

USER MANUAL LoadUtil 3

Firmware update and peripheral maintenance utility



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Revision history

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1 Introduction

LoadUtil, is a firmware update and peripherals maintenance utility.

In fact, LoadUtil provides several Java utilities, but the most important ones are the SimpleFWUTool, a graphical user interface tool, and the CUI tool, a console interface tool intended to be used without user interaction.

Both tools internally utilize the so called FWU API that defines a hardware independent interface to download firmware into devices, to configure devices, or to request device information such as firmware versions, configurations, or statistics.

This user manual is intended to provide an overview of the functions and tools provided with LoadUtil. Installation and uninstallation, configuration as well as logging are dealt with separately. Supported operating systems, peripherals as well as requirements regarding the Java runtime environment, system and device drivers, firmware versions and other software frameworks are also covered in this manual. However, this information may change slightly for each LoadUtil version. Therefore, please refer to the release notes of the corresponding LoadUtil version, as they will provide more up-to-date information in this regard.



2 General information

2.1 Environment at Diebold Nixdorf

LoadUtil 3 can be used on all released DN Retail systems under the LoadUtil 3 approved operating systems.

The approved operating systems for each DN Retail system can be found within the current configurator in the DN intranet portal (go to <u>Intranet > Portfolio > Our Portfolio > Services > Configurator/Price list</u>). In case no access is granted to that site, a Diebold Nixdorf account manager must be contacted.

Details about the supported operating systems and peripherals as well as dependencies regarding driver and firmware versions can generally be found in in chapter *3* - *Specifications* as well as the respective LoadUtil 3 Release Notes.

2.2 License agreement / rights of use

The software LoadUtil 3 is subject to license and usage conditions. The exact wording of the End User License Agreement can be found in the appendix, chapter 9.1 - End-user license agreement.



3 Specifications

3.1 Product installer

3.1.1 Variants

LoadUtil 3 product installer are available as 32-bit and 64-bit versions for Windows and Linux based operating systems. The installer variants (32 or 64-bit) are based on the process architecture of the Java Virtual Machine (Java VM) architecture to be used. This means that e.g., when using a 32-bit Java VM on a 64-bit operating system, the 32-bit LoadUtil installer needs to be used anyway.

The provided product installers follow the naming scheme:

<u>Windows</u>

- DNLoadUtil-MAJOR.MINOR.BUILD-x86.exe
- DNLoadUtil-MAJOR.MINOR.BUILD-x64.exe

<u>Linux</u>

- dn-loadutil-MAJOR.MINOR.BUILD-i386.rpm
- dn-loadutil-MAJOR.MINOR.BUILD-x86_x64.rpm

Example: DNLoadUtil-3.4.39-x86.exe

For a detailed listing of supported operating systems, see chapter 3.5 - *Supported operating systems*. The currently available LoadUtil installer are listed in chapter 3.2 - *Released installer versions*.

Note: The LoadUtil 3 installers for Windows already include a suitable Java VM.

3.1.2 Default paths

Windows

LoadUtil 3 will be installed into the directory C:\Program Files\Diebold Nixdorf\Loadutil for architecture identical installations (e.g., 32-bit on 32-bit Windows) and into C:\Program Files (x86)\Diebold Nixdorf\Loadutil for architecture-non-identical installations (32-bit on 64-bit Windows) (in the document further referred to as <LoadUtil installation directory>).

Configuration files are stored in *C*:*Program Files**Diebold Nixdorf**Loadutil**config* (in the document further referred to as <*LoadUtil configuration directory*>) and log files are stored in *C*:*ProgramData**Diebold Nixdorf**Loadutil*.

At the Windows Start menu, the LoadUtil installer adds all links into the directory *Diebold Nixdorf Loadutil* by default.

<u>Linux</u>

On Linux, LoadUtil 3 will be installed into the directory */opt/dn/loadutil* (in the document further referred to as *<LoadUtil installation directory>*).

Configuration files are stored in /etc/opt/dn/loadutil/config (in the document further referred to as <LoadUtil configuration directory>) and log files are stored in /var/log/dn/loadutil.



3.2 Released installer versions

<u>Windows</u>

•	DNLoadUtil-3.4.39-x86.exe	(for 32-bit Java VM)
•	DNLoadUtil-3.4.39-x64.exe	(for 64-bit Java VM)

<u>Linux</u>

•	dn-loadutil-3.4.36-i386.rpm	(for 32-bit Java VM)
•	dn-loadutil-3.4.36-x86 64.rpm	(for 64-bit Java VM)

3.3 Software requirements

3.3.1 Installation requirements

The conditions described in this chapter apply to the installation process only. The requirements at runtime, such as additional system drivers for the devices to be addressed, can be found in chapter 3.3.2 - *Runtime requirements* or within the LoadUtil release notes.

