



SDS 20.0

User guide

softthinks™
TECHNOLOGIES

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Welcome to the SoftThinks Deployment Suite (SDS) 20.0 User Guide!

SDS is a unified, modular and multiplatform (Windows, macOS, Linux x86/x64 devices) solution for deployment, maintenance and repair.

WARNING: This product, being scalable and customizable, some features described in this document may not be available in your version of the product and the screenshots may not exactly match your workflow. Also, some customizations of your product version may not be described in this document.

What's new?

This version 20.0 mainly brings the following changes:

1. Windows devices support
 - a. Full support for Windows 10 (including IoT) up to the May 2019 Update (Build 2004 / 20H2)
2. macOS devices support
 - a. Enhanced support for recent devices
 - b. Added support of 4K B/sector disks
 - c. Added support of APFS disks
 - d. Decreased image size and improved capture/deployment performances
 - e. Enhanced macOS version detection
3. Linux devices support
 - a. Added partial support of Linux LVM partitions (standard LVM layouts supported)
 - b. Added support of Ext4 with 64bit extension
 - c. Enhanced Linux version detection
4. Wipe enhancements:
 - a. Added support of Sanitize / Secure Erase protocols on NVME disks connected as RAID (iRST) and on disks plugged through USB
 - b. Added support of Sanitize protocols on SAS disks (SCSI) with automatic choice of the best wipe protocol (Crypto or Block erase for SSDs and Crypto or Overwrite for HDDs)
 - c. Improved SMART status detection on Adaptec controllers and switched to Disk Health detection on SAS disks
 - d. Added support for multiple wipe array connectors entries
 - e. Optimized disks detection and added UI refresh through F5 keystroke in rack view mode
 - f. Added detection of PPID (Piece Part IDentification) for Dell systems hard drives
 - g. Added support of Dell PowerEdge RAID controllers (PERC) and ATTO controllers
 - h. Managed ATA disks staying in frozen state
 - i. Fixed disk model, serial number and vendor detection with Adaptec HBA controller
 - j. Fixed size detection with NETAPP 520B/sector disks
 - k. Fixed serial number detection with disks connected through NVME bus
5. Hardware Diagnostics enhancements:
 - a. Most of the tests which were available under Windows and Windows To Go are now also usable under WinPE
 - b. Updated BurnInTest engine from version 9.0 to version 9.1 build 1008
 - c. Added the possibility to discard non relevant tests based on automatic detection and user's responses in audit module
 - d. Added the possibility to ask the user to select one of the predefined reasons (customizable) when he skips a test
 - e. Audio Test: Added the possibility to define the volume level
 - f. Battery test: Improved charging test and reduced manipulations (no more need to unplug AC power if already plugged)
 - g. Keyboard Test: When a layout is created / modified it is automatically pushed to the server to be used by next devices
 - h. Touchscreen Test: Added automatic detection (test is discarded if the screen has not this capability)

- i. Disk Test: Added more information in report (SSD vs HDD, System Disk vs Other Disk...)
6. Auditing module improvements:
 - a. Added the ability to navigate between the controls and inside the controls with the keyboard
 - b. Added the possibility to use script variables in questions definitions
 - c. Added the possibility to specify several values for an edit box
 - d. Added multiline support for edit box and managed carriage return in values
 - e. Allowed radio buttons list instead of combo box for multiple choices control
 - f. Added the possibility to specify a response as mandatory
 - g. Allowed multi-selection
7. Reports enhancements
 - a. Added more information such as Disks Smart attributes, detailed hardware diagnostics results, grading / trade-in code, cosmetic questions...
 - b. Enhanced multiple wipe rounds presentation
 - c. Enhanced template layout and uniformized wording
 - d. Added the possibility to send reports by email
 - e. Made report filename more customizable (any information from the database can now be used)
8. Trade-In module & Label printing
 - a. Integrated new TradeIn module which can generate a Grade / TradeIn code based on customer's rules
 - b. Added the possibility to generate labels (PDF) including if needed barcode with customizable layout and contents which can be printed automatically on a printer plugged and configured on the SDS server
9. Nomad disk enhancements:
 - a. Nomad disk can now be used to diagnostic and wipe devices, and not only to deploy images to them
 - b. Nomad disk operations are now stored into a local SQL database which is merged into main database when plugged to SDS server
 - c. Allowed creation of UEFI Nomad Disk on approved USB/SDD sticks
 - d. Users are now copied from SDS server Database to Nomad Disk database (for user access management)
10. User Interface enhancements
 - a. All modules now support full screen mode
 - b. Added Hi-DPI support
11. SDS Console enhancements:
 - a. Improved PNP management feature
12. Script enhancements
 - a. Added the possibility to start several modules at the same time (BETA limited to Wipe, HW diagnostics & Audit)
 - b. Added user input field into message box which value can be checked and stored into logs & SQL database (can be useful to restrict some features through a PIN code)
13. Stability improvement (memory management optimizations)
14. Various fixes, enhancements and optimizations

We also developed a Dashboard (web portal) to which you can push all operations made on your SDS server(s), make them accessible to whomever you want with specific rights in a very convenient and customizable graphical way. You can also export statistics very easily with many filters and criteria (See SDS Dashboard User Guide).

If you created bootable USB sticks with an older version you will need to update them (See [Create Deployment USB stick](#)).

It is mandatory to update your WinPE image(s) to the latest version for full compatibility with all Windows versions and the support of the latest enhancements, bring to Bitlocker for example, but also for the hardware diagnostics.

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Glossary

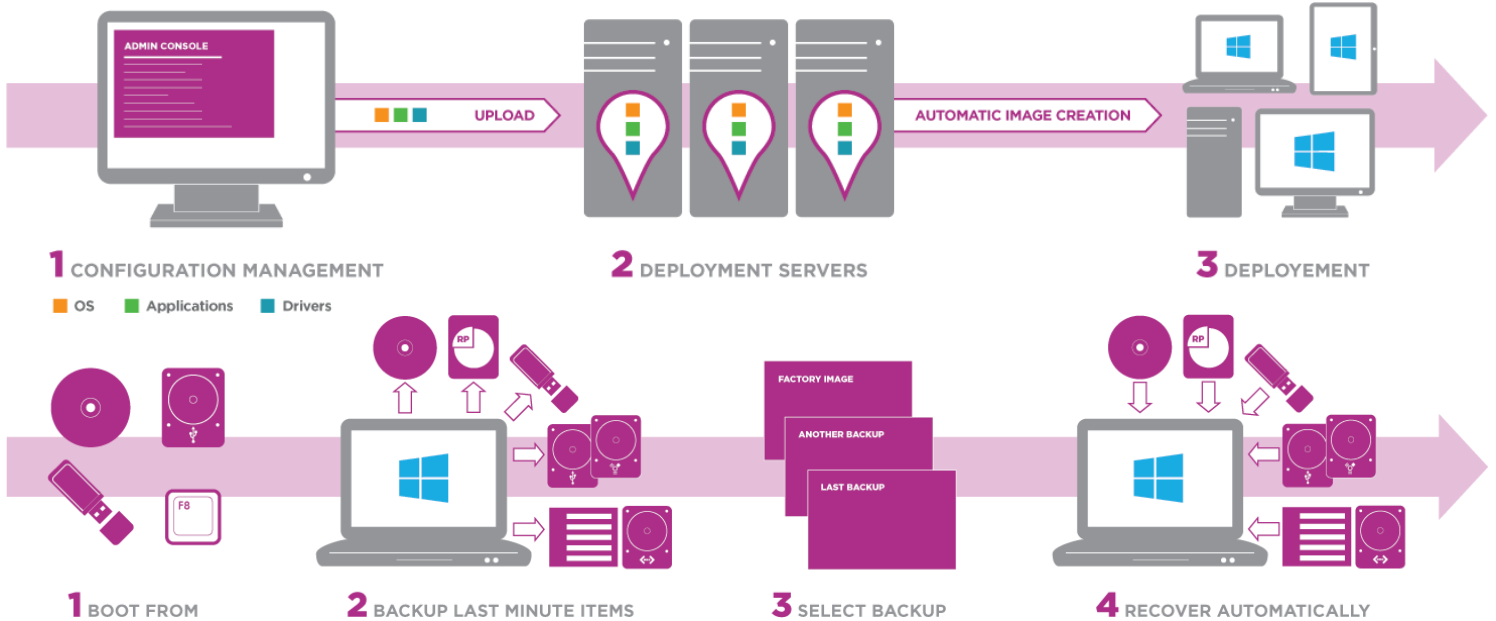
Definitions, Acronyms and Abbreviations used in this user guide

Term	Explanation
ADF	A utomatic D eployment F ile: Similar to the Profile in that it is linked to specific hardware. The difference is that it also is named with a unique identifier for the model being deployed such as the Motherboard Part Number
Boot key / stick	Bootable USB key you can use to boot a computer without PXE boot
BTO	B uilt T o O rders: These are PCs that are built as they are ordered by the customer with a specific hardware configuration
CRC	C yclic R edundancy C heck: Error correction method
CTO	C onfigured T o O rders: These are PCs that are installed with a specific set of software as ordered by the customer
Factory Image	First complete system backup made in Factory to restore the system to its Factory state.
FAT	F ile A llocation T able: File System managing files up to 4GB
INF	This refers to the text files that permits the installation of peripheral, those files are using the extension .INF (mymodem.INF)
LAN	L ocal A rea N etwork
MBR	M aster B oot R ecord
Nomad Disk	Instead of using a server, you install the software on an external hard drive.
NTFS	N ew T echnology F ile S ystem: file system was introduced originally in Windows NT. It has been used in all versions since Windows 2000. NTFS is reliable, fast, and virtually incorruptible and can recognize and format large hard disks
OOBE	O ut- O f- B ox E xperience
PnP	P lug a nd P lay: system that enables the installation of peripherals without any manual operation on the hardware (I.e. Jumpers)
PnP ID	P lug a nd P lay I Dentifier: strings returned by PnP hardware when enumerated by the operating system
POST	P ower O n S elf T est: Sequence of test that happens while a PC is cold-booting (i.e. RAM count)
Preset	Predefined setup of options that can be applied to any unit (not linked to any specific hardware) in order to deploy Generic Images
Profile	Predefined setup of options linked to specific hardware and so which it can only be used to deploy Static Images to a specific model of computer
PXE	P reboot e Xecution E nvironment
RIS	R emote I nstallation S ervices
Smart Image	Small update to the base image that is applied to the same hardware that captured from. The system will apply the base image and then the smart images
WinPE / WinRE	W indows P reinstallation E nvironment: lightweight version of Windows used for the deployment of workstations and servers or troubleshooting an operating system while it is offline
WinRE	W indows R ecovery E nvironment: used primarily to help save or salvage your Windows operating system

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Presentation

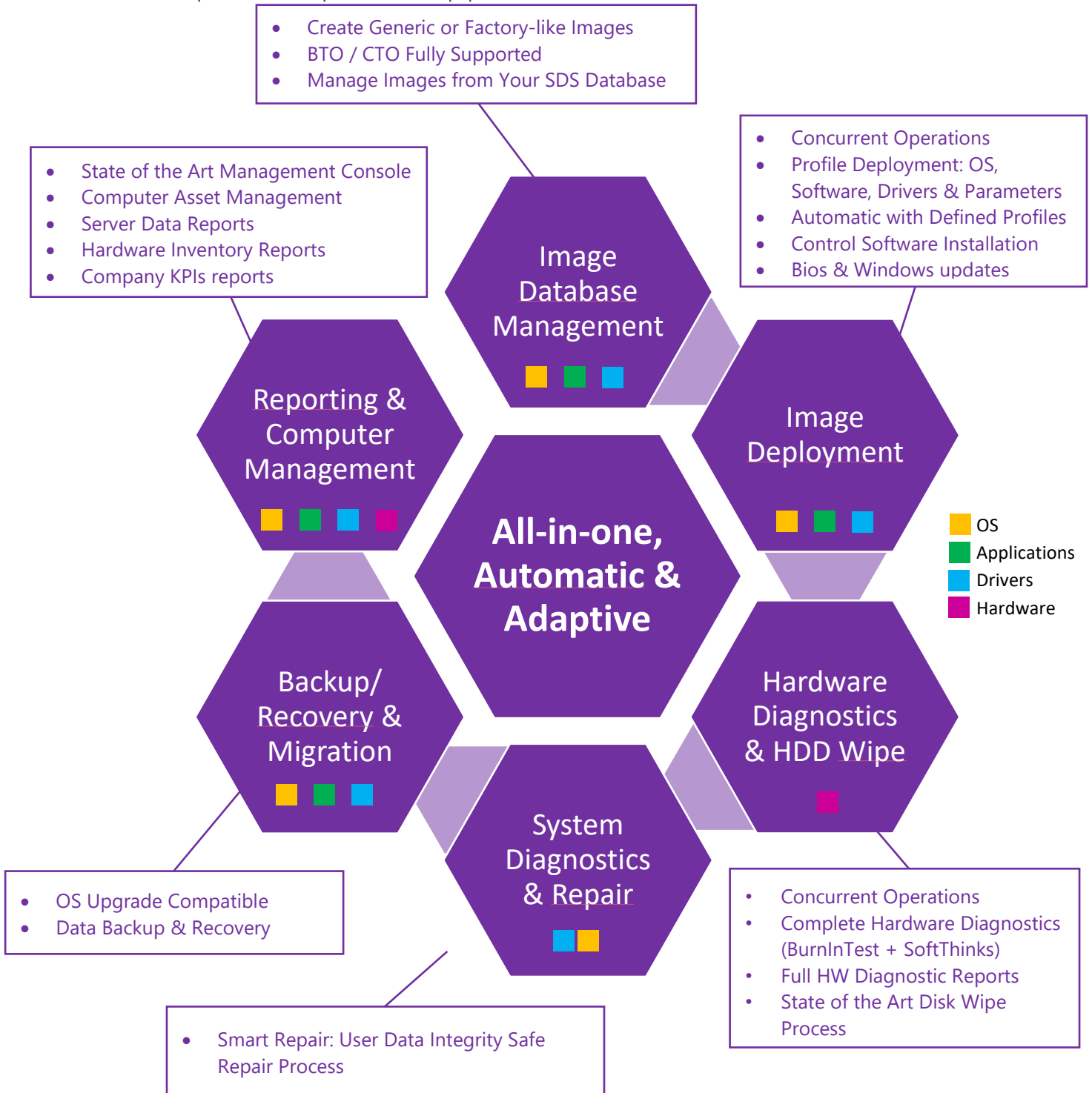
SDS is a solution dedicated to operating systems and applications deployment.
Designed for your computer, SDS allows you to effectively manage the process of PC repair.



SDS: industrialization to reduce repair and production costs

- Automatic deployment solution:
 - Deploy according to BOM, hardware PNP, ...
 - Full BTO/CTO support
- One controlled process:
 - Entire process managed by using a powerful script
 - Embedded automatic decision maker
- More services for more profitability:
 - Each module by service, can be activated on an as needed basis
 - High added value branded services for end-user support and maintenance
 - On-site and off-site availability

SDS: Unique Computer Support Solution



All-In-One : The Most Complete Deployment, Maintenance & Refurbishing Package Available

Automatic : Capable of Being Automated and Can Run Features Simultaneously

Adaptive : Modify up to 20 Features for Manufacturing Original Equipment, Managing Computer Repair Centers, Running Refurbishing Activities, Maintaining Computers, Running Small Repair Businesses

Dynamic Technology Overview

This chapter aims to give you a broad picture of what is SoftThinks Dynamic Preload and Recovery Technology using the example of a BTO/CTO PC manufacturer.

Of course, all parts briefly covered in this Technology Overview will be thoroughly detailed throughout this manual as we go along with the different processes involved. However, reading this overview should help you understand the more technical issues you will face during the implementation of the technology as described in the manual. You will also be ready to prepare your company's production and recovery strategies.

BTO/CTO PC Manufacturing Industry production facts

Consider the following example:

- A PC manufacturer produces **BTO** PCs using the 17 following devices which require specific set-up during production such as driver integration within the operating system preinstalled before shipment of the PC:
 - 4 x Motherboards
 - 5 x Graphic cards and their bundle software
 - 3 x Sound Cards and their bundle software
 - 2 x Modems and their bundle software
 - 3 x Network devices

Note: Although there can be some other hardware specifications like cases, CPUs, hard disks, we do not take them into consideration in our example, as they do not affect the pre-installation process in production nor the restore of the PC after a crash at end user level.

Only considering the different hardware configurations, the "OEM" already has a potential of $4 \times 5 \times 3 \times 2 \times 3 = 360$ different PCs that can leave the production line (BTO).

- "OEM" is also doing **CTO** PCs, and therefore technicians in production could have to preinstall 1, 2 or 3 different applications (or none) on their PCs according to each client requirements.

Therefore, you can now multiply the BTO PCs figure by the 9 (= 3 x 3) combination of applications "OEM" could ship with its equipment (plus one when no software is shipped):

$360 \times 9 = 3240$ different PCs or with different software configurations (BTO/CTO).

Problem:

In our example, - quite common in the BTO/CTO industry -, it is obviously almost impossible to create as many different static images prepared to fit all or even part of these configurations for a fully unattended preload process in production. This means that, even though "OEM" can prepare a few static images for some PCs, the technician would very often have to complete the pre-installation of most PCs produced manually.

Answer:

SoftThinks offers with the Dynamic Technology to pre-install all PCs in production with a unique and universal Master Image per operating system and language deployed through the network or with a hard disk using a replication platform or a cloning software.

Problem:

It also seems almost impossible to provide the end user with a recovery device that could restore the PC to at least factory level without any manual integration of drivers, bundle software or applications.

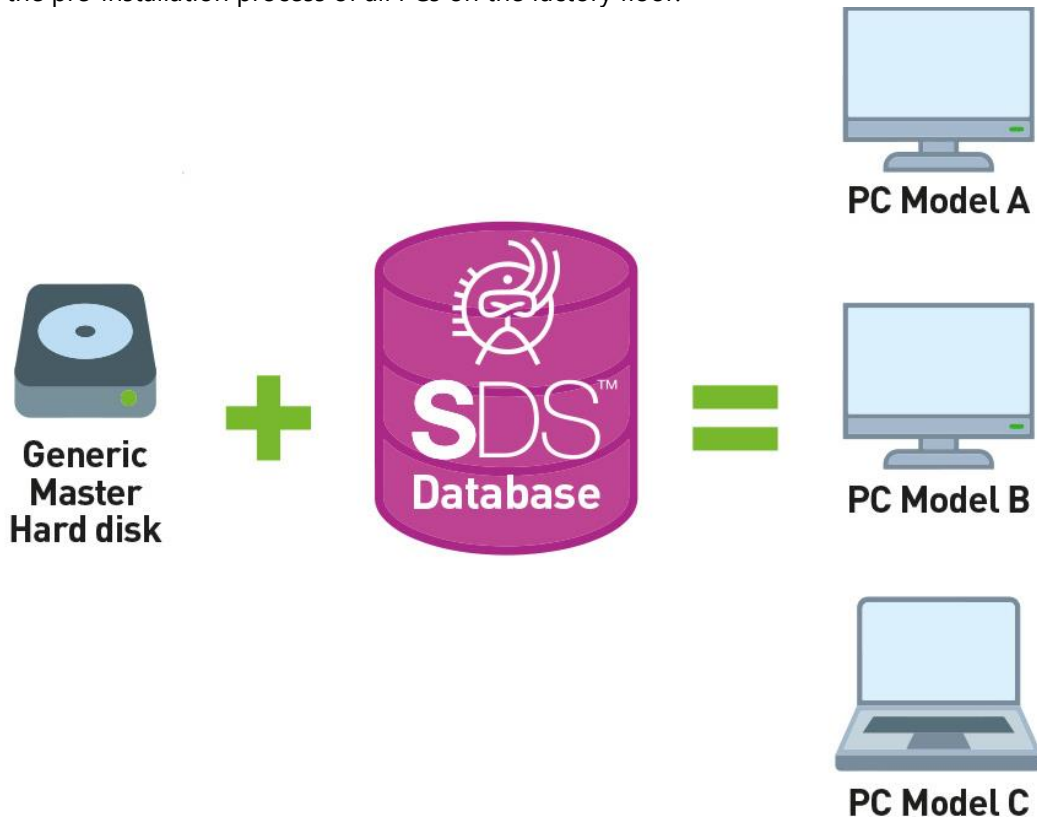
Answer:

SoftThinks Backup and Recovery is a full Recovery Program which can be preinstalled on hard drive.

How does SoftThinks Dynamic Technology handle the BTO/CTO situation?

Basic principle

The Dynamic Technology basic principle is to merge a Generic Master common to the entire production with a database of all items that affect the pre-installation process of all PCs on the factory floor.



During deployment, all components of the Target PC are automatically recognized, and dynamically installed/configured with the items found in the database. The entire database being placed on the same Master, there is no need to create several images for different PCs.

The BTO deployment process is universal and unattended!

The same items are provided to the End User within SoftThinks Backup & Recovery system allowing a full restore of the PC in case of a crash.

Installation & Configuration

Hardware Minimum Requirements

- ✓ CPU: Intel Xeon E3/ Core i5
- ✓ RAM: 8GB min
- ✓ Storage: A disk for the OS (ideally a 128GB or more SSD) and a disk for the database (ideally 2xHDD in RAID)
- ✓ Network: 2 gigabit network cards

Software Prerequisites

- ✓ Windows Server US or FR native with language pack if needed (Latest version recommended or at least Windows Server 2012 R2)
- ✓ Active Directory domain services and DNS Server DNS installed and configured
- ✓ DHCP Server DHCP installed and configured with the DHCP lease time set to 1h or 2h
- ✓ Windows Deployment Services (WDS) installed and configured
- ✓ WDS remote installation folder shared with Full Control for Everyone and labelled "RemoteInstall"
- ✓ Latest Windows Assessment Deployment Kit (Windows ADK) installed (download from <https://developer.microsoft.com/en-us/windows/hardware/windows-assessment-deployment-kit>)
- ✓ SQL server configured on the server where you want to store usage statistics (not required if you want to use SDS Dashboard)

Please refer to [How to configure Windows Server](#) to configure your server step-by-step in order to match the prerequisites above.

Note: It is technically possible, but not recommended, to install SDS on a non-Server Edition of Windows but with the following limitations:

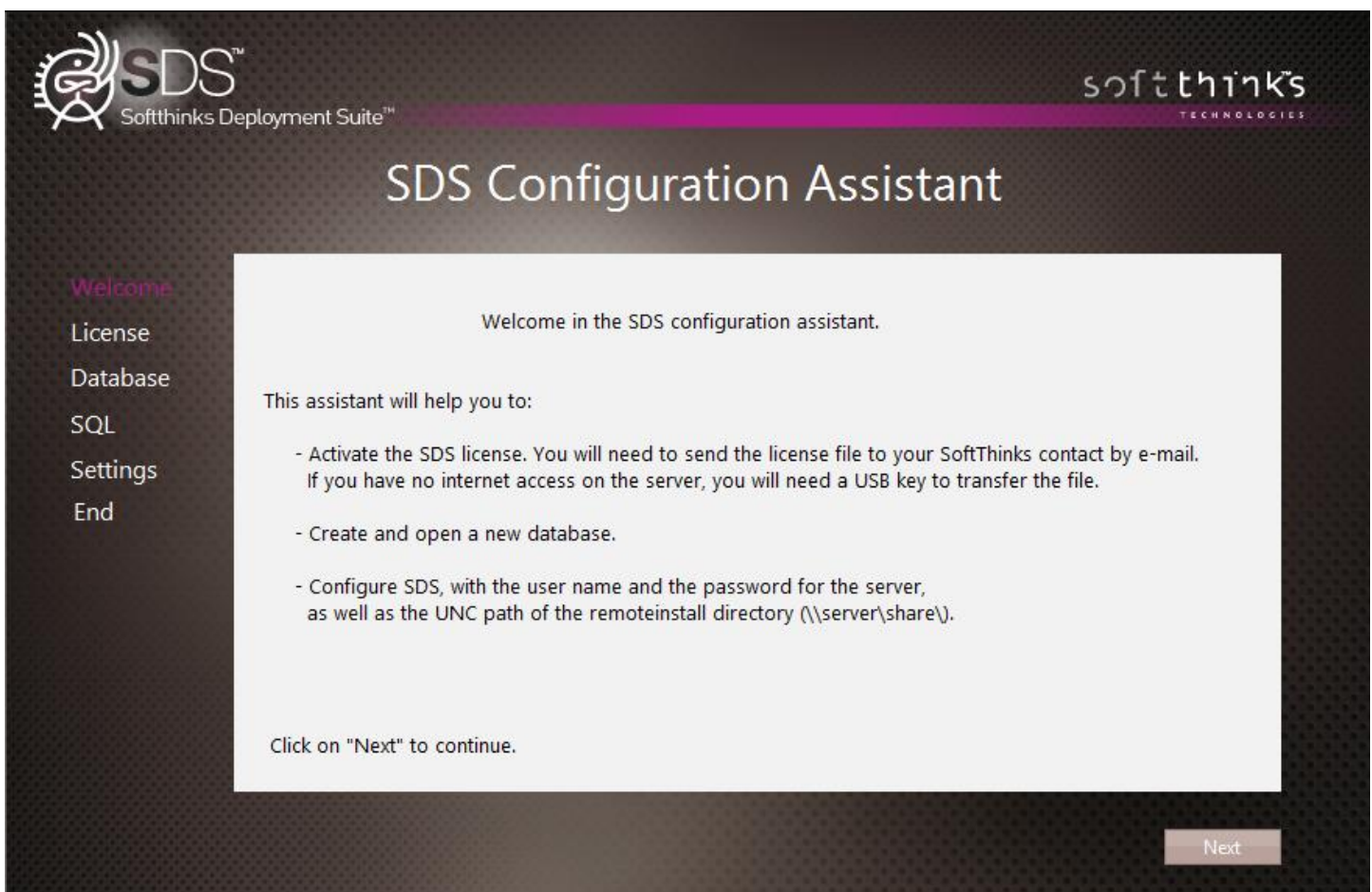
- No PXE boot (but you can boot from a bootable USB key plugged on an Ethernet + USB ↔ USB adaptor)
- No native DHCP (See [How to configure DHCP on a non-server edition of Windows](#))

SDS Installation

Once you have ensured that all the hardware and software prerequisites are matched, you can launch the SDS installer (setup.exe in the installation folder) and follow the on-screen steps.

