1 Automation Core

Feature 395940: Data Layer extensions

Description

Additional functionalities:

- Trace added if the memory user lost the connection to the RT memory
- “timestamp” data type added
  - Time stamp of the type tree
  - Type Array of time stamp
  - Time stamp type in variant, also convertible to json and back.
- Maximum message size added; this can be configured in the data-layer/server/settings node
- Added to the Data Layer RT: nTelBuffer - n buffer systems to support n-2 RT users
  - can be configured in the *datalayer/realtime/broker/settings* node

Bugfixes:

- The provider could not reconnect during the snap installation
- A message is always send if the node is managed by the provider
- The provider disconnects the connection if the provider manages the sub-scription and also responds like the provider
- System crashes if the type in the MemoryMap in the Data Layer RT is not selected
- The first TCP token check after a deviceadmin restart fails as the socket is closed
- Subscription does not report an error when the INPROC connection cannot be established
- Reading of memuser of the MemoryMap can result in a crash
- Subscription of an empty node set should not fail
- createSubscription(A)sync() did not fail if no connection was established
- Subscription with identical ID does not result in an error (Bug 459232)
- Browsing returns OK but the node does not exist (Bug 451808)
- Add alias for FLOAT (FLOAT32) and DOUBLE (FLOAT64) (bug 452239)
- Deadlock in the DL Client during unsubscribe (Bug 452335)

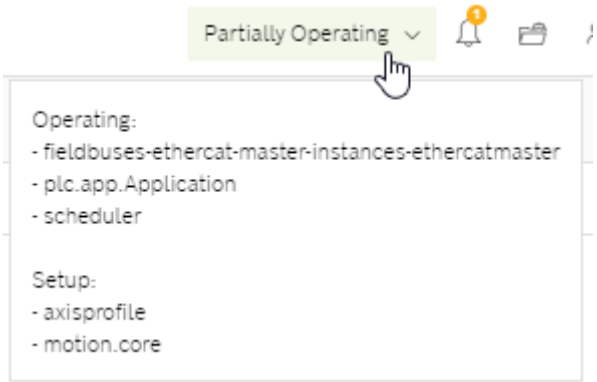
Feature 433774: System state of the ctrlX CORE Runtime

Description

System state

The state of all ctrlX CORE Runtime components (PLC, EtherCAT, Motion, Axis Profile, Profinet) are summarized to a system state. This new system state replaces the Service Mode.

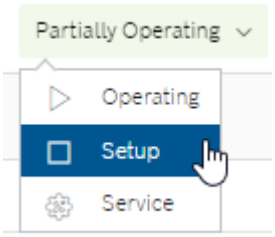
The SERVICE, SETUP, PARTIAL_OPERATING and OPERATING states are possible.



The system state can be read out via the Data Layer node *system/state*. The ctrlX CORE Runtime component states are represented below this node.

Switching the state

The ctrlX CORE Runtime component state can be changed via the ctrlX Scheduler.



By changing the scheduler state (*scheduler/admin/state*), the tasks as well as their callables are switched.

By switching the callables, the subordinate component of the callable is also switched to the corresponding state.

In the SERVICE state, the tasks are not executed and the hardware watchdog as well as the task watchdogs are disabled. Actions having an impact on the real-time can be executed in this state. Amongst others, these actions can include the installation and uninstallation of apps.

The SETUP state is used to configure the components. This state can be required to load a configuration. The system is should be in state OPERATING during operation.

LED state

state	color	
System state „SERVICE/SETUP“	blue	BU
System state „ PARTIAL_OPERATING“	flashing green	GN GN GN GN GN - - - - -
System state „ OPERATING“	green	GN

Necessity for switching

Switching of the state is not always required. It is required if apps were installed having special requirements on the real-time. For example, these apps can include a Motion or PLC app. Switching is also required if a task was configured with a task watchdog in the scheduler.

Via the *scheduler/admin/info/strict-mode* Data Layer node it can be read out if switching is necessary. The widget to display and switch the state is only displayed if required.

Feature 435362: Handling large data volumes in the Data Layer interface

Description

Nodes in the Data Layer with a large number of subnodes (several thousand nodes) are identified by a filter symbol. These node are handled individually during the operation and display on the interface.

Reason: the representation and operation of large data volumes is not user-friendly and the interface components are not intended to display large data volumes.

Feature 448724: Diagnostic extensions for Release 1.16

Description

From release 1.16 it is now possible to use the bundle interface of the common.log.diagnosis bundles outside the app.automationcore snap context with an individual celix framework. The following entry has to be added to the celix configuration file "config.properties”:

```
diagnosis.broker.enable=false
```

All available C++/C interfaces are mapped to app.automationcore via Data Layer Client calls.

Supported interfaces:

- i_registration3.h → registering and unregistering diagnostics
- i_log2.h → reporting diagnostic logs
- pending_diagnostics_itf.h → methods and information about the pending diagnostics

Unsupported interfaces:

- distributor/i_registration.h → messages about certain diagnostic events are contained
- i_registration.h → outdated, instead use i_registration3.h
- i_log.h → outdated, instead use i_log2.h

If app.automationcore is not available, the diagnostic bundle runs into fallback mode. The fallback mode also allows registering/unregistering as well as reporting of diagnostics so that messages do not get lost.

10.2.2 Device Admin

Feature 276675: Device Discovery revised for all network interfaces

Description

The Device Discovery services (MDNS, LLMNR and UPNP) have previously only been available to eth0. Due to this feature, the services are now available for all network interfaces. Additionally, the serves can be individually enabled and disabled via the interface.

Feature 349009: Certificate management via the Certificate Management Protocol (CMP)

Description

The certificate management now allows to manage certificates via the Certificate Management Protocol (CMP). A server configuration is assigned to a certificate via which the certificates can be obtained and renewed prior to expiry.

Feature 394909: Device Admin information is now displayed as legible data in the Data Layer

Description

In the Data Layer, type plate information as well as additional system specifications are provided under the *system/typeplate* or *system/info* node. The information of the storage media of the system is stored under the *system/resources/storage* node.

All information is contained as legible data in the Data Layer.

Feature 440943: Supporting license filing on a dongle

Description

From this release, it is possible to assign licenses to a dongle (instead of to a device).

The dongle has to be plugged during operation. If the dongle is removed, the system is shut down after a (short) transition time.

Feature 448328: Remote Logging: Filtering according to different criteria

Description

Remote Logging now supports filters for different criteria (e.g. unit, tag). Only telegrams meeting the filter criteria are forwarded to remote servers.

Feature 489592: Using a microSD card and a USB stick for data exchange

Description

The microSD card or a USB stick can be used to exchange data (e.g. Backup/ Restore).

Therefore, the removable media can be connected and formatted. After using, the removable media can be released again.

The format Ext4 is also supported during formatting.

10.2.3 Solutions

Feature 443251: Improvements of the Solutions App for XCR-V-0116

Description

The active configuration can be directly loaded or backed up using upload and download.

10.2.4 Setup

Feature 441463: ctrlX setup extensions

Description

The ctrlX setup was extended as follows:

- App binaries can be applied to the setup using Create.
- The active configuration and the archived configurations can be applied to the setup using Create and Apply.
- System states are set automatically to install apps and to load or to reset the active configuration.
- After manually installing version 01.16 via Image or manually, the setup app can also update itself.
- The setup now also contains information about licenses, type plate and the system (read-only).
- A command line tool is provided via the ctrlX Works installation.

10.3 Resolved defects and modifications

10.3.1 Automation Core

Bug 223809: It is possible to switch ctrlX to service mode while the axes are moving

Description

It is possible to switch ctrlX to service mode while the axes are moving. Thus, the motion is interrupted.

Bug 345329: Modifications in the Scheduler configuration can cause errors at the Ethercat devices

Description

Changes in the configuration of the Scheduler, e.g. creating, deleting or changing the priority of a task, can cause errors in the EtherCAT devices. Possible resulting errors are "0x001B sync manager watchdog" at the EtherCAT master or "F4036" at the drive.

Bug 404930: Error when switching to service mode

Description

If the scheduler is in state "RUN", an error can sporadically occur when switching to service mode. The error "081F6042 0C7B4250: Invalid action in "RUN" state" is reported.

Bug 477942: Error when reading the watchdog node

Description

If no watchdog is configured in a task, reading of the *scheduler/tasks/<task_name>/watchdog* node returns an error.

Bugfix

If no watchdog is configured in the task, the watchdog type “NONE” is returned.

Bug 482822: LED does not show pending diagnostics during booting

Description

If diagnostics (warnings or errors) occur when booting the control (in particular when booting the app.automationcore), these diagnostics did not visualize these diagnostics correctly by the LED and in the system handler status. As soon as the control has booted successfully, reported diagnostics are visualized correctly.

Bugfix

By fixing this error, diagnostics occurring during booting are visualized correctly.

Bug 491523: app.automationcore crash when browsing for a Data Layer RT area

Description

If a Data Layer RT area is used and if this area was temporarily not available, this could result in a crash of the app.automationcore.

10.3.2 Device Admin

Bug 230173: All Device Discovery services are only configured for eth0

Description

All Device Discovery services are only configured for eth0.

Bugfix

The configuration of Device Discovery services was extended to all multicast-compatible network interfaces.

Bug 239182: Unlike LLMNR and UPNP, the MDNS host name is not refreshed

Description

Upon a host name change, LLMNR and UPNP are re-initialized, MDNS is not re-initialized.

Bugfix

All Device Discovery detect a host name change and are re-initialized.

Bug 256940: No default configuration is defined for the bridge

Description

If a new bridge is created, no default configuration is available. Consequently, a control does sporadically not respond anymore after creating a bridge in which all available network interfaces are bridged.

Bugfix

Each bridge is assigned a default configuration upon creation.