Note: The installation of LoadUtil requires administrator permissions.

3.3.1.1 Minimum precondition

The installation of LoadUtil does not have any further preconditions.

3.3.2 Runtime requirements

The conditions described in this chapter only apply to the runtime of LoadUtil. The requirements for the installation process can be found in chapter 3.3.1 - Installation requirements or within the LoadUtil release notes.

3.3.2.1 Minimum precondition

The following software must be installed on the target system to use LoadUtil:

• Java Virtual Machine (version 8 or 11)

Note: The LoadUtil installer provides a suitable Java VM.

3.3.2.2 Driver dependencies

Some devices require additional system driver installed on the target system, which are not part of this product.

- **Note:** Further information regarding the correct driver version for each LoadUtil version can be found at the related LoadUtil release notes. The table below may not be actual.
- **Note:** The system drivers are aligned to the bit architecture of the underlying operating system. Whereas the product is aligned to the bit architecture of the used JRE. This means, the LoadUtil for 32-bit JVM still requires 64-bit drivers on a 64-bit Windows.



Driver	Operating System	Affected Devices
probase_fo_usb_drivers_cineo_32bit.msi (version 1.4.31)	32-bit of Windows® XP™, Windows® POSReady 2009™, Windows® 7™, Windows® POSReady 7™, Windows® 8.1™	CINEO C6010, C6020; iButton, Special Electronics at ACO and kiosk systems
probase_fo_usb_drivers_cineo_64bit.msi (version 1.4.31)	64-bit of Windows® 7™, Windows® POSReady 7™, Windows® 8.1™	CINEO C6010, C6020; iButton, Special Electronics at ACO and kiosk systems
BNR_USB_Driver_2.1.0.zip	Windows® XP™ SP2, Windows® 7™, Windows® 8.1™, Windows® POSReady 7™	iCash20
WN_POSUSB_Driver-2.50.0.0-44-setup.exe	Windows® XP [™] (32-bit only), Windows® POSReady 2009 [™] (32-bit only), Windows® 7 [™] , Windows® POSReady 7 [™] , Windows® 8.1 [™]	non-HID, non-cash USB devices
DN_POSUSB_Driver-3.10.0.0-4-setup.exe	Windows® 7 [™] , Windows® POSReady 7 [™] , Windows® 8.1 [™] Windows® 10 [™] Note: Windows® 7 [™] 64-bit and Windows® POSReady 7 [™] 64-bit are not supported yet	non-HID, non-cash USB devices CINEO C6010, C6020; iButton, Special Electronics at ACO and Kiosk systems, Retail Control Box/Board, iCash45
DN_CDC_Virtual_COM_Port-1.0.0.0-2- setup.exe	Windows® XP [™] (32-bit only), Windows® POSReady 2009 [™] (32-bit only), Windows® 7 [™] , Windows® POSReady 7 [™] , Windows® 8.1 [™] Windows® 10 (64-bit only)	iCash30
Jcmvcom.sys	Windows® 7 ™D₩₩indows®m POSReady 7 ™ Note: For Windows 10 no driver is needed	iCash40 (for FW download via USB)



Note: The driver packages will be provided with the system pre-installations or as a separate download on the DN website¹.

3.3.2.3 Firmware dependencies

The firmware versions listed below are the minimum version for LoadUtil. Newer firmware versions may work. The respective tested and latest supported firmware versions can be found in the release notes of the individual LoadUtil versions.

Note systems

The note systems have been tested with a Diebold Nixdorf test currency data set.

System	Component	Firmware Version	Booter Version	Remarks
C6010	BVM (MOVE_PWXX) RM3_POS SELV5 CEL_POS SELV5 SEL_PS	1340 2810 1025 1026	1002 1011 1011	
C6020	BVM (MOVE_AWAA) RM3_ATS SELV5 CEL_ATS SELV5 SEL_PS SELV5 SHUTTER	1341 2810 1025 1026 1050	1002 1011 1011 1010	
iCash10	Firmware	C905		
iCash20	MEI	0130		for standard version of iCash20 and iCash20 with UV sensor (Russia only)
		2000		for standard version of iCash20 Advance ²
iCash30	Firmware	G001C		
iCash40	Firmware	1.20.37		
iCash60	Firmware	2.16		

Coin systems

¹ <u>> DN website > SUPPORT > Reference Manuals, Drivers and Firmware Downloads > POS-/Kiosk-Systems,</u> <u>Peripherals</u>

² iCash20 Advance = iCash20 with new HW revision level



The coin systems have been tested with the EUR currency data set.