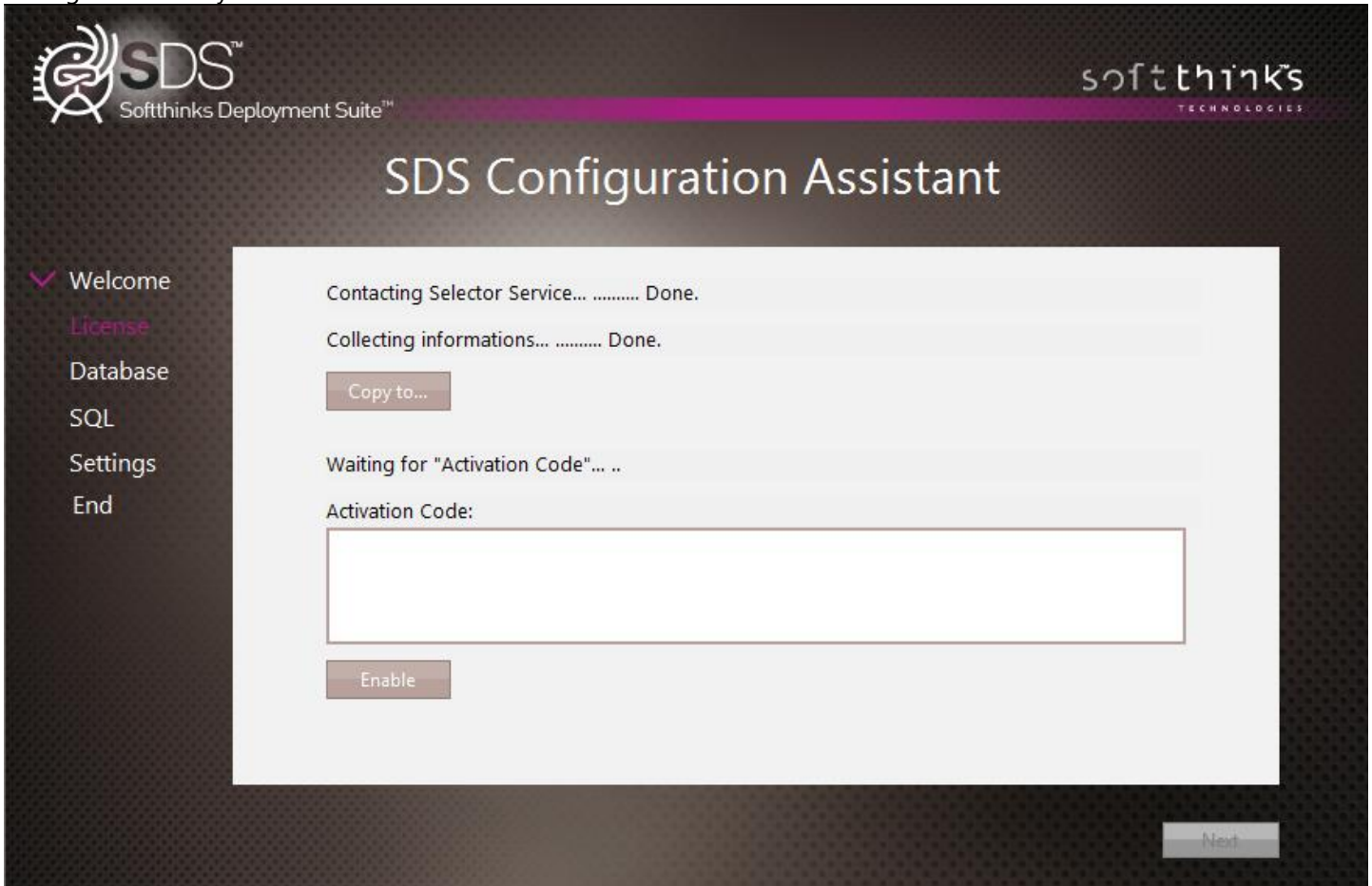
At the end of the process, the SDS configuration wizard will be automatically launched.

SDS Configuration and activation

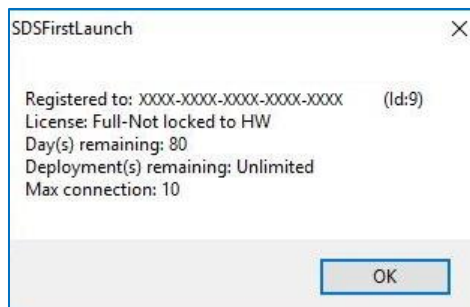


License

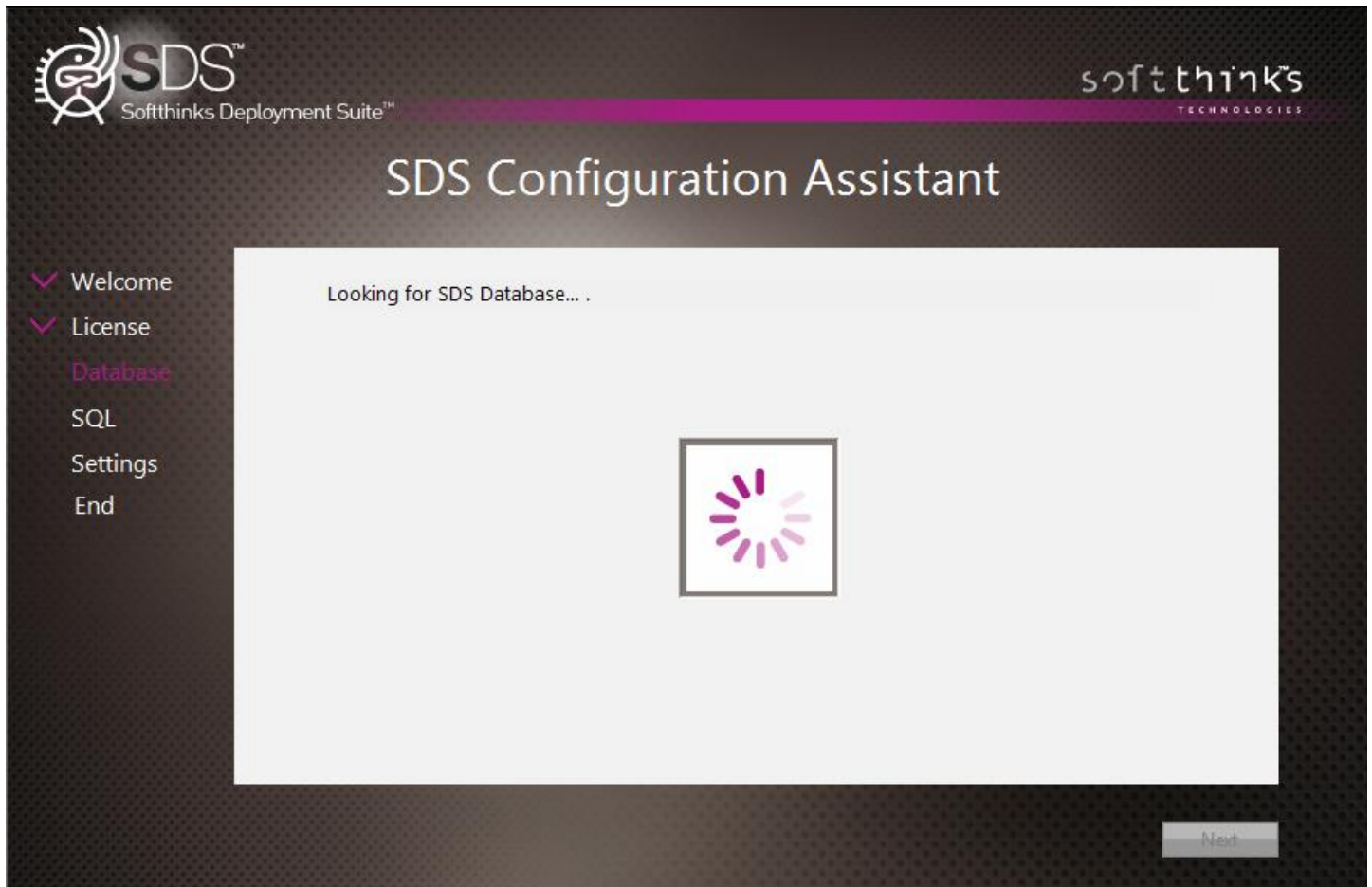
Enter the activation code which has been provided to you. If you don't have it please click on the button "Copy to..." and send the file generated to your commercial contact:



Once the activation code is successfully verified, a message box will indicate you that your product has been activated, as well as the license type, the days remaining, the deployments remaining and the maximum number of simultaneous connections allowed:



Database



SQL Configuration

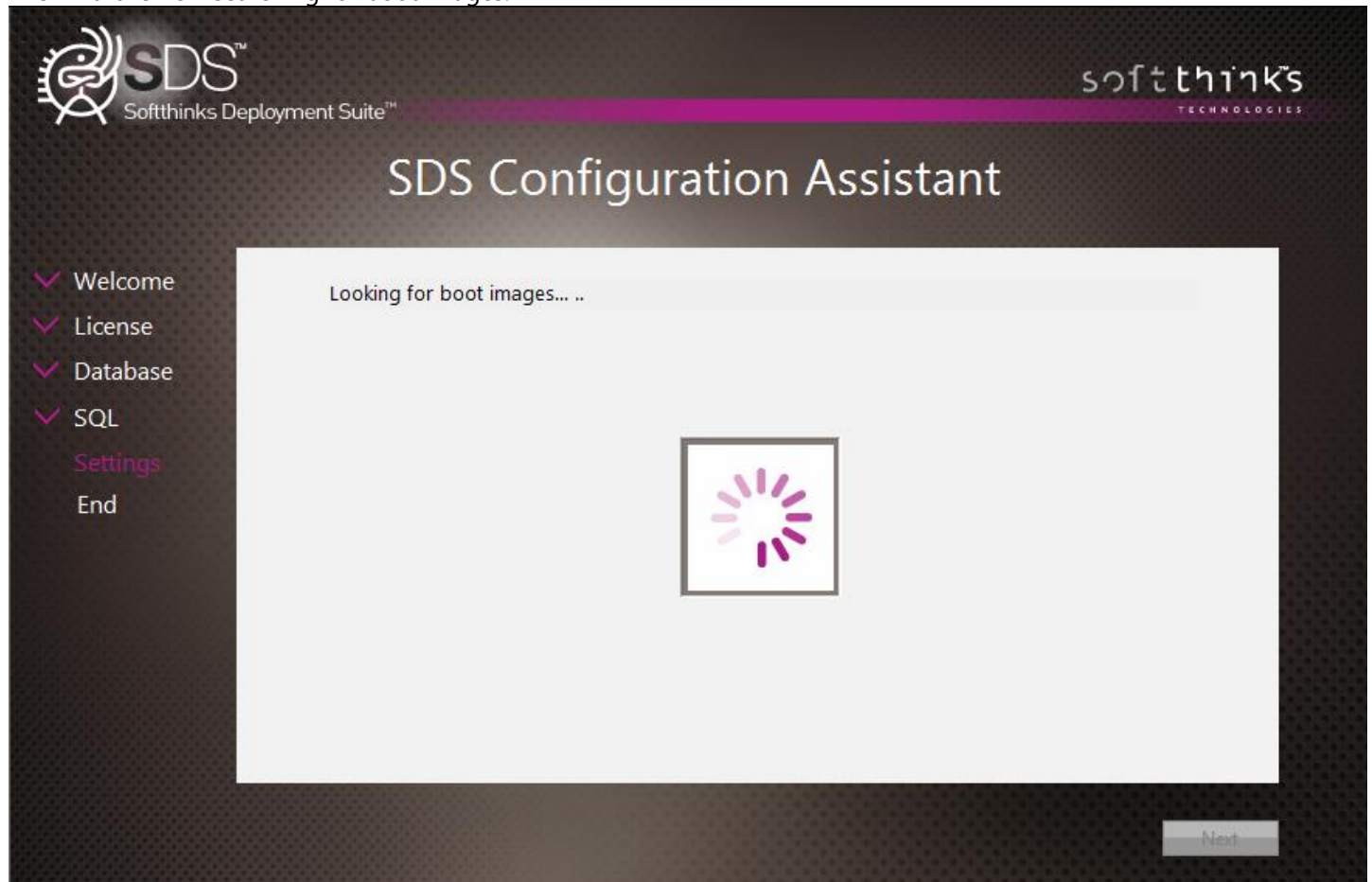
Type the IP address of the server where you want to store the usage statistics (195.154.172.237 if you want to use SDS Dashboard), the username and password, and the database associated:

The screenshot shows the 'SQL Configuration Assistant' interface. On the left is a sidebar with a vertical list of options: 'Welcome', 'License', 'Database', 'SQL' (which is highlighted in pink), 'Settings', and 'End'. The main window has a dark header with the 'softthinks' logo on the right and 'SDS™ Softthinks Deployment Suite™' on the left. The title 'SDS Configuration Assistant' is centered at the top of the main area. Below the title, the 'SQL Settings' section is displayed. It includes the instruction 'To save in SQL database, hardware and deployment information.' followed by several input fields: 'Name or IP address of SQL Server' (containing '195.154.172.237'), 'Username', 'Password', and 'Database Name'. There is also an 'Enable report' section with a checked checkbox labeled 'Enable?' and a dropdown menu currently showing 'WipeReport'. At the bottom right of the configuration area are three buttons: 'Skip', 'Apply', and 'Next'.

If you want wipe reports, check the option "Activate?" and select "WipeReport" in the dropdown list.

Parameters

The wizard is now searching for boot images:



Enter the server credentials, verify the network path to your SDKDB folder, and chose your language:

SDS™
Softthinks Deployment Suite™

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SDS Configuration Assistant

- ✓ Welcome
- ✓ License
- ✓ Database
- ✓ SQL
- Settings
- End

Looking for boot images... .. Done.

Username

Password

Network Path

Domain

Language

Apply

Next

Click on "Apply" to configure the boot images and then click on "Next".

After the installation is completed, the SDKDB Folder will be present in the D:\RemotelInstall Folder. The folders inside the SDKDB Folder and their purpose are listed below:

General presentation of the folders composing the folder SDKDB

The SDKDB folder is present in the folder specified during installation of the server version of SDS, the folders that compose it are the ones below :

ADF: Automatic Deploy File

APPS: Folder containing the applications and informations about the software, in this folder, the folders APP00 *** are present (containing applications) and the DTA folder (file identification softwares).

Bios: Folder containing the Bios.

Bootdisk: Folder that allows the implementation of a recovery partition.

Deploy / Deploy64: Folder containing the files that will be used to deploy the images on the client. It contains the necessary files for the operation of SDS tools. There is a folder for 32-bit versions and one for 64bit.

DIFF: Folder containing the smartimages.

DRV: Folder containing the drivers. Subfolders in it are sorted by categories (USB, video, network, etc. ..).

Env_files: Specific folder for the OS.

Hotline: Folder containing the hotline tools.

Presets: Folder containing the deployment profiles (Hardware recognition).

Profiles: Folder containing the profiles.

Report: Folder containing the report files on the client machine. (a report can be generated at the end of an operation performed by the server SDS).

RIS: Folder containing the images in various formats:

- Casper : SoftThinks™ method to capture file by file.
- VD : Sectorial method capture.
- Wim : Microsoft® method to capture file by file.

Selector: Folder containing the license management.

Temp: Folder containing the log files.

Update: Folder containing the executable "asexec" (the software which will launch the setup at the boot).

You will find on your desktop a shortcut to the SDS administration console named « SDS Console »:



The SDS Console can also be installed on another PC through its standalone installer.

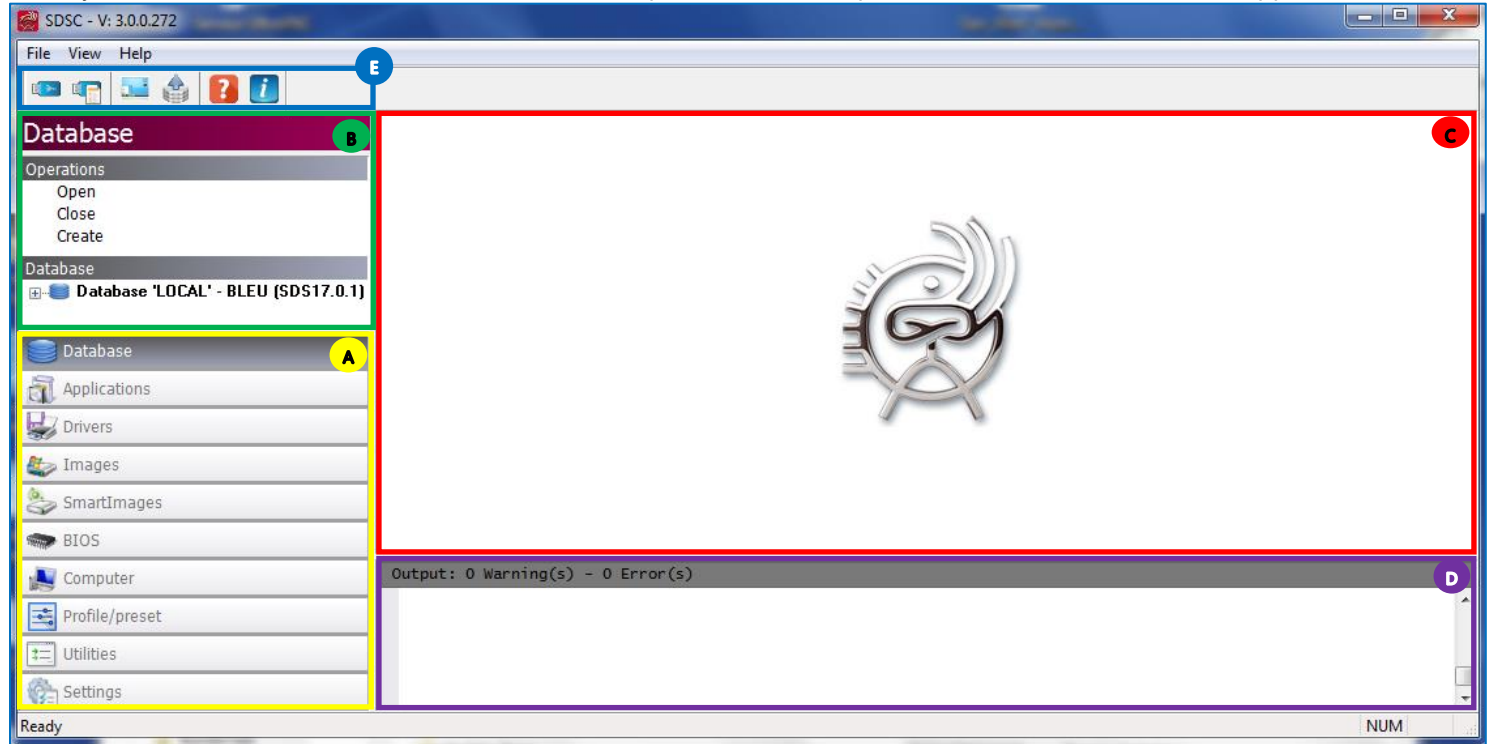
The SDS server is now ready to have any device booted to it.

SDS Console (SDSC)

The SDS console allows you to administer and configure your SDS database, including the images, drivers, applications, and offers some useful tools.

- Multithreaded Interface – Accomplish other tasks while waiting for slow processes to complete.
- Visible Logging Console – View logs in real-time and track processes as they occur.
- Workflow-based Configurations – Each process uses a consistent workflow so no dependent steps can be omitted.

When you double-click on the “SDS Console” shortcut put on the desktop, the SDS Console interface will appear:

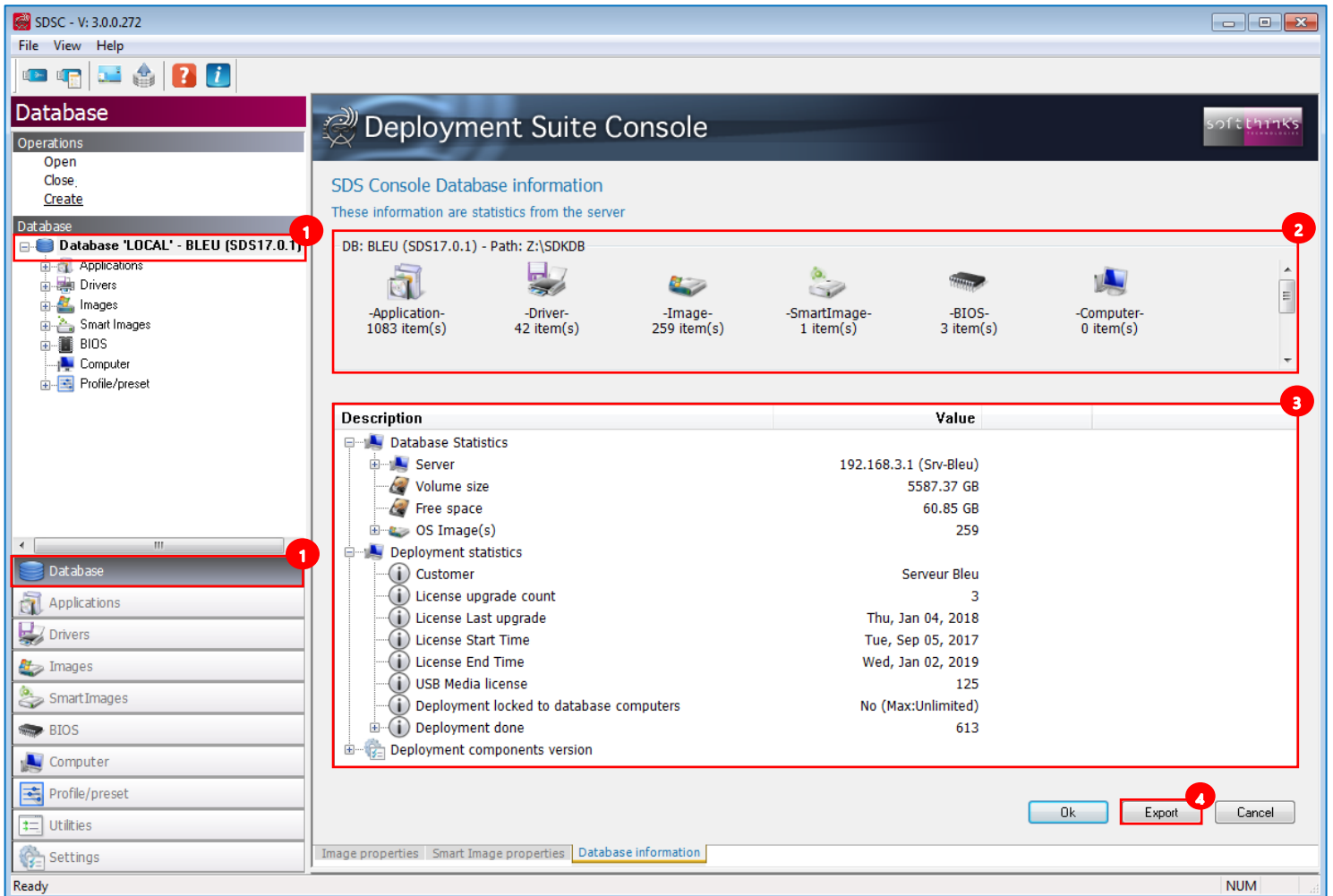


This user interface is split into different areas:

- The main menu **A** on the bottom left which allows you to select a set of tools to use. Each tool is tied to a specific task, such as Database, Applications, Drivers, Images, SmartImages, BIOS, Computer, Profile/Preset, Utilities or other Settings. Click on a tool to select it and bring up more options.
- The sub menu **B** above is dynamically updated depending on the item chosen in the main menu and will offer you the operations that can be performed with this element (“Open”, “Close” and “Create” for the Database as shown in the screenshot above). Select an option here to open a workflow tab in the main window.
- The main window or Operations Workflow Screen **C** on the right. Each operation in use receives a separate tab on this screen allowing multiple tasks to be completed simultaneously. Once a Tool Operation or Object has been selected, a screen opens to allow the System Administrator to perform other actions through a workflow
- The output area **D** on the bottom right where all status messages will be logged. The information contained here can be printed, exported, copied to the clipboard or cleared. Right click in the window for all possible options.
- The toolbar **E**

Database

When you select “Database” **1** (from the tab or from the submenu tree-view), you will get its statistics, meaning how many applications, drivers, images, smart images, BIOS components, Computer, and profiles/presets are stored in the database **2**, as well as other information about the server itself, the deployments made and the SDS application components versions **3**:



The « Export » button **4** allows you to export this information into an HTML or XML file.

Hint – SDS allows more than one database to be open during a session.

You can display the repartition of the images per OS by expanding the "OS Image(s)" node:

Description	Value
Database Statistics	
Server	192.168.3.1 (Srv-Bleu)
Volume size	5587.37 GB
Free space	60.85 GB
OS Image(s)	259
Windows 7	3
Windows 7 64	31
Windows 8	4
Windows 8 64	71
Windows 10	8
Windows 10 64	137
MacOS X	4
Deployment statistics	
Customer	Serveur Bleu
License upgrade count	3

Scroll down to display all Deployment statistics which include License information and all the deployments done per OS with their average deployment time:

Description	Value
Deployment statistics	
Customer	Serveur Bleu
License upgrade count	3
License Last upgrade	Thu, Jan 04, 2018
License Start Time	Tue, Sep 05, 2017
License End Time	Wed, Jan 02, 2019
USB Media license	125
Deployment locked to database computers	No (Max:Unlimited)
Deployment done	613
Windows 7	3 00h17m59s
Windows 7 64	41 00h07m54s
Windows 8	9 00h09m04s
Windows 8 64	33 00h18m28s
Windows 10	4 00h05m57s
Windows 10 64	486 00h17m27s
MacOS X	4 00h29m43s
Deployment components version	

If you expand "Deployment components version", you will obtain the list of all the components with their version number when applicable and their CRC:

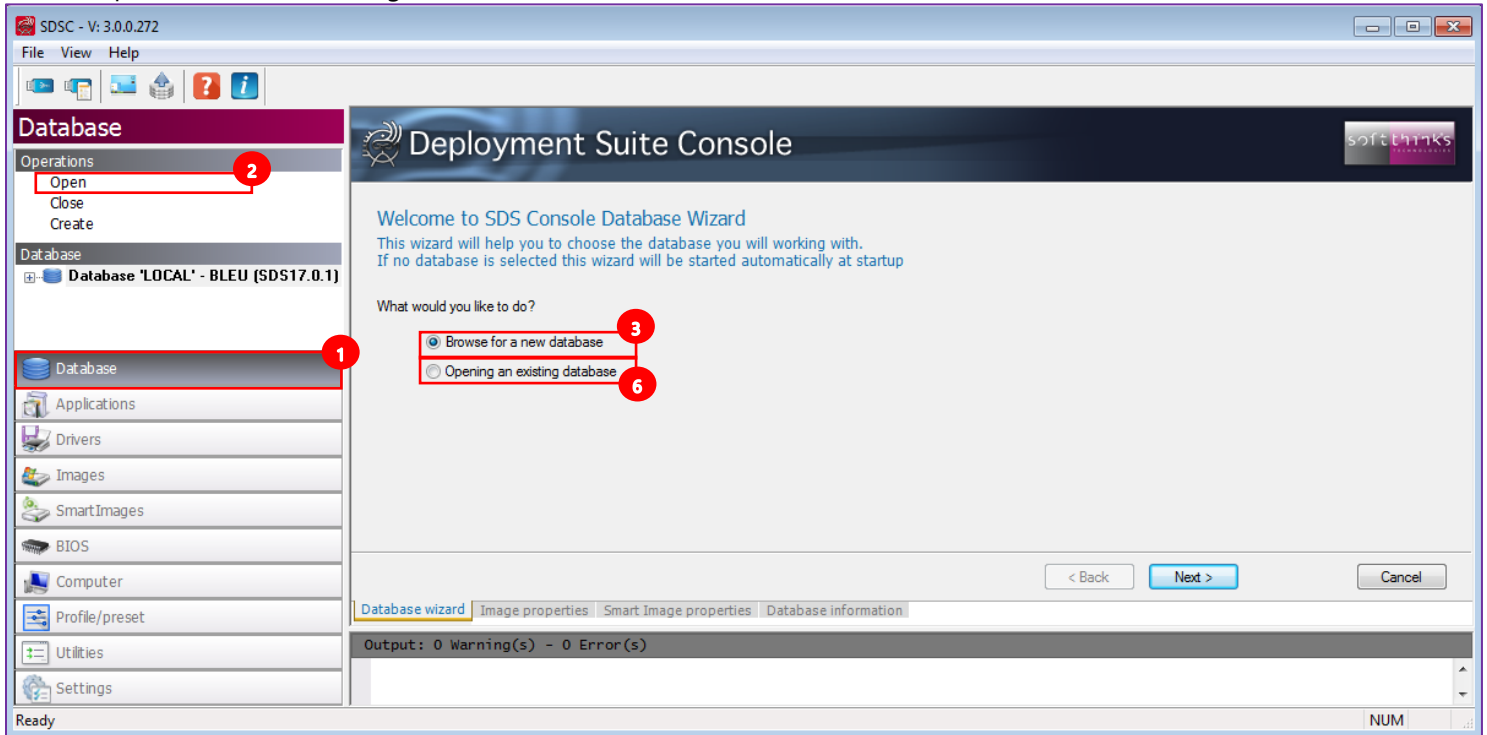
Description	Value
Deployment components version	
DEPLOY64\BATCH.ini	- 1bed0f1c
DEPLOY64\BumInTest\2d.bitcfg	- b9eb9ead
DEPLOY64\BumInTest\BITCertificateTemplate.html	- 9e789ea5
DEPLOY64\BumInTest\BITErrorClassification.txt	- ba97cbd5
DEPLOY64\BumInTest\Battery_Capacity_Plugin.exe	1.0.0.3 820d0f3b
DEPLOY64\BumInTest\BumInTest.url	- ebc1d687
DEPLOY64\BumInTest\D3DCompiler_43.dll	9.29.952.3111 5201927b
DEPLOY64\BumInTest\D3DX9_43.dll	9.29.952.3111 4374aa0f
DEPLOY64\BumInTest\DirectIo32.sys	- 3b617ef3
DEPLOY64\BumInTest\DirectIo64.sys	- c6169032
DEPLOY64\BumInTest\Endpoint.exe	8.0.1001.0 fff93fde

Opening a database (“Open” operation)

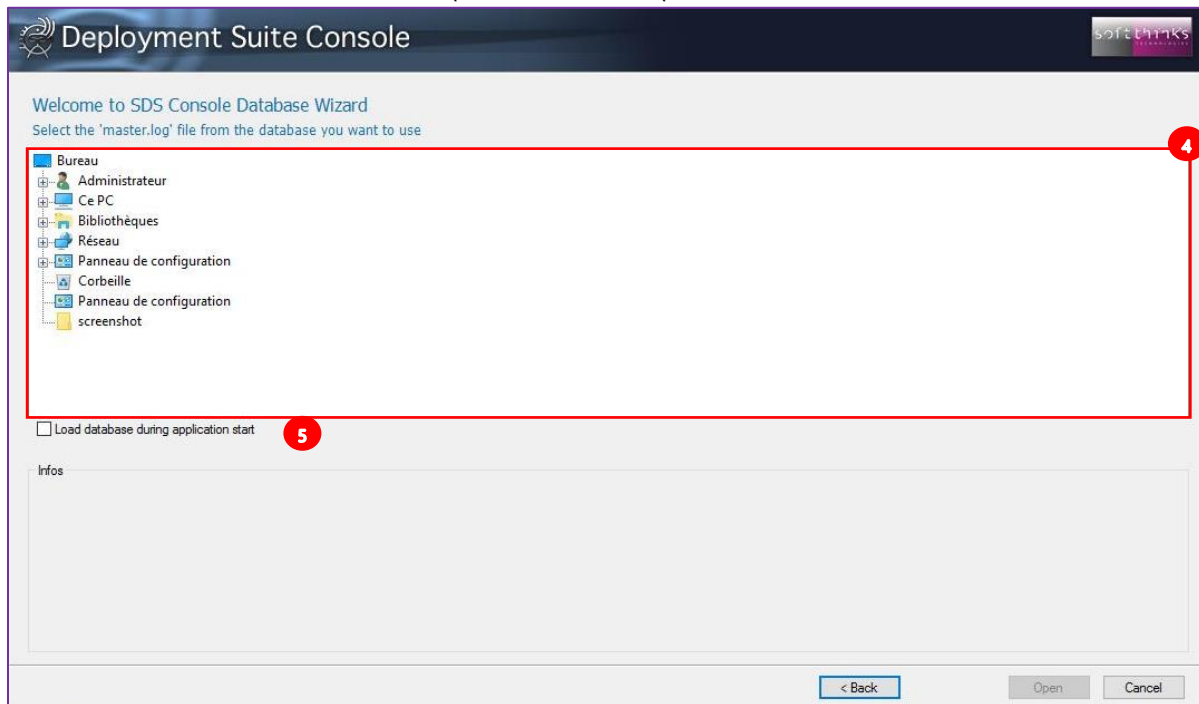
After having installed and configured SDS, the first step will consist of opening the database created during the installation.

Browse for a new database

1. Click on « Database » tab **1**, then on the « Open » operation **2**, and select the « Browse for a new database » option **3** before clicking on the « Next > » button:



- Browse for the MASTER.LOG file in the D:\REMOTEINSTALL\SDKDB installation folder in the tree-view **4** :

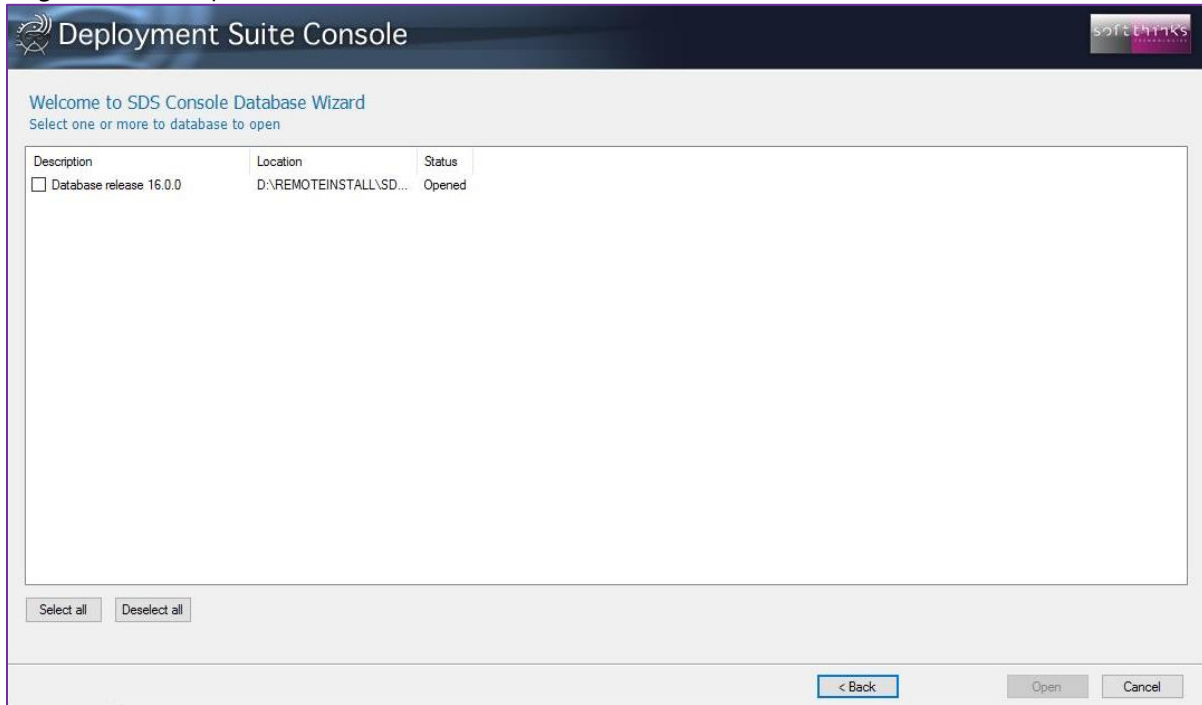


- Check the « Load database during application start » option **5** to automatically open this database during the console startup, and then click on the « Open » button.

Note: Only databases that have not previously been opened by this installation of SDS should be opened with this option. Afterward, the location will be remembered in the history kept by SDS and will appear in the Open an Existing Database list.

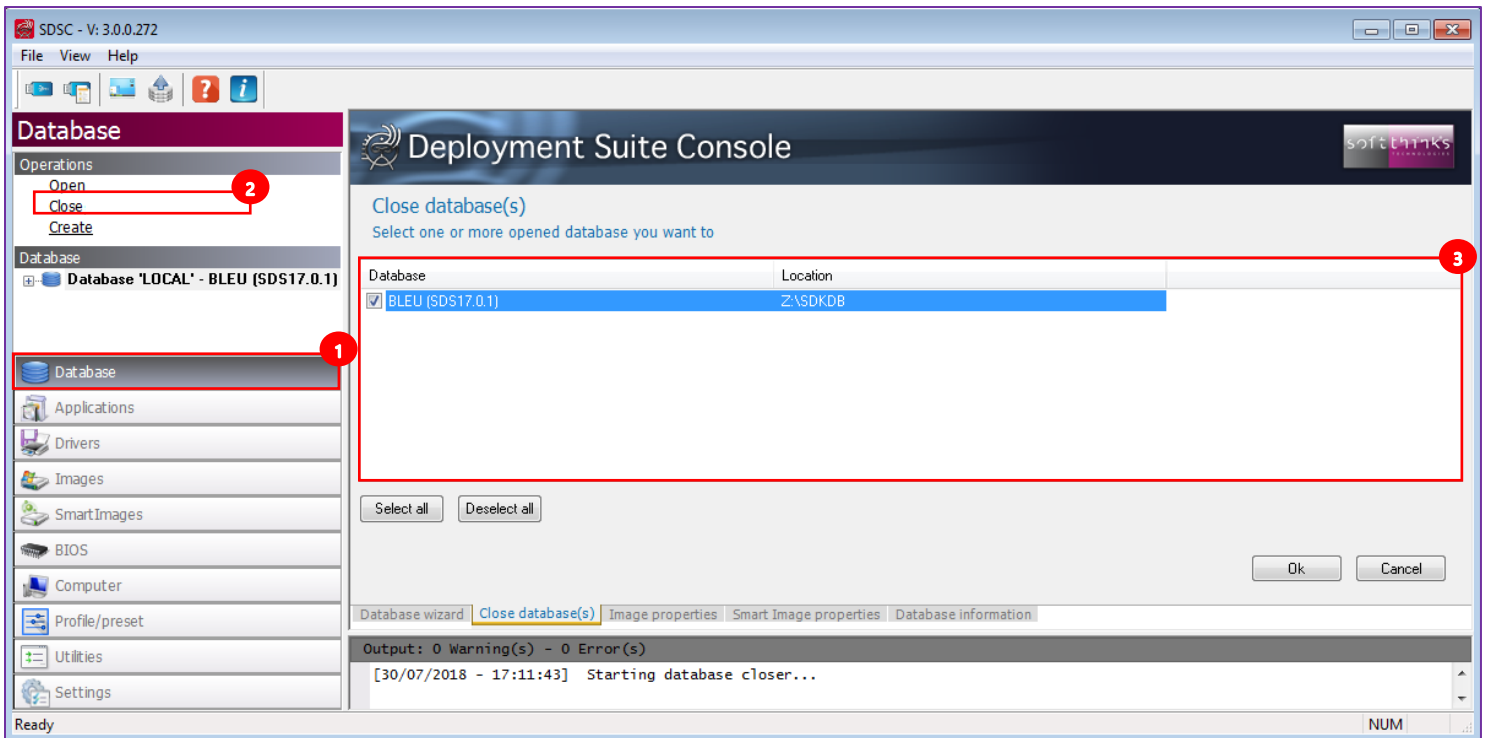
Open an Existing Database

If you want to open a database that has been previously opened by this installation of SDS, use the “Opening an existing database » option **6** in the first screen, and select the database in the list shown:



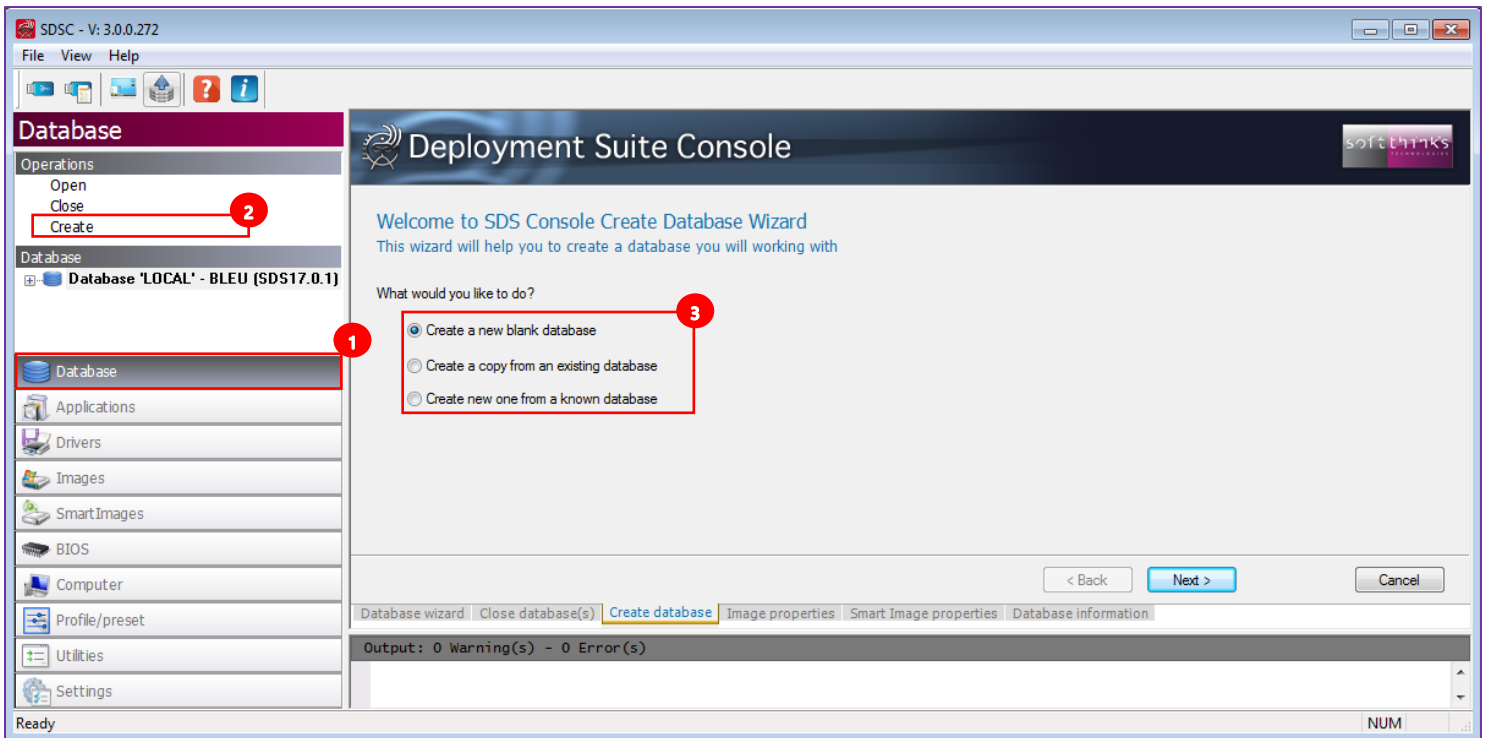
Closing a database (“Close” operation):

In order to close a database, click on the “Database” tab **1**, then on the “Close” operation **2**, and select the database you wish to close **3**:



Creating a database (“Create” operation):

To create a database, click on the « Database » tab **1**, then on the « Create » operation **2**, and select one of the options offered **3** :

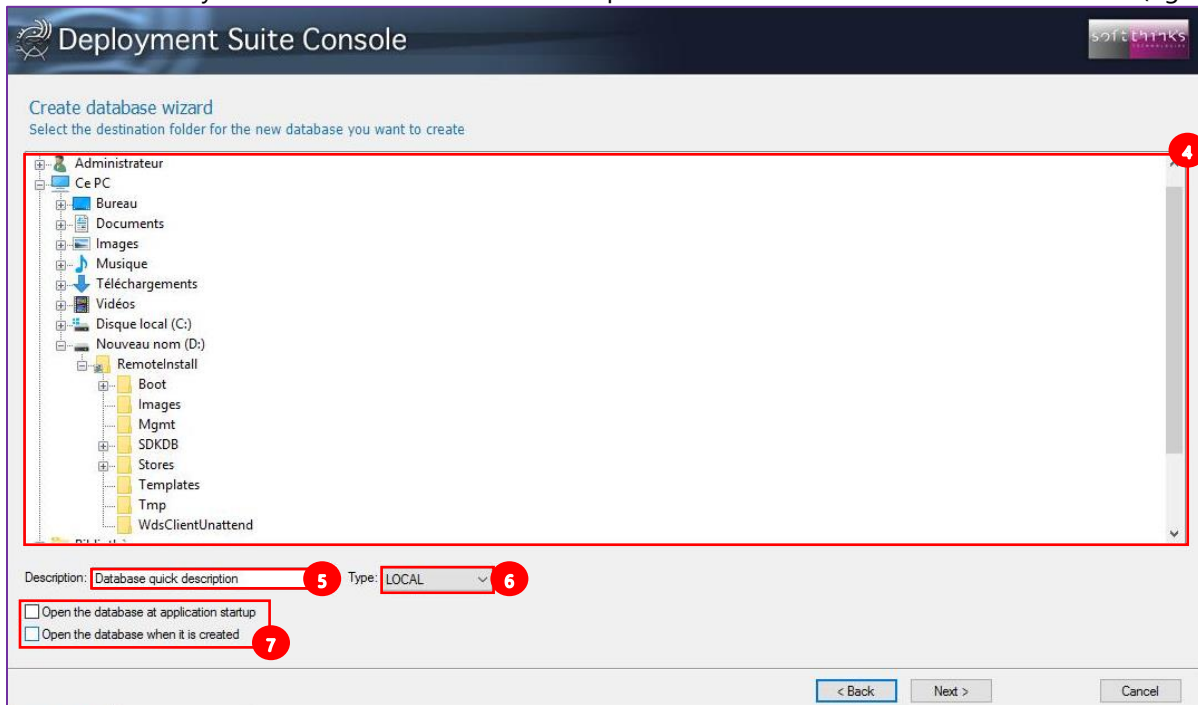


There are several ways to create a database for use with SDS:

- **Create a new blank database:** Only use this feature if you are starting completely fresh – there is no need to do this if you have converted a database from the previous release of SDS.
- **Create a copy from an existing database:** This allows the System Administrator to browse for an existing database and copy it to this instance of SDS.
- **Create new one from a known database:** This allows the System Administrator to make a copy of a database from an entry in the database history, and copy it as a new database to work with. This only works for databases which have previously been opened by SDS.

Creating a blank database

1. After having selected "Create a new blank database" and clicked on "Next >", select the "root location" where you would like to create your database in the tree-view ⁴ presented in the Create Database Wizard tab (right pane):



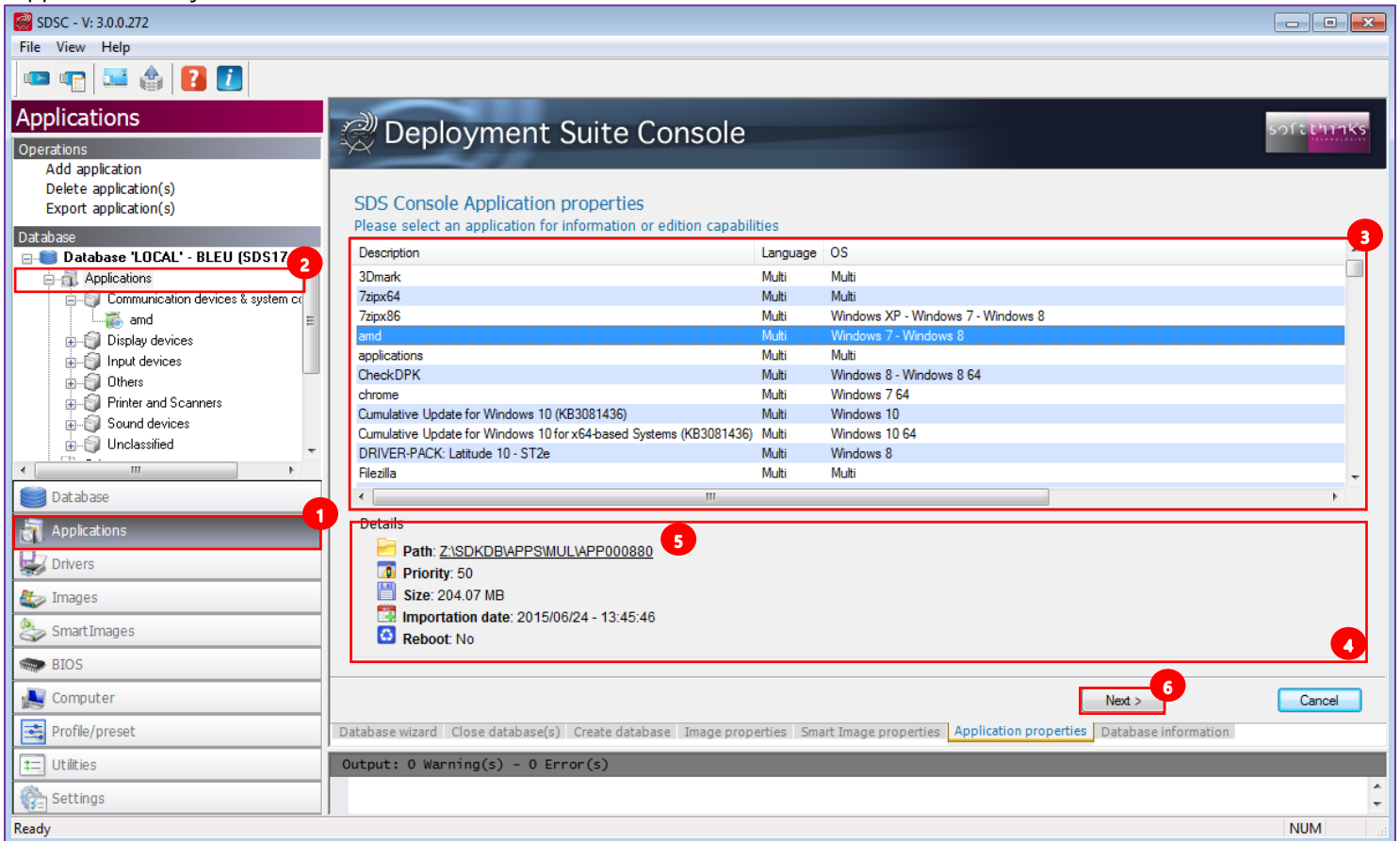
2. Specify a description ⁵ for the database in order to identify it.
3. Indicate the type of database ⁶. This can either be Local or Server.
4. Two options exist for how the database can be opened ⁷: during launch of the application or after creation of the database. The database will automatically be created in a subdirectory called SDKDB in the location you choose. For example, you can map a drive letter to a network share which will hold the database (in this example, X:) and SDS will create the necessary files and folder structures under X:\SDKDB.

Hint – Large databases take a long time to load. If you are pointing to a server database this may increase the load time due to network traffic and connection speed. It may be desirable to turn off the option "Open the database at application startup" in these situations.

5. When the database is created successfully, the new database will be shown (See [Database](#) screenshot) in the "Database" portion of the interface (left side, Database object view) when it is loaded.

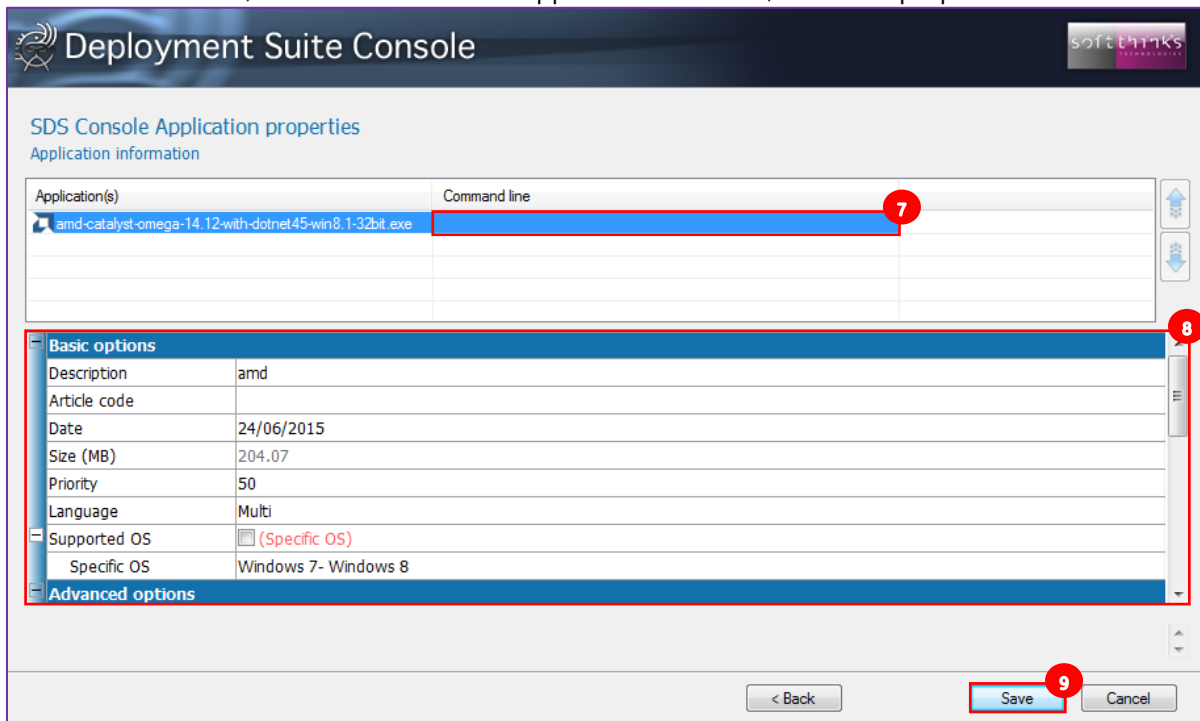
Applications

You can explore the applications you have added or imported by clicking on the “Applications” tab **1**, or directly on the “Applications” object in the tree-view **2**:



When you select an application in the list **3**, you will see all of its details below **4**, including its path that you can open by clicking on the link **5**.

Click on the “Next >” button **6**, or double click on the application in the list, to edit its properties:



- **Description:** Name of the selected application that you want to display during the applications selection (by default this is filled with the name of the folder containing the application). You can change this name to whatever you want.
- **Article code:** Unique identifier used to identify the application component / the part number used in the SPL file to designate the application. (This is not commonly used.)
- **Date:** Can be the date when the application is added into the database (so the current date by default) or the release date of the application.
- **Size:** Size of the application calculated from the file size.
- **Priority:** Allows you to install applications in a specific order (between 0 for the highest priority to 99 for the lowest one).
- **Language:** Language of the application (“Multi” to allow the application to be used for multiple languages, or else the name of the language supported).
- **Supported OS:** Either “Multi OS” (by default) to allow the application to work on all platforms, or else specific OS. When you uncheck “Multi OS”, you can check all the OS supported in the dropdown list appearing in Specific OS line below:



Note: Make sure to uncheck Windows 7 if it is not going to be included as a supported OS as it is checked by default when you uncheck “Multi OS”.

Scroll down to edit the “Advanced options”:

Advanced options	
Type	Undefined
Class	Communication devices_system components
File version	1
Delay 1 (sec)	0
Delay 2 (sec)	0
Always install	<input type="checkbox"/> (No)
Audit install	<input type="checkbox"/> (No)
CIS install	<input type="checkbox"/> (No)
End user Install	<input checked="" type="checkbox"/> (Yes)
Wait child install	<input type="checkbox"/> (No)
Copy to CD/DVD	<input checked="" type="checkbox"/> (Yes)
QFE	<input type="checkbox"/> (No)
Reboot 1	<input type="checkbox"/> (No)
Reboot 2	<input type="checkbox"/> (No)
Delete application	<input type="checkbox"/> (No)
Use all PNPs	<input type="checkbox"/> (No)

Supported OS
These are possible operating system allowed to start the component

< Back Save Cancel

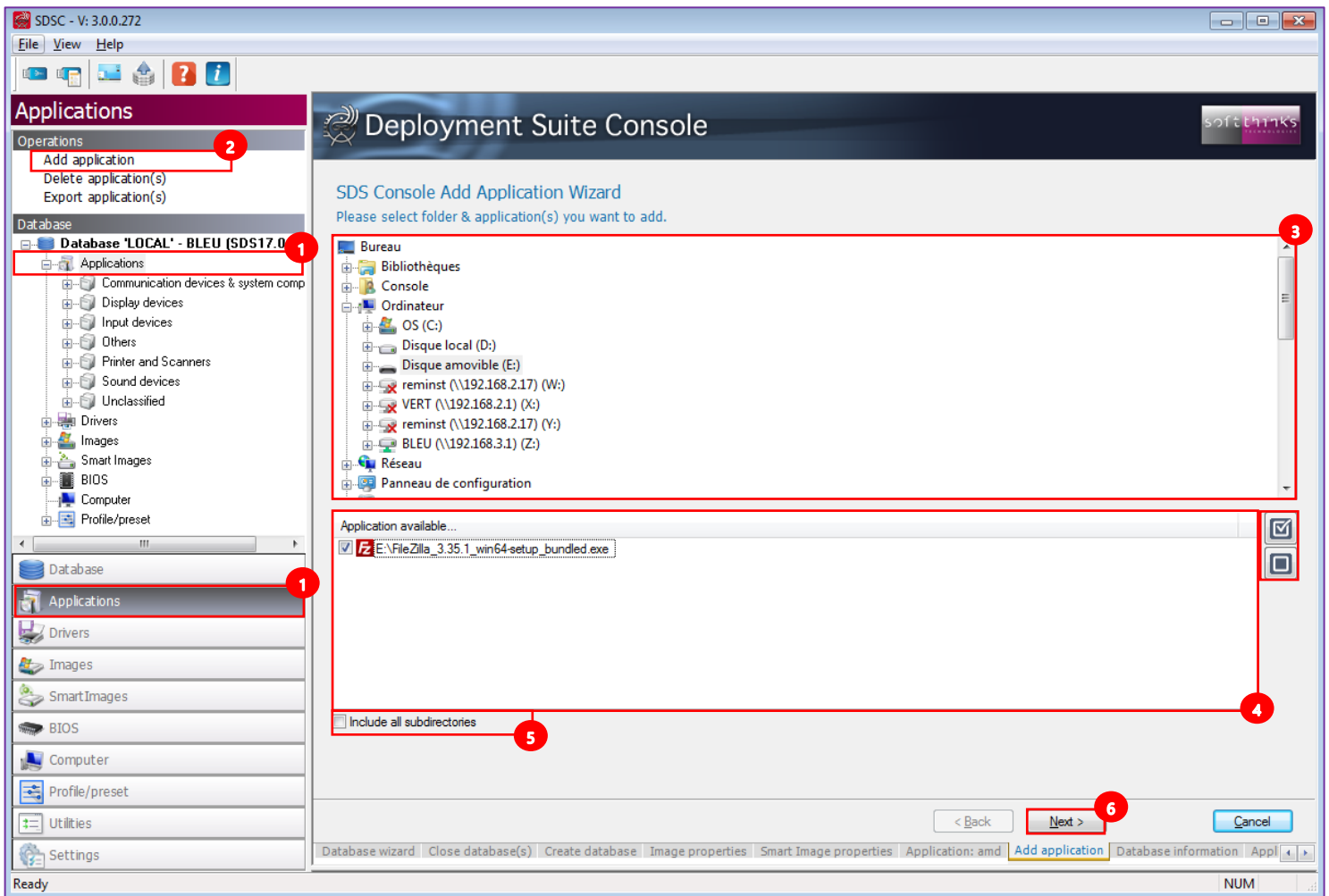
- **Type:** Application package type (Undefined by default). Can be “Undefined”, “Classic”, “Driver”, “Bundle”, “Microsoft KB”. The list of categories can be modified in [Application settings](#).
- **Class:** Application class in which the application could be classified (Undefined by default). Can be “Undefined”, “Communication devices & system components”, “Input devices”, “Printer and Scanners”, “Display devices”, “Sound devices”, “Others”. This list can be modified in [Application settings](#).
- **File version:** Used to denote the version of the application package (1 by default)
- **Delay 1 (sec):** Delay in seconds before the application will execute (0 by default). This is useful for padding the application startup.
- **Delay 2 (sec):** Delay in seconds after executing the application and continuing to the next one (0 by default). This is useful for padding the application termination if some process are slow to complete after the application exits.
- **Always install:** Always install this application and automatically include in all downloads (“No” by default).
- **Audit install:** Turn on to install the application in audit mode otherwise it will be performed during mini-setup (“No” by default).
- **CIS install:** Application can be installed for Custom Image Solutions style images/downloads (“No” by default).
- **End user install:** Application is displayed in the Apps and Drivers Recovery interface (“Yes” by default).
- **Wait for child install:** Prevents ASEXEC from executing the parent process and proceeding if there are still child processes active. This is required for some installer engines that use child processes (“No” by default).
- **Copy to CD:** Copy the application to the Apps and Drivers Recovery CD. Choose this option if the application will be delivered to customer with original installation media (“Yes” by default).
- **QFE:** If the application being installed is a QuickFixEngineering application (aka Hotfix), use this option (“No” by default). This option adds 1000 added to the Priority value (normally 0-99) ensuring that QFEs are grouped at the very end of application installation order. All QFEs are installed in the same grouping ordered by priority after all standard applications have been installed.
- **Reboot 1:** Force a reboot after the application is installed by ASEXEC during factory installation or full system recovery (“No” by default)
- **Reboot 2:** Force a reboot after the application is installed using Apps and Drivers Recovery interface (“No” by default)
- **Delete applications:** Delete the application package once installed (“No” by default)
- **Use all PNPs:** Tie an application to hardware device(s) (“No” by default). If the specified hardware is not present, the application will not be installed.

Click on the “Save” button 9 to save your modifications.

Adding applications (“Add application” operation)

Adding an application into the SDS database allows you to selectively install it onto a system being deployed with SDS. **There should be only 1 application per folder.**

1. Click on « Applications » tab **1** or “Applications” object **1** in the Database tree-view
2. Click on « Add application » operation **2**
3. Select the folder containing the application to add in the browser **3**
4. Select the application installer **4** in the list. This list may contain several files, for example, if the application is a two-part install, there may be additional executables in the list which may be selected. You can select / unselect all elements thanks to the 2 buttons on the right of this list
5. Check the “Include all subdirectories” option **6** if there are subfolders inside your source folder that are required by the application
6. Click on the “Next >” button



- Specify the command line arguments to install your application silently (check the installation instructions and readme files for the applications to find the application specific Silent Install switches) **7** and fill the other fields described previously **8** (for each of them you have a description at the bottom) before clicking on the "Next >" button **9**:

The screenshot shows the 'Deployment Suite Console' interface for the 'SDS Console Add Application Wizard'. It is divided into several sections:

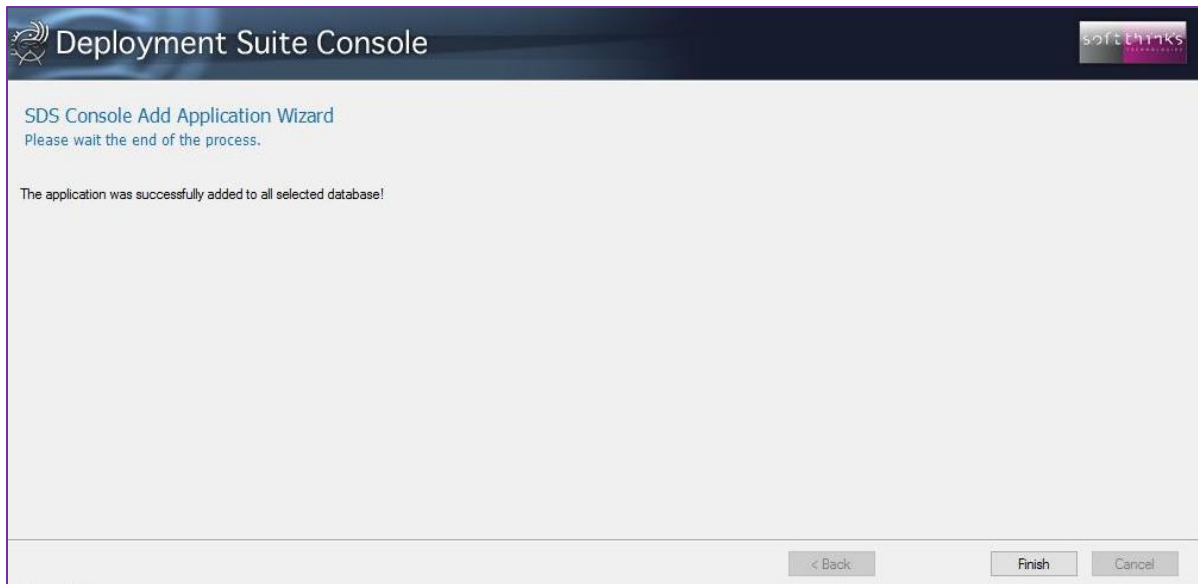
- Application information:** A table with two columns: 'Application(s)' and 'Command line'. The first row contains 'E:\FileZilla_3.35.1_win64-setup_bundled.exe' and '/silent /install'. A red circle '7' is placed over the 'Command line' field.
- Basic options:** A table with fields for 'Description' (Filezilla), 'Article code', 'Date' (31/07/2018), 'Size (MB)' (4622.75), 'Priority' (50), 'Language' (Multi), and 'Supported OS' (checked 'Multi OS'). A red circle '8' is placed over the 'Basic options' section header.
- Advanced options:** A section with a 'Description' field containing 'Name of the selected application(s)'. A red circle '9' is placed over the 'Next >' button at the bottom right.

- The console will copy the application folder contents:

The screenshot shows the 'Deployment Suite Console' interface during the application addition process. It displays the following information:

- Status Messages:**
 - 'Adding application 'Filezilla' to database 'BLEU (SDS17.0.1)' in 'Z:\SDKDB' folder
 - 'Copying file 'E:\FileZilla_3.35.1_win64-setup_bundled.exe' to database...'
- Progress Bars:** Two horizontal progress bars are shown, both filled with green, indicating the progress of the operations.
- Buttons:** At the bottom, there are buttons for '< Back', 'Finish', and 'Cancel'.

9. A message will indicate you that the application has successfully been added to the database at the end of the process:



New in SDS 18.0 SDS 18.0 allows to copy bundles to the system with deployment through a profile according to computer PNPs. When a profile with bundles is used, if the driver PNP detection is switched off, the bundle will be forced to be copied according to the profile. This will also allow using a same profile and choosing if the bundle must be downloaded or not.

New setting added to selector.ini (profile) in the [Bundle] section to allow forcing PNP bundle detection:

[Bundle]

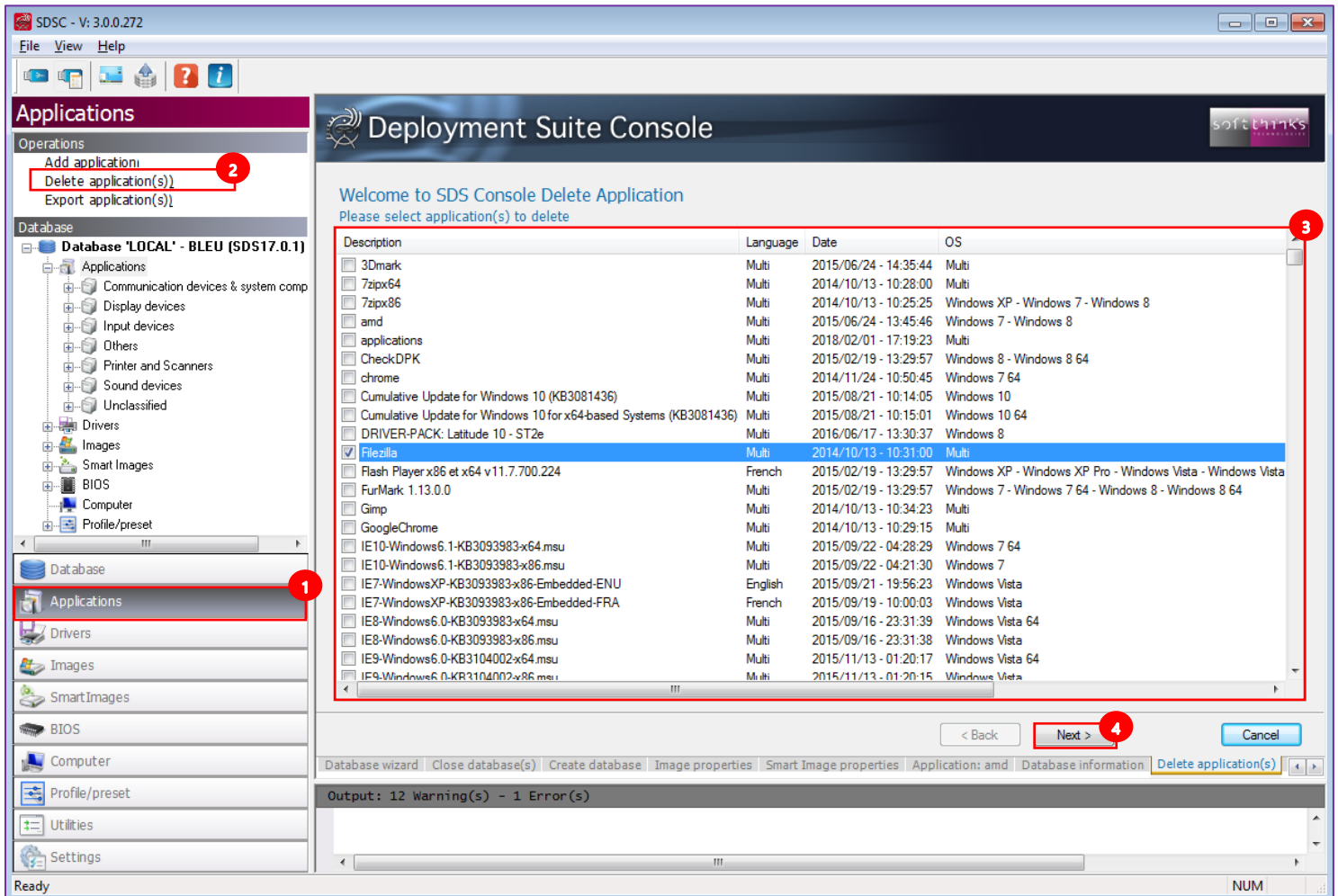
NoPNPOverSel=0 -> let bundle detection occurring to copy only matching bundle

NoPNPOverSel=1 -> block PNP detection and force bundle section to be copied to the User Partition

Deleting application(s) (“Delete application(s)” operation)

In order to delete one or more applications,

1. Click on “Applications” tab 1
2. Click on “Delete application(s)” operation 2
3. Select the application(s) you want to remove from the database in the list on the right 3. If you don’t see an application recently added, press F5 to refresh the list contents.
4. Click on the “Next >” button 4



5. The wizard will confirm you that your applications have been deleted once the process has completed.

Note: Deletion is permanent. There is no method to undo a delete. Be careful when selecting applications for deletion and review them before continuing.

Exporting applications (“Export application(s)” operation)

In order to copy applications from the current server database to another server database, you have the ability to export applications.

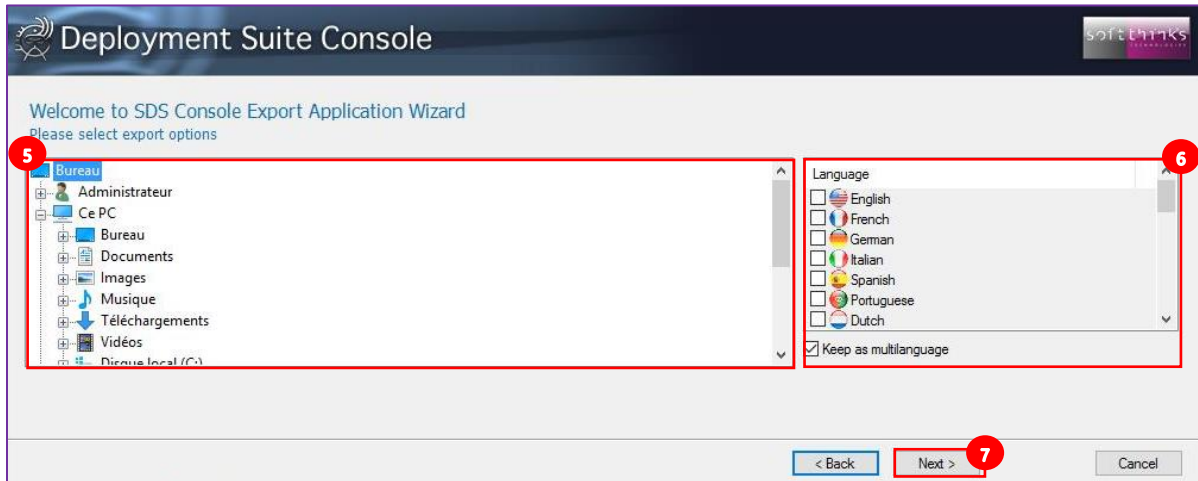
If you need to copy applications to another database on the same server we strongly recommend you use drag & drop between the 2 databases you have opened.

1. Click on “Applications” tab 1
2. Click on “Export application(s)” operation 2
3. Select the applications you want to export from the list 3. If you don’t see an application recently added, press F5 to refresh the list contents.
4. Click on the “Next >” button 4

The screenshot shows the 'Deployment Suite Console' window titled 'SDSC - V: 3.0.0.272'. The interface is divided into several sections:

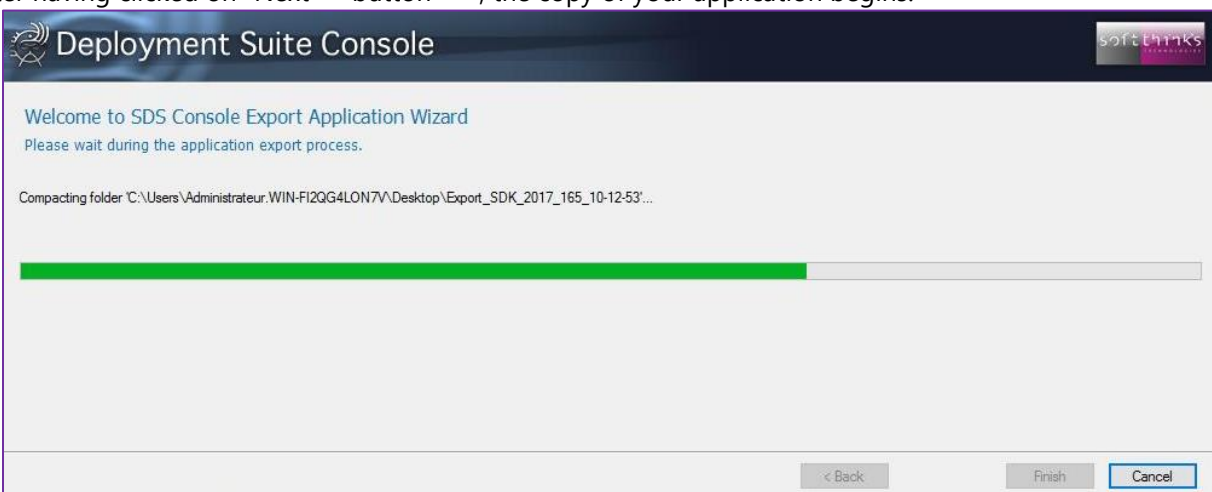
- Left Sidebar:** Contains 'Operations' (Add application, Delete application(s), Export application(s)) and a 'Database' tree view. The 'Applications' tab is selected (1).
- Operations:** The 'Export application(s)' option is highlighted (2).
- Database Tree:** Shows a hierarchy of categories like 'Applications', 'Communication devices & system comp', etc. The 'Applications' folder is expanded.
- Application List:** A table with columns 'Description', 'Language', and 'OS'. 'Filezilla' is selected (3). Other applications include 3Dmark, 7zipx64, amd, applications, CheckDPK, chrome, Cumulative Update for Windows 10, DRIVER-PACK: Latitude 10 - ST2e, Flash Player, FurMark, Gimp, GoogleChrome, IE10-Windows6.1-KB3093983-x64.msu, IE10-Windows6.1-KB3093983-x86.msu, IE7-WindowsXP-KB3093983-x86-Embedded-ENU, IE7-WindowsXP-KB3093983-x86-Embedded-FRA, IE8-Windows6.0-KB3093983-x64.msu, IE8-Windows6.0-KB3093983-x86.msu, IE9-Windows6.0-KB3104002-x64.msu, and IE9-Windows6.0-KB3104002-x86.msu.
- Bottom Buttons:** '< Back', 'Next >' (4), and 'Cancel'.
- Output Window:** Shows 'Output: 2 Warning(s) - 0 Error(s)' and a log entry: '[31/07/2018 - 11:24:32] Updating database component information, done.'

5. Specify the target folder **5** where the selected application will have to be exported in a ZIP file
6. Specify the language **6** or check the option "Keep it as Multilanguage"



Note: Please note that in order to avoid corruption during copy USB keys are not allowed as a target and don't appear in the tree-view.

7. After having clicked on "Next >" button **7**, the copy of your application begins:

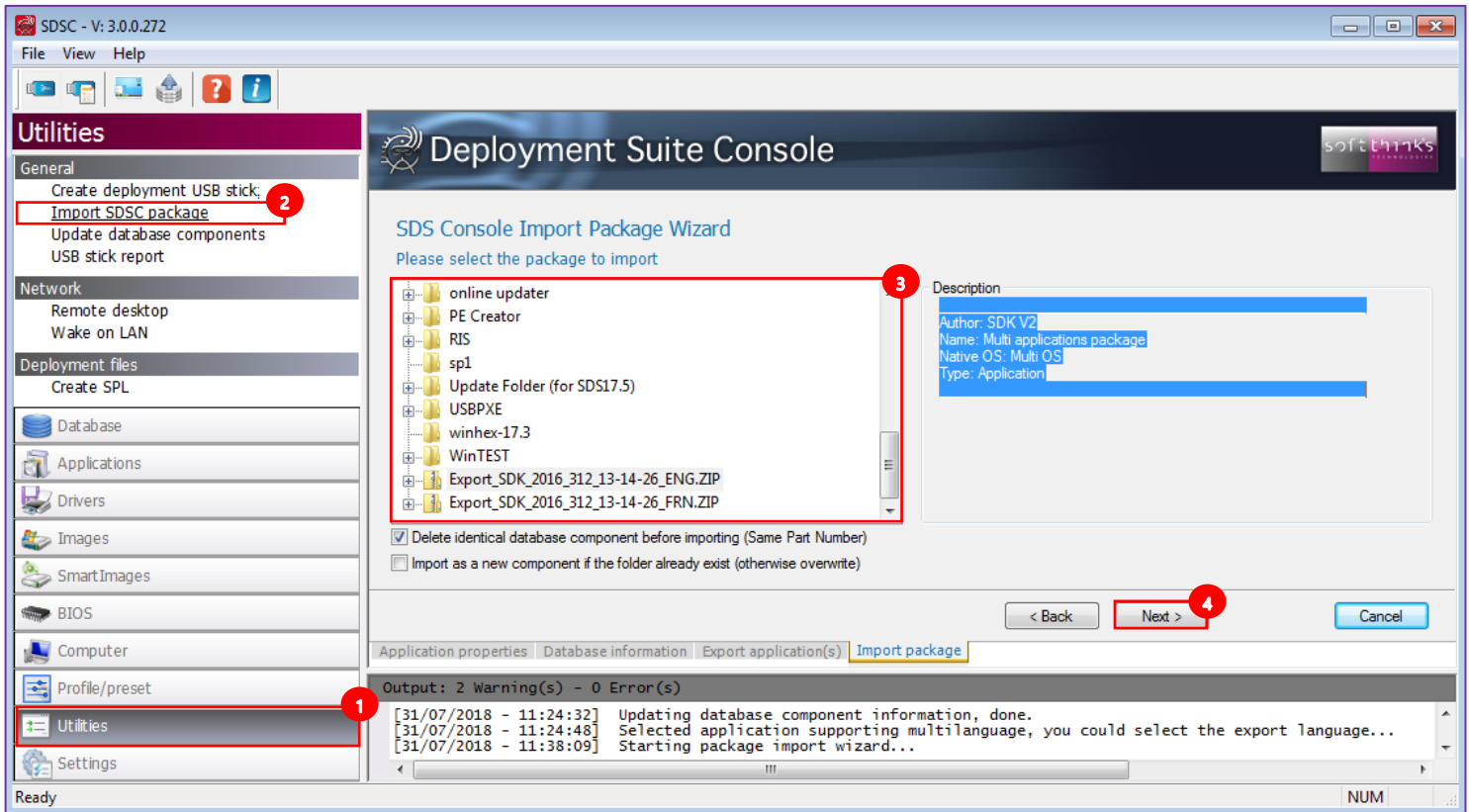


8. The wizard alerts you when the copy is completed

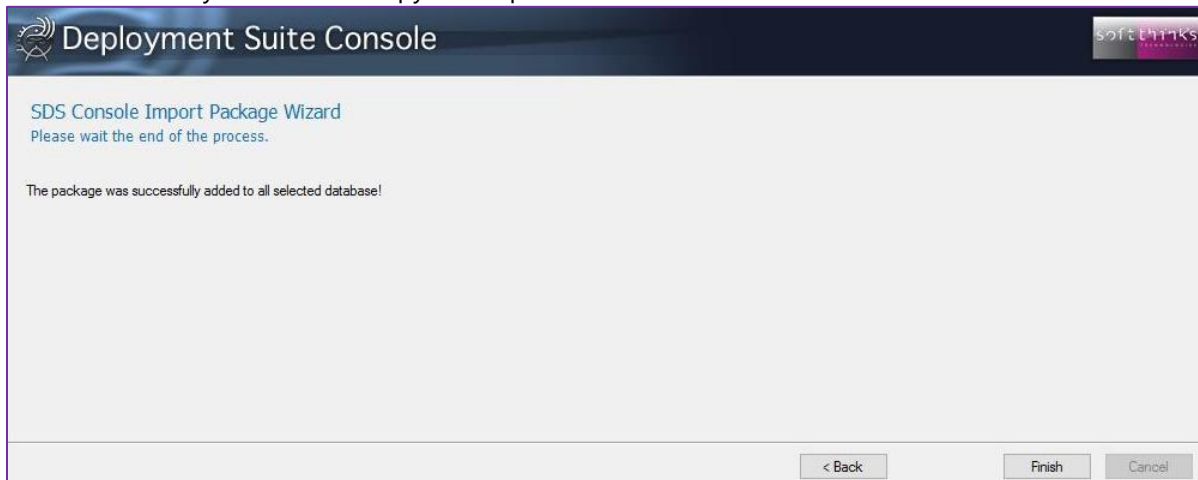
Importing application(s) (“Utilities\Import SDSC Package”)

To import an application package that was previously created,

1. Click on « Utilities » tab 1
2. Click on « Import SDSC Package » operation 2
3. Select the application package you want to import 3
4. Click on the “Next >” button 4



5. The wizard will alert you when the copy is completed:



Drivers

In the same way as for Applications, you can explore the drivers you have added or imported by clicking on the “Drivers” tab **1**, or directly on the “Drivers” object in the tree-view **2**:

The screenshot shows the SDS Console interface. On the left, the 'Drivers' tab is selected in the navigation pane (1). Below it, the tree view shows the 'Drivers' folder expanded (2). The main area displays a table of drivers (3):

Description	Language	OS	Signed	Article code	Importation date
Dell Wireless 1515 Wireless-N Adapter - Version: 06/14/2012.10.0.0.67	Multi	Windows 7 64 - Windows ...	Yes	111111111111111111	2014/09/30 15:50:36
ALPS Integrated Bluetooth Device - Version: 06/21/2006.6.2.9200.16420	Multi	Windows 7 64 - Windows ...	Yes		2014/09/30 16:57:26
Qualcomm Atheros AR8132 PCI-E Fast Ethernet Controller (NDIS 6.30) - ...	Multi	Windows 7 64 - Windows ...	Yes		2014/09/30 17:07:51
Intel(R) 82579LM Gigabit Network Connection - Version: 12/21/2010.11.8...	Multi	Windows 7 - Windows 7 64	Yes		2014/11/25 11:25:45
Realtek PCIe FE Family Controller - Version: 06/10/2011.7.046.0610.2011	Multi	Windows 7 64 - Windows ...	Yes		2014/11/25 13:58:59
Intel(R) 82579V Gigabit Network Connection - Version: 12/21/2010.11.8...	Multi	Windows 7 64	Yes		2014/11/25 14:27:08
Realtek PCIe FE Family Controller - Version: 04/21/2011.7.044.0421.2011	Multi	Windows 7	Yes		2014/11/25 14:54:54
Realtek PCIe FE Family Controller - Version: 04/21/2011.7.044.0421.2011	Multi	Windows 7 64	Yes		2014/11/25 14:55:40
RRealtek PCIe FE Family Controller - Version: 11/19/2014.8.037.1119.2...	Multi	Windows 8 64	No		2015/02/16 14:22:00
A tester - Realtek PCIe FE Family Controller - Version: 03/11/2016.10.00...	Multi	Windows 10 64	Yes		2016/06/02 09:55:59
ASIX AX88178 USB2.0 to Gigabit Ethernet Adapter - Version: 11/24/20...	Multi	Windows 8 64 - Windows ...	Yes		2016/06/07 14:25:51
Bluetooth AVRCP Device - Version: 06/21/2012.8.0.0000.0200	Multi	Windows 7 64 - Windows ...	Yes		2014/09/30 16:45:09
Standard PS/2 Port Mouse - Version: 06/21/2006.6.1.7600.16385	Multi	Windows 7 64 - Windows ...	No		2014/10/01 09:10:59
Realtek PCIe CardReader - Version: 06/13/2012.6.1.8400.28121	Multi	Windows 7 64 - Windows ...	Yes		2014/09/30 17:08:53
Intel(R) Desktop/Workstation/Server Express Chipset SATA AHCI Contr...	Multi	Windows 7 64 - Windows ...	Yes		2014/09/30 17:22:41
IDE Channel - Version: 06/21/2006.6.2.9200.16384	Multi	Windows 7 64 - Windows ...	Yes		2014/09/30 17:05:39
Intel(R) C600 series chipset SATA AHCI Controller - Version: 09/03/...	Multi	Windows 7 64	No		2015/05/20 14:47:48
Intel(R) 8 Series/C220 Chipset Family SATA AHCI Controller - Version: 0...	Multi	Windows 7 64 - Windows ...	No		2015/08/27 13:29:06
AMD SATA Controller - Version: 03/29/2015.1.2.001.0402	Multi	Multi	Yes		2017/07/20 10:47:29
AMD-RAID Bottom Device - Version: 11/08/2016.8.1.0.00026	Multi	Multi	Yes		2017/07/20 11:22:52
AMD-RAID Controller [storport] - Version: 11/08/2016.8.1.0.00026	Multi	Multi	Yes		2017/07/20 11:23:08
MICROSTORE - AMD-RAID Bottom Device - Version: 11/08/2016.8.1.0...	Multi	Multi	Yes		2017/08/11 11:38:42

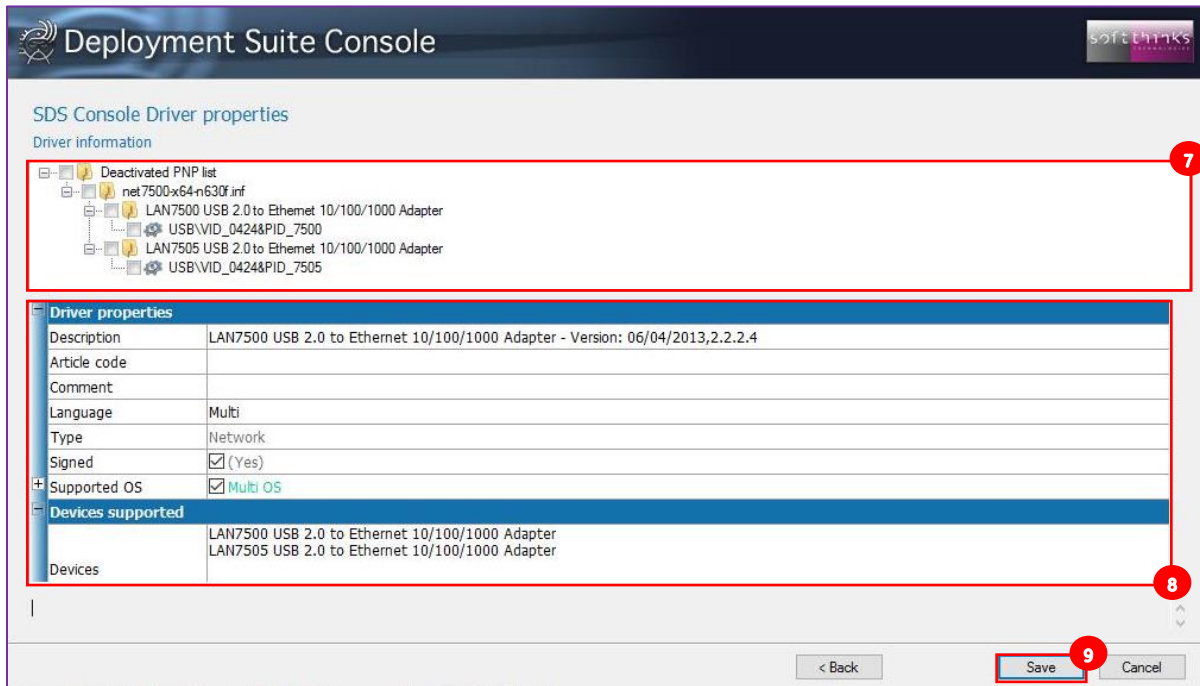
Below the table, the 'Details' section (4) shows information for the selected driver:

- Path: Z:\SDKDB\DRVNET\MUL\NET000000 (5)
- Manufacturer: (Standard system devices)NTamd64
- PNP available: 3818 item(s)
- Importation date: 2014/09/30 15:50:36
- Deactivated: Partially

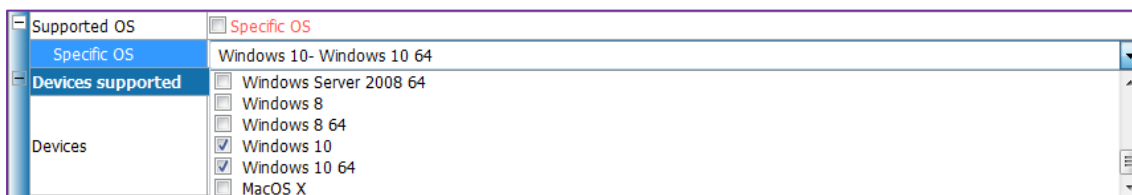
At the bottom, there is a 'Next >' button (6) and a 'Cancel' button. The output window shows several warning messages about image objects being modified outside the SDK instance.

When you select a driver in the list **3**, you will see all of its details below **4**, including its path that you can open by clicking on the link **5**.

Click on the “Next >” button **6**, or double click on the driver in the list, to eventually uncheck some PNPs **7** in order to avoid the download of this driver during deployment in automatic mode, and edit its properties **8**:



- **Description:** A text description of the driver that will be displayed in the database and by the Apps and Drivers Recovery interface. You can modify this as needed.
- **Article Code:** The part number used in SPL files to designate the driver (Not commonly used). This code should be unique regarding the database items in order to identify this component.
- **Comment:** Additional field to provide info on the driver.
- **Language:** Language supported by the driver. Select “Multi” for multilanguage driver.
- **Type:** The class of the driver (mass storage, network, video, etc) from a list created in the Settings tool.
- **Signed:** Check this box if the driver is digitally signed. Note: If the driver is not already signed, checking this box will not sign it.
- **Supported OS:** Select “Multi OS” to allow the driver to be used with any OS, or else “Specific OS” and check the OS supported in the drop-down list below:



- **Devices Supported:** Shows the description of the devices from the INF file.

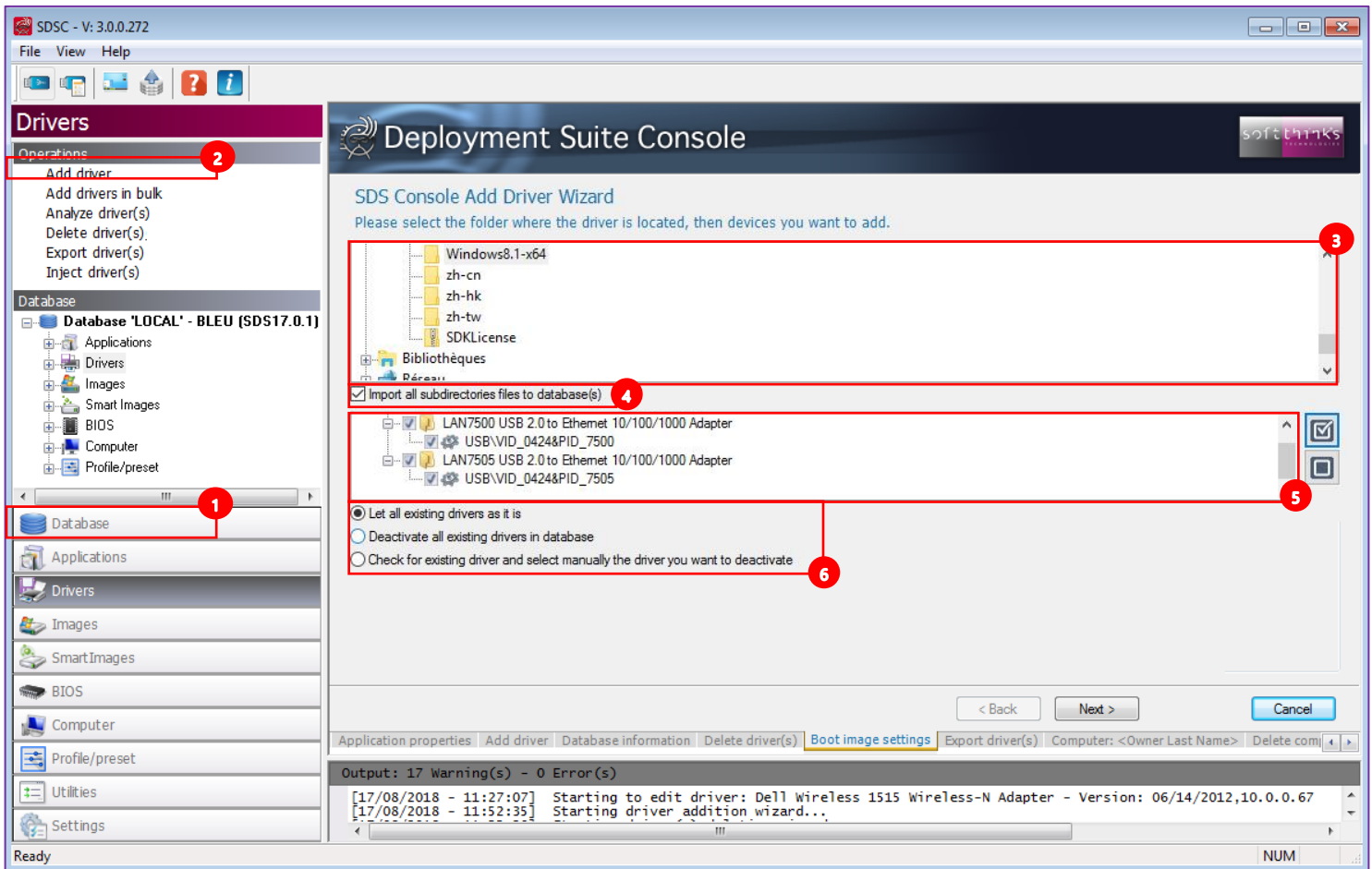
Click on the “Save” button **9** to save your modifications.

Adding a driver (“Add driver” operation)

To add a driver to the database, for example a network driver required to boot on a specific platform, you first need a folder containing the driver INF, CAT and other associated files for the driver. If the driver is packaged in a compressed format, it must be expanded first.

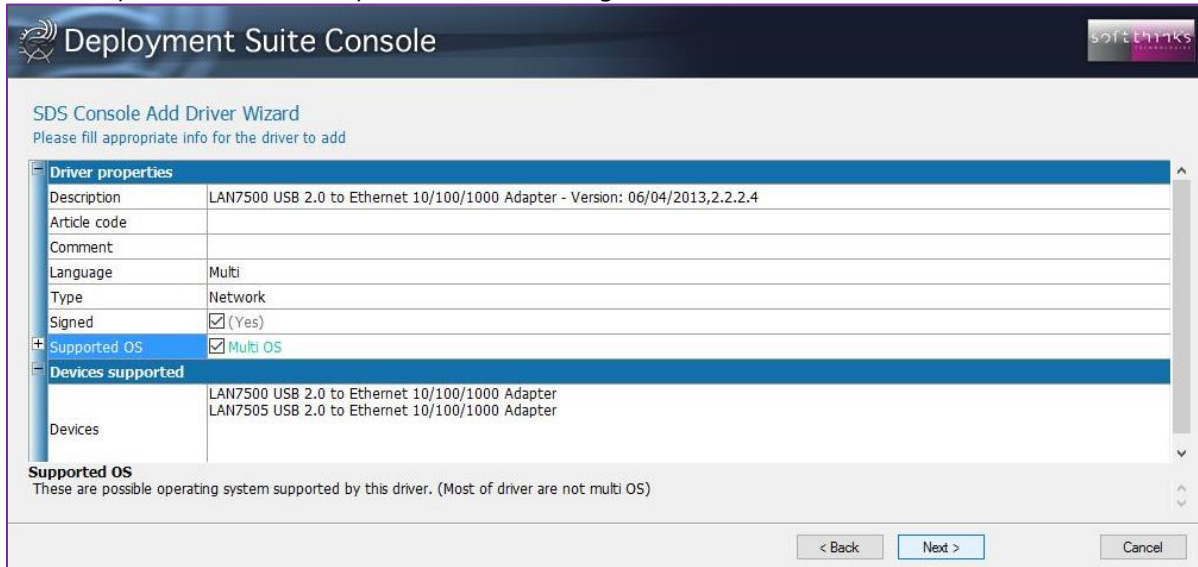
If you need to add several drivers at a one time, you should use the operation [“Add drivers in bulk”](#) instead.

1. Click on the “Drivers” tab or the “Drivers” item in the Database tree-view 1
2. Click on the “Add driver” operation 2

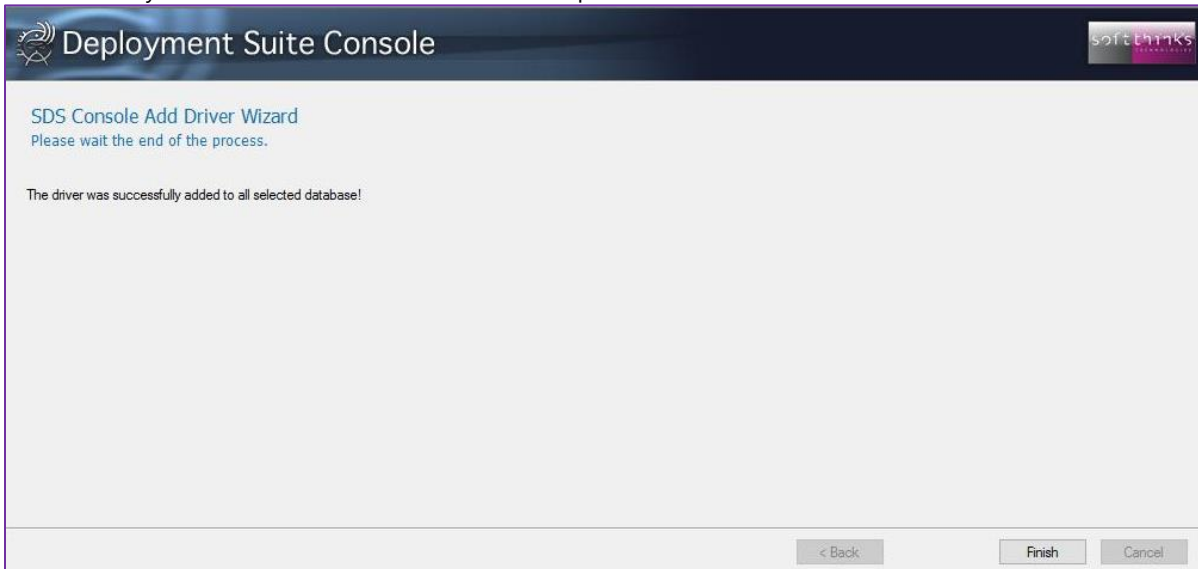


3. Select the folder where the driver you want to add is located 3
4. Check the option “Include Subdirectories” 4 if the source folder contains subdirectories that are required to install the driver properly. Some vendors create their driver packages with the INF file in the root directory and binaries under a subfolder based on the compatible OS name of the driver.
5. Select the individual PnP IDs to associate to the driver (or the topmost value to include all of the IDs) 5
6. Choose what you want to do with existing drivers matching the selected PnP IDs 6:
 - **Let all existing drivers as it is:** This option adds this driver and keeps any existing drivers using the same PnPIDs.
 - **Deactivate all existing drivers in database:** The new driver supercedes the existing drivers with the same PnP IDs.
 - **Check for existing driver and manually select the driver you want to deactivate:** This option allows the Administrator to selectively replace the driver on a PnP ID basis.

7. Review and update the Driver Properties before clicking on "Next >":



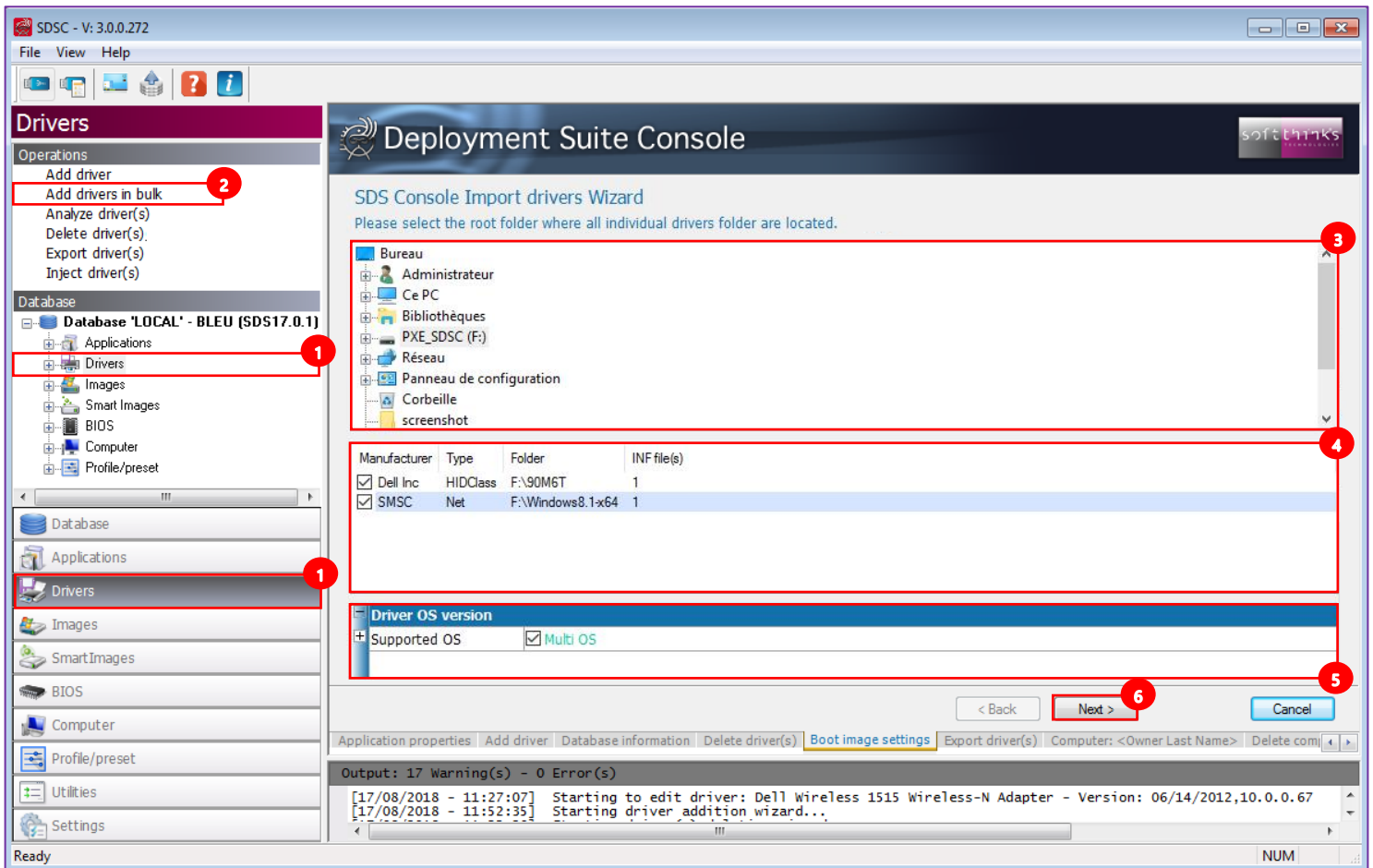
8. The wizard alerts you once all the driver files have been copied into SDS Database:



Adding several drivers (“Add drivers in bulk” operation)

You can also add all of the drivers in at one time.

1. Click on “Drivers” tab or “Drivers” item in the database tree-view **1**
2. Click on the “Add drivers in bulk” operation **2**
3. Select the root folder where all individual drivers folders are located **3**
4. Select which ones you want to import **4**
5. Specify the driver OS version **5**
6. Click on the “Next >” button **6**



7. The wizard alerts you once all the driver files have been copied into SDS Database

Adding Driver Packs

Driver packs are recent addition to our software that will deploy a small database of drivers that matches the model of the unit. This will prevent any driver version mismatch issues.

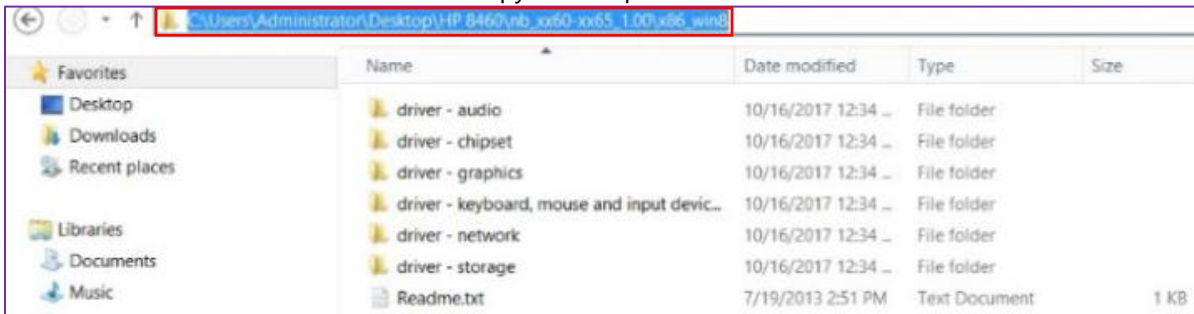
Driver packs are setup as special application in the system. During the deployment process, once the system reaches the point of doing driver injection, it will check to see if there is a driver pack that matches the model. If there is, it will use the driver pack rather than the normal driver database.

Certain Manufacturers provide driver packs for their computers. Dell, HP and Lenovo do for sure and these can be reached by clicking on the following links:

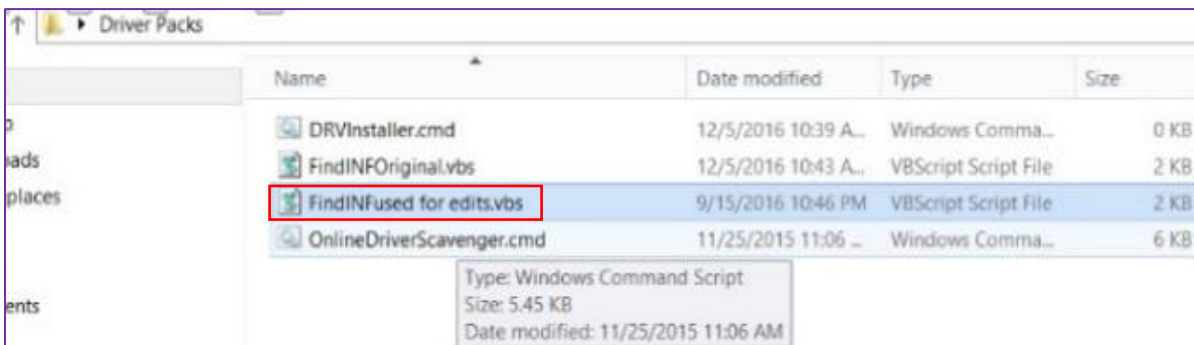
- **Dell** : <http://en.community.dell.com/techcenter/enterprise-client/w/wiki/2065.dell-command-deploy-driver-packs-for-enterprise-client-os-deployment>
- **HP** : http://ftp.hp.com/pub/caps-softpaq/cmit/HP_Driverpack_Matrix_x86.html (32 Bit)
http://ftp.hp.com/pub/caps-softpaq/cmit/HP_Driverpack_Matrix_x64.html (64 Bit)
- **Lenovo** : <https://support.lenovo.com/us/en/documents/ht074984>

Here are the steps to add driver packs to the SDS database:

1. Find the model of computer that you are looking for and download that driver to a folder on your server.
2. Extract the Driver Pack to a folder and then copy the full path of that folder:



3. You will be given a driver pack folder with files that are needed for creating driver packs. Open that folder and right click on FindINFused for edits.vbs and select EDIT:



- Paste the address that you copied for the Extracted Driver Pack Folder into the First line of FindINFused for edits.vbs that says Const startDir = "...:

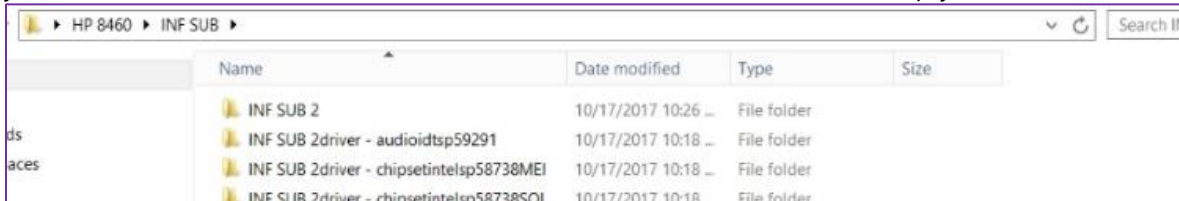
```
Const startDir = "C:\Users\Administrator\Desktop\HP 8460\nb_xx60-xx65_1.00\x86_win8"
Const endDir = "\
Set oFSO = CreateObject("Scripting.FileSystemObject")
```

- In the folder that you extracted your Driver Pack, create a folder called INF SUB and then inside there, create a folder called INF SUB 2. Then copy the path of INF SUB 2 and paste it into the Second line of FindINFused for edits.vbs that says Const endDir = "...:

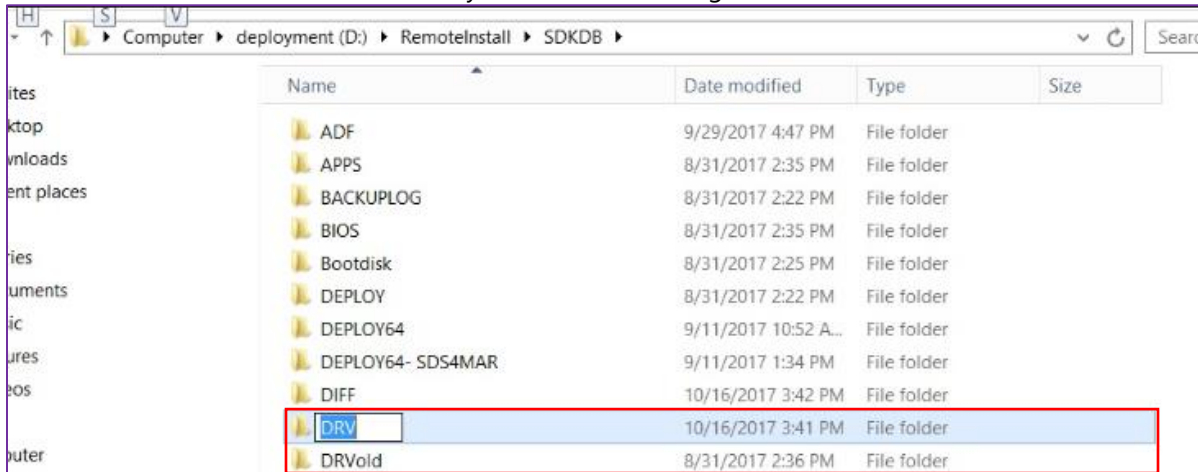
```
Const startDir = "C:\Users\Administrator\Desktop\HP 8460\nb_xx60-xx65_1.00\x86_win8"
Const endDir = "C:\Users\Administrator\Desktop\HP 8460\INF SUB\INF SUB 2"
Set oFSO = CreateObject("Scripting.FileSystemObject")
```

- Save and Close the FindINFused for edits.vbs file then double-click on it to run it.

- Verify that the files are in the folder INF SUB. (The INF SUB 2 Folder will remain empty):

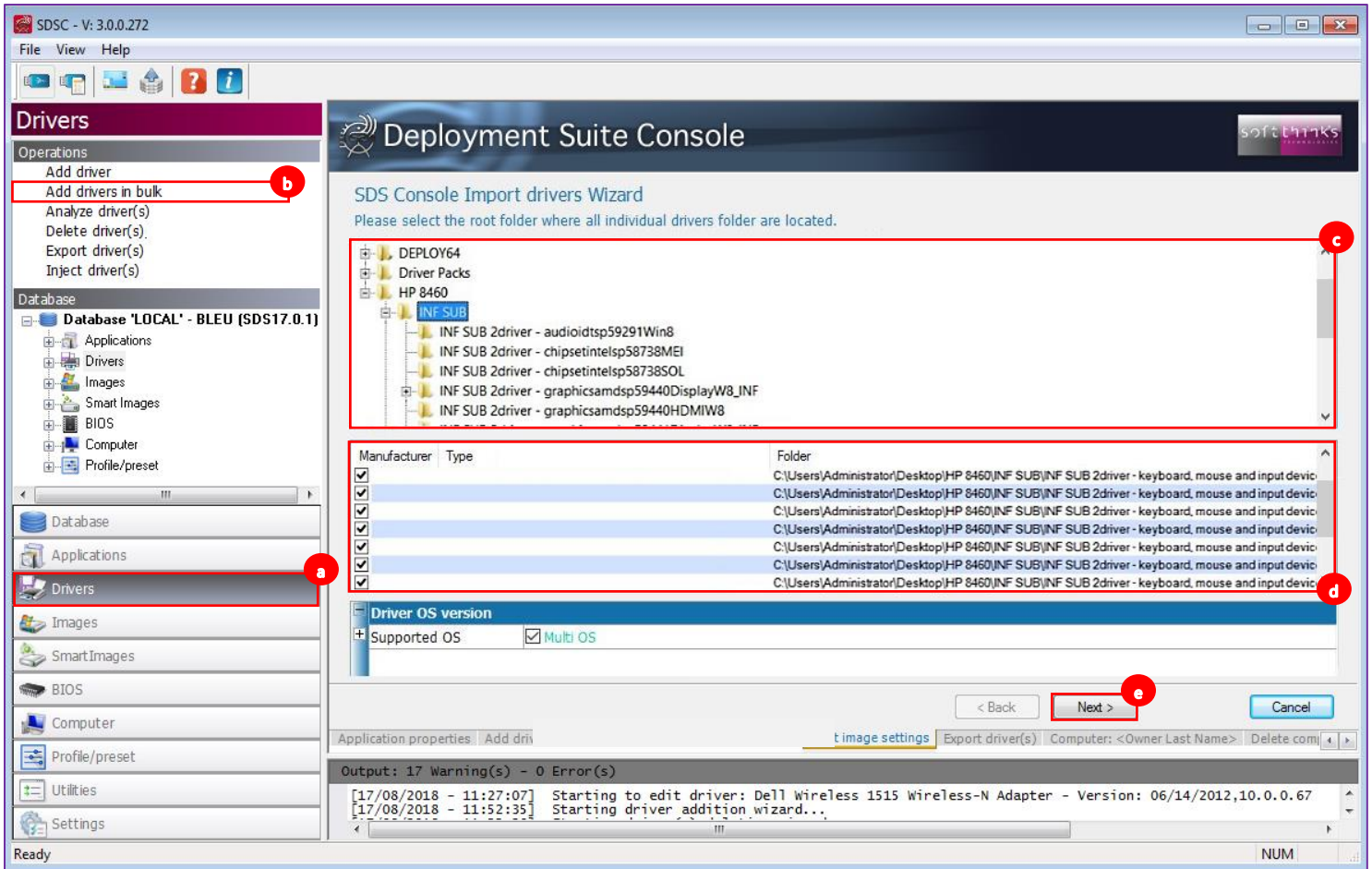


- Go to the D:\RemotelInstall\SDKDB directory, rename the existing DRV folder to DRVold and create a new DRV folder:



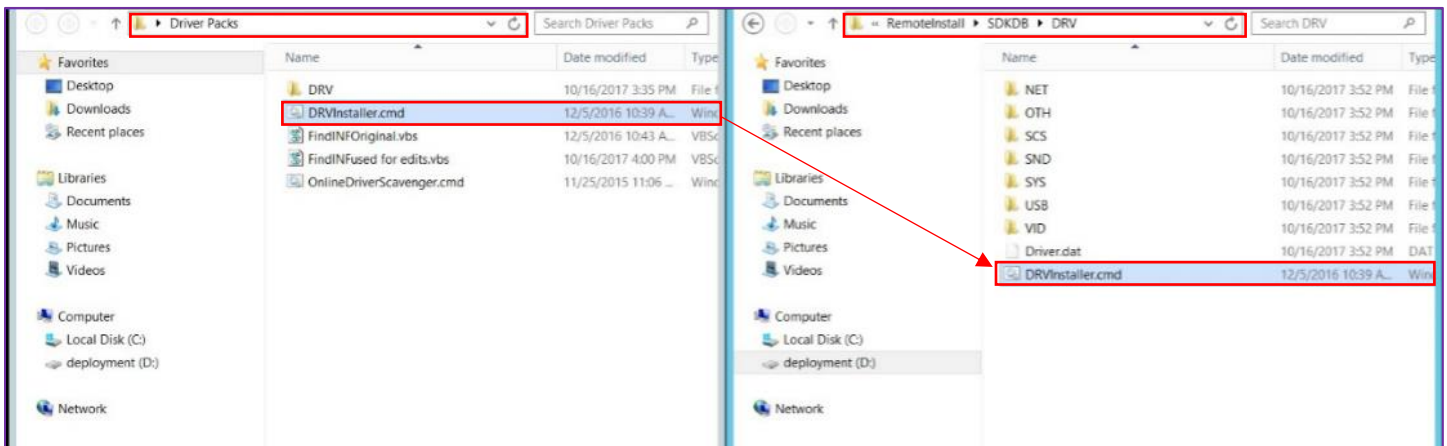
9. Open the SDS Management Console.

- a. Click on "Drivers" tab a
- b. Click on the "Add drivers in Bulk" operation b
- c. Browse to the INF SUB folder that you created and click on it c
- d. Make sure all of the boxes are checked in the lower right screen d
- e. Click on the "Next>" button e

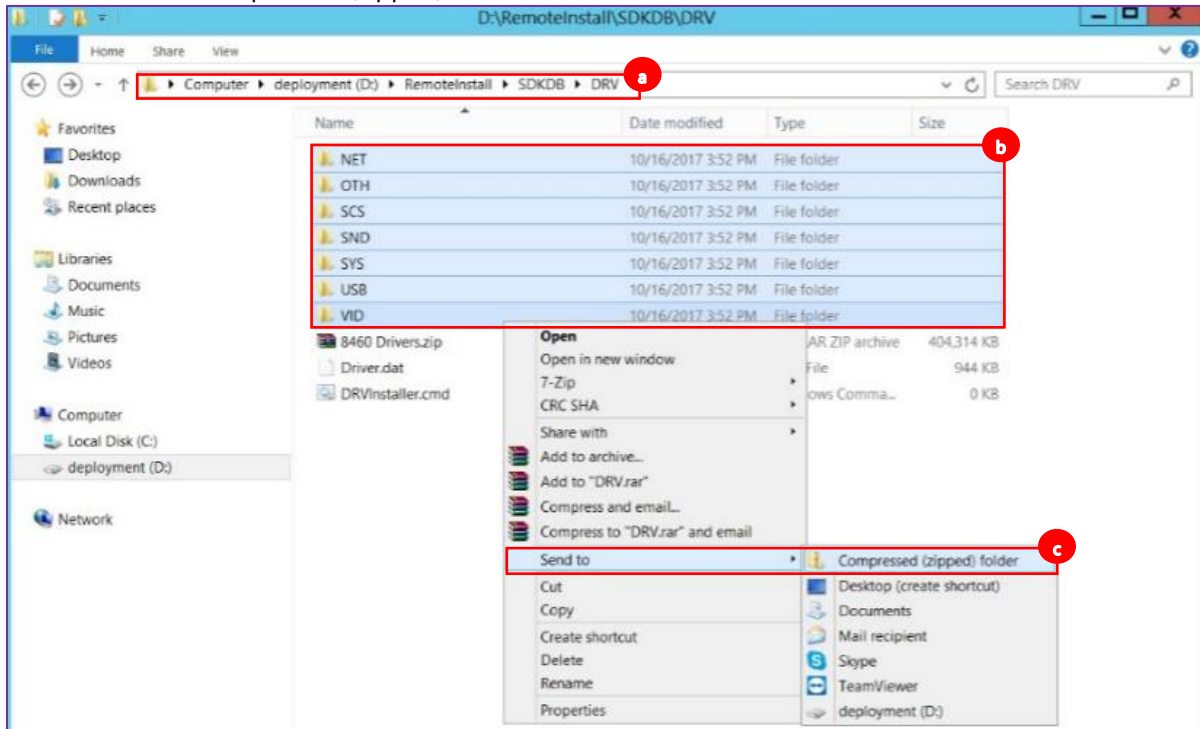


10. When the process is complete click the Finish Button in the lower right corner.

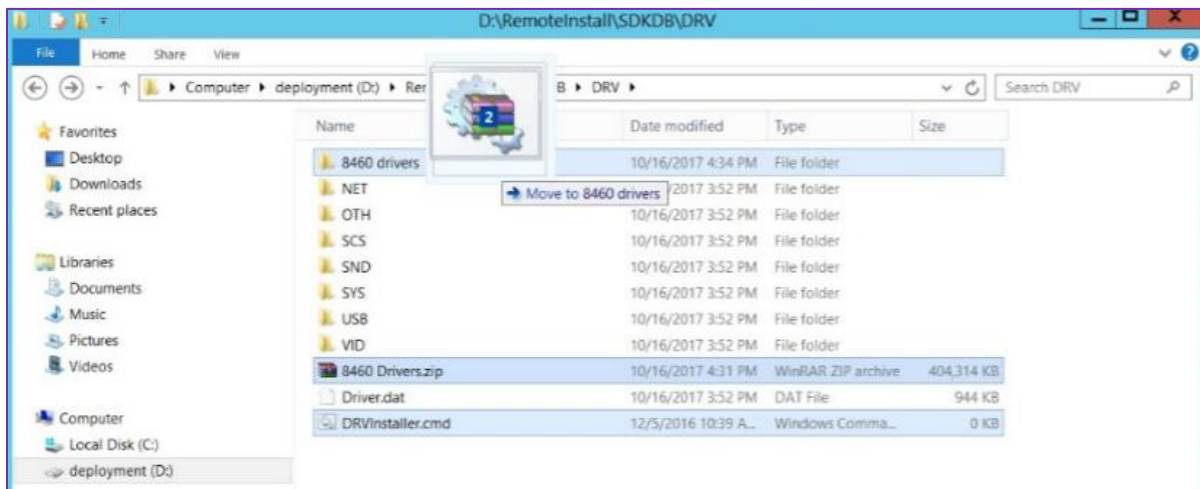
11. Copy the DRVInstaller.cmd file from the Driver Packs folder to the RemoteInstall\SDKDB\DRV folder:



12. Select all of the folders in the RemotelInstall\SDKDB\DRV folder **a**. Right click on them while they are highlighted **b** and select "Send to Compressed (zipped)" folder **c**:

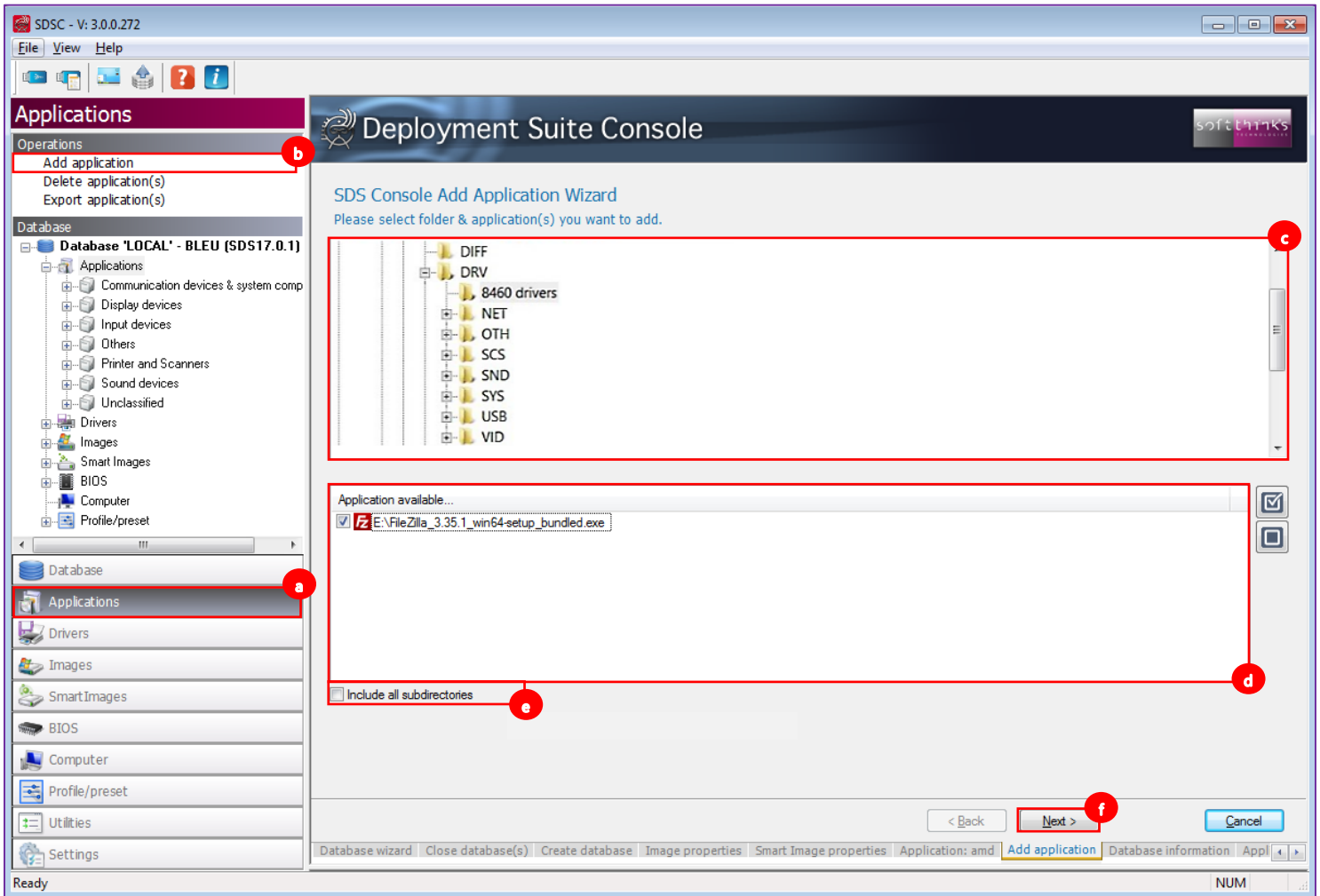


13. Create a new folder in the DRV Folder (name it whatever you like) and move the compressed file and the DRVInstaller.cmd file to it:



14. Go back to the SDS Console

- a. Click on the "Applications" tab
- b. Click on the "Add Application" operation
- c. Browse to and select the folder you created in the DRV folder
- d. Put a check in the box next to the DRVInstaller.cmd
- e. Make sure the box next to "Include all subdirectories" is checked as well
- f. Click on the "Next >" button



15. The naming convention for the Driver Packs is "Manufacturer – Model – Operating System". The manufacturer and Operating system are for you. The model is what is used by the system to find and install the driver pack.
- Type the name in the "Description" field **a**
 - Uncheck the box that says "Multi OS" next to "Supported OS" **b**, and then in "Specific OS" select the Operating systems that the driver pack is for (Windows 7 is selected by default and will need to be unchecked if it is not needed)
 - Set the Type to "Driver" **c**
 - Set the Class class to "Unclassified" **d**
 - Click on the "Next >" button **e**

The screenshot shows the "SDS Console Add Application Wizard" interface. The "Application information" section contains a table with the following data:

Application(s)	Command line
DRVInstaller.cmd	

The "Basic options" section includes the following fields:

- Description: HP - HP EliteBook 8460p - Windows 8 and 10 **a**
- Article code
- Date: 16/10/2017
- Size (MB): 394.84
- Priority: 50
- Language: Multi
- Supported OS: specific OS **b**
- Specific OS: Windows 8 64- Windows 10 64

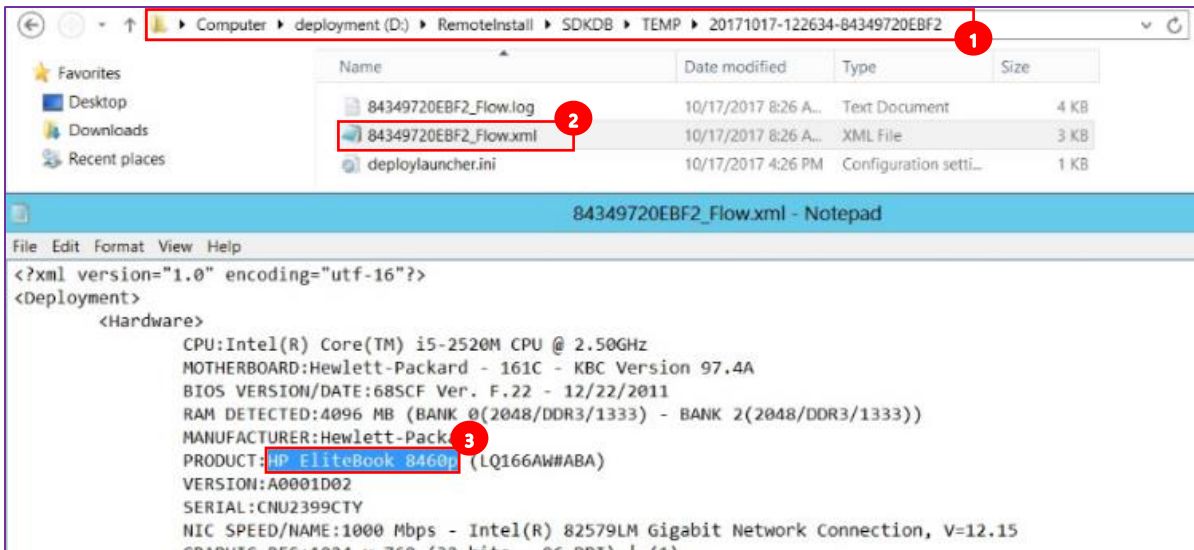
The "Advanced options" section includes the following fields:

- Type: Driver **c**
- Class: Unclassified **d**
- File version: 1
- Delay 1 (sec): 0
- Delay 2 (sec): 0

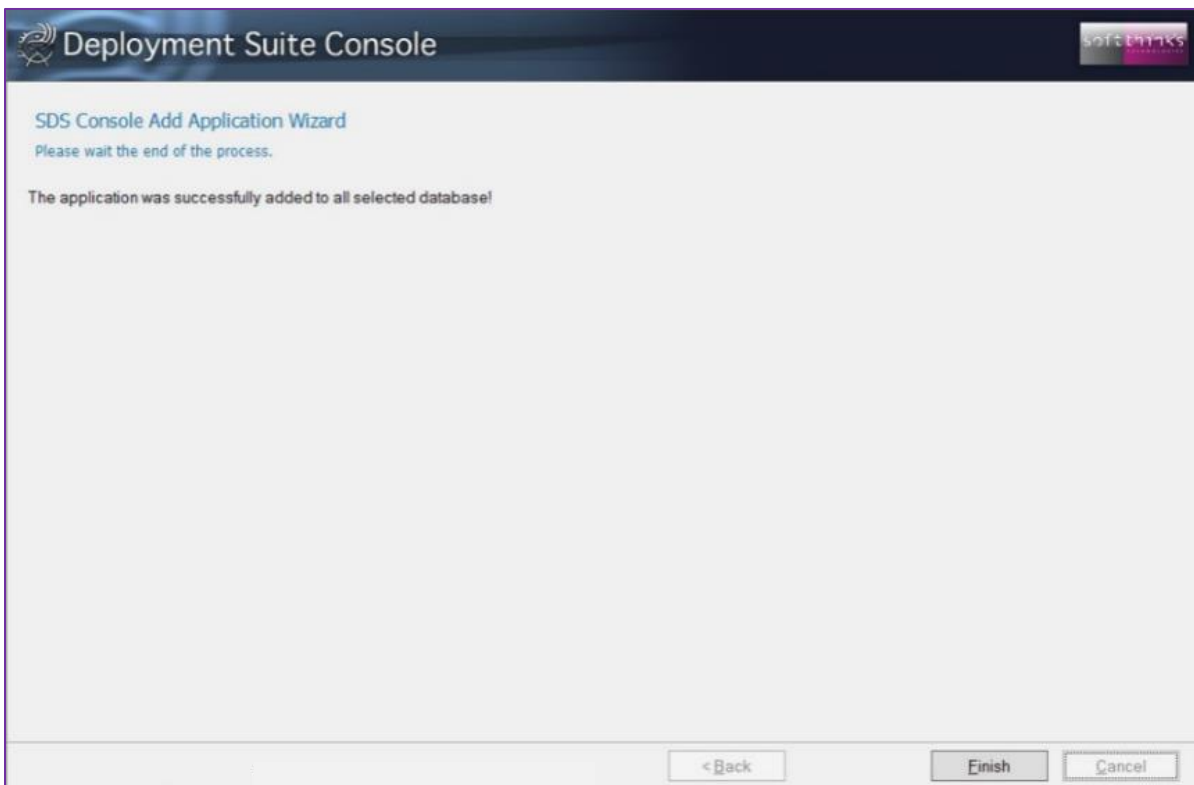
The "Class" section at the bottom states: "Application class in which an application could be classified". At the bottom of the wizard, there are three buttons: "< Back", "Next >" **f**, and "Cancel".

Note: In order to get the correct name, you will need to boot the model of the computer for which you are creating the Driver Pack

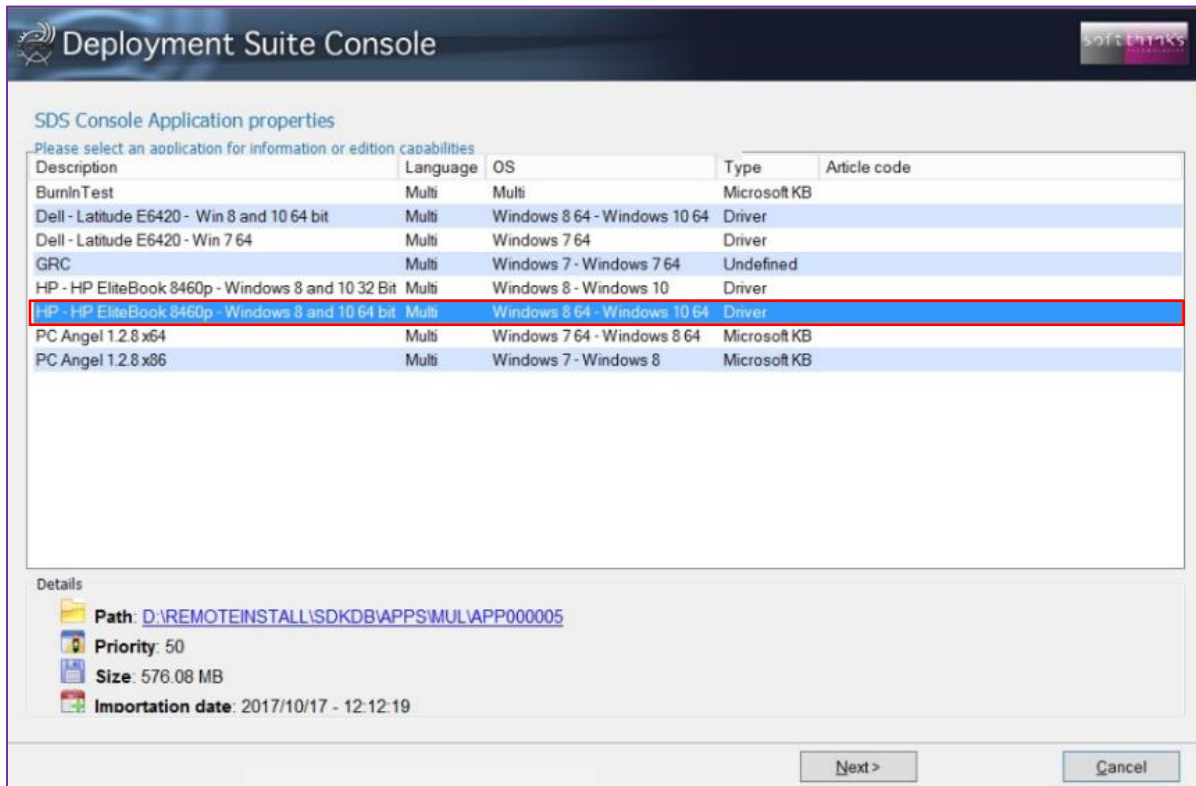
- a. Go to SDKDB\Temp and open the Temp folder for that computer **a**
- b. Select the file ending with _Flow.xml **b** and right click to edit it
- c. Go to the line that says "PRODUCT:" and copy the model name of the computer **c**
- d. Paste that name in the Middle part of the description (for this example, it would be HP – HP Elitebook 8460p – Windows 8 and 10 64 bit.):



16. Click Finish when the driver pack is finished being created:



17. The new driver pack will be listed in your Applications:



Note: if the model name and the OS match, the Driver Pack will be selected automatically by the system. It does not have to be manually selected by the technician.

Deleting drivers (“Delete Driver(s)” operation)

In order to delete one or more drivers,

1. Click on the “Drivers” tab **1**, or on the “Drivers” item in the Database tree-view **1**
2. Click on the “Delete driver(s)” operation **2**
3. Select the driver(s) you want to remove from the database in the list on the right **3**. If you don’t see a driver you recently added, press F5 to refresh the list contents.
4. Click on the “Next >” button **4**

The screenshot shows the 'Deployment Suite Console' window. On the left, the 'Drivers' tab is selected in the 'Database' tree-view. In the 'Operations' menu, 'Delete driver(s)' is highlighted. The main window displays a table of drivers with columns: Description, Language, OS, Signed, and Importation date. One driver, 'Dell Wireless 1515 Wireless-N Adapter', is selected. At the bottom, the 'Next >' button is highlighted. The output window at the bottom shows a warning message: 'Warning(s) - 0 Error(s)'. The output text includes: '[17/08/2018 - 10:58:25] Starting application properties wizard...', '[17/08/2018 - 10:58:25] Displaying applications by Categories: '1083' items', '[17/08/2018 - 10:58:26] Starting driver properties wizard...', '[17/08/2018 - 10:58:26] Displaying drivers by Categories: '42' items', '[17/08/2018 - 11:27:07] Starting to edit driver: Dell Wireless 1515 Wireless-N Adapter - Version: 06/14/2012,10.0.0.67', and '[17/08/2018 - 11:52:35] Starting driver addition wizard...'.

5. The wizard will inform you once the drivers will have been removed from the database.

Note: Deletion is permanent. There is no method to undo a delete. Be careful when selecting drivers for deletion and review them.

Exporting a driver ("Export Driver(s)" operation)

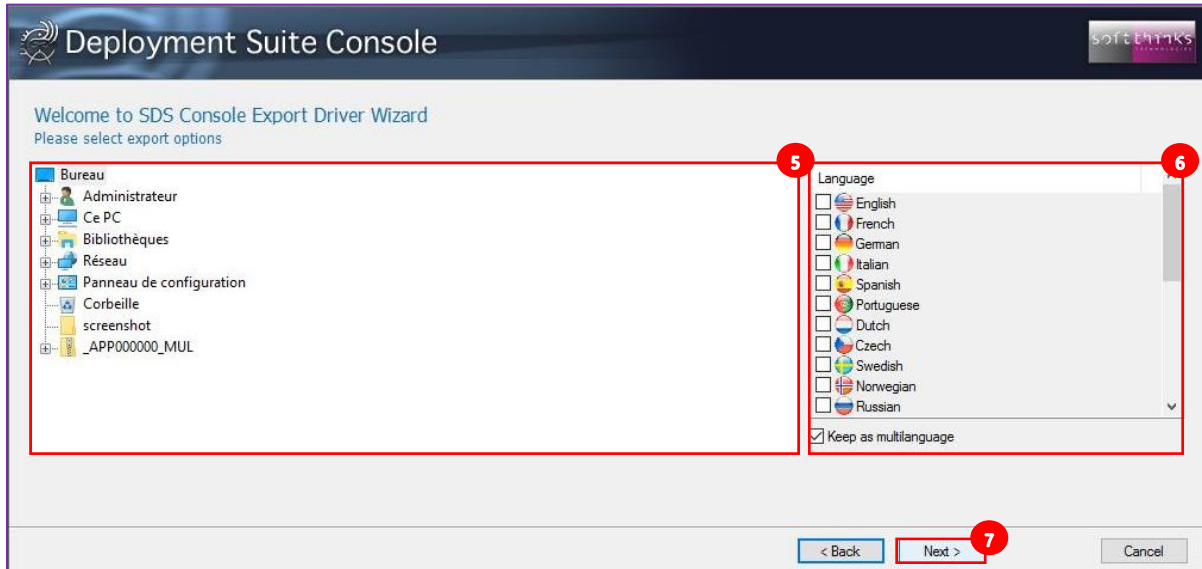
In order to export one or more drivers:

1. Click on the "Drivers" tab **1**, or on the "Drivers" item in the Database tree-view **1**
2. Click on the "Export driver(s)" operation **2**
3. Select the driver(s) you want to export in the list on the right **3**. If you don't see a driver you recently added, press F5 to refresh the list contents.
4. Click on "Next >" button **4**

The screenshot shows the 'Export Driver(s)' wizard in the SDS Console. The interface includes a sidebar with 'Operations' and 'Database' sections, a main list of drivers, and a bottom status/output area. Red annotations highlight the steps: 1. The 'Drivers' tab in the sidebar and the 'Drivers' folder in the database tree. 2. The 'Export driver(s)' option in the 'Operations' list. 3. The list of drivers in the main area, with several rows selected. 4. The 'Next >' button at the bottom right of the wizard. The output window at the bottom shows a log of actions performed, including starting the export wizard.

Description	Language	OS
<input checked="" type="checkbox"/> A tester - Realtek PCIe FE Family Controller - Version: 03/11/2016,10.008.0311.2016	Multi	Windows 10 64
<input type="checkbox"/> ACPI Module Device - Version: 06/21/2006,6.2.9200.16384	Multi	Windows 7 64 - Windows 8 64
<input type="checkbox"/> ALPS Integrated Bluetooth Device - Version: 06/21/2006,6.2.9200.16420	Multi	Windows 7 64 - Windows 8 64
<input type="checkbox"/> AMD High Definition Audio Device - Version: 06/29/2012,8.0.0.8806	Multi	Windows 7 64 - Windows 8 64
<input type="checkbox"/> AMD Radeon HD 6850 - Version: 07/04/2012, 8.981.0.0000	Multi	Windows 7 64 - Windows 8 64
<input type="checkbox"/> AMD SATA Controller - Version: 03/29/2015,1.2.001.0402	Multi	Multi
<input type="checkbox"/> AMD-RAID Bottom Device - Version: 11/08/2016,8.1.0.00026	Multi	Multi
<input type="checkbox"/> AMD-RAID Controller [storport] - Version: 11/08/2016,8.1.0.00026	Multi	Multi
<input type="checkbox"/> ASIX AX88178 USB2.0 to Gigabit Ethernet Adapter - Version: 11/24/2010, 1.14.3.8	Multi	Windows 8 64 - Windows 10 64
<input type="checkbox"/> ATI High Definition Audio Device - Version: 04/06/2010,7.11.0.7705	Multi	Windows 7 64 - Windows 8 64
<input type="checkbox"/> Bluetooth Audio Device - Version: 06/21/2012,8.0.0000.0200	Multi	Windows 7 64 - Windows 8 64
<input type="checkbox"/> Bluetooth AVRCP Device - Version: 06/21/2012,8.0.0000.0200	Multi	Windows 7 64 - Windows 8 64
<input type="checkbox"/> Conexant HD Audio - Version: 03/10/2011,8.50.4.0	Multi	Windows 7 64 - Windows 8 64
<input type="checkbox"/> Dell Wireless 1515 Wireless-N Adapter - Version: 06/14/2012,10.0.0.67	Multi	Windows 7 64 - Windows 8 - Windows 8
<input type="checkbox"/> IDE Channel - Version: 06/21/2006,6.2.9200.16384	Multi	Windows 7 64 - Windows 8 64
<input type="checkbox"/> Intel(R) C600 series chipset SATA AHCI Controller - Version: 09/03/2013,3.8.0.1108	Multi	Windows 7 64
<input type="checkbox"/> Intel USB - Version: 08/26/2011, 9.3.0.1011	Multi	Windows 7 64 - Windows 8 64
<input type="checkbox"/> Intel(R) 5 Series/3400 Series Chipset Family USB Enhanced Host Controller - 3B34 - Version: 08/20/2009, 9.1.1.1020	Multi	Windows 7 64 - Windows 8 64
<input type="checkbox"/> Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22 - Version: 09/10/2010, 9.2.0.1011	Multi	Windows 7 64
<input type="checkbox"/> Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22 - Version: 09/10/2010, 9.2.0.1011	Multi	Windows 7 64
<input type="checkbox"/> Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C26 - Version: 12/21/2010, 9.2.0.1021	Multi	Windows 7 64 - Windows 8 64
<input type="checkbox"/> Intel(R) 8 Series/C220 Chipset Family SATA AHCI Controller - Version: 07/25/2014,13.2.4.1000	Multi	Windows 7 64 - Windows 8 64 - Window
<input type="checkbox"/> Intel(R) 82579LM Gigabit Network Connection - Version: 12/21/2010,11.8.84.0	Multi	Windows 7 - Windows 7 64
<input type="checkbox"/> Intel(R) 82579V Gigabit Network Connection - Version: 12/21/2010,11.8.84.0	Multi	Windows 7 64
<input type="checkbox"/> Intel(R) Desktop/Workstation/Server Express Chipset SATA AHCI Controller - Version: 07/09/2012,11.5.0.1207	Multi	Windows 7 64 - Windows 8 64
<input type="checkbox"/> Intel(R) Management Engine Interface - Version: 07/07/2015,11.0.0.1157	Multi	Multi
<input type="checkbox"/> Intel(R) Management Engine Interface - Version: 10/19/2010,7.0.0.1144	Multi	Windows 7 64
<input type="checkbox"/> Microsoft Trusted Audio Drivers - Version: 07/13/2009,6.1.7600.16385	Multi	Windows 7 - Windows 7 64
<input type="checkbox"/> MICROSTORE - AMD-RAID Bottom Device - Version: 11/08/2016,8.1.0.00026	Multi	Multi
<input type="checkbox"/> MICROSTORE - AMD-RAID Controller [storport] - Version: 11/08/2016,8.1.0.00026	Multi	Multi
<input type="checkbox"/> NVIDIA GeForce GT 520M - Version: 07/03/2010, 9.18.13.0546	Multi	Windows 7 64 - Windows 8 64

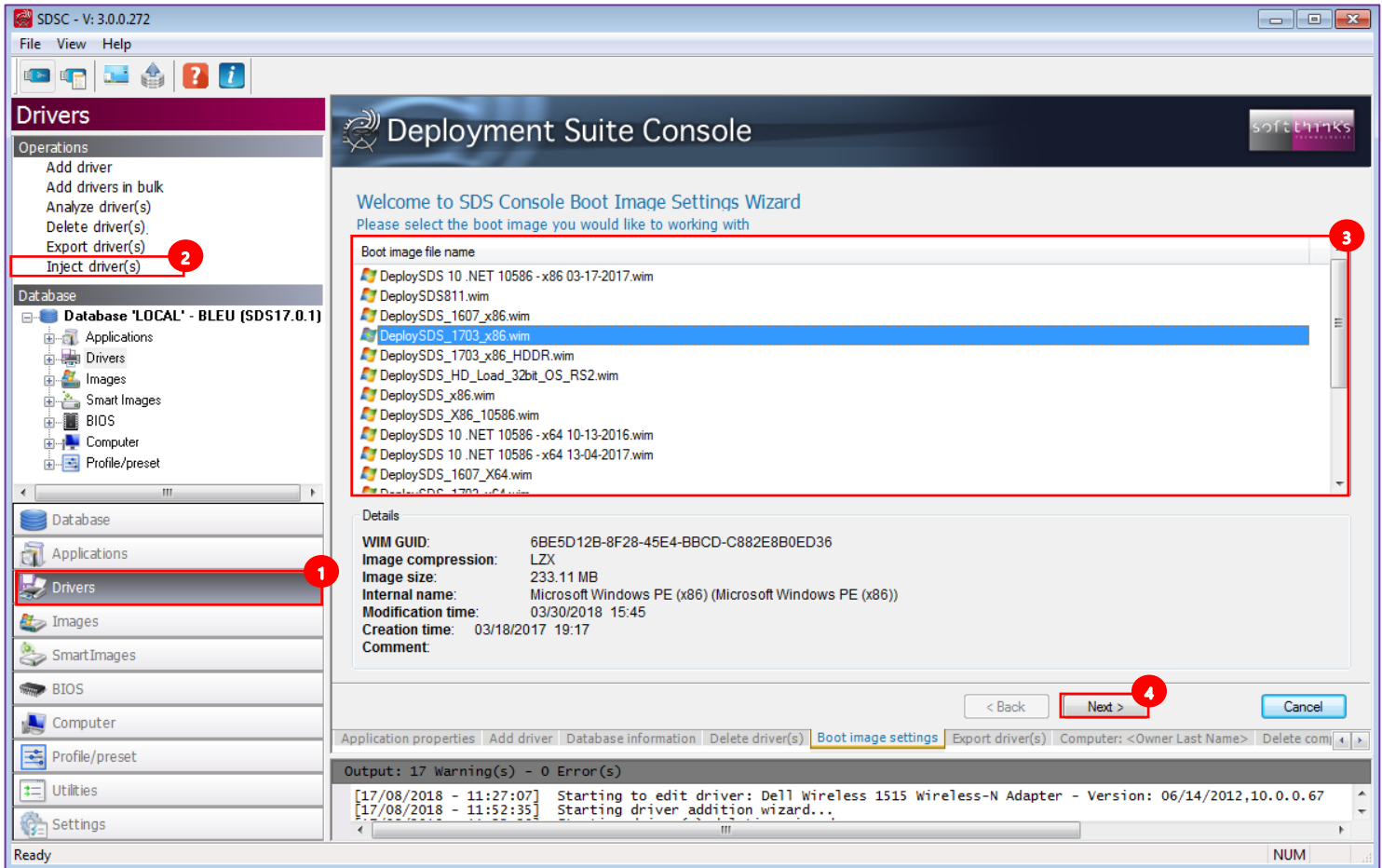
5. Select the destination folder where the ZIP files will be created **5**
6. Select the languages supported **6**, or check the “Keep as Multilanguage” option to allow the package to work with all languages
7. Click on the “Next” button **7**



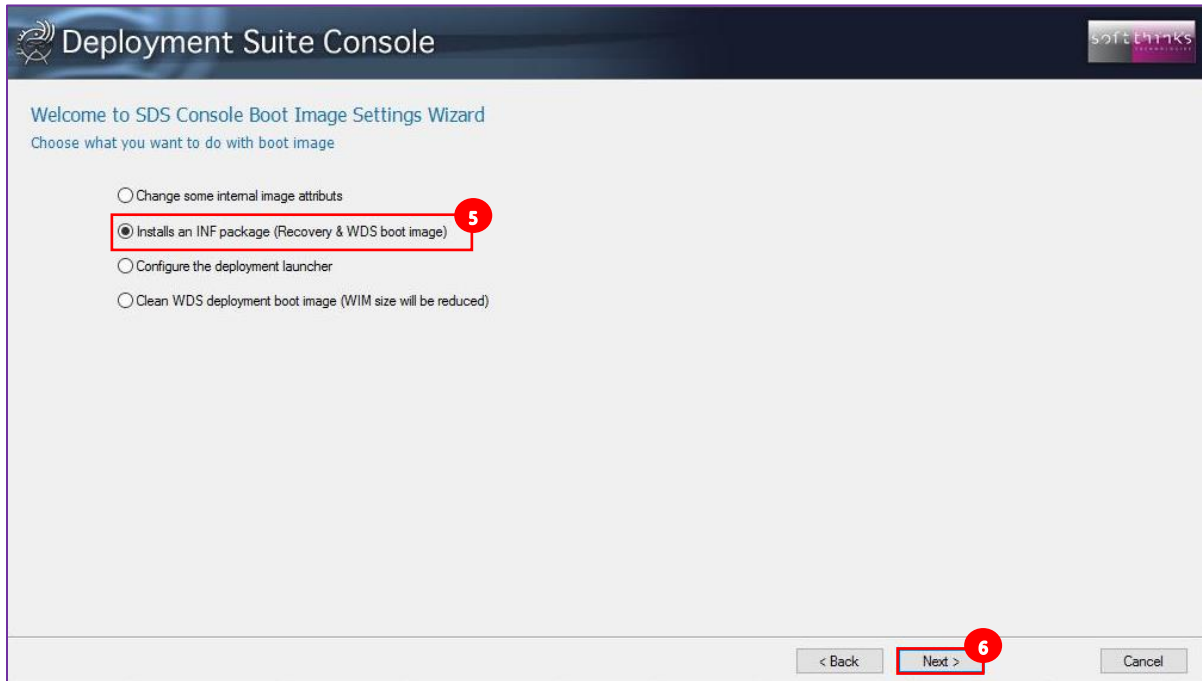
8. The wizard will display a progress screen and then a confirmation screen when the driver(s) are successfully exported.

Injecting drivers (“Inject Driver(s)” operation)

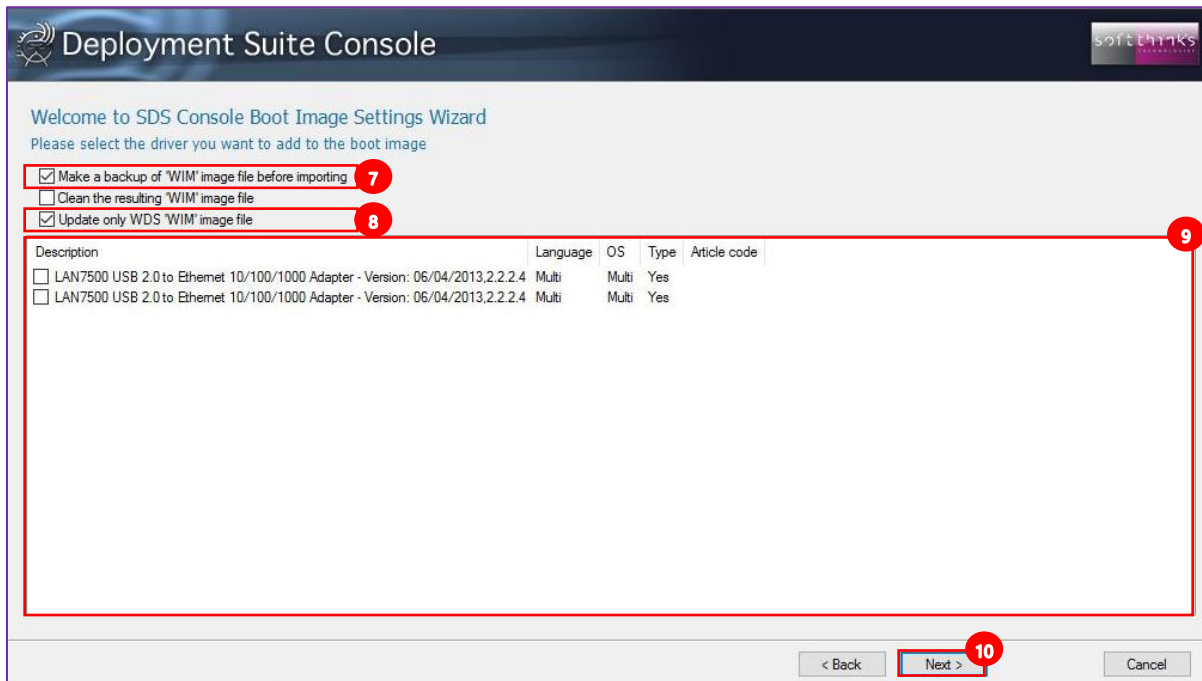
1. Click on “Drivers” tab 1
2. Click on the “Inject driver(s)” operation 2
3. Select the boot image into which you want to inject the driver(s) in the list 3
4. Click on the “Next >” button 4



5. Choose the "Install an INF package (Recovery & WDS boot image)" option **5**
6. Click on the "Next >" button **6**



7. Check the options "Make a backup of 'WIM' image file before importing" **7**
8. Check the option "Update only WDS 'WIM' image file" **8**
9. Select the driver(s) to inject **9**
10. Click on the "Next >" button **10**



11. The wizard will notify you once the process is completed

Analyzing drivers (“Analyze driver(s)” operation)

This tool provides an easy way to identify and remove duplicate drivers, typically drivers that support the same PNP IDs but are of different description or names in the database.

1. Click on the “Drivers” tab or the “Drivers” item in the Database tree-view 1
2. Click on the “Analyze driver(s)” operation 2
3. Select the options to fine tune the analysis (driver type, driver PNP, ignore OS, ignore deactivated PNP) 3
4. Click on the “Analyze” button 4

The screenshot shows the 'SDS Console Analyze Drivers Wizard' window. On the left, the 'Drivers' tab is selected in the 'Database' tree-view (1). In the 'Operations' pane, 'Analyze driver(s)' is highlighted (2). The main area shows a list of drivers with options for 'Type' (All, PNP), 'Ignore OS', and 'Ignore deactivated PNP' (3). The 'Analyze' button is highlighted (4). The output window at the bottom shows the results of the analysis.

Output: 17 Warning(s) - 0 Error(s)

```
[17/08/2018 - 13:22:51] Driver thread analysis started...
[17/08/2018 - 13:23:17] Driver thread analysis finished
```

The drivers are listed **5** while they are parsed and the progress bar **6** shows the current status (also in the tab **7** to follow it when you switch between views). You can stop the analysis at any moment by clicking on the « Cancel » button **8**.

Deployment Suite Console

SDS Console Analysing Drivers Wizard

Please select options to fine tune analysing process

Type: Sound/Multimedia | PNP | Ignore OS | Ignore deactivated PNP

Analyse

- Realtek High Definition audio - Version: 11/20/2012, (871 PNP - Windows 7 64 - SND\MUL\SND000002)
- Realtek High Definition Audio - Version: 11/20/2012, (1941 PNP - Windows 7 64 - SND\MUL\SND000003)
- Intel(R) Display Audio - Version: 09/09/2014,6.16.00.3154 (16 PNP - Windows 10 64 - SND\MUL\SND000005)
- Realtek High Definition Audio - Version: 08/22/2013, (2439 PNP - Windows 7 64 - SND\MUL\SND000007)
- Realtek High Definition audio - Version: 11/20/2012, (871 PNP - Windows 7 64 - SND\MUL\SND000002)
- Realtek High Definition Audio - Version: 11/20/2012, (1941 PNP - Windows 7 64 - SND\MUL\SND000003)
- Realtek High Definition Audio - Version: 07/08/2014, 6.0.1.7288 (3083 PNP - Windows 7 64 - SND\MUL\SND000012)
- PNP identical
- PNP in more
- PNP in less
- HDAUDIO\FUNC_01&VEN_10EC&DEV_0269&SUBSYS_144DC738
- HDAUDIO\FUNC_01&VEN_10EC&DEV_0892&SUBSYS_18495892
- Realtek High Definition Audio - Version: 02/02/2016, 6.0.1.7737 (5460 PNP - Windows 10 64 - SND\MUL\SND000010)
- Intel(R) Display Audio - Version: 03/31/2015,6.16.00.3174 (12 PNP - Windows 7 64 - SND\MUL\SND000011)
- Realtek High Definition Audio - Version: 07/08/2014, 6.0.1.7288 (3083 PNP - Windows 7 64 - SND\MUL\SND000012)
- Intel(R) Display Audio - Version: 03/31/2015,6.16.00.3174 (12 PNP - Windows 7 64 - SND\MUL\SND000017)
- Intel(R) Display Audio - Version: 03/31/2015,6.16.00.3174 (12 PNP - Windows 7 64 - SND\MUL\SND000018)

More recent driver that support less PNP than an older

This one support more than 3000 PNP but does not support 2 of the SND000007.

ANALYSING STILL IN PROGRESS

< Back | Next > | Cancel

Deployment Suite Console

SDS Console Analysing Drivers Wizard

Please select options to fine tune analysing process

Type: Video | PNP | Ignore OS | Ignore deactivated PNP

Analyse

- NVIDIA GeForce GT 555M - Version: 08/07/2015, 10.18.13.5382 (87 PNP - Windows 7 64 - VID\MUL\VID000007)
- NVIDIA GeForce GT 555M - Version: 08/07/2015, 10.18.13.5382 (87 PNP - Windows 7 64 - VID\MUL\VID000008)
- NVIDIA GeForce GT 555M - Version: 08/07/2015, 10.18.13.5382 (87 PNP - Windows 8 64 - VID\MUL\VID000021)
- NVIDIA GeForce GT 555M - Version: 10/23/2013, 9.18.13.3165 (53 PNP - Windows 7 64 - VID\MUL\VID000002)
- NVIDIA GeForce GT 555M - Version: 10/23/2013, 9.18.13.3165 (54 PNP - Windows 7 64 - VID\MUL\VID000005)
- NVIDIA GeForce GTX 460M - Version: 01/09/2015, 9.18.13.4725 (82 PNP - Windows 8 64 - VID\MUL\VID000048)
- NVIDIA GeForce GT 555M - Version: 08/07/2015, 10.18.13.5382 (87 PNP - Windows 8 64 - VID\MUL\VID000021)
- NVIDIA GeForce GTX 460M - Version: 01/09/2015, 9.18.13.4725 (82 PNP - Windows 8 64 - VID\MUL\VID000049)
- PNP identical
- PNP in less
- PNP in more
- NVIDIA GeForce GTX 460M - Version: 01/09/2015, 9.18.13.4725 (82 PNP - Windows 8 64 - VID\MUL\VID000049)
- NVIDIA GeForce GT 555M - Version: 08/07/2015, 10.18.13.5382 (87 PNP - Windows 8 64 - VID\MUL\VID000021)
- NVIDIA GeForce GTX 460M - Version: 01/09/2015, 9.18.13.4725 (82 PNP - Windows 8 64 - VID\MUL\VID000048)
- PNP identical
- PNP in less
- PNP in more

Exactly same PNP nothing more nothing less one must be removed

< Back | Next > | Cancel

Deployment Suite Console

SDS Console Analysing Drivers Wizard

Please select options to fine tune analysing process

Type: Video | PNP: PCI\VEN_10DE | Ignore OS | Ignore deactivated PNP

Search for only PCI\VEN_10DE driver

- NVIDIA GeForce GT 555M - Version: 10/23/2013, 9.18.13.3165 (53 PNP - Windows 8 - VID\MUL\VID000013)
- NVIDIA GeForce GT 555M - Version: 10/23/2013, 9.18.13.3165 (54 PNP - Windows 7 64 - VID\MUL\VID000005)
- NVIDIA GeForce GTX 460M - Version: 01/09/2015, 9.18.13.4725 (82 PNP - Windows 8 64 - VID\MUL\VID000048)
- NVIDIA GeForce GTX 460M - Version: 01/09/2015, 9.18.13.4725 (82 PNP - Windows 8 64 - VID\MUL\VID000049)
- NVIDIA GeForce GT 555M - Version: 08/07/2015, 10.18.13.5382 (87 PNP - Windows 10 64 - VID\MUL\VID000000)
- NVIDIA GeForce GT 555M - Version: 08/07/2015, 10.18.13.5382 (87 PNP - Windows 7 64 - VID\MUL\VID000007)
- NVIDIA GeForce GT 555M - Version: 08/07/2015, 10.18.13.5382 (87 PNP - Windows 7 64 - VID\MUL\VID000008)
- NVIDIA GeForce GT 555M - Version: 08/07/2015, 10.18.13.5382 (87 PNP - Windows 8 64 - VID\MUL\VID000021)
- NVIDIA GeForce GT 555M - Version: 10/23/2013, 9.18.13.3165 (53 PNP - Windows 7 64 - VID\MUL\VID000002)
- NVIDIA GeForce GT 555M - Version: 10/23/2013, 9.18.13.3165 (53 PNP - Windows 8 - VID\MUL\VID000013)
- NVIDIA GeForce GT 555M - Version: 10/23/2013, 9.18.13.3165 (54 PNP - Windows 7 64 - VID\MUL\VID000005)
- NVIDIA GeForce GTX 460M - Version: 01/09/2015, 9.18.13.4725 (82 PNP - Windows 8 64 - VID\MUL\VID000048)
- PNP identical
 - PCI\VEN_10DE&DEV_0DCD&SUBSYS_04911028 (NVIDIA GeForce GT 555M)
 - PCI\VEN_10DE&DEV_0DD1&SUBSYS_048F1028 (NVIDIA GeForce GTX 460M)
 - PCI\VEN_10DE&DEV_0DD1&SUBSYS_04901028 (NVIDIA GeForce GTX 460M)
 - PCI\VEN_10DE&DEV_0DD1&SUBSYS_048A1028 (NVIDIA GeForce GTX 460M)
 - PCI\VEN_10DE&DEV_0DF4&SUBSYS_04C81028 (NVIDIA GeForce GT 540M)

Ignoring OS -> all driver are analysed whatever OS

< Back | Next > | Cancel

Deployment Suite Console

SDS Console Analysing Drivers Wizard

Please select options to fine tune analysing process

Type: Video | PNP: | Ignore OS | Ignore deactivated PNP

Same drivers with different PNP

- NVIDIA GeForce GT 555M - Version: 10/23/2013, 9.18.13.3165 (53 PNP - Windows 7 64 - VID\MUL\VID000002)
- NVIDIA GeForce GT 555M - Version: 08/07/2015, 10.18.13.5382 (87 PNP - Windows 7 64 - VID\MUL\VID000007)
- NVIDIA GeForce GT 555M - Version: 08/07/2015, 10.18.13.5382 (87 PNP - Windows 7 64 - VID\MUL\VID000008)
- NVIDIA GeForce GT 555M - Version: 10/23/2013, 9.18.13.3165 (54 PNP - Windows 7 64 - VID\MUL\VID000005)
- PNP identical
- PNP in less
- PNP in more
- PCI\VEN_10DE&DEV_1140&SUBSYS_060F1028
- NVIDIA GeForce GT 555M - Version: 10/23/2013, 9.18.13.3165 (54 PNP - Windows 7 64 - VID\MUL\VID000005)
- NVIDIA GeForce GT 555M - Version: 08/07/2015, 10.18.13.5382 (87 PNP - Windows 7 64 - VID\MUL\VID000007)
- NVIDIA GeForce GT 555M - Version: 08/07/2015, 10.18.13.5382 (87 PNP - Windows 7 64 - VID\MUL\VID000008)
- NVIDIA GeForce GT 555M - Version: 10/23/2013, 9.18.13.3165 (53 PNP - Windows 7 64 - VID\MUL\VID000002)
- PNP identical
- PNP in less
- PCI\VEN_10DE&DEV_1140&SUBSYS_060F1028
- PNP in more
- NVIDIA GeForce GTX 460M - Version: 01/09/2015, 9.18.13.4725 (82 PNP - Windows 8 64 - VID\MUL\VID000048)
- NVIDIA GeForce GTX 460M - Version: 01/09/2015, 9.18.13.4725 (82 PNP - Windows 8 64 - VID\MUL\VID000049)

This one have one pnp in more it must be keep

This one have one pnp in less it should be removed

< Back | Next > | Cancel

Deployment Suite Console

SDS Console Analysing Drivers Wizard

Please select options to fine tune analysing process

Type: Video | PNP: | Ignore OS | Ignore deactivated PNP

Analyse

- AMD Radeon R7 M270 - Version: 06/22/2015, 15.200.1045.0000 (12 PNP - Windows 8 - VID\MUL\VID000012)
- AMD Radeon R7 M270 - Version: 06/22/2015, 15.200.1045.0000 (13 PNP - Windows 8 64 - VID\MUL\VID000019)
- AMD Radeon(TM) R7 350X - Version: 08/10/2015, 15.201.1201.0000 (113 PNP - Windows 10 64 - VID\MUL\VID000004)
- Intel(R) HD Graphics - Version: 02/14/2012,8.15.10.2653 (13 PNP - Windows 10 64 - VID\MUL\VID000056)
- Intel(R) HD Graphics - Version: 03/23/2016,10.18.14.4414 (114 PNP - Windows 7 64 - VID\MUL\VID000006)
- Intel(R) HD Graphics - Version: 03/23/2016,10.18.14.4414 (114 PNP - Windows 7 64 - VID\MUL\VID000009)
- Intel(R) HD Graphics - Version: 03/23/2016,10.18.14.4414 (114 PNP - Windows 7 64 - VID\MUL\VID000010)
- Intel(R) HD Graphics - Version: 05/25/2016,20.19.15.4463 (248 PNP - Windows 10 64 - VID\MUL\VID000001)
- Intel(R) HD Graphics - Version: 03/23/2016,10.18.14.4414 (114 PNP - Windows 7 64 - VID\MUL\VID000006)
- PNP identical
- PNP in more
- PNP in less (134)
- Intel(R) HD Graphics - Version: 03/23/2016,10.18.14.4414 (114 PNP - Windows 7 64 - VID\MUL\VID000009)
- Intel(R) HD Graphics - Version: 03/23/2016,10.18.14.4414 (114 PNP - Windows 7 64 - VID\MUL\VID000010)
- Intel(R) HD Graphics - Version: 05/25/2016,20.19.15.4463 (248 PNP - Windows 10 64 - VID\MUL\VID000054)
- Intel(R) HD Graphics - Version: 08/21/2012,9.17.10.2843 (54 PNP - Windows 7 - VID\MUL\VID000047)
- Intel(R) HD Graphics - Version: 09/26/2012,9.17.10.2867 (13 PNP - Windows 7 64 - VID\MUL\VID000003)
- Intel(R) HD Graphics - Version: 09/29/2016,20.19.15.4531 (32 PNP - Windows 10 64 - VID\MUL\VID000057)
- Intel(R) HD Graphics - Version: 09/29/2016,20.19.15.4531 (69 PNP - Windows 8 - VID\MUL\VID000011)
- Intel(R) HD Graphics - Version: 09/29/2016,20.19.15.4531 (69 PNP - Windows 8 64 - VID\MUL\VID000018)
- Intel(R) HD Graphics - Version: 11/26/2013,10.18.10.3366 (1 PNP - Windows 8 - VID\MUL\VID000035)
- Intel(R) HD Graphics - Version: 11/26/2013,10.18.10.3366 (1 PNP - Windows 8 - VID\MUL\VID000046)

WARNING VID00054 is the same as VID00001
so remove VID00001 and set properly VID000054 OS !!

```

OpenCL_Gpu.Copy64 == 11 ; OpenCL Drivers in System32
OpenCL_Gpu.Copy32 == 10, SysWow64

OpenCL_Cpu_System.Copy64 == 11 ; Common Files\Intel\OpenCL\bin\win64\
OpenCL_Cpu_Root.Copy == 16426, Common Files\Intel\OpenCL\bin\win64\
OpenCL_Cpu_Bin_x64.Copy64 == 16426, Common Files\Intel\OpenCL\bin\x64\
OpenCL_Cpu_Bin_Tbb.Copy64 == 16426, Common Files\Intel\OpenCL\bin\x64\tbb
OpenCL_Cpu_System.Copy32 == 10, SysWow64
OpenCL_Cpu_Bin_x86.Copy32 == 16426, Common Files\Intel\OpenCL\bin\x86\
OpenCL_Cpu_Bin_Tbb.Copy32 == 16426, Common Files\Intel\OpenCL\bin\x86\tbb
OpenCL_Cpu_Common.Copy == 16426, Common Files\Intel\OpenCL\bin\common

MSDK_w7.copy == 16422, Intel\Media SDK ; Program Files
MSDK_w8.copy == 16422, Intel\Media SDK ; Program Files

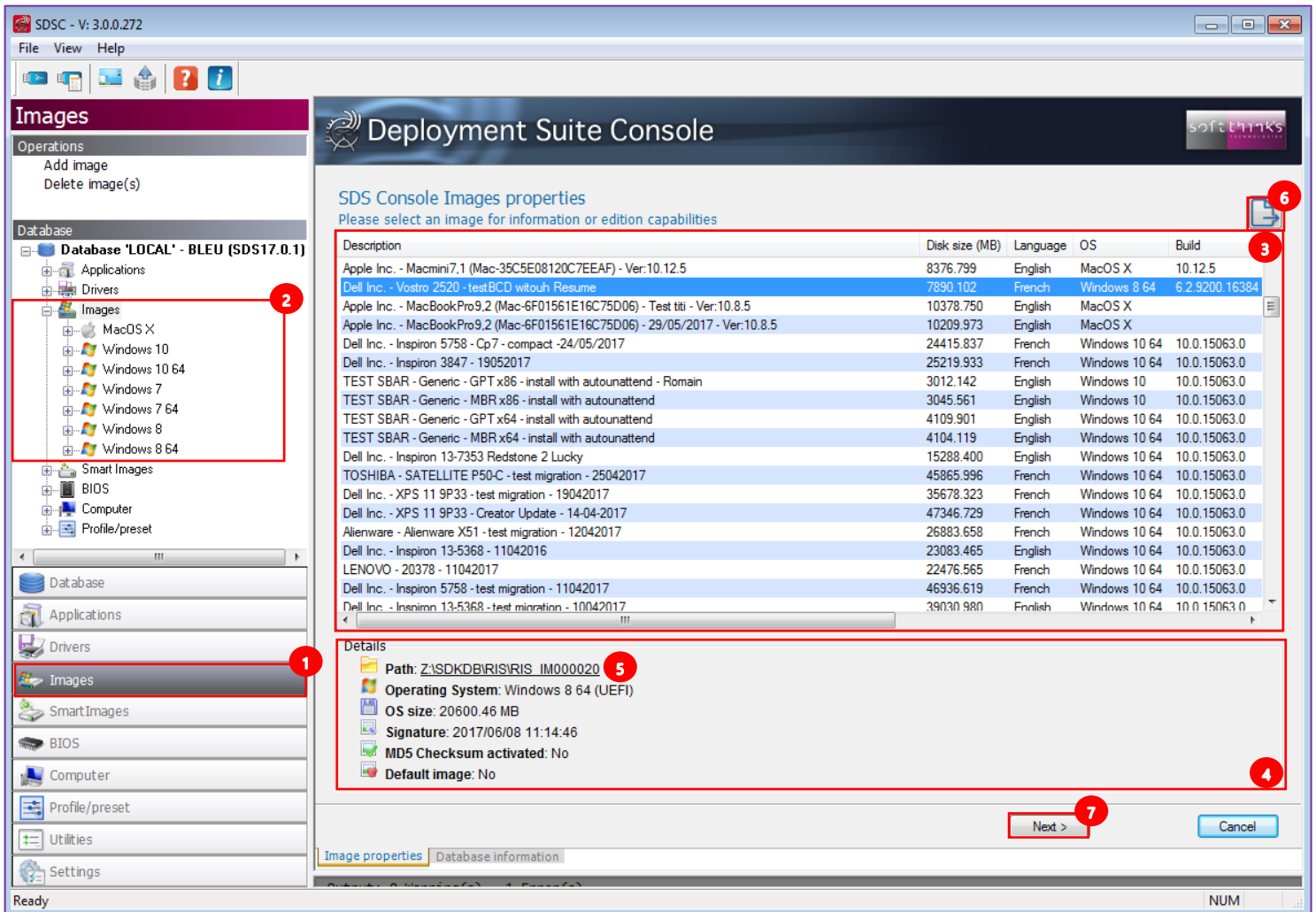
;
; Driver information
;
[Manufacturer]
%Intel% = IntelGfx, NTamd64.6.1, NTamd64.6.2, NTamd64.6.3, NTamd64.10.0
;
;... Windows 7 Install - DI Only
;
[IntelGfx.NTamd64.6.1]
; BDW HW
%!BDWULTGT1% == !BDWM_w7, PCI\VEN_8086&DEV_1606&SUBSYS_06BE1028;
%!BDWULTGT2% == !BDWM_w7, PCI\VEN_8086&DEV_1616&SUBSYS_06BE1028;

```

DRIVER IS MULTI platform not 10 x64 only
It should be set properly in DB!!

Images

You can explore the Images of your database by clicking on the "Images" tab **1**, or directly on the "Images" object in the Database tree-view **2**:



When you select an image in the list **3**, you will see all of its details below **4**, including its path that you can open by clicking on the link **5**.

You can export the list of the images by clicking on the  button **6** and then selecting the output file path and format (CSV or TXT).

Click on the “Next >” button **7**, or double click on the image in the list, to edit its properties:

Deployment Suite Console

SDS™ Images properties

Image information

Image properties	
Description	Dell Inc. - Vostro 2520 - testBCD witouh Resume
Language	French
Article code	
VSN	0x74C8814B
Clone VSN	<input type="checkbox"/> (No)
Check CRC	<input type="checkbox"/> (No)
Use CAB date	<input type="checkbox"/> (No)
Default image	<input type="checkbox"/> (No)
MLSP image	<input type="checkbox"/> (No)
Display SMI creation request	<input type="checkbox"/> (No)
Real Size (MB)	20600.46
Disk Size (MB)	7890.10
Compression	Casper V7
OS version	Windows 8 64
Signature	2017/06/08 11:14:46
MHD type	Static

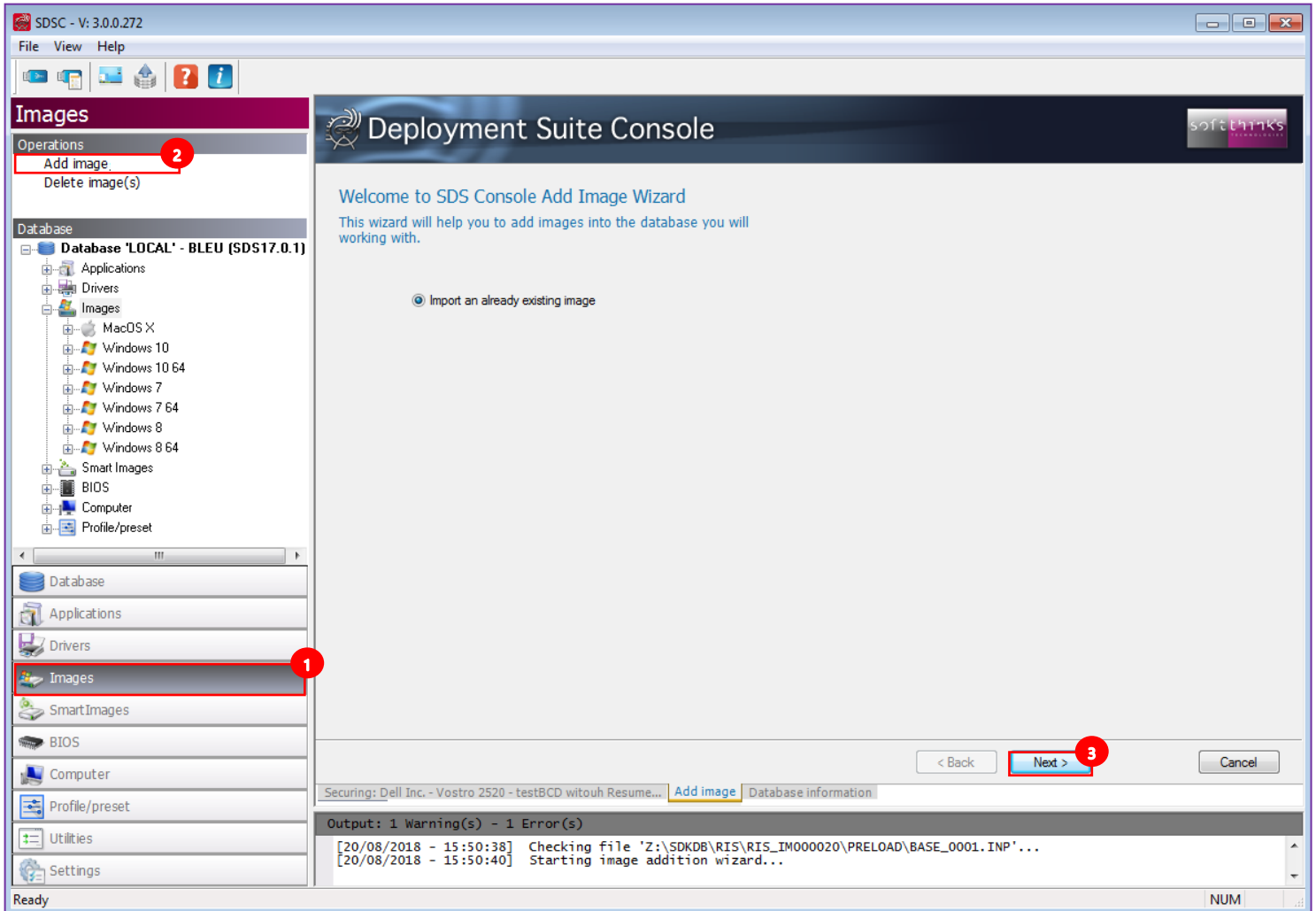
Verify MD5 **Create MD5**

< Back Save Cancel

Adding an image (“Add image” operation)

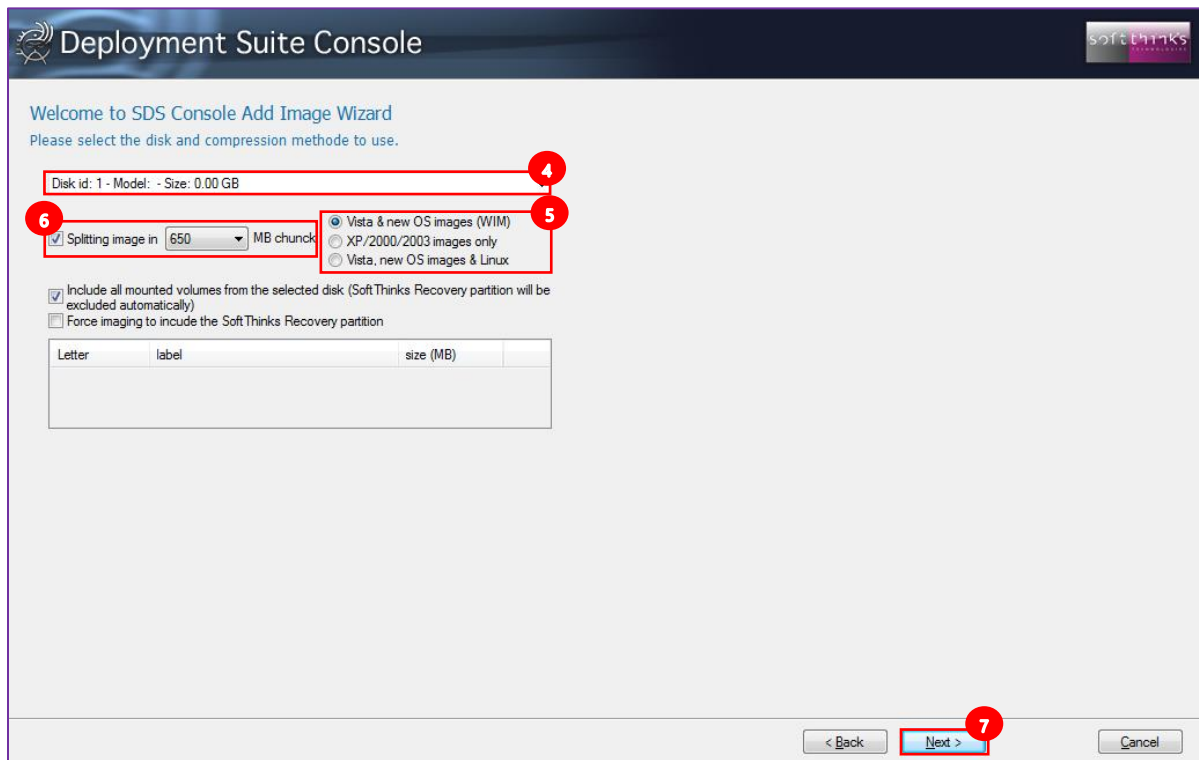
(**Note:** Most of the time images will be created directly from the computer with the source image on it through the Welcome Screen and the Image Creation page and not the Console. These instructions are for information purposes only.)

1. Click on the “Images” tab 1
2. Click on the “Add Image” operation 2
3. Click on the “Next >” button 3



4. From the pull-down menu **4**, select the volume letter corresponding to the hard disk that will be imported
5. Select the image format you wish to use **5**:
 - **Vista & new OS images (WIM):** Microsoft's Windows Image format. File based image format compatible with Windows Vista and newer OS. WIM files modified using standard Microsoft OPK Tools and by SDS. This is the format of the WinPE boot image.
 - **XP/2000/2003 images only:** Casper, the SoftThinks standard format used in current releases of SDS, very reliable, robust and time tested. The contents of these files cannot be modified post creation.
 - **VD:** Virtual Disk, a format from SoftThinks which can be used for static images and has very good speed advantages. The contents cannot be modified.
6. Specify if you want to split the image **6**, and if so the size of the chunks

Note: The option for Splitting Image in 650MB chunks is for use with WIM format – if this option is chosen, the WIM file can no longer be modified – a limitation imposed by Microsoft. However, smaller file sizes will reduce the network traffic and allow any type of optical media to be used to create backups. It is recommended that the smaller size be used.
7. Click on the "Next >" button **7**



8. Enter a description for your image 8
9. Enter an article code (not commonly used) to associate with this image 9
10. Specify the language 10
11. Specify the supported OS 11

The screenshot shows the 'Deployment Suite Console' window with the 'Add Image Wizard' active. The window title is 'Deployment Suite Console' and the softthinks logo is in the top right. The main heading is 'Welcome to SDS Console Add Image Wizard' with a sub-heading 'Please fill appropriate info for the image to add'. The form is divided into two main sections: 'Image properties' and 'specific properties'.

Image properties:

- Description: Image description 8
- Article code: 9
- Language: English 10

specific properties:

- Size (MB): 0.00
- Compression: WIM
- OS version:
 - Windows 7
 - Windows 7 64
 - Linux
 - Windows 2000
 - Windows XP
 - Windows XP Pro
 - Windows XP 64 11
 - Windows MCE
 - Windows 2003
 - Windows 2003 64
 - Windows Vista
 - Windows Vista 64
 - Windows Server 2008
 - Windows Server 2008 64
- Signature: (empty field)

At the bottom of the window, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Deleting images (“Delete image(s)” operation)

1. Click on the “Images” tab 1
2. Click on the “Delete image(s)” operation 2
3. Select the image(s) to delete in the list 3. If you don’t see a image you recently added, press F5 to refresh the list contents.
4. Click on the “Next >” button 4

The screenshot shows the 'Deployment Suite Console' window. On the left, the 'Database' tree view has 'Images' selected. The main area displays a table of images with columns: Description, Language, OS, Compression, Disk size (MB), Date, and Article. The first row is selected. Below the table, there are buttons for '< Back', 'Next >', and 'Cancel'. At the bottom, there is an 'Output' section showing log messages.

Description	Language	OS	Compression	Disk size (MB)	Date	Article
<input checked="" type="checkbox"/> HP Pavilion dv7-3030ef SP0 ATI 3129080	French	Windows 7 64	Casper V2	29382.539	2009/11/10 08:08:22	
<input type="checkbox"/> HP Pavilion dv7-3110ef SP0 ATI 3185419 DARTY320	French	Windows 7 64	Casper V2	26541.546	2010/02/18 11:11:18	
<input type="checkbox"/> Hewlett-Packard - HP Pavilion dv7 Notebook PC SP1 16/06/2011 - Compact	French	Windows 7 64	Casper V7	26658.480	2011/06/16 17:48:42	Inco
<input type="checkbox"/> Dell Inc. - Inspiron 620 - Cp7 - compact - 26/07/2011	French	Windows 7 64	Casper V7	9338.085	2011/07/26 16:35:14	
<input type="checkbox"/> Windows 7 Home Premium Dell Generic - x64 - EN - 23/09/2011	English	Windows 7 64	WIM	3142.603	2011/09/23 14:58:36	Inco
<input type="checkbox"/> Windows 7 SP1 x86 Home Premium RTM Dell	English	Windows 7	WIM	3353.521	2011/10/12 16:27:29	W7
<input type="checkbox"/> Dell Inc. - Dell System XPS 15Z - SP1 - DARTY - Cp7 - compact - 26/01/2011	French	Windows 7 64	Casper V7	9809.046	2012/01/26 15:14:38	
<input type="checkbox"/> Hewlett-Packard - HP Mini 210-1000 system recovery	French	Windows 7 64	Casper V7	0.060	2012/01/30 12:07:16	Inco
<input type="checkbox"/> ASUSTeK COMPUTER INC. - N76VZ-V2G-T5061V	French	Windows 7 64	Casper V7	52022.495	2012/05/25 15:45:35	
<input type="checkbox"/> Windows Server 2012 MBR x64 + SRP (no autounattend) MHDC 9.0.20	English	Windows 8 64	WIM	3231.854	2012/08/30 18:00:31	
<input type="checkbox"/> Hewlett-Packard - HP Pavilion g7 Notebook PC - 04/12/2012 - oobe - VD	French	Windows 8 64	Virtual Disk	34962.168	2012/12/04 21:16:09	Inco
<input type="checkbox"/> Hewlett-Packard - HP Pavilion g7 - VD - oobe - 04/12/2012	French	Windows 8 64	Virtual Disk	34962.168	2012/12/04 21:16:09	
<input type="checkbox"/> Acer - Aspire V5-571PG - VD - oobe - 04/12/2012	French	Windows 8 64	Virtual Disk	26603.781	2012/12/04 21:31:16	
<input type="checkbox"/> SAMSUNG ELECTRONICