

NComputing RX300

Firmware version 3.2.40

RELEASE NOTES

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PRODUCT RELEASE NOTES: NCOMPUTING RX300 FRIMWARE, VERSION 3.2.40

Product: NComputing RX300 firmware

Version: 3.2.40

Device configuration version: 17

Supported virtual desktop environments:

- NComputing vSpace Pro 11
- NComputing VERDE VDI 8.2.1
- Microsoft Remote Desktop Services:
 - Microsoft Windows Server systems:
 - Windows Server 2008 R2
 - Windows Server 2012 R2
 - Windows Server Multipoint Server 2012
 - Windows Server 2016
 - Windows Server 2016 (Multipoint Services)
 - Microsoft Windows desktop systems:
 - Windows 7
 - Windows 8.1
 - Windows 10

Supported hardware:

- NComputing RX300 thin clients

Supported device management systems:

- NComputing PMC 1.1, PMC 1.5, and newer
- vSpace Console from vSpace Pro 11

This document contains important information. Please read the entire document to ensure that your deployment process goes smoothly.

ABOUT THE PRODUCT:

NComputing RX300 devices are thin clients supporting connections to NComputing vSpace Pro, NComputing VERDE VDI, as well as to Microsoft Remote Desktop Session Host servers and Microsoft Windows desktop systems with Remote Desktop feature enabled.

ABOUT THIS RELEASE:

3.2.40 is an RX300 firmware release which replaces the 3.2.27 firmware. The 3.2.40 firmware fixes multiple issues affecting previous firmware versions as well as brings some new features.

NEW FEATURES AND IMPROVEMENTS:

Following are the new features, changes, and improvements introduced in firmware version 3.2.40:

- Support for vCAST Web and VLC streaming over RDP protocol (requires the NComputing SuperRDP software on the Remote Desktop Session Host).
- Support for Secondary Display in RDP sessions; support for Secondary Display based on NComputing SDA-RX300 (Pi Zero-based) HDMI display adapter, or DisplayLink chipsets-based display adapters.
- Upgraded NComputing Pi0 Secondary Display Adapter firmware (0.9.8).
- Option to save changed configuration before starting firmware update.

ISSUES FIXED IN THIS VERSION:

The following RX300 firmware issues have been fixed in version 3.2.40:

- RX-1451 - Device configured on wireless network does not get IP address after performing factory reset.
- RX-1448 - RDP session on VERDE VDI server gets disconnected when dragging a window.
- RX-1440 - PMC management: Device Profile/Connections/VERDE VDI connection settings: 'Enable RemoteFX' function does not work.
- RX-1439 - PMC management: Device Profile: Connections/Remote Desktop connection settings: 'Enable RemoteFX' function does not work.
- RX-1434 - Changing DNS settings in GUI disconnects WiFi.
- RX-1428 - VERDE VDI Client: RDP Protocol: Dual Display mode does not work.
- RX-1425, RX-1378, RX-1375 - Disconnecting Ethernet also disconnects configured WiFi network.
- RX-1424 - After disabling Ethernet and changing DNS settings via PMC, the Ethernet status icon color changes to red.
- RX-1423 - Device GUI does not reflect RDP connection and user auto-login setting sent from PMC when waiting for manual connect.
- RX-1419 - Device does not send PMC check-in when the Asset Tag value will be changed in Setup GUI.

- RX-1418 - Device does not send PMC check-in when the Device Name will be changed in Setup GUI.
- RX-1417 - Device does not properly apply static DNS settings sent by PMC.
- RX-1406 - vCAST Web Streaming doesn't work on certain YouTube videos.
- RX-1396 - Xorg.0.log gets flooded with unnecessary information when the mouse moves.
- RX-1394 - Some wireless mice or touchpads have lag.
- RX-1392, RX-1376 - Ethernet interface does not work if network cable was not connected during device boot-up.
- RX-1389 - USB microphone does not work in VERDE RDP sessions with Native audio redirection.
- RX-1388 - USB microphone does not work in RDP sessions with Generic USB audio redirection.
- RX-1386 - PC/SC daemon doesn't start automatically after device reboot if native redirection of smart cards is configured.
- RX-1381 - VERDE VDI Client mode: Smart Card Redirection does not work.
- RX-1370 - PMC connection doesn't switch to WiFi when Ethernet cable will be unplugged.
- RX-1357 - RDP Client: Mouse pointer intermittently becomes a random bitmap when transiting from pointer without shadow to pointer with shadow.
- RX-1321 - Device starts sending PMC heartbeats despite of the fact, that initial check-in has failed.
- RX-1318 - vSpace Client: vCAST Web Streaming freezes for few seconds when switching between 'default view' and 'theater view' in dual display mode.
- RXRDP-74 - RDP Client: USB microphone does not work in RDP sessions with Native audio redirection.