System	Component	Firmware Version	Booter Version	Remarks
C1010	Acceptor Firmware CLS Firmware CoinInput Firmware Hopper Firmware PowerBoard Firmware	0454.0230 1509.0002 0469.0016 1004.0032 0465.0203	0389.0002 1552.0009 1101.0002 0466.0010	Firmware Bundle 0043
C1010 Adv.	Acceptor Firmware CLS Firmware CoinInput Firmware Hopper Firmware PowerBoard Firmware	0454.0254 1517.0005 0469.0017 1004.0033 0465.0212	0389.0002 1553.0018 1101.0004 0466.0010	Firmware Bundle 0053
C1030	CM3S-R_FW	1117		Firmware Bundle 59
iCash15e	Firmware	04.46		
iCash45	Firmware	1.24		
iCash65	Firmware	01.13		

Other devices

Device	Firmware component	Firmware Version	Remarks
Retail Control Box	Booter	01.01	
	Loader	01.02	
	Firmware	02.04	

3.4 Supported peripherals

Below is a list of the devices supported by LoadUtil 3. Please note that this list may be subject to minor changes for each LoadUtil version. The list that matches the respective LoadUtil 3 version is part of the corresponding release notes.

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CashChanger

DN cash changer CINEO C1010 (incl. C1010 Adv.) •



- DN cash changer CINEO C1020
- DN cash changer CINEO C1030 (Windows only)
- DN cash changer iCASH 15
- DN cash changer iCASH 15e
- DN cash changer CINEO C6010
- DN cash changer CINEO C4060
- DN cash changer CINEO C6020
- DN cash changer iCASH 10
- DN cash changer iCASH 20
- DN cash changer iCASH 30
- DN cash changer iCASH 40
- DN cash changer iCASH 45
- DN cash changer iCASH 60
- DN cash changer iCASH 65

POSPrinter

• DN single-station thermal printer TH250

ToneIndicator

- DN ACO SEL (special electronic) at OPT
- DN ACO SEL (special electronic) at CINEO C1030
- DN ACO SEL (special electronic) at DN ACO-Kiosk-Box
- DN ACO SEL (special electronic)
- DN ACO SEL (special electronic) at DN SCO compact

SEL

• DN RCB/RIOC (special electronic)

3.5 Supported operating systems

LoadUtil 3 supports and is released for the following operating systems:

Windows

- Windows 10 IoT Enterprise (x86/x64)
- Windows 10 Professional (x86/x64)
- Windows 8.1 Industry Embedded (x86/x64)
- Windows 8.1 Professional (x86/x64)
- Windows POSReady 7 (x86/x64)
- Windows 7 Professional (x86/x64)

<u>Linux</u>

- WNLPOS 4 (i386/x86_64)
- WNLPOS 3 (i386)



4 Installation

4.1 Prerequisites

The installation of LoadUtil should only be carried out on the operating systems supported by LoadUtil (see chapter 3.5 - *Supported operating systems*).

The use of LoadUtil require additional software components and / or frameworks (see chapter 3.3 - *Software requirements*).

4.2 Installation under Windows

The product installer may run in interactive mode as well as in silent mode. It also provides the possibility of performing so-called unattended installations based on an initial master installation.

4.2.1 Interactive installation

The product installer provides an interactive mode, where the end user can:

• define the Windows start menu shortcut group name

Example: Interactive installation

Note: The setup can be cancelled on each step by clicking the [Cancel] button. If the setup is already in the step of copying files, then the installation abort will roll back the changes done to the system. Before this step, nothing will have happened to your system. By clicking the [Back] button, you can go a step back in the setup if needed.

After launching the LoadUtil 3 installer, one of the following welcome screens will appear

Dialog: Welcome to Setup Wizard



Click the [Next] button to go on with the setup.



Dialog: License Agreement



- > Choose [I accept the agreement] after reading.
- Click the [Next] button.

Dialog: Select Components

In this dialog, one of the predefined installation profiles can be selected. Alternatively, you can create your own installation using the [Custom installation] profile and selecting the appropriate components.