Bug 261834: The Devicediscovery functions are only applied to eth0

Description

Devicediscovery consists of the following elements:

- LLMNR (Link-local Multicast Name Resolution)
- MNDS (Multicast DNS)
- UPNP (Universal Plug and Play)
- Zeroconf (Zero Configuration Networking)

These services are only applied to eth0.

Bugfix

The Devicediscovery services are now available on all network interfaces.

Bug 396024: The "managed" flag under PUT /network-manager/api/v1/interfaces/{interfaceName} is not evaluated

Description

The "Managed" flag was moved to the API of the network manager. The new route has not yet been implemented.

Bug 409374: Details of two or more WLAN interfaces are not displayed correctly

Description

When switching between two WLAN interfaces, the WIFI details are not refreshed. Always the data of the first selected interface is displayed.

Bugfix

In case of a direct switch between two WLAN interfaces, the WIFI details are refreshed immediately.

Bug 462705: The package manager does not detect incorrectly formatted app files

Description

The following error message was output: “Snap meta data cannot be retrieved". Sporadically, “snap not found” was reported.

Bugfix

Detailed error messages are output:

- “Operation failed The file is corrupt”
- “The uploaded file is no app or is corrupt"

Additionally, the code was changed to prevent the error message “snap not found”.

Bug 462981: NTP servers can only be deleted explicitly

Description

If the ntpServer array is not specified in the REST call to refresh the “Date & time” settings, the configured NTP server was not removed:

e.g. `PUT /system/api/v1/time/settings with {"timezone": "UTC"}`

Bug 468803: Sporadically, NTP servers can be lost during an update

Description

The NTP servers were persisted with delay in the configuration file. Consequently, these NTP servers could not always be saved reliably.

Bugfix

The storage property of the NTP settings has been revised.

Bug 477564: Uploading several trial licenses or more than 100 licenses renders the device unusable

Description

If several trial licenses or more than 100 other licenses are loaded to the device, the device is rendered unusable. If the problem was triggered by several trial licenses, the system could be used again after the trial period has expired (i.e. after ten days).

Bugfix

The affected routine was adjusted. The maximum number of licenses is now unlimited.

10.3.3 Setup

Bug 462272: Changing the proxy settings via setup requires a manual restart

Description

If proxy settings are changed via a setup, these changes only become active for running apps following a device restart. However, the system is not restarted automatically.

10.4 Notes on the use and known restrictions

10.4.1 Automation Core

Bug 344973: To ensure the best real-time behavior possible, task and trace settings have to be correct

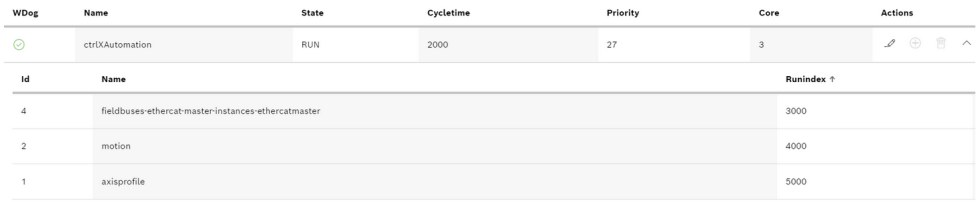
Description

- The callables of 'Ethercat', 'Motion' and 'Axisprofile' should run within the same task
  - Due to locks on other cores, these callables might not be executed in the correct sequence if they do not run in one task.
    See Bug 206983 and Product Backlog Item 225458.
- All Traces of 'rexroth-automationcore' should be disabled

  - Active traces can result in task watchdogs of the real-time task, e.g. ctrlXAutomation or plcEvent07
- The priorities of all PLC tasks should be lower than the priority of the ‘ctrlXAutomation’ task
  - Lock on other cores than the core on which the task 'ctrlXAutomation' is running, can lead to task watchdogs of the 'ctrlXAutomation’ task.

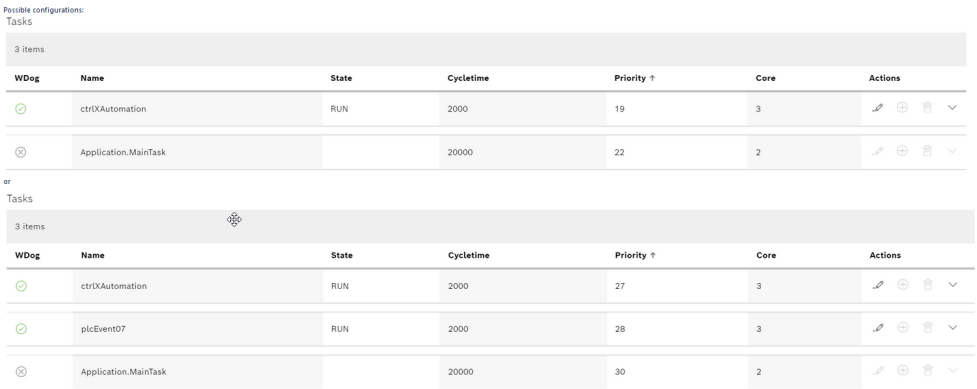
Preliminary solution

- These callables have to run within a task to ensure that the execution order is complied with which corresponds to the standard configuration.



- All traces should be disabled. If traces are required for error search, disable these traces again.
  - All active traces might already be saved. To ensure that all traces are disabled, write “false” to ’trace/rexroth-automationcore/units' via the Data Layer.

- Only us priorities higher than the priority of the ctrlX Automation task for the PLC task.
  - The default priority of a PLC task is 30 and the default priority of the ctrlX Automation task is 27. These default priorities are already correct.
  - If you want to change the priority of already configured tasks, either set the priority of the PLC task lower than the priority of the ctrlX Automation task or set the priority of the ctrlX Automation task higher than the PLC task.



Bug 349989: After the task watchdog occurred it is not possible to search the *scheduler/tasks* node

Description

After a task watchout occurred, the Data Layer node *scheduler/tasks* does not respond anymore.

Bug 500953: Error in the scheduler system

Description

Following an update to RM 22.07, the error 081F0042 is reported in the scheduler system.

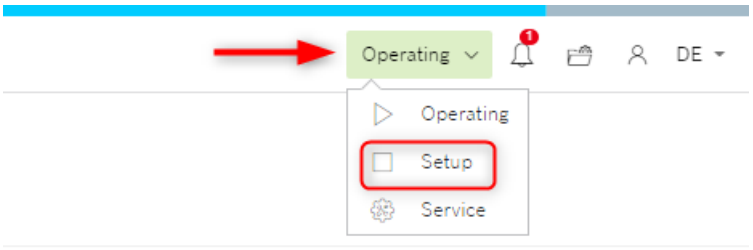
Preliminary solution

Prior to RM 22.07, tasks and placeholders for callables have already been automatically created, irrespective of whether or not they have actually been installed:

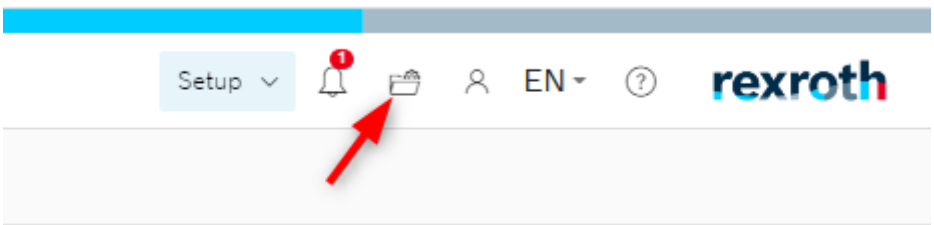
- Motion
  - Task ctrlXAutomation: #placeholder#axisprofile, #placeholder#motion
  - Task motionhpPrep: #placeholder#motion-high-prio-prep
- PLC
  - Task plcEvent07: #placeholder#plc-external-event
- Oscilloscope
  - Task ctrlXAutomation: #placeholder#osciruntime

The pending error can be fixed with the following steps:

- Switch the system to the “Setup” status.



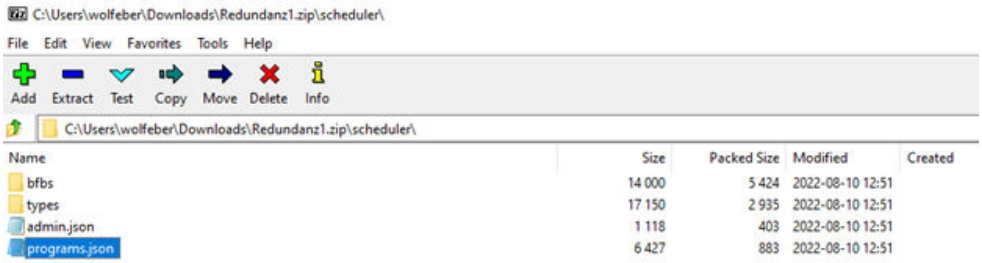
- Go to *“Settings → Scheduler”*
- In the window, check all tasks identified by "_placeholder_" for callable calls.
- Delete all callable calls and tasks that do not contain any other callable calls.
- Go to the “ Manage app data” window.



- Save the data in the archive using the “Save to archive” button.

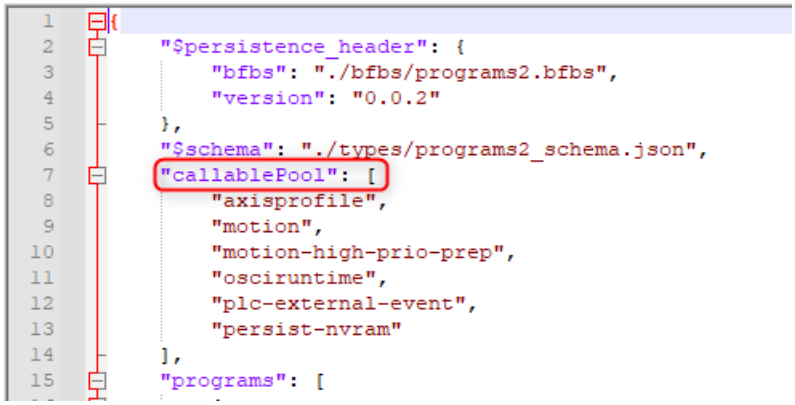
- Save the data using the “Downloads configuration” button on the PC.

- Unzip the downloaded zip file and change to the “scheduler” folder.



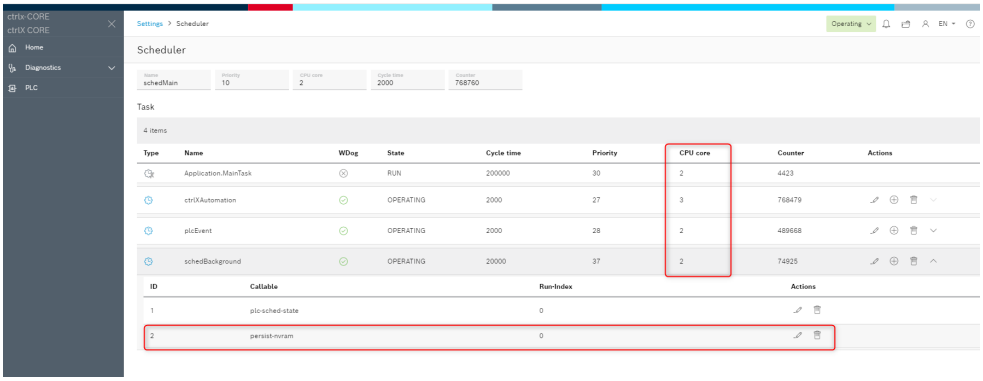
This folder contains a file by the name "programs.json” which has to be edited.

- Delete all callables that are not required and whose placeholder was deleted in the scheduler form the “callablePool” (last entry always without comma at the end of the line).



- Subsequently, save the file.
- Generate the zip archive again with the same folder structure.
- Load the new archive using “Uploads configuration” and enable it using “Loads configuration”.

- Additionally, the following settings are recommended for the scheduler if the PLC app is installed:
  - All PLC tasks have to be on the CPU core 2 of the control.
  - Move the callable "perist-nvram" from the "ctrlXAutomation" task to the "schedBackground" task.



Bug 507182: App actions result in a missing Data Layer node and a hardware watchdog

Description

By app actions (update/installation/uninstallation/enable/disable), nodes in the Data Layer are sporadically not displayed anymore. Amongst others, these nodes can affect the **/system/admin/busy** and *opc-ua* nodes. The nodes can only be restored by a restart.

The */system/admin/busy* node signalizes that a service activity (e.g. an app installation) is currently executed. To avoid conflicts between service activities and real-time applications, it is not possible to switch the system from the “service” state if the node is “true”.

If by mistake, the node is not available, a hardware watchdog can occur when installing several apps (e.g. Motion, OPC UA and PLC). However, the watchdog only occurs if the “Motion” app is installed initially, together with more apps (previously, there was no “Motion” app installed).

Preliminary solution

If the Data Layer nodes are not displayed anymore, restart the system.

Bug 512533: Timeout during writing the Data Layer node in the scheduler

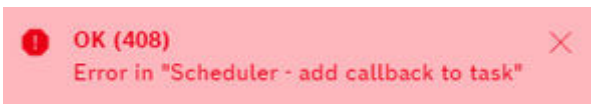
Description

The error message "DL_TIMEOUT" can occur when writing the Data Layer node. Amongst others, these affects the following Data Layer nodes:

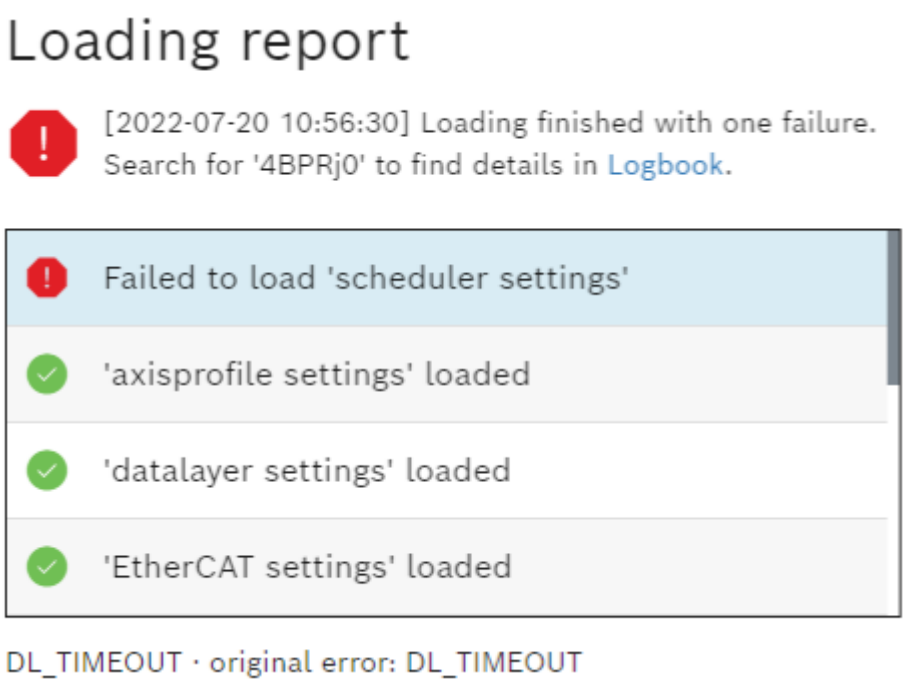
- *scheduler/admin/state*
- *scheduler/tasks/<task_name>/program*
- *scheduler/admin/cfg/load*

The error can occur during the following actions:

- If a Profinet instance is created in the system state “Operating”, an error message is output



- Loading a configuration file



Preliminary solution

The respective action is executed successfully despite the error message.

10.4.2 Device Admin

Bug 278318: DHCP cannot be disabled on eth1

Description

Even if DHCP is explicitly disabled for eth1, DHCPv6Discover queries are sent.

Bug 316525: Multicast only works if the gateway is set

Description

Multicast messages are only sent if a gateway (or a route) is defined in the multicast address range.

Bug 440613: The maintenance mode has to be detected during the installation/updating of apps

Description

The snapd returns the maintenance mode in case of certain operations. These operations are a restart of the snapd service or a system restart.

Due to this restart, attempts to connect to the snapd failed. Thus, a detection of the maintenance mode is required.

Currently, the snapd only returns the restart of the service. The system restart was not reported.

Preliminary solution

Certain connection errors are ignored in the current implementation.

Bug 491688: Network Discovery settings are not backed up

Description

The current settings of the Network Discovery services (LLMNR, UPNP and MDNS) are not backed up. Following a restore operation, the services have the same settings as the settings on the device and not as expected on the device the backup was created with.

Bug 501277: Network Discovery settings are not backed up in a ctrlX setup file

Description

The current settings of the Network Discovery services (LLMNR, UPNP and MDNS) are not backed up during the ctrlX setup. After applying a ctrlX setup file, the services have the same settings as the settings on the device and not as expected on the device the ctrlX setup file was created with.

Bug 506342: The new web server reports 404 after the installation

Description

When trying to contact the new web server following an installation, the error message 404 is reported. The message is retained in Firefox as the browser cache remembers the information.

Bug 508391: Insufficient display authorizations to correctly display the “Certificates and keys” page

Description

The authorizations “View certificates and keys”, "View keys" or "Manage certificates” do not suffice to correctly display the “Certificates and keys” page. An error message is displayed when opening the page and the extension status is not displayed.

Preliminary solution

Currently, the workaround is to assign the authorization “Manage certificates & keys” or “Manage keys” to allow access to the page.

11 XCR-V-0114

11.1 Software

Table 8: Included components XCR-V-0114

Short name	Software	Version	Additional notes
ctrlX Apps			
XCR-V-0114.1	arch01.firstboot	1.14.1	Image
	core20	20220318(Rev: 1408)	● ➦Resolved defects and modifications
	rexroth-arch01-hw (Hardware Support)	1.14.0	
	rexroth-arch01-kernel (Linux kernel)	5.4.143-rt63-ctrlx7 (1.14.0)	● ➦Resolved defects and modifications
	rexroth-automationcore	1.14.0	● ➦New functions ● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-deviceadmin	1.14.0	● ➦New functions ● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	rexroth-solutions	1.14.0	
	rexroth-setup	1.14.0	● ➦New functions ● ➦Resolved defects and modifications ● ➦Note on use and known restrictions
	snapd	2.54.3	➦https://github.com/snapcore/snapd/blob/master/packaging/ubuntu-16.04/changelog
SDK-V-0114.3	ctrlX SDK	1.14.3	➦https://github.com/boschrexroth/ctrlx-automation-sdk

11.2 New functions

11.2.1 Automation Core

Feature 178177: Hardware of control is observed and faulty states will be pushed to diagnosis log

Description

Battery, EMMC, memory, temperature, NVRAM and watchdog will be observed. Faulty states will be detected and a warning or error will be pushed to the diagnosis log. Current state of hardware is located in the Data Layer in subnodes of *system/health*.

Feature 351477: Limit access to Data Layer using user defined scopes

Description

With the help of this function it is possible to restrict the access to the Data Layer for users. Scopes can be defined for this purpose. The access to areas of the Data Layer is configured in the scope. These scopes can be assigned via the user and group settings.

Feature 389625: Scheduler changes

Description

Time measurement extensions of a task.

- Remaining time
  - For a cyclic task, this refers to the remaining time from the end of the task until the start of the new task
  - By using the remaining time, it can be determined how much time remains from the end of the task until the start of the new cycle
  - If the task has not been completed in its cycle, the remaining time is zero

Feature 393696: Function extensions in the Data Layer interface

Description

The Data Layer interface was extended by the new function “Watchlist”.

Using this function, it is possible to select several Data Layer nodes and to display the values of these nodes in a monitoring window. If a node has a unit for its value, this unit is also displayed in the input field.

Nodes without meta data are still displayed. However, these nodes are identified by a special icon.

The values of these nodes are now saved persistently if these nodes have a "Reference" for "hasSave" in their meta data.

Feature 393727: Diagnostic extensions for XCR-V-0114

Description

The following extensions were implemented for the ctrlX CORE diagnostic system:

- The following Data Layer nodes are now deprecated and should not be used anymore:
  - *diagnosis/get/text*:
    If e.g. there exist identical main and detailed diagnostic numbers or if an ambiguous detailed diagnostic is requested, an incorrect text is returned. Use nodes *diagnosis/get/text/main* and *diagnosis/get/text/detailed* instead.
  - *diagnosis/registration/register*:
    The used registration format is deprecated. Use node *diagnosis/registration/register-file* or *diagnosis/registration/register-file-content* instead.
  - *diagnosis/registration/unregister*:
    The used registration format is deprecated. Use node *diagnosis/registration/register-file* or *diagnosis/registration/register-file-content* instead.
  - *diagnosis/registration/main/register*:
    The passed data does not provide the necessary relation between main and detailed diagnostics. Use node *diagnosis/registration/register-file* or *diagnosis/registration/register-file-content* instead.
  - *diagnosis/registration/main/unregister*:
    The passed data does not provide the necessary relation between main and detailed diagnostics. Use node *diagnosis/registration/register-file* or *diagnosis/registration/register-file-content* instead.
  - *diagnosis/registration/detailed/register*:
    The passed data does not provide the necessary relation between main and detailed diagnostics. Use node *diagnosis/registration/register-file* or *diagnosis/registration/register-file-content* instead.
  - *diagnosis/registration/detailed/unregister*:
    The passed data does not provide the necessary relation between main and detailed diagnostics. Use node *diagnosis/registration/register-file* or *diagnosis/registration/register-file-content* instead.
- Support of new Data Layer nodes:
  - *diagnosis/get/actual/list/verify-log*:

Provides the functionality to verify the state of a specific diagnostic log in the list with all pending errors and warnings.
  - *diagnosis/registration/register-file-content*:
    Registers main and detailed diagnostics by passing the file content of the registration file.
  - *diagnosis/registration/unregister-file-content*:
    Unregisters main and detailed diagnostics by passing the file content of the registration file.
- New C-Bundle-Interface "PendingDiagnosticsItf" with the following functions:
  - getList:
    Returns the actual pending error and warning list.
  - getHighestLog:
    Returns the list element that has the highest priority.
  - verifyLogInList:
    Returns the state of a single log in the pending diagnostics list.
  - isListEmpty:
    Returns whether the actual pending diagnostics list is empty.
  - getAmountOfErrors:
    Returns the amount of errors pending in the list with all errors and warnings.
  - getAmountOfWarnings:
    Returns the amount of warnings pending in the list with all errors and warnings.
  - resetAllPending:
    Triggers the diagnostic event "Reset all pending errors and warnings" that indicates that all connected instances need to try to reset all warnings and errors as well as reset specific entities that are in error state.
  - clearSpecificError:
    Clears a specific error from the list if it is in state "reset".
  - clearAllErrors:
    Clears all errors from the list that are in state "reset".
- Examples for the diagnostic extensions (C++ bundle interface and C++ Data Layer interface) are provided in SDK.

Feature 394419: ctrlX CORE Diagnostic messages in English and German

Description

If the language of the user interface is switched between English and German, also the ctrlX CORE diagnostic messages are now displayed in the selected language.

11.2.2 Device Admin

Feature 309415: New option to edit the host table

Description

The host table can be edited under *“Settings → Hosts”*.

Feature 320782: Link-local for IPv4 can be enabled/disabled

Description

To configure link-local, go to *“Settings → Connectivity → Interface → IPv4 ”*.

Feature 348879: Service-to-Service authentication for applications

Description

Apps can now use the Service-to-Service authentication mechanism to retrieve valid tokens which are required to access resources which are provided by other apps. Please refer to the SDK for further details.

Feature 360219: “Date & time" additionally visualizes the date, the time and the time zone of the browser

Description

The “Date & time” window visualizes date, time and time zone of ctrlX CORE as well as of the browser. Via the “Assign to ctrlX CORE” button, the date, time and time zone of the ctrlX CORE browser can be assigned. Optionally, the date, time and the time zone of ctrlX CORE can also be entered manually.

Feature 394419: ctrlX CORE Diagnostic messages in English and German

Description

Apps can now use the Service-to-Service authentication mechanism to retrieve valid tokens which are required to access resources which are provided by other apps. Please refer to the SDK for further details.

Feature 400472: The access path for mounted media is displayed

Description

If external storage media are connected to the controller and mounted, the corresponding path is displayed in the details of the medium.

Feature 417127: Deactivating the ctrlX Store is possible via branding

Description

If a branding app is installed with the information "disableStore": true in the legalinformation.json, the connection to the ctrlX Store is permanently interrupted.

11.2.3 Setup

Feature 279538: The Setup function allows a flexible transfer of settings and apps between devices

Description

The Setup function allows a flexible transfer of settings and apps between devices.

Known restriction:

- To install/transfer apps to the control, ensure that the control is in Service mode before applying the setup (to change/view the state/switching, go *“Settings → Apps”*)

11.3 Resolved defects and modifications

11.3.1 Ubuntu Core 20

Bug 457248: Security update

Description

The following issues, among others, have been fixed:

- https://ubuntu.com/security/notices/USN-5320-1
- https://ubuntu.com/security/notices/USN-5310-1
- https://ubuntu.com/security/notices/USN-5288-1

Bugfix

The core20 component has been updated to revision 20220318.

11.3.2 Linux Kernel

Bug 430220: Vulnerability in the Linux kernel

Description

An attacker can gain control over extensive rights or load the system due to a vulnerability in the Linux kernel.

Bugfix

A kernel update fixes the problem.

11.3.3 Automation Core

Bug 418525: High memory usage of Automation Core

Description

The "Automation Core" application used more than 200 MB RAM.

Bugfixing

The default stack size for CPP threads was limited from 8 MB to 512 KB .

Bug 422459: Missing interface for access to storage media

Description

Access to storage media from Automation Core was not possible.

Bugfixing

The new interface (removable-media) grants access.

Bug 422462: Missing interface for access to a serial interface

Description

Access to serial interfaces from Automation Core was not possible.

Bugfixing

The new interface (serial-port) grants access.

Bug 434084: Memory loss when reading the Data Layer node "scheduler/tasks"

Description

Each time the Data Layer node *scheduler/tasks* was read, approximately 40 bytes of memory were assigned and not released anymore.

Bug 435779: Hardware watchdog if a user with multiple rights is logged in

Description

If a user with multiple individual rights was logged in, it coud happen that the control restarted via the hardware watchdog.

Bug 451495: Many subscriptions via NodeJS or SSE cause a crash of app.automationcore

Description

The stacksize was reduced in RM 21.11.2. But it was to small for a customer application and resulted in a memory issue.

Bugfixing

The stack size of the web server was increased to 4 MB.

11.3.4 Device Admin

Bug 290625: Backup & Restore is canceled if the browser window is refreshed

Description

If the browser was refreshed using F5 during a Backup & Restore operation, the operation was canceled.

Bug 375229: “Refresh all apps" is reported as completed successfully even if an error occurs

Description

In some cases “Refresh all apps” is reported as completed successfully even though an app could not be refreshed.

Bugfix

The function “Refresh all apps” reports that refreshing could not be completed successfully if errors have occurred.

Bug 386588: CPU load does not take any real-time tasks into consideration (Core 2 and Core 3)

Description

The CPU load does not take the CORE 2 and Core 3 load into consideration.

The CPU values were directly read by the library and did not display the correct values.

Bugfix

The CPU load displays the correct values and Core 2 and Core 3 are enabled.

Bug 391667: Following a control restart, the page is reloaded again

Description

After the control was restarted (e.g. by app installation or a proxy setting change), the page could sporadically reload after the login.

Bug 395497: Too many open file handles after package management operations

Description

Open file handles were not closed during the installation or uninstallation of many packages. In the worst case, this resulted in freezing of the web interface of the control. Following a reboot, the problem did not occur anymore.

Bug 396075: Dialog "Restore" closed too early

Description

When doing a restore operation it could happen, that the dialog "Restore" was closed too early and the dialog "Login" was presented, even though the restore operation was not finished yet.

Bugfixing

When doing a restore operation, the dialog "Restore" is kept open until the restore operation is finished. After that the dialog "Login" is shown.

Bug 397842: Installation progress freezes or updates of the store are not continued to be executed after a reboot

Description

If the entire system was updated in the brand store using the function "Update all", control restarts were triggered (core, kernel or gadget are updated).

The update mechanism is designed to schedule pending updates again, following a restart. Currently, the brand store is not available yet (the entire system is still booting). All pending updates were thus canceled with an error message (either "Connection reset by peer" or "Store is offline").

Bug 399173: Task query in logged off state sporadically results in error entries in the logbook

Description

If a user was logged off, the task information is still queried. If no valid token is available anymore, an error is entered in the logbook when trying to determine the authorization status for the task information.

Bugfix

If no valid token is available, no authorization check is executed and the reduced task information is determined directly. Thus, no error is entered in the logbook.

Bug 399561: Several parallel upload to the app memory of the control sporadically fail

Description

If several files were simultaneously loaded to the local app memory, several up to all uploads failed.

Bug 400157: Following a control restart, the shutdown dialog is displayed again

Description

Following a control restart via *“Settings → Shutdown”* and subsequent login, the shutdown dialog was displayed again.

Bugfixing

After logging in, you will be redirected to the "Home" page.

Bug 400415: The system time cannot be set

Description

When setting the time and the time zone, the time which is manually set during saving was sporadically modified.

Bugfixing

The time zone is read out of the configuration and is set via the snap configuration.

Bug 401899: In the app details, duplicate versions are displayed

Description

In the app details, duplicate versions are sporadically displayed in the “Change version” list.

Bugfix

No duplicate versions are displayed anymore.

Bug 403489: Information task manager APIs such as "System Measurements" and "Processes" spam the logbook in *“Diagnostics → Logbook”*

Description

1. The user opens the "information” page in the settings.
2. System measurements and process APIs start the query if the page is opened.
3. The user exits the page and opens the logbook under *“Diagnostics → Logbook”* with enabled display of system messages in the settings
4. All API requirements of the task monitor are displayed as spam in the logbook.

Bugfixing

Add the debug level to the task monitor application. Based on the debug level, the API query is displayed in the logbook.

Bug 403489: Information task manager APIs such as "System Measurements" and "Processes" spam the logbook in *“Diagnostics → Logbook”*

Description

1. The user opens the "information” page in the settings.
2. System measurements and process APIs start the query if the page is opened.
3. The user exits the page and opens the logbook under *“Diagnostics → Logbook”* with enabled display of system messages in the settings
4. All API requirements of the task monitor are displayed as spam in the logbook.

Bugfixing

Add the debug level to the task monitor application. Based on the debug level, the API query is displayed in the logbook.

Bug 404019: Information task manager APIs such as "System Measurements" and "Processes” are also queried after exiting the web interface

Description

1. The user opens the "information” page in the settings.
2. System measurements and process APIs start the query if the page is opened.
3. The user leaves the page and clicks on a different device management page such as memory etc.
4. "System Measurements" and "Processes" are still queried. This becomes obvious in the developer tools (F12). Ideally, the query of each API should be stopped once the user exits the page.

Bug 404302: Invalid characters in the hostname are not handled correctly

Description

If you use the "_" character, which is not permitted in the host name, no corresponding error message was generated.

Bugfixing

All illegal characters in the host name are recognized, treated equally and acknowledged with a corresponding error message.

Bug 404965: After activating/deactivating an app, the corresponding tile is not refreshed

Description

After activating/deactiving an app, the corresponding tile is not refreshed and still shows the old status prior to activating/deactivating the app.

Bugfix

The corresponding tile is refreshed after activating/deactivating an app.

Bug 406970: Connectivity: Duplicate routes are created

Description

Sporadically, duplicate routes were displayed in the web interface.

Bugfix

Routes are not displayed correctly in the web interface.

Bug 407525: The function "Sync with browser" uses UTC instead of the time zone of the user

Description

The "Sync with browser" function sets the time zone to "UTC". Date and time are set to UTC time. The values are correct. However, in most cases the user wants the time to be displayed in his time zone.

Bugfixing

The time zone set on the user PC is used.

Bug 409024: Removing the local storage memory capacity ("Apps available on ctrlX CORE") is not persisted

Description

If the app memory was disabled on ctrlX CORE and if subsequently, the control was restarted, the app memory was available again.

Bugfixing

The app memory now remains in the state configured prior to a restart.

Bug 410760: If a time zone outside UTC +/-1 is selected, no installations can be executed via POST /packages

Description

If a time zone outside UTC +/-1 is selected, no installations can be executed via POST /packages. The reason is an internal timeout for automatic cleaning of the uploads. The upload time is saved at the current time (without time zone) and is read out as UTC. An automatically running cleaning task deletes all files whose upload time is outside of the current time +/- 1 hours (incl. time zone)

Example:

- Upload takes place at 12:00:00 UTC+2
- Upload time is saved as 12:00:00 UTC (as no time zone is saved)

- Clear task is running at 12:00:30 UTC+2 and reads the upload time as 12:00:00 UTC=14:00:00 UTC+2
- 14:00:00 > 12:00:30+1 h --> Upload is cleared

The same behavior can be reproduced at UTC-2

Bugfixing

Upload time stamp is saved and read in UTC (upload at 12:00:00 UTC+2 is saved as 10:00:00 UTC). Only the UTC time stamp is used when clearing old uploads

Bug 411321: "Return" button cannot be used if an app is opened via the homepage

Description

If an app on the homepage is opened by clicking on the respective tile, it was not possible anymore to return to the homepage using the "Return" button.

Bugfix

The “Return” button can be used again.

Bug 416634: Name of the "Store” filter element

Description

Filter options are available for the search on the “Apps” page. A possible filter option has the name "Store". This description is unclear. The name "ctrlX Store” would be unique.

Bugfixing

The filter option "Store" was renamed to "ctrlX Store" on the “Apps” page.

Bug 417634: Unsaved changes in the network manager can be persisted

Description

Changes can be made in the network manager that only become persistent after pressing “Save”. Sporadically, (API commands), changes could be persisted without pressing “Save”.

Bugfix

Changes in the network manager are exclusively applied by pressing the “Save” button.

Bug 421929: When creating or deleting network bridges, error messages are reported

Description

Creating and deleting network bridges sporadically resulted in changes of network settings could not be persisted anymore.

Bugfix

After deleting the network interfaces (in this case: bridges), these interfaces were only handled correctly after a restart. Now, they become active immediately and thus prevent an error.

Bug 426588: Network and system settings are not restored after a Restore operation

Description

The network, time zone and host name settings selected prior to a backup were not restored by a Restore operation.

Reason: The Device Admin configuration file was imported by the Restore operation but was not read in again. The Device Admin saved the current configuration upon a restart and overwrote the recently restored configuration.

Bugfixing

The saving of the configuration on restart has been removed.

Bug 426605: SSH server settings are not restored

Description

The SSH server settings (connection timeout and others) were not included in the backup. Exceptions: The banner as well as the status (active/inactive).

Bug 431049: Update RM 21.11 to RM 21.11.b resulted in error messages

Description

During the installation of different, defined apps, the connection to the subordinate system can sporadically be interrupted. This was not detected correctly and resulted in error messages.

Bugfix

The interrupted connection to the snapd (subordinate system) were partially detected and ignored.

In the following:

- broken pipe
- connection reset by peer
- server closed idle connection

Another, error that has not occurred yet and has not been handled yet is EOF.

The error messages can occur during the installation of the following components:

- core20
- snapd
- rexroth-deviceadmin
- kernel

However, the installation is executed successfully. The error message can be ignored.

Bug 433603: A battery warning was incorrectly reported in the "Date & time" window

Description

In the "Date & time” window, a battery warning was displayed even though only the RTC was not set.

Bugfix

The battery warning is not displayed anymore. Instead, a warning is displayed if the control time deviates from the computer time of the user.

In case of a battery voltage that is too low, a diagnostic message is generated.

Bug 434116: Home page link did not open Node RED on a new tab

Description

On click on Node RED on the ctrlX CORE home page, it didn't open Node RED in a new tab.

Bug 435519: Switch "IP-forwarding" returns to original position after switching

Description

When changing the state of the “IP-forwarding” switch shortly after saving the interface settings, the switch returned to its original position by itself.

Bugfix

The switch does not change back by itself anymore.

Bug 435831: The time is reset to a previously backed up time

Description

If no buffer battery is available in the system or in case of a flat battery, the current time was lost after the power supply was interrupted temporarily.

Bugfix

The system time is saved:

- Upon changing
- After the reboot
- Every 6 hours

If the system time is older than the saved time after the restart + 1 minute, the saved time + 1 minute is set as system time. If the system time is more recent, no adjustment is required.

Bug 436809: Access to snapd is stabilized and partially accelerated

Description

Access to snapd as subordinate system sporadically resulted in errors which were ignored. The access to entire configuration groups was slower than the query of individual parameters.

Bugfix

Sometimes, the errors were handled and if required, fixed by a new attempt. Parameter access was accelerated by changing reading out of configuration groups to reading out of individual parameters.

Bug 443147: Defined apps of the public snap store were ignored when establishing a connection to snaps

Description

The Device Admin automatically establishes the missing connections between the individual snaps. The admin follows a strict logic, preventing potentially dangerous connections. One of the rules specifies that certain connections, classified as forbidden, are only possible in apps signed by Bosch Rexroth.

Bugfix

The only app that is not provided by Rexroth is snapd. This app is now treated like a Rexroth app when establishing the connection.

Bug 445573: Downloading disabled apps is prevented

Description

Downloading of disabled apps is technically not possible and results in a corrupt download.

Bugfix

As downloading of a disabled app is technically not possible, the download is now generally disabled.

Bug 464115: Too many open file handles after package management operations

Description

Open file handles are not closed during the installation or uninstallation of many packages. In the worst case, this resulted in freezing of the web interface of the control. Following a reboot, the problem did not occur anymore.

11.3.5 Setup

Bug 454737: Setup config with included eoe0 adapter can not be restored to ctrlX CORE with new image

Description

If the setup config file contains an ethernet interface which is not part of the ctrlX the setup file should be applied, the apply operation is canceled with the error "cannot add ethernet interface(s) <interface-name>".

11.4 Notes on the use and known restrictions

11.4.1 Automation Core

Bug 223809: It is possible to switch the ctrlX in service-mode while axes are moving

Description

It is possible to switch the ctrlX in service-mode while axes are moving. This will interrupt the movement.

Preliminary solution

Stop and power-off all axes before switching into the service-mode. To avoid errors during shutdown it is recommended to switch the scheduler configuration state as well.

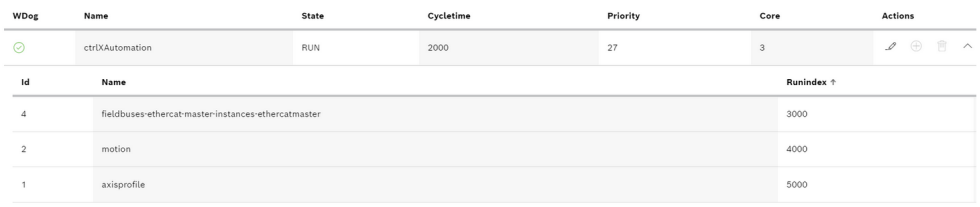
Bug 344973: To ensure the best real-time behavior possible, task and trace settings have to be correct

Description

- The callables of 'Ethercat', 'Motion' and 'Axisprofile' should run within the same task
  - Due to locks on other cores, these callables might not be executed in the correct sequence if they do not run in one task.
    See Bug 206983 and Product Backlog Item 225458.
- All Traces of 'rexroth-automationcore' should be disabled
  - Active traces can result in task watchdogs of the real-time task, e.g. ctrlXAutomation or plcEvent07
- The priorities of all PLC tasks should be lower than the priority of the ‘ctrlXAutomation’ task
  - Lock on other cores than the core on which the task 'ctrlXAutomation' is running, can lead to task watchdogs of the 'ctrlXAutomation’ task.

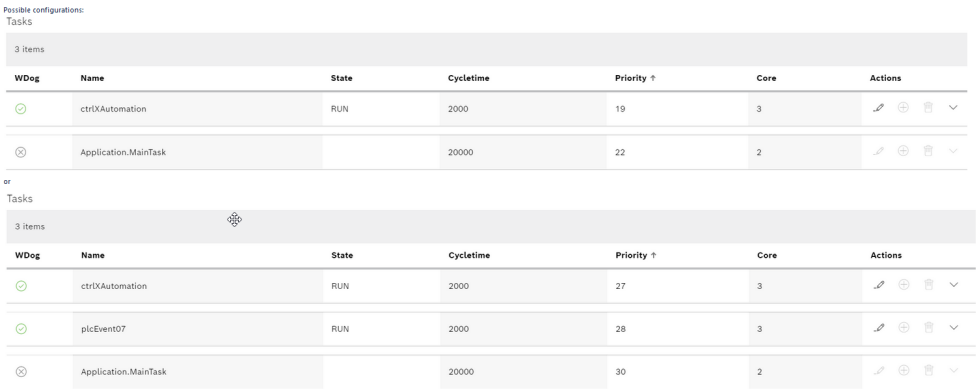
Preliminary solution

- These callables have to run within one task, so that the execution order is guaranteed, which is the default configuration.



- All traces should be deactivated. If traces are necessary to find bugs, these traces should be deactivated again.
  - Maybe active traces are already saved. To ensure that all traces are deactivated, please write 'false' on 'trace/rexroth-automationcore/units' via Data Layer.

- Only use priorities for the plc task that are blew the priority of the ctrlXAutomation task.
  - The default priority of a plc task is 30 and of the ctrlXAutomation task 27. So these default priorities are already correct.
  - If you want to change the priority of already configured tasks you can ether set the priority of the plc task below the priority of the ctrlXAutomation task, or you can set the priority of the ctrlXAutomation task higher than the plc tasks.



Bug 345329: Modifications in the scheduler configuration result in errors at the EtherCAT devices

Description

Changes in the configuration of the scheduler, e.g. creating, deleting or changing the priority of a task, can result in errors in the EtherCAT devices. Possible resulting errors are "0x001B sync manager watchdog" at the EtherCAT master or "F4036" at the drive.

Preliminary solution

To avoid this error, switch the EtherCAT field bus to “INIT” before changing the scheduler configuration.

Bug 349989: After the task watchdog occurred it is not possible to search the *scheduler/tasks* node

Description

After a task watchout occurred, the Data Layer node *scheduler/tasks* does not respond anymore.

Bug 404930: Error when switching to service mode

Description

If the scheduler is in state "RUN", an error can sporadically occur when switching to service mode. The error "081F6042 0C7B4250: Invalid action in "RUN" state" is reported.

Preliminary solution

Switch the scheduler to state "CONFIG" before switching to service mode.

11.4.2 Device Admin

Bug 261834: The Devicediscovery functions are only applied to eth0

Description

Devicediscovery consists of the following elements:

- LLMNR (Link-local Multicast Name Resolution)
- MNDS (Multicast DNS)
- UPNP (Universal Plug and Play)
- Zeroconf (Zero Configuration Networking)

These services are only applied to eth0.

Bug 278318: DHCP cannot be disabled on eth1

Description

Even if DHCP is explicitly disabled for eth1, DHCPv6Discover queries are sent.

Bug 316525: Multicast only works if the gateway is set

Description

Multicast messages are only sent if a gateway (or a route) is defined in the multicast address range.

Bug 396024: The "managed" flag under PUT /network-manager/api/v1/interfaces/{interfaceName} is not evaluated

Description

The "Managed" flag was moved to the API of the network manager. The new route has not yet been implemented.

Bug 440613: The maintenance mode has to be detected during the installation/updating of apps

Description

The snapd returns the maintenance mode in case of certain operations. These operations are a restart of the snapd service or a system restart.

Due to this restart, attempts to connect to the snapd failed. Thus, a detection of the maintenance mode is required.

Currently, the snapd only returns the restart of the service. The system restart was not reported.

Preliminary solution

Certain connection errors are ignored in the current implementation.

Bug 458104: Setup: The generated radiusConfiguration contains invalid entries

Description

If a setup of a control is generated, the radiusConfiguration in the ctrlx-setup.json file sporadically contains blank entries for “ip” and “secret”.

If radiusConfiguration in the ctrlx-setup.json file differs from the configuration on the target control, the radiusConfiguration has to be refreshed when using the setup. Blank entries in “ip” and “secret” result in a failed setup.

Preliminary solution

Before using the setup, the values for “ip” and “secret” have to be added to the radiusConfiguration.

Bug 462981: NTP servers can only be deleted explicitly

Description

If the ntpServer array is not specified in the REST call to refresh the “Date & time” settings, the configured NTP server was not removed:

e.g. PUT /system/api/v1/time/settings with {"time zone": "UTC"}

Preliminary solution

ntpServers has to be explicitly specified in the call:

PUT /system/api/v1/time/settings mit {"timezone": "UTC", ntpServers: []}

11.4.3 Setup

Bug 446720: Cannot activate SSH after update of Device Admin with apply.setup

Description

After upgrading or downgrading the rexroth-seviceadmin app via the setup functionality (window "Settings -> Setup"), it's not possible to activate SSH (window "Settings - SSH", "SSH protocol status = Active").

After upgrading or downgrading the rexroth-seviceadmin app via the setup functionality (window *“Settings → Setup”*) it's not possible to activate SSH (window *“Settings → SSH”* "SSH protocol status = Active").

Preliminary solution

Now it's possible to activate SSH via selecting "SSH protocol status = Active".

1. After upgrading or downgrading the rexroth-seviceadmin app via the setup functionality, open window *“Settings → Certificates & Keys”*.
2. Click on service "SSH".
   ➧ Now there are two tabs "Certificates" and "Keys".
3. Select tab "Keys".
4. Remove the category "Own" keys "ssh_host_ecdsa_key", "ssh_host_ed25519_key" and "ssh_host_rsa_key".
5. Go back to window *“Settings → SSH”*.
   ➧ Now it's possible to activate SSH via selecting "SSH protocol status = Active".

Bug 446916: Cannot clear list of NTP servers

Description

If the ctrlX CORE control has been restarted while the list of NTP servers contained at least one entry, the list of NTP servers cannot be cleared by applying a setup.

Preliminary solution

After clearing the NTP servers list, restart the ctrlX CORE control. After the restart the list is (really) empty.

Bug 446928: After changing proxy settings via setup a manual reboot is required

Description

After applying a setup with changed proxy settings, running apps will not recognize them until the device is rebooted. This reboot is not initiated automatically.

Preliminary solution

After changing proxy settings via setup the device has to be rebooted manually before the changes take effect on running apps.

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- Type plate specifications of the affected products, in particular type codes and serial numbers
- Your contact data (phone and fax number as well as your e-mail address)

13 Index

1, 2, 3 ...

"Factory Reset" locked for the ctrlX CORE X7 control. 66
“Date & time" additionally visualizes the date, the time and the time zone of the browser. . 116
“Refresh all apps" is reported as completed successfully even if an error occurs. 118
“Return” button cannot be used if an app is opened via the homepage. 122
404 web page is customizable via theming. . . 60

A

A battery warning was incorrectly reported in the “Date & time" window. 123
A CPU update speed of 1 second is possible. 60
A device can be reset to the delivery state by means of a USB stick or an SD card. 60
A device can be reset to the delivery state in ctrlX OS. 59
A tooltip is displayed for CPU cores that are reserved for real-time tasks. 61
About this documentation. 19
Access to snapd is stabilized and partially accelerated. 124
After activating/deactivating an app, the corresponding tile is not refreshed. 121
After changing proxy settings via setup a manual reboot is required. 129
After switching on the ctrlX CORE X7, the system remains in SERVICE state. 71
After the task watchdog occurred it is not possible to search the *scheduler/tasks* node. 62, 108, 127
After the task watchdog, it is not possible to search the *scheduler/tasks* node. 90
All Device Discovery services are only configured for eth0. 104
App actions result in a missing Data Layer node and a hardware watchdog. 84, 110
App dependencies are displayed. 60
app.automationcore crash when browsing for a Data Layer RT area. 104
Autologin on removable media. 83
Automatic execution of a setup during restart can be rejected due to incorrect schema check 75
Automation Core
- New functions. 58, 78, 99, 113
- Notes on the use and known restrictions. 42, 48, 55, 65, 106, 125
- Resolved defects. 117
- Resolved defects and modifications. . 52, 62, 71, 72, 83, 89, 95, 103

Automation Core app restart in case of critical errors. 86
Automation Task is sporadically not triggered 62
Autorun fails on a ctrlX CORE X7 control. . . . 65
Autorun of a setup in json format fails on a ctrlX CORE X7. 93

B

Background service "snapd" does sporadically not respond (workaround). 42
Background service "snapd" sporadically does not respond. 67
Backup & Restore is canceled if the browser window is refreshed. 118
Boot process fails sporadically. 66
Bug 223809. . . . . 103, 125
Bug 230173. 104
Bug 239182. 105
Bug 256940. 105
Bug 261834. . . . . 105, 127
Bug 278318. . . . . 86, 97, 111, 127
Bug 290625. 118
Bug 315404. 65
Bug 316525. . . . . 97, 111, 127
Bug 344973. . . . . 72, 89, 106, 125
Bug 345329. . . . . 104, 126
Bug 347581. 61
Bug 349989. . . . . 62, 90, 108, 127
Bug 375229. 118
Bug 386588. 118
Bug 391667. 118
Bug 395497. 118
Bug 396024. . . . . 105, 127
Bug 396075. 118
Bug 397842. 119
Bug 399173. 119
Bug 399561. 119
Bug 400157. 119
Bug 400415. 119
Bug 401899. 119
Bug 403489. 120
Bug 404019. 120
Bug 404302. 120
Bug 404930. . . . . 104, 127
Bug 404965. 121
Bug 406970. 121
Bug 407525. 121
Bug 409024. 121
Bug 409374. 105
Bug 410760. 121
Bug 411321. 122
Bug 416634. 122
Bug 417634. 122
Bug 418525. 117
Bug 421929. 122
Bug 422459. 117
Bug 422462. 117
Bug 426588. 122
Bug 426605. 123

Bug 430220. 117
Bug 431049. 123
Bug 433603. 123
Bug 434084. 117
Bug 434116. 123
Bug 435519. 124
Bug 435779. 117
Bug 435831. 124
Bug 436809. 124
Bug 440613. 43, 49, 56, 66, 73, 91, 97, 111, 127
Bug 441463. 103
Bug 443147. 124
Bug 443251. 103
Bug 445573. 124
Bug 446720. 128
Bug 446916. 129
Bug 446928. 129
Bug 451495. 118
Bug 454737. 125
Bug 457248. 116
Bug 458104. 128
Bug 462272. 106
Bug 462705. 105
Bug 462981. . . . . 106, 128
Bug 464115. 125
Bug 468803. 106
Bug 477564. 106
Bug 477942. 104
Bug 482822. 104
Bug 491523. 104
Bug 491688. . . . . 87, 98, 112
Bug 500635. 83
Bug 500953. . . . . 84, 108
Bug 501277. . . . . 87, 98, 112
Bug 502041. 62
Bug 506342. . . . . 87, 112
Bug 507182. . . . . 84, 110
Bug 507424. 87
Bug 508391. . . . . 87, 98, 112
Bug 511107. 87
Bug 512189. 84
Bug 512533. . . . . 84, 110
Bug 512595. 85
Bug 528043. 96
Bug 528848. . . . . 87, 96
Bug 529226. . . . . 85, 95
Bug 529911. 85
Bug 529916. 96
Bug 529996. 86
Bug 530355. 86
Bug 530439. 46
Bug 530446. 96
Bug 531391. 61
Bug 533957. 86
Bug 535019. 97
Bug 535349. . . . . 86, 95
Bug 539290. 96
Bug 542822. . . . . 88, 96
Bug 546873. 88
Bug 548844. 61
Bug 548895. 86
Bug 553988. 88
Bug 557440. 88
Bug 557934. 70
Bug 559987. 70
Bug 561414. . . . . 62, 74, 91
Bug 566282. 97
Bug 567467. . . . . 43, 49, 56, 66, 74, 91
Bug 567979. 90
Bug 569023. . . . . 71, 91
Bug 570233. . . . . 62, 74
Bug 570748. . . . . 74, 92
Bug 571960. . . . . 71, 91
Bug 572501. 93
Bug 573328. 63
Bug 573663. . . . . 63, 92
Bug 573784. . . . . 65, 93
Bug 573800. . . . . 63, 74, 92
Bug 575570. 71
Bug 578194. . . . . 63, 72, 93
Bug 580422. 63
Bug 583466. 70
Bug 584354. 71
Bug 586892. 71
Bug 589085. 63
Bug 589547. 75
Bug 589936. . . . . 65, 73
Bug 591554. 64
Bug 592007. 70
Bug 595658. . . . . 64, 75
Bug 597396. . . . . 64, 75
Bug 605839. 62
Bug 609997. 64
Bug 612064. . . . . 44, 49, 56, 66
Bug 612346. 62
Bug 612377. 65
Bug 614685. 67
Bug 619279. 66
Bug 629936. 66
Bug 637618. 52
Bug 639063. 52
Bug 666326. 47
Bug 667033. 46
Bug 667923. 46
Bug 669648. 47
Bug 675075. 47
Bug 679472. 47
Bug 687805. 46
Bug 690665. 47
Bug 697159. 42
Bug 697164. 42
Bug 703624. 44

C

Call of remote logging has changed. 78
Cannot activate SSH after update of Device Admin with apply.setup. 128
Cannot clear list of NTP servers. 129
Certificate management via the Certificate Management Protocol (CMP). 102
Change CPU update speed. 81
Changes at NTP server have no impact. 87
Changing the proxy settings via setup requires a manual restart. 106
Connectivity: Duplicate routes are created. . 121
Control identification. 59
CPU load does not take any real-time tasks into consideration (Core 2 and Core 3). 118
Creating a ctrlX CORE system report. 81
ctrlX CORE Diagnostic messages in English and German. 115, 116
ctrlX CORE X7 image update via "Rescue" system. 79
ctrlX CORE X7: XF50/XF52 sporadically not available. 71, 91
ctrlX setup extensions. 103
ctrlX setup level 3 - Extensions. 83
ctrlX setup with image update from common removable media. 83

D

Data Layer extensions. 58, 78, 99
Data Layer node *system/health* not available. 47
Data on external memory media is ignored while saving or restoring. 82
Deactivating the ctrlX Store is possible via branding. 116
DEBUG mode is not shown as "pending diagnosis". 83
Default copy only with activated app. 61
Defined apps of the public snap store were ignored when establishing a connection to snaps. 124
Details in "IPv4" tab are lost. 62, 74
Details in the tab "IPv4" are lost. 91
Details of two or more WLAN interfaces are not displayed correctly. 105
Device Admin
  New functions. 59, 81, 102, 115
  Notes on the use and known restrictions. 43, 49, 56, 66, 73, 75, 91, 93, 97, 111, 127
  Resolved defects. 118
  Resolved defects and modifications. . 42, 46, 53, 62, 72, 86, 96, 104
Device Admin information is now displayed as legible data in the Data Layer. 102
Device Admin information is shown as legible Data Layer. 82
Device Discovery revised for all network interfaces. 102
DHCP cannot be disabled on eth1. . 86, 97, 111, 127
Diagnostic code of "Pending Diagnostics" is sometimes not available. 64, 75
Diagnostic extensions for Release 1.16. 102
Diagnostic extensions for XCR-V-0114. 114
Dialog "Restore" closed too early. 118
Display of processes and threads, filtering by CPU core. 82
DNS suffixes are supported. 60
Downloading disabled apps is prevented. . . 124
Drive error after updating the Automation Core 91
Drive error following an Automation Core update 71
During the "Factory Reset" the user can log in before the process has been finished 44, 49, 56, 66

E

Empty base snap for tests and completely statically linked snaps. 59
Ensuring a safe machine state after a critical error. 58
Error "Timeout when restoring the configuration" (0C7B4263) after booting the Automation Core. 84
Error due to a cycle time load that is too high upon startup. 90
Error in the scheduler system. 108
Error when reading the watchdog node. . . . 104
Error when switching to service mode. 104, 127
Exception upon configuration reset in SERVICE mode. 86
Extendable denylist for partners and customers 59
Extended functions for editing the configuration repository, changed write access via the WebDAV interface. 61
Extended loading of "App Data. 61
Extensions and compatibility notes. 61
Extensions of the Scheduler Web Interface. . 80

F

Feature 178177. 113
Feature 257721. 81
Feature 276675. 102
Feature 279538. 116
Feature 309415. 115
Feature 320782. 115
Feature 320812. 59
Feature 337742. 81
Feature 348879. 116
Feature 349009. 102
Feature 351477. 113
Feature 360219. 116
Feature 377708. 81
Feature 389625. 113
Feature 393696. 114

Feature 393727. 114
Feature 394419. . . . . 115, 116
Feature 394909. 102
Feature 395940. 99
Feature 400472. 116
Feature 400981. 81
Feature 420250. 59
Feature 433774. 100
Feature 435362. 101
Feature 439835. 78
Feature 439841. 78
Feature 440943. 102
Feature 447379. 83
Feature 448193. 78
Feature 448328. 103
Feature 448724. 102
Feature 450672. 59
Feature 453064. 83
Feature 456814. 78
Feature 458990. 58
Feature 459698. 83
Feature 461721. 83
Feature 466590. 81
Feature 477225. 59
Feature 489592. 103
Feature 490195. 83
Feature 495933. 82
Feature 503136. 82
Feature 503146. 82
Feature 504775. 78
Feature 504878. 82
Feature 505317. 82
Feature 508496. 79
Feature 508616. 80
Feature 514059. 60
Feature 516664. 60
Feature 533316. 58
Feature 533626. 59
Feature 539194. 61
Feature 546376. 60
Feature 549398. 60
Feature 554269. 60
Feature 556110. 60
Feature 562213. 59
Feature 563478. 60
Feature 566109. 60
Feature 568565. 61
Feature 568992. 61
Following a control restart, the page is reloaded again. 118
Following a control restart, the shutdown dialog is displayed again. 119
Function extensions in the Data Layer interface 114

G

Generating a backup via the device portal is not possible. 96

H

Handling large data volumes in the Data Layer interface. 101
Hardware of control is observed and faulty states will be pushed to diagnosis log. 113
Hardware reset: Image update to ctrlX CORE X3 control via USB. 78
Hardware support
Resolved defects and modifications. . 46, 52, 70, 71
Hardware Support
Resolved defects and modifications. 97
Hardware watchdog if a user with multiple rights is logged in. 117
Helpdesk. 130
High memory usage of Automation Core. . . . 117
Home page link did not open Node RED on a new tab. 123
Host name with brand app is lost after reboot 44
Hotline. 130

I

If a time zone outside UTC +/-1 is selected, no installations can be executed via POST / packages. 121
Image update and/or applying a setup file leads to an undefined state. 65
Important information. 21
Improvements of the Solutions App for XCR-V-0116. 103
In some cases, Chrome browser considers system report to be "dangerous". 92
In the app details, duplicate versions are displayed. 119
Inconsistent data during communication between COM.2 and CORE. 97
Incorrect display of media on the ctrlX CORE X7 information page 63
Increased startup time after automatic setup execution. 93
Information task manager APIs such as "System Measurements" and "Processes" spam the logbook in Diagnostics -> Logbook. 120
Information task manager APIs such as "System Measurements" and "Processes” are also queried after exiting the web interface. 120
Installation progress freezes or updates of the store are not continued to be executed after a reboot. 119
Insufficient display authorizations to correctly display the “Certificates and keys” page. 87, 98, 112
Interface auto-connect mechanism of the Device Admin causes problems. 46
Interface XF51 does not support jumbo frames 43, 49, 56, 66, 74
Interface XF51 does not support Jumbo frames 91

Internal partitions are visible in the memory management of the ctrlX CORE X7. 92
Invalid characters in the hostname are not handled correctly. 120
Invalid or empty user ID at a Data Layer call causes an exception. 86
It is possible to switch ctrlX to service mode while the axes are moving. 103
It is possible to switch the ctrlX in service-mode while axes are moving. 125

K

Known limitations. 65
Known restrictions. . 42, 48, 55, 72, 89, 97, 106, 125

L

Large JSON requests to the Data Layer web server result in a high memory usage. 52
LED does not show pending diagnostics during booting. 104
Limit access to Data Layer using user defined scopes. 113
Link-local for IPv4 can be enabled/disabled. 115
Linux Kernel
Resolved defects. 117
List of applied ctrlX setups on the device. . . . 83

M

Many subscriptions via NodeJS or SSE cause a crash of app.automationcore. 118
mDNS name resolution added. 59
Memory leak when using subscription. . . 85, 95
Memory loss when reading the Data Layer node "scheduler/tasks". 117
Memory reservation for real-time applications does not work correctly. 63, 72
Memory reservation for real-time apps does not work properly. 93
Missing interface for access to a serial interface 117
Missing interface for access to storage media. 117
Missing routes result in HTTP error 404. 96
Modifications in the Scheduler configuration can cause errors at the EtherCAT devices. 104
Modifications in the scheduler configuration result in errors at the EtherCAT devices. . . . 126
Multicast only works if the gateway is set. . . 97, 111, 127

N

Name of the "Store" filter element. 122
Network and system settings are not restored after a Restore operation. 122
Network diagnostics - Ping. 81
Network discovery services may not be used for EoE interfaces. 42
Network Discovery settings are not backed up. 98, 112
Network Discovery settings are not backed up in a ctrlX setup file. 87, 98, 112
Network Discovery settings are not backed up upon backup. 87
Network interfaces are not automatically configured upon subsequent plug-in. 88
New functions. 58, 78, 99, 113
New option to edit the host table. 115
No default configuration is defined for the bridge. 105
No manual input of link local addresses possible 63
No plugged network cable results in multiple unnecessary logbook entries. 62, 74
Node *diagnosis/reset/all-pending*: Memory leak upon call via REST API. 85
Nodes under *system/health* were not updated on ctrlX CORE X7. 71
Non-functioning entries in the sidebar following app installation. 46
Notes on use 42, 48, 55, 65, 72, 89, 97, 106, 125
NTP servers can only be deleted explicitly. . 106, 128

O

On some ctrlX CORE X7 controls, the internal partitions are displayed on the "Memory" and "Information" pages. 64
On some ctrlX CORE X7 the internal partitions are displayed on the "Memory" and "Information" pages. 75
On the "Memory" page of the ctrlX CORE X7 control, the internal partitions are visible. . . . 63

P

Permanent partition is not available with K-Box B-201-CFL. 47
Possible increasing memory consumption due to a memory leak in the license manager. . . 88, 96
Possible memory leak, i.e. assigned memory is not released in web.taskmanager. 88
Possible restart loop from Automation Core to safe mode. 52
Product information. 21

R

Remote logging configuration is lost when updating from 01V12 to 01V18. . . . . 63, 74, 92
Remote Logging: Filtering according to different criteria. 103
Remote logging: Host name is updated immediately after a change. 62
Removing revisions of apps that are no longer active. 60
Removing the local storage memory capacity ("Apps available on ctrlX CORE") is not persisted. 121
Reserve memory for real-time apps. 82

Resetting the same log from different sources can generate a pending error. 86
Resolved defects 42, 46, 52, 62, 70, 83, 95, 103, 116
Restart of Automation Core app in case of critical errors. 95
Revision of connectivity. 82

S

Same task priorities can cause errors. 85
Scheduler changes. 113
Scheduler configuration import from projects <= 1.12 fails due to invalid task configuration (stacksize). 62
Scheduler extensions. 78
Security update. 47, 70, 88, 97, 116
Security update for rexroth-arch01-kernel. . . . 70
Security update for rexroth-arch02-kernel. . . . 71
Service hotline. 130
Service-to-Service authentication for applications. 116
Setup
New functions. 61, 83, 103, 116
Notes on the use and known restrictions. 128
Resolved defects. 125
Resolved defects and modifications. . 65, 106
Setup config with included eoe0 adapter can not be restored to ctrlX CORE with new image. 125
Setup of the ctrlX CORE via a removable medium. 83
Setup: The generated radiusConfiguration contains invalid entries. 128
Several parallel upload to the app memory of the control sporadically fail. 119
Shutting down the Automation Core app upon an exception or F8/F9 error. 78
snapd
Notes on the use and known limitations. . 67
Software and apps. . . 41, 45, 51, 57, 69, 77, 95, 99, 113
Solutions
New functions. 61, 103
Some nodes in the Data Layer sporadically vanish. 96
Sporadically, NTP servers can be lost during an update. 106
SSH server settings are not restored. 123
Support. 130
Support for ECC-based cryptographic keys using the TPM. 61
Support for multiple parallel license memory. 59
Supporting license filing on a dongle. 102
Switch "IP-forwarding" returns to original position after switching. 124
System report is classified as "dangerous" by Chrome browser in some cases. 74
System state of the ctrlX CORE Runtime. . . 100
System status is in SERVICE after booting. . . 86

T

Task query in logged off state sporadically results in error entries in the logbook. 119
Task watchdog when switching from SERVICE to SETUP. 84
The "managed" flag under PUT /network-manager/api/v1/interfaces/{interfaceName} is not evaluated. 105
The "managed" flag under PUT /network-manager/api/v1/interfaces/{interfaceName} is not evalulated. 127
The access path for mounted media is displayed 116
The Devicediscovery functions are only applied to eth0. . . . . 105, 127
The function "Sync with browser" uses UTC instead of the time zone of the user. 121
The maintenance mode has to be detected during the installation/updating of apps. 43, 49, 56, 66, 73, 91, 97, 111, 127
The network configurations are lost during the app downgrade to version 1.12. 46
The new web server reports 404 after the installation. 87, 96, 112
The operating hours counter was sporadically reset by a restart of the control. 47
The order for updating apps is incorrect: Core has to be updated before updating the Device Admin. 47
The package manager does not detect incorrectly formatted app files. 105
The RAM consumption of the device admin process increases continuously. 96
The RAM consumption of the Device Admin process increases continuously. 87
The Setup function allows a flexible transfer of settings and apps between devices. 116
The system report can be password-encrypted 60
The system time cannot be set. 119
The time is reset to a previously backed up time 124
Timeout during writing the Data Layer node in the scheduler. 110
Timeout while writing Data Layer nodes to the Scheduler. 84
To ensure the best real-time behavior possible, task and trace settings have to be correct. . . 72, 89, 106, 125
Too many open file handles after package management operations. 118, 125

U

Ubuntu Core 20
Fixed bugs and changes. 47, 88, 97
Resolved defects. 116
Resolved defects and modifications. . . 54, 70
Uninstalling required apps via "Restore" operation. 87
Unlike LLMNR and UPNP, the MDNS host name is not refreshed. 105
Unsaved changes in the network manager can be persisted. 122
Update COM.2 to FWB-XD1-COM-V-0122N.03 46
Update RM 21.11 to RM 21.11.b resulted in error messages. 123
Updating the apps to the ctrlX CORE. 22, 25, 28, 30, 32, 34, 36, 38
Updating the apps to the ctrlX CORE Virtual. 21, 24, 27, 29, 32, 34, 36, 38
Updating the internal communication firmware 70
Uploading several trial licenses or more than 100 licenses renders the device unusable. . 106
USB Ethernet adapter is not recognized at ctrlX DRIVEplus. 65
User without "Full access" authorization can disable user with "Full access" authorization. 63
Using a microSD card and a USB stick for data exchange. 103
Using micro SD card and USB stick to extend the internal memory. 81
UTC system time and time zone are published on the Data Layer. 60

V

Vulnerability in the Linux kernel. 117

W

Watchdog frames when the watchdog is idle. 70
Web interface for WLAN hotspot. 81
When creating or deleting network bridges, error messages are reported. 122
WiFi settings are no longer available after a reboot. 64
WLAN settings are lost when configuring external settings. 64

X

X3: Retain memory > 56kB sporadically inconsistent after power off/on for ctrlX CORE X3 in ctrlX DRIVEplus and ctrlX CORE X3. . . . 65
X3: Retain memory >64 kB sporadically inconsistent after power off/on with ctrlX CORE X3 and ctrlX COREplus X3. 73

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