KNOWN ISSUES:

Following are the known RX300 firmware issues still existing in version 3.2.40:

- RX-1426 - VERDE VDI Client: UXP Protocol: Audio records may not have good sound quality.
- RX-1398 - VERDE/UXP: VM logon with LDAP credentials fails when user name is different than AD UPN.
- RX-1393 - N-series SDA does not work in VERDE/UXP sessions.
- RX-1387 - Generic USB redirection doesn't work for printers in RDP sessions.
Workaround: The upcoming NComputing SuperRDP software installed on the Remote Desktop Session Host resolves the issue.
- RX-1384 - vCAST Web streaming does not work on Windows 10 when USB headset was connected before starting Chrome browser.
- RX-1329 - VERDE Client: VERDE VDI Client mode + UXP Protocol: choppy audio in VLC media player.
- RX-1304 - vSpace Client: Arduino board (COM port) becomes unavailable after unplugging/replugging few times - device reboot is required

- RXRDP-68 - RDP Client: Kiosk mode application auto-start does not work in RDP sessions.
Workaround: Please see the additional note below.
- RXRDP-44 - RDP Client: File copy process may get stuck for long time at 0% when copying larger files (several dozen kB) to redirected FAT32 USB drives.
Workaround: Use USB drives based on NTFS file system if large files transfer is required.

FIRMWARE UPDATE INSTRUCTIONS:

- **Updating firmware from an FTP or web server**

The device firmware can be updated manually from the Setup GUI with a firmware update package uploaded to an FTP or web server:

- Upload the 'rx300-3.2.40.upd' firmware update package file into your FTP or web server.
- On the RX300 device open the Setup GUI and go to the 'Support' section.
- Enter the FTP or HTTP URL of the firmware update package and click the 'Update' button.
- Alternatively, user can use the following NComputing's web URL to download and install this version of firmware directly to the RX300 device: <http://firmware.ncomputing.com/RX300/rx300-3.2.40.upd>.

Once the device finishes downloading the firmware update package the firmware update process will start and will take a few minutes. The process should not be interrupted. Especially when the process reaches 76% the progress bar will stop moving for a longer while. This is normal and the update will continue once the background tasks are completed. Firmware update will end with a device reboot.

- **Updating firmware from vSpace Console**

The device firmware can be updated from the vSpace Console included in vSpace Pro 11. Following steps describe how to replace the original RX300 firmware contained in vSpace Pro 11 with the 3.2.40 firmware:

- Logon to vSpace Pro as a user with administrative privileges, open the Computer Management tool, go to 'Service and Applications > Services', locate the 'Multiuser Boot Server for Miniterm' service, and stop it.
- Open Windows Explorer, go to "%ProgramFiles%\NComputing\vSpace Server Software\Bootsrv", and make a backup copies of the 'rx300-x.y.z.upd' (where x.y.z is your current RX300 firmware version) and 'rx-update.txt' files.
- Copy to that folder the 'rx300-3.2.40.upd' and 'rx-update.txt' files you received as the RX300 3.2.40 firmware update.
- Switch back to Computer Management tool, go to 'Service and Applications > Services', locate the 'Multiuser Boot Server for Miniterm' service, and start it.

- Open vSpace Console and follow the standard firmware update procedure. For devices located in the same LAN as vSpace Pro it is as following:
 - Go to 'Manage Devices'.
 - Under Networks select LAN, locate and select the RX300 devices which should receive the firmware update.
 - Click the 'Update Firmware' button on the toolbar.
 - Select the 'Latest from LAN' method and click the 'Update' button.

Once the device finishes downloading the firmware update package the firmware update process will start and will take a few minutes. The process should not be interrupted. Especially when the process reaches 76% the progress bar will stop moving for a longer while. This is normal and the update will continue once the background tasks are completed. Firmware update will end with a device reboot.

- **Updating firmware from PMC**

The device firmware can be updated from supported version of PMC. Follow the below steps to perform the firmware update on remote RX300 devices:

- Logon to PMC as a user with administrative privileges, open the Menu, go to 'Administration > Files'.
- Select 'Firmware Image' as file type.
- Click the 'Choose file' button and select the 'rx300-3.2.40.upd' file.
- Click the 'Upload file' button to upload the firmware package.
- Open the Menu, go to 'Device Management > Firmware Updates'.
- Select the 'rx300-3.2.40.upd' firmware package.
- Select the device group.
- Select the devices which should receive the firmware update.
- Schedule the update date and time, or opt to update now.
- Click the 'Apply' button.

If 'Update now' was chosen then within 30 seconds the device will receive a request to initiate the firmware update. For remote devices the process can be followed by observing the Audit Events log on Dashboard. The firmware update process will take a few minutes and should not be interrupted. Especially when the process reaches 76% the progress bar will stop moving for a longer while. This is normal and the update will continue once the background tasks are completed. Firmware update will end with a device reboot.

ADDITIONAL NOTES:

- **Managing the RX300 devices with 3.2.40 firmware from PMC 1.1**

The RX300 3.2.40 firmware uses version 17 of the device configuration. To be able to manage the RX300 devices running firmware using this configuration version a set of schema files describing this configuration version must be uploaded to PMC. Without that PMC will only be able to

show the device on the device list, but will not allow editing the device (or device profile) settings for configuration version 17.

Follow the below steps to upload to PMC the schema files for RX300 configuration version 17:

- Logon to PMC as a user with administrative privileges, open the Menu, go to 'Administration > Device Configurations'.
- Click the 'Choose file' button and select the ZIP file containing the version 17 schema files.
- Click the 'Upload file' button to upload the schema files.

After completing the above actions PMC 1.1 will become fully able to manage the RX300 devices running firmware using the configuration version 17 (e.g. the 3.2.40 firmware).

- **PMC server auto-discovery**

To automate the PMC server discovery the DHCP option 207 can be used. This DHCP option should provide a string value containing the URL in form of 'https://<PMC_address>', like: 'https://pmc.company.local', or: 'https://192.168.10.12'.

- **Using custom parameters for RDP connections**

The 3.2.40 firmware allows specifying custom parameters for RDP connections. Please refer to FreeRDP documentation for the information about supported parameters. If multiple custom parameters must be specified, then they should be separated by the ";" (semicolon) character.

- **Server CPU load in RDP sessions with RemoteFX enabled**

Enabling the RemoteFX feature for Remote Desktop connections greatly improves user experience by providing very good GUI performance. This is thanks to optimized algorithms used to encode the areas of the session screen which contain dynamically changing contents (like videos or animations). Ideally the screen encoding on the server side should be accelerated by supported graphics cards. Leveraging server CPUs for RemoteFX screen encoding can cause high load and effectively limit the per-server user density.

- **Kiosk mode application auto-start**

Latest versions of Windows operating systems favor RemoteApp publishing and do not allow launching applications with program paths specified on the client side. This functionality can be re-enabled by modifying the Windows registry:

Registry key: HKLM\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Terminal Server\TSAppAllowList
Registry value: REG_DWORD fDisabledAllowList
Registry value data: 1

Registry key: HKLM\SYSTEM\CurrentControlSet\Control\Terminal Server
Registry value: REG_DWORD HonorLegacySettings
Registry value data: 1

- **Supported DisplayLink Secondary Display Adapters**

This firmware introduces support for Secondary Display Adapters based on DisplayLink DL-1x0 and DL-1x5 chipsets. Adapters with following DisplayLink USB Vendor ID and Product ID (VID:PID) are supported:

- 17e9:0290
- 17e9:0351
- 17e9:030b
- 17e9:0377
- 17e9:0378
- 17e9:0379
- 17e9:037a
- 17e9:037b
- 17e9:037c
- 17e9:037d
- 17e9:410a
- 17e9:430a
- 17e9:4312

- **Native (functional) redirection of smart card readers**

Functional redirection of smart card readers leverages the PC/SC daemon and smart card reader drives embedded in the device firmware. Drivers for following smart card readers are present in the firmware and the following readers should work:

Readers supported by the ACS driver:

- ACS ACR32 ICC Reader
- ACS ACR3201 ICC Reader
- ACS ACR33U-A1 3SAM ICC Reader
- ACS ACR33U-A2 3SAM ICC Reader
- ACS ACR33U-A3 3SAM ICC Reader
- ACS ACR33U 4SAM ICC Reader
- ACS ACR38U-CCID
- ACS ACR3801
- ACS ACR39U ICC Reader
- ACS ACR39K ICC Reader
- ACS ACR39T ICC Reader
- ACS ACR39F ICC Reader
- ACS ACR39U ID1 Card Reader
- ACS ACR39U-SAM ICC Reader
- ACS ACR3901 ICC Reader
- ACS ACR83U
- ACS ACR85 PINPad Reader
- ACS ACR88U
- ACS ACR89 ICC Reader
- ACS ACR89 Dual Reader
- ACS ACR89 FP Reader
- ACS ACR100 ICC Reader
- ACS ACR101 ICC Reader
- ACS ACR102 ICC Reader
- ACS ACR122U
- ACS ACR1222 1SAM PICC Reader
- ACS ACR1222 1SAM Dual Reader
- ACS ACR1222 Dual Reader
- ACS ACR1222 1SAM PICC Reader
- ACS ACR1222 3S PICC Reader
- ACS ACR123 3S Reader
- ACS ACR123 PICC Reader

- ACS ACR123US_BL
- ACS ACR125 nPA plus
- ACS ACR1251 1S CL Reader
- ACS ACR1251 CL Reader
- ACS ACR122U
- ACS ACR1251U-C Smart Card Reader
- ACS ACR1251U-C Smart Card Reader
- ACS ACR1251K Dual Reader
- ACS ACR1251 1S Dual Reader
- ACS ACR1251 Reader
- ACS ACR1251 CL Reader
- ACS ACR1252 1S CL Reader
- ACS ACR1252 CL Reader
- ACS ACR1252 USB FW_Upgrade v100
- ACS ACR1252U BADANAMU MAGIC READER
- ACS ACR1252IMP 1S CL Reader
- ACS ACR1255U-J1 PICC Reader
- ACS ACR1256U PICC Reader
- ACS ACR1261 1S Dual Reader
- ACS ACR1261 CL Reader
- ACS ACR128U
- ACS ACR1281 1S Dual Reader
- ACS ACR1281 CL Reader
- ACS ACR1281 Dual Reader
- ACS ACR1281 PICC Reader
- ACS ACR1281 Dual Reader
- ACS ACR1281 PICC Reader
- ACS ACR1281 Dual Reader
- ACS ACR1281 2S CL Reader
- ACS ACR1281 1S PICC Reader
- ACS ACR1281U-K PICC Reader
- ACS ACR1281U-K Dual Reader
- ACS ACR1281U-K 1S Dual Reader
- ACS ACR1281U-K 4S Dual Reader
- ACS ACR1283 4S CL Reader
- ACS ACR1283 CL Reader
- ACS ACR1283U FW Upgrade
- ACS ACR1311 PICC Reader
- ACS AET62 PICC Reader
- ACS AET62 1SAM PICC Reader
- ACS AET65 ICC Reader
- ACS AMR220 Reader
- ACS APG8201
- ACS APG8201-B2
- ACS APG8201Z
- ACS APG8201Z
- ACS CryptoMate64
- ACS CryptoMate (T1)
- ACS CryptoMate (T2)
- ACS ACR38U
- ACS ACR38U-SAM
- ACS AET65 1SAM ICC Reader
- ACS CryptoMate
- IRIS SCR21U

CCID-compliant readers:

- Access IS ePassport Reader
- Access IS NFC Smart Module
- ACS ACR 38U-CCID

- ACS ACR101 ICC Reader
- ACS ACR122U PICC Interface
- ACS ACR1251 Dual Reader
- ACS ACR1252 Dual Reader
- ACS ACR1255U-J1
- ACS ACR3901U ICC Reader
- ACS ACR39U ICC Reader
- ACS APG8201 PINhandy 1
- ACS APG8201 USB Reader
- ACS CryptoMate (T2)
- ACS CryptoMate64
- ActivCard ActivCard USB Reader V2
- ActivIdentity Activkey_Sim
- ActivIdentity USB Reader V3
- AK910 CKey
- AK910 IDONE
- Aktiv Co., ProgramPark Rutoken Magistra
- Aktiv PINPad Ex
- Aktiv PINPad In
- Aktiv Rutoken ECP
- Aktiv Rutoken lite
- Aktiv Rutoken PINPad 2
- Aladdin R.D. JaCarta
- Aladdin R.D. JaCarta Flash
- Aladdin R.D. JaCarta LT
- Aladdin R.D. JaCarta U2F (JC602)
- Aladdin R.D. JCR-770
- Aladdin R.D. JC-WebPass (JC600)
- Alcor Micro AU9520
- Alcor Micro AU9522
- Alcor Micro AU9560
- ANCUUD CCID USB Reader & RNG
- appidkey GmbH ID100L-USB-SC-Reader
- appidkey GmbH ID50 -USB
- appidkey GmbH ID60-USB
- ASK-RFID CPL108
- Athena ASE IIIe
- Athena ASEDrive IIIe Combo Bio PIV
- Athena ASEDrive IIIe KB
- Athena ASEDrive IIIe KB Bio PIV
- Athena IDProtect Flash
- Athena IDProtect Key v2
- ATMEL AT90SCR050
- ATMEL AT90SCR100
- ATMEL AT91SC192192CT-USB ICCD reader
- ATMEL AT91SO CCID Smart Card Reader
- ATMEL AT98SC032CT-USB
- ATMEL VaultIC420 Smart Object
- ATMEL VaultIC440
- ATMEL VaultIC460
- Avtor SC Reader 371
- Avtor SecureToken
- Axalto Reflex USB v3
- BIFIT iBank2Key
- BIFIT iToken
- BIFIT USB-Token iBank2key
- Bit4id CKey4
- Bit4id cryptokey
- Bit4id Digital DNA Key

- Bit4id iAM
- Bit4id miniLector
- Bit4id miniLector-s
- Bit4id tokenME FIPS v3
- BLUTRONICS BLUDRIVE II CCID
- Broadcom Corp 5880
- C3PO KBR36
- C3PO LTC31 v2
- C3PO LTC32
- C3PO LTC36
- C3PO LTC3x USB
- C3PO TLTC2USB
- CASTLES EZCCID Smart Card Reader
- CCB eSafeLD
- charismathics plug'n'crypt CCID token
- Cherry GmbH SmartBoard XX1X
- Cherry GmbH SmartBoard XX33
- Cherry GmbH SmartBoard XX44
- Cherry GmbH SmartTerminal ST-1275
- Cherry GmbH SmartTerminal ST-2xxx
- Cherry GmbH SmartTerminal XX1X
- Cherry GmbH SmartTerminal XX44
- Cherry KC 1000 SC
- Cherry KC 1000 SC Z
- Cherry KC 1000 SC/DI
- Cherry KC 1000 SC/DI Z
- Cherry Smart Card Reader USB
- Cherry Smartcard Keyboard G87-1xx44
- Cherry SmartTerminal XX44
- Cherry TC 1300
- Chicony HP USB Smartcard CCID Keyboard JP
- Chicony HP USB Smartcard CCID Keyboard KR
- Chicony USB Smart Card Keyboard
- COVADIS ALYA
- COVADIS Auriga
- COVADIS VEGA-ALPHA
- Dell Dell Smart Card Reader Keyboard
- Dell keyboard SK-3106
- DUALi DE-620 Combi
- DUALi DRAGON NFC READER
- eID_R6 001 X8
- Elatec TWN4 SmartCard NFC
- Elatec TWN4/B1.06/CPF3.05/S1SC1.32/P (Beta 3)
- ESMART Token GOST
- Eutron Card Reader
- Eutron Cryptoidentity CCID
- Eutron Digipass 860
- Eutron Smart Pocket
- Feitian 502-CL
- Feitian bR301
- Feitian bR500
- Feitian eJAVA Token
- Feitian ePass2003
- FEITIAN iR301
- Feitian R502
- Feitian SCR301
- Feitian Technologies FT SCR310
- Feitian VR504 VHBR Contactless & Contact Card Reader
- Free Software Initiative of Japan GnuK

- FT CCID
- FT CCID KB
- FT ePass2003Auto
- FT U2F CCID
- FT U2F CCID KB
- Fujitsu Siemens Computers SmartCard Keyboard USB 2A
- Fujitsu Siemens Computers SmartCard USB 2A
- Fujitsu Smartcard Reader D323
- FujitsuTechnologySolutions GmbH Keyboard KB100 SCR
- FujitsuTechnologySolutions GmbH Keyboard KB100 SCR eSIG
- FujitsuTechnologySolutions GmbH Smartcard Keyboard G87-914x
- FujitsuTechnologySolutions GmbH SmartCase KB SCR eSIG
- GEMALTO CT1100
- Gemalto EZIO CB+
- Gemalto Ezio Shield
- Gemalto Ezio Shield Branch Reader
- Gemalto Ezio Shield Secure Channel
- Gemalto Gem e-Seal Pro USB Token
- Gemalto GemCore SIM Pro Smart Card Reader
- Gemalto GemPC Express
- Gemalto Gemplus USB SmartCard Reader 433-Swap
- Gemalto Hybrid Smartcard Reader
- Gemalto IDBridge K3000
- Gemalto PC Twin Reader
- Gemalto PDT
- Gemalto Prox Dual USB PC Link Reader
- Gemalto Prox SU USB PC LinkReader
- Gemalto SA .NET Dual
- Gemalto Smart Enterprise Guardian Secure USB Device
- Gemalto USB GemPCPinpad SmartCard Reader
- Gemalto USB Shell Token V2
- Gemplus GemCore POS Pro Smart Card Reader
- Generic MultiCard Device
- Generic Smart Card Reader Interface
- Generic USB Smart Card Reader
- Generic USB2.0-CRW
- German Privacy Foundation Crypto Stick v1.2
- Giesecke & Devrient GmbH Star Sign Card Token 350 (ICCD)
- Giesecke & Devrient GmbH Star Sign Card Token 550 (ICCD)
- Giesecke & Devrient GmbH StarSign Crypto USB Token
- Giesecke & Devrient GmbH StarSign CUT S
- GIS Ltd SmartMouse USB
- GoldKey Security PIV Token
- HDZB uKeyCI800-K18
- Hewlett Packard HP USB Smartcard CCID Keyboard
- Hewlett Packard MFP Smart Card Reader
- Hewlett-Packard Company HP USB CCID Smartcard Keyboard
- Hewlett-Packard Company HP USB Smart Card Keyboard
- Hewlett-Packard HP lt4112 Gobi 4G Module
- HID Global OMNIKEY 3x21 Smart Card Reader
- HID Global OMNIKEY 5022 Smart Card Reader
- HID Global OMNIKEY 5122 Dual
- HID Global OMNIKEY 5122 Smartcard Reader
- HID Global OMNIKEY 5422 Smartcard Reader
- HID Global OMNIKEY 6121 Smart Card Reader
- HID Global veriCLASS Reader
- HID OMNIKEY 5025-CL
- HID OMNIKEY 5127 CK
- HID OMNIKEY 5326 DFR

- HID OMNIKEY 5427 CK
- Hitachi, Ltd. Hitachi Biometric Reader
- Hitachi, Ltd. Hitachi Portable Biometric Reader
- id3 Semiconductors CL1356A_HID
- id3 Semiconductors CL1356T
- Identiv @MAXX ID-1 Smart Card Reader
- Identiv @MAXX Light2 token
- Identiv CLOUD 2980 F Smart Card Reader
- Identiv SCR3500 A Contact Reader
- Identiv SCR3500 B Contact Reader
- Identiv SCR35xx USB Smart Card Reader
- Identiv uTrust 2900 R Smart Card Reader
- Identiv uTrust 2910 R Smart Card Reader
- Identiv uTrust 2910 R Taglio SC Reader
- Identiv uTrust 3512 SAM slot Token
- Identiv uTrust 3522 embd SE RFID Token
- Identiv uTrust 3700 F CL Reader
- Identiv uTrust 3701 F CL Reader
- Identiv uTrust 4701 F Dual Interface Reader
- Identive CLOUD 2700 F Smart Card Reader
- Identive CLOUD 2700 R Smart Card Reader
- Identive CLOUD 4000 F DTC
- Identive CLOUD 4500 F Dual Interface Reader
- Identive CLOUD 4510 F Contactless + SAM Reader
- Identive SCT3522CC token
- Identive Technologies Multi-ISO HF Reader - USB
- IID AT90S064 CCID READER
- IIT E.Key Almaz-1C
- IIT E.Key Crystal-1
- InfoThink IT-102MU Reader
- INGENICO Leo
- Ingenico WITEO USB Smart Card Reader
- Inside Secure AT90SCR050
- Inside Secure AT90SCR100
- Inside Secure AT90SCR200
- INSIDE Secure VaultIC 405 Smart Object
- Inside Secure VaultIC 420 Smart Object
- Inside Secure VaultIC 440 Smart Object
- INSIDE Secure VaultIC 441 Smart Object
- Inside Secure VaultIC 460 Smart Object
- IonIDe Smartcard Reader
- KACST HSID Reader
- KACST HSID Reader Dual Storage
- KACST HSID Reader Single Storage
- Kapsch TrafficCom USB SAM reader
- KEBTechnology KONA USB SmartCard
- Kingtrust Multi-Reader
- KOBIL EMV CAP - SecCOVID Reader III
- KOBIL KAAAN Advanced
- KOBIL KAAAN Base
- KOBIL KAAAN SIM III
- KOBIL Systems IDToken
- KOBIL Systems mIDentity 4smart
- KOBIL Systems mIDentity 4smart AES
- KOBIL Systems mIDentity fullsize
- KOBIL Systems mIDentity fullsize AES
- KOBIL Systems mIDentity M
- KOBIL Systems mIDentity visual
- KOBIL Systems mIDentity XL

- KOBIL Systems Smart Token
- KRONEGGER Micro Core Platform
- KRONEGGER NFC blue Reader Platform
- Ledger Nano S
- Lenovo Integrated Smart Card Reader
- Lenovo USB Smartcard Keyboard
- Liteon HP SC Keyboard - Apollo (Liteon)
- Liteon HP SC Keyboard - Apollo JP (Liteon)
- Liteon HP SC Keyboard - Apollo KR (Liteon)
- Macally NFC CCID eNetPad
- mCore SCard-Reader
- Microchip SEC1110
- Microchip SEC1210
- MK Technology KeyPass S1
- Morpho MSO1350 Fingerprint Sensor & SmartCard Reader
- Morpho MSO350/MSO351 Fingerprint Sensor & SmartCard Reader
- MSI StarReader SMART
- MYSMART MySMART PAD V2.0
- Neowave Weneo
- Nitrokey Nitrokey HSM
- Nitrokey Nitrokey Pro
- Nitrokey Nitrokey Start
- Nitrokey Nitrokey Storage
- NTT Communications Corp. SCR3310-NTTCom USB SmartCard Reader
- NXP Pegoda 2 N
- NXP PR533
- O2 Micro Oz776
- OBERTHUR TECHNOLOGIES ID-ONE TOKEN SLIM v2
- OCS ID-One Cosmo Card USB Smart Chip Device
- OMNIKEY 5421
- OMNIKEY 6321 CLi USB
- OMNIKEY AG 3121 USB
- OMNIKEY AG 6121 USB mobile
- OMNIKEY AG CardMan 3121
- OMNIKEY AG CardMan 3621
- OMNIKEY AG CardMan 3821
- OMNIKEY AG CardMan 5121
- OMNIKEY AG CardMan 5125
- OMNIKEY AG CardMan 6121
- OMNIKEY AG Smart Card Reader
- OMNIKEY CardMan 1021
- OMNIKEY CardMan 4321
- OMNIKEY CardMan 5321
- Panasonic Panasonic USB Smart Card Reader 7A-Smart
- Philips Semiconductors JCOP41V221
- Philips Semiconductors SmartMX Sample
- PIVKey T800
- Planeta RC700-NFC CCID
- Precise Biometrics Precise 200 MC
- Precise Biometrics Precise 250 MC
- Precise Biometrics Sense MC
- Raritan D2CIM-DVUSB VM/CCID
- Regula RFID Reader
- REINER SCT cyberJack go
- REINER SCT cyberJack one
- REINER SCT cyberJack RFID basis
- REINER SCT cyberJack RFID standard
- REINER SCT tanJack Bluetooth

- Rocketek RT-SCR1
- RSA RSA SecurID (R) Authenticator
- SafeNet eToken 5100
- SafeNet eToken 5300
- SafeNet eToken 7300
- SafeTech SafeTouch
- SAFETRUST SABRE SCR
- SchlumbergerSema SchlumbergerSema Cyberflex Access
- SCM Microsystems Inc. HP USB Smartcard Reader
- SCM Microsystems Inc. SCL010 Contactless Reader
- SCM Microsystems Inc. SCL01x Contactless Reader
- SCM Microsystems Inc. SCR 331
- SCM Microsystems Inc. SCR 3310
- SCM Microsystems Inc. SCR 3311
- SCM Microsystems Inc. SCR 331-DI
- SCM Microsystems Inc. SCR 335
- SCM Microsystems Inc. SCR 355
- SCM Microsystems Inc. SCR3310 USB Smart Card Reader
- SCM Microsystems Inc. SCR331-DI USB Smart Card Reader
- SCM Microsystems Inc. SCR3320 - Smart Card Reader
- SCM Microsystems Inc. SCR3340 - ExpressCard54 Smart Card Reader
- SCM Microsystems Inc. SCR33x USB Smart Card Reader
- SCM Microsystems Inc. SDI010 Smart Card Reader
- SCM Microsystems Inc. SDI011 Contactless Reader
- SCM Microsystems Inc. SPR 532
- Secure Device Solutions DOMINO-Key TWIN
- SecuTech SecuTech Token
- Sitecom Sitecom USB simcard reader MD-010
- Softforum Co., Ltd XecureHSM
- SpringCard CrazyWriter
- SpringCard CSB6 Basic
- SpringCard CSB6 Secure
- SpringCard CSB6 Ultimate
- SpringCard EasyFinger Standard
- SpringCard EasyFinger Ultimate
- SpringCard H512 Series
- SpringCard H663 Series
- SpringCard NFC'Roll
- SpringCard Prox'N'Roll
- Spyrus Inc PocketVault P-3X
- SYNNIX STD200
- Teridian Semiconductors TSC12xxFV.09
- THRC Smart Card Reader
- THURSBY SOFTWARE TSS-PK1
- TianYu CCID Key TianYu CCID SmartKey
- Tianyu Smart Card Reader
- Todos Argos Mini II
- Todos CX00
- ubisys 13.56MHz RFID (CCID)
- udea MILKO V1.
- Unicept GmbH AirID USB
- Unicept GmbH AirID USB Dongle
- Validy TokenA sl vt
- VASCO DIGIPASS 870
- VASCO DIGIPASS 875
- VASCO DIGIPASS 920
- VASCO DIGIPASS KEY 101
- VASCO DIGIPASS KEY 200
- VASCO DIGIPASS KEY 202

- VASCO DIGIPASS KEY 860
- VASCO DP855
- VASCO DP865
- VASCO DP905v1.1
- Verisign Secure Storage Token
- Verisign Secure Token
- VMware Virtual USB CCID
- WatchCNPIC USB CCID Key
- Watchdata USB Key
- Watchdata W5181
- Winbond CCID SmartCard Controller
- XIRING Leo v2
- XIRING MyLeo
- XIRING XI-SIGN USB V2
- Yubico Yubikey 4 CCID
- Yubico Yubikey 4 OTP+CCID
- Yubico Yubikey 4 OTP+U2F+CCID
- Yubico Yubikey 4 U2F+CCID
- Yubico Yubikey NEO CCID
- Yubico Yubikey NEO OTP+CCID
- Yubico Yubikey NEO OTP+U2F+CCID
- Yubico Yubikey NEO U2F+CCID

CONTACTING TECHNICAL SUPPORT AND ADDITIONAL RESOURCES

- Visit the NComputing Knowledge Base at <http://kb.ncomputing.com/> for more information, guides, and walkthroughs.
- To request Technical Support, please visit the NComputing Support page at <http://www.ncomputing.com/support/overview>.

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