Setup - Diebold Nixdorf Loadutil (32-bit JVM) Select Components Which components should be installed?	- • ×	Setup - Diebold Nixdorf Loadutil (64-bit JVM) Select Components Which components should be installed?	- • ×
Select the components you want to install; dear the componen install. Click Next when you are ready to continue.	ts you do not want to	Select the components you want to install; dear the compor install. Click Next when you are ready to continue.	nents you do not want to
Full installation	~	Full installation	~
Diebold Nixdorf Firmware Update Utility	109,9 MB	Diebold Nixdorf Firmware Update Utility	116,2 MB
Current selection requires at least 119,6 MB of disk space.		Current selection requires at least 125,9 MB of disk space.	
< Back	Next > Cancel	< Back	Next > Cancel

- > Select the components to install by using one of the installation profiles.
- Click the [Next] button.



📭 Setup - Diebold Nixdorf Loadutil (32-bit JVM) — 🗌	×	🖍 Setup - Diebold Nixdorf Loadutil (64-bit JVM) —		Х
Select Components Which components should be installed?	m	Select Components Which components should be installed?	D	n
Select the components you want to install; dear the components you do not want to install. Click Next when you are ready to continue.	0	Select the components you want to install; clear the components you do no install. Click Next when you are ready to continue.	t want to	
Custom installation	\sim	Custom installation	~	
Diebold Nixdorf Firmware Update Utility 109,91	MB	Diebold Nixdorf Firmware Update Utility	116,2 MB	
Current selection requires at least 119,6 MB of disk space.		Current selection requires at least 125,9 MB of disk space.		
< <u>B</u> ack <u>N</u> ext > C	ancel	< <u>B</u> ack <u>N</u> ext >	Cancel	I

- Alternatively, choose [Custom installation] and check the features you want to install from the list.
- > Click the [Next] button.

Dialog: Select Start Menu Folder

🖬 Setup - Diebold Nixdorf Loadutil (32-bit JVM) — 🗌 🗙	🖬 Setup - Diebold Nixdorf Loadutil (64-bit JVM) — 🗌 🗙
Select Start Menu Folder Where should Setup place the program's shortcuts?	Select Start Menu Folder Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.	Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.	To continue, click Next. If you would like to select a different folder, click Browse.
Diebold Nixdorf Loaduti Browse	Diebold Nixdorf Loaduti Browse
< <u>B</u> ack <u>N</u> ext > Cancel	< <u>Back</u> <u>N</u> ext > Cancel

- > Specify a start menu folder for this LoadUtil version.
- Click the [Next] button.



Dialog: Ready to Install

The installer is ready to proceed with the installation and provides an installation summary for letting you check all your previously made choices.



Click the [Install] button.

Dialog: Installing

This dialog shows you the current installation step and the overall progress of the installation. Please wait until the installer finishes this step, except you want to cancel the installation (click the [Cancel] button if so).



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Dialog: Completing the Setup

If no error had been encountered and everything had been finished successfully, you are going to see a last dialog, informing you that the installation is complete.



> Click [Finish] to end the installation.

4.2.2 Silent installation

A silent installation of LoadUtil 3 is possible. For this, the product installer must be called with the */SILENT* parameter via the command line.

During a silent installation, the wizard and other background windows are not displayed. However, a window showing the progress of the installation is displayed.

If this window is not to be displayed, you should use the completely silent installation mode with the */VERYSILENT* parameter.

4.2.3 Unattended installation

As with silent installation, an unattended installation with command line parameters is also possible.

To do this, a supervised installation on a system must be executed with the parameter /SAVEINF="pathToFile" in the first step. The following installation must be carried out with all necessary specifications and settings. These settings and changes to the setup are stored in the specified file.

With this file, the product installer, and the setup parameters /LOADINF="pathToFile" as well as /SILENT or /VERYSILENT, this recorded installation can now be run automatically, still, and unattended on other systems.

4.3 Installation under Linux

The current LoadUtil 3 installer is based on the RPM Package Manager, which is common on "Red Hat"based operating systems. Please note that RPM does not natively support an interactive user mode.

The installation of LoadUtil can normally be started from the desktop with a double click on the installation package or can be started from the terminal console by using of the following command:



```
rpm -ihv dn-loadutil-<version number>-<architecture>.rpm
```

Example:

rpm -ihv dn-loadutil-3.1.132-x86 64.rpm

After the RPM Package Manager has solved all dependencies, the LoadUtil 3 components are installed. The installation progress and further information will be displayed on the console or the progress window.

Note: The product installer will always install the complete content.

4.4 Update installation

An already installed LoadUtil may be updated by a newer version if the major version between installed version and update does not differ.

The update can be done with the following command within a terminal console:

rpm -Uhv dn-loadutil-3.<minor version>.<build number>-<architecture>.rpm

Note: Since LoadUtil 3 strictly separates the installation files from user data, all customer-specific configuration files are preserved.

4.5 Upgrade installation

There is no upgrade mechanism for older installations like LoadUtil 2 from ProBase Retail or even LoadUtil 1 (aka Printer Tools) available. Therefore, it is recommended to manually remove all these preceding versions before the installation of LoadUtil 3.x.



5 Uninstallation

5.1 Uninstallation under Windows

The product uninstaller will remove all components, previously installed by the product installer, even if the profile has been changed by subsequent installation attempts. See Inno-Setup documentation³ for details.

5.1.1 Interactive uninstallation

There are three possibilities offered to run the uninstallation of the product interactively:

- direct call of the uninstaller *unins000.exe* located under the directory <*LoadUtil installationdirectory*>*Uninstall-Loadutil*
- use the Windows start menu entry Uninstall Diebold Nixdorf Loadutil (xx JVM) at the location Start Menu > all programs > Diebold Nixdorf Loadutil
- or use the Windows system tool with Control Panel > Add or Remove Programs
- **Note:** It is recommended not to call the uninstaller directly from the Windows Explorer, as the uninstallation log will not be created (see chapter 7.2 *Logging during uninstallation* for more details).

5.1.2 Silent uninstallation

Like for the installation, it is also possible to execute the uninstaller silently by applying the command line argument /SILENT or /VERYSILENT.

Example:

"C:\Program Files\Diebold Nixdorf\Loadutil\Uninstall-Loadutil\ unins000.exe" /LOG="C:\ProgramData\Diebold Nixdorf\RSS\Loadutil\uninstall PBS.log" /SILENT

Note: Unlike the installation, the uninstallation log is not activated by default, and therefore, it is recommended to call the uninstaller with the */LOG="PathToLogFile"* switch also (see chapter 7.2 - *Logging during uninstallation* for more details).

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³ <u>http://www.jrsoftware.org/ishelp/</u>



5.2 Uninstallation under Linux

To uninstall LoadUtil 3, the RPM Package Manager is used as in the installation. The following call on the terminal console deletes all installed LoadUtil components and services, even if they have been modified subsequently:

rpm -e dn-loadutil-3.<minor version>.<build number>-<architecture>

or

rpm -e dn-loadutil

Example:

rpm -e dn-loadutil-3.0.0-x86 64

On WNLPOS 3 the system tool is called *Add/Remove Software* and can be found under *System > Administration*. Search for the packages containing *dn-load*, uncheck the LoadUtil package and apply these changes to remove the LoadUtil package.

1	Add/Remove Software			-		×
System Filters Selection H	lelp					
Image: Second state of the second s	Diebold Nixdorf Loadutil dn-loadutil-3.1-132 (i386)	libraries			>	
Pail Selected packages Image: Selected packages Image: Selected packages Image: Selected packages Image: Selected packages Image: Selected packages Image: Selected packages	This package contains Diebold Nixdorf's Loadutil. (For support please contact retailswsupport@dieboldnixdorf.com).	Project: Group: License: Installed size:	Homepage Other Commercial 94.8 MB			
Help		Cancel	Clear A	pply	/]

Figure 1: WNLPOS 3-system tool - Add/Remove Software



6 Configuration

6.1 Logging Configuration

The LoadUtil logging can be activated with different degrees and different depths. It is possible to define logging globally, for individual device classes or for special devices. It is also possible to use different log levels, whereby the DEBUG log level should be sufficient.

Windows

The detail level and extent are determined by the WN logger configuration *wn-logger.properties* under *<LoadUtil configuration directory>*.

To adjust the WN logger output, the following parameters can be modified.

Parameter	Meaning	
log4j.appender.rollingfile.File	Path and name for the log file; Default is C:/ProgramData/Diebold Nixdorf/RSS/loadutil/loadutil.log Note: The path disclosure must be done with slashes "/" instead the usual backslashes "\" (Linux style).	
log4j.appender.rollingfile.MaxFileSize	The maximum size for the log file; Default is 1MB	
log4j.appender.rollingfile.MaxBackupIndex	Maximum number of log file backups for log file rotation; Default is 10	

<u>Linux</u>

The detail level and extent are defined by the WN logger configuration *wn-logger.properties* under *<LoadUtil configuration directory>*.

To adjust the WN logger output, the following parameters can be modified.

Parameter	Meaning
log4j.appender.rollingfile.File	Path and name for the log file; Default is var/log/dn/loadutil/loadutil.log
log4j.appender.rollingfile.MaxFileSize	The maximum size for the log file; Default is 1MB
log4j.appender.rollingfile.MaxBackupIndex	Maximum number of log file backups for log file rotation; Default is 10



With the default settings, the LoadUtil logger already records basic diagnostic information into one log file and intensive information into a separate log file as defined above.

Note: To deactivate the intensive logging the line *log4j.logger.Loadutil=Trace, rollingfile* must be commented out.

6.2 GUI Configuration

It is possible to change and/or deactivate the *device names* listed in the drop-down menu *device* at the SimpleFWUTool. For that, the device names within the FWU modules related configuration file, stored within the *<LoadUtil configuration directory>*, needs to be changed.

These configuration files are line-oriented property-files (*.properties), where empty lines are allowed and all lines starting with '#' are interpreted as comment. All other lines must follow the format <*key>=<value>*, where the device name relates to the key and the to be used FWU-module relates to the value. To deactivate a device name, the related entry needs to be commented with '#'.

Example:

ICASH_15=com.wn.retail.firmwarehandling.FWUDeviceIcashCoinRecycler

Note: The device name changes affect the CUI tool also.

6.3 CUI Configuration

Aside from the parameter used at the CLI tool call (for more details, please refer to chapter 8.2.1 - *Parameter*), it is possible to use pre-defined configuration files for the devices.

Some configuration file examples are stored in *cuitool* under <LoadUtil installation directory>.

The CUI tool configuration file itself should contain all information LoadUtil needs to perform the tasks.

Such a configuration file is a line-oriented property-file where empty lines are allowed and every line starting with '#' is interpreted as a comment. All other lines must be of format <*key*>=<*value*>.

The following table shows all keys defined:

Кеу	Meaning
deviceName	device specific name (see CUI tool parameter -d <device>)</device>
port	such as COM1 or /dev/ttyS3
baudrate	such as 4800, 9600, 19200, setting depends on hardware setting
parity	"N", "none", "O", "odd", "E", "even", "M", "mark", "S", or "space". valid setting depends on hardware setting



Кеу	Meaning	
databits	"8", "7", "6", or "5". valid setting depends on hardware setting	
stopbits	"1", "1.5", or "2". valid setting depends on hardware setting	
flowControl	"none", "N", "xonxoffin", "xin", "xonxoffout", "xout", "xonxoff", "x", "rtsctsfin", "rin", "rtsctsout", "rout", "rtscts", or "r". valid setting depends on hardware setting	
forceDownload	"true" or "false", see CUI tool parameter -F	
getVersionsOnly	"true" or "false", see CUI tool parameter -r	
file <index></index>	file with a specific index (index starts at 1)	
type <index></index>	type of the corresponding file. Usually, the file type is detected automatically and does not need to be specified here. However, for some files it may be required to specify the type. See CUI tool parameter -t <type1> for a list of available type identifiers.</type1>	

It is possible to change the *device names* available for the CUI tool. For that, the device names within the FWU modules related configuration file, stored within the *<LoadUtil configuration directory*>, needs to be changed.

These configuration files are line-oriented property-files (*.properties), where empty lines are allowed and all lines starting with '#' are interpreted as comment. All other lines must follow the format <*key>=<value>*, where the device name relates to the key and the to be used fwu-module relates to the value. To deactivate a device name, the related entry needs to be commented with '#'.

Example:

ICASH_15=com.wn.retail.firmwarehandling.FWUDeviceIcashCoinRecycler

Note: The device name changes affect the SimpleFWUTool (the LoadUtil GUI tool) also.





7.1 Logging during installation

Windows

The logging for the installation process is always activated. If the installer is not called with the parameter /LOG="filename", the setup logging file will be stored in the %TMP% directory⁴ with a unique filename based on the current date according to the pattern Setup Log yyyy-mm-dd #<number>.txt.

Example:

Setup Log 2019-04-16 #002.txt

<u>Linux</u>

The current LoadUtil installer is based on RPM Package Manager, which does not provide additional options to log the installer activities separately. All activities of the RPM package will be registered within the */var/lib/rpm* database. This database can be queried at any time and the output can be formatted as needed and be saved to a dedicated file.

Example:

rpm -qa | grep dn-loadutil

7.2 Logging during uninstallation

Windows

The logging feature for the uninstallation process cannot be generally activated as it is for the installation process. Therefore, and to activate logging for the uninstallation process, the parameter */LOG="filename"* must be appended to the uninstaller call.

The uninstallation logging has the following limitations:

- If the uninstaller is called directly (and without giving the /LOG option), then no uninstallation log is created.
- The uninstaller cannot append a counter to the log file name as the installer can. Therefore, only one uninstallation log per defined name is possible. If the product has been installed/uninstalled multiple times, the uninstallation log will always be re-written.
- **Note:** We recommend using the product version number as well as the date and/or the time within the log file name (e.g., /LOG=%TMP%/Uninstall_<LoadUtil>-<Version>.<Build>.%DATE%.log).

<u>Linux</u>

Like the installation, the uninstallation has the same logging mechanism. All activities of the ProBase Store RPM package are registered or de-registered within the */var/lib/rpm* database.

⁴ defined as system and/or user environment variable



7.3 LoadUtil logging

LoadUtil uses the same WN logger named logging mechanism as ProBase Store, which is based on the open-source logging concept log4j⁵ and uses the log4j libraries derived from it in version 1.2.17.

The LoadUtil logging can be activated with different degrees and different depths. It is possible to define logging globally, for individual device classes or for special devices. It is also possible to use different log levels, whereby the DEBUG log level should be sufficient.

<u>Windows</u>

The LoadUtil Logging is generally active. The detail level and extent are determined by the WN logger configuration *wn-logger.properties* under *<LoadUtil configuration directory>*. For more details, please refer to chapter *6.1 - Logging Configuration*.

<u>Linux</u>

The LoadUtil logging is generally active. The detail level and extent are defined by the WN logger configuration *wn-logger.properties* under *<LoadUtil configuration directory>*. For more details, please refer to chapter *6.1 - Logging Configuration*.

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⁵ <u>http://logging.apache.org/log4j/1.2/</u>



8 Tools

8.1 LoadUtil GUI Tool

The intention of LoadUtil GUI Tool is to simple load files to devices or to query information from devices interactively without the need to add all parameter and options manually at the command line. This LoadUtil GUI tool is also known as SimpleFWUTool.

<u>Windows</u>

The SimpleFWUTool can be started either from the Windows Start menu at *Start Menu > All Programs* > *Diebold Nixdorf Loadutil > Start Loadutil* or directly with the batch file *startLoadutil.bat* from the directory <*LoadUtil installation directory*>.

<u>Linux</u>

The SimpleFWUTool can be started directly with the Shell-script *startLoadutil.sh* from the directory *<LoadUtil installation directory>*.

The SimpleFWUTool is then presented as follows.

FWU Simpl	le Tool (1.1.22)			
device:	C1010			
file 1				Browse
file 2				Browse
file 3				Browse
file 4				Browse
0%				
		· · · · · · · · · · · · · · · · · · ·		
	Exit	About	get	Download



Within the SimpleFWUTool just the device and the files to be loaded needs to be specified. For this, please choose on of the devices from the drop-down menu at the top-section as well as add or browse to the firmware, configuration, or currency data files in the mid-section.

Note: Loading multiple files at once to the same device is possible but must be supported from the device itself.

FWU Simp	ole Tool (1.1.22)			
device:	CINEO_60	20		-
file 1	C:\ProgramData\Diel	oold Nixdorf\RSS\firmware\C6020\R	M3\RM3_ATS.BTR	Browse
file 2	C:\ProgramData\Diel	oold Nixdorf\RSS\firmware\C6020\R	M3\2920\RM3_ATS.FRM	Browse
file 3	file 3 C:\ProgramData\Diebold Nixdorf\RSS\firmware\C6020\BVM\1341\MOVE_AWAA.FRM.dfux Browse			Browse
file 4 C:\ProgramData\Diebold Nixdorf\RSS\firmware\C6020\SELV5\CEL_ATS\CEL_ATS.BTR				
0%				
	Exit	About	get	Download

Click the [Next] button to go on with the setup.Click [Download] to load the defined files to the device. The progress bar will show the status of this step.

Note: Click [get...] to retrieve and display the currently loaded modules and their versions.

8.2 LoadUtil CUI Tool

The intention of LoadUtil CUI is to simple load files to devices anter information from devices without the need of user interaction during the runtime of the tool.

All required information to perform the task needed is given by command line arguments so this tool may be remotely triggered or may be included in startup scripts.



<u>Windows</u>

To use LoadUtil as a CUI tool, the batch file *startLoadutil.bat* from the directory *<LoadUtil installation directory>* must be called with additional arguments.

Example:

startLoadutil.bat -cuicfg <configfile>

<u>Linux</u>

To use LoadUtil as a CUI tool, the Shell-script *startLoadutil.sh* from the directory *<LoadUtil installation directory* > must be called with additional parameter.

Example:

startLoadutil.sh -cuicfg <configfile>

8.2.1 Parameter

The recommended way to specify parameter needed is to use the *-cuicfg* command line option that must be followed by a file name representing a CUI tool configuration file. Such a configuration file usually contains all information required to run the CUI tool.

It is also possible to specify the configuration by explicit program arguments.

The following table lists all available parameter of the CUI tool:

Parameter	Meaning
-cuicfg <configfile></configfile>	Specifies a configuration file that contains required input to run the CUI Tool.
-d <device></device>	Specifies the device name that is to be handled by the CUI tool. The available device names valid here correspond to the names listed in the SimpleFWUTool.



Parameter	Meaning
-p <port> []</port>	For RS232 devices at least the port the device is connected to need to be specified by this option. Additionally, the baudrate, parity, databits, stopbits and flow control can be specified. If no additional settings are specified device dependent default values will be used. In order to specify all serial line parameter, the following order must be used:
	-p <port> <baudrate> <parity> <databits> <stopbits> <flowcontrol></flowcontrol></stopbits></databits></parity></baudrate></port>
	Where <port> is to be replaced by the COM port: such as COM1 or /dev/ttyS5.</port>
	Possible values for <parity>: "N", "none", "O", "odd", "E", "even", "M", "mark", "S", or "space"</parity>
	Possible values for <databits>: "8", "7", "6", or "5"</databits>
	Possible values for <stopbits>: "1", "1.5", or "2"</stopbits>
	Possible values for <flowcontrol>: "none", "N", "xonxoffin", "xin", "xonxoffout", "xout", "xonxoff", "x", "rtsctsfin", "rin", "rtsctsout", "rout", "rtscts", or "r"</flowcontrol>
	Valid values depend on the respective device and need to match the settings of the hardware!
-f <file1> [<file2>] …</file2></file1>	Specifies on or more file to be loaded, if omitted the settings of configuration file is used.
-t <type1> [<type2>] …</type2></type1>	Specifies the type of the file(s) that are to be loaded. If omitted the settings of configuration file is used.
	Usually, the file types don't need to be specified as the respective modules can detect the file types. But for those files that cannot be validated the file type is to be specified.
	The following types are known to the CUI tool: ANY, BOOTER, CDS, CODE, DATA, DEVICE_CONFIG, FIRMWARE, FONT_EXTENDED, FONT_NORMAL, KEYBOARDTABLE, LOADER, LOADER_VERIFICATION, LOGO, MAPPINGTABLE, PUTEST, STATISTICS, USER1, USER2, USER3, CINEO_CEL_BTR, CINEO_CEL_BOOTER, CINEO_CEL_FRM, CINEO_CEL_FIRMWARE, CINEO_SEL_BTR, CINEO_SEL_BOOTER, CINEO_SEL_FRM.
	CINEO_SEL_FIRMWARE, MOVE_BTR, MOVE_BOOTER, MOVE_CDS, MOVE_FRM, MOVE_FIRMWARE, RM3_BTR, RM3_BOOTER, RM3_FRM, RM3_FIRMWARE, CINEO_SHUTTER_BTR_CINEO_SHUTTER_BOOTER, CINEO_SHUTTER_FRM, and CINEO_SHUTTER_FIRMWARE.



Parameter	Meaning
-F	Force the download, that means even if the specified files are older than the currently loaded ones the download will be performed. Usually, the download will not be started if the version that is to be loaded is already loaded or if it is older than the loaded one.
-r	Just prints the currently loaded versions on stdout, no download will be started.

8.2.2 Return code

If the download or the task processed was successful or not is indicated by different return codes of the CUI tool.

The following table shows all return codes defined:

Return code	Meaning
0	The operation was completed successfully.
1	Invalid or unknown command line option or invalid configuration file.
2	No device found (the specified device name is unknown to the CUI tool).
3	Comparing the loaded firmware and the file versions failed. This error may occur only if forceDownload is set to false.
4	An error occurred during file download.
5	A general or unknown error occurred.
100	Firmware download was aborted as the device has already loaded this appropriate firmware.

8.2.3 Samples

With LoadUtil, additional scripts are provided, which can be found under <*LoadUtil installation directory*>/*cuitool* for all supported devices.

These scripts reuse the Loadutil-startup-script, which conditionally starts the SimpleFWUTool or the CUITool. DieboldNixdorf.com

Note: Some of these scripts are ready to use, others are pointing to non-existing files, but they all give a good introduction how the CUI tool scripts and configuration files work.



9 Appendix

9.1 End-user license agreement

End-User License Agreement

LoadUtil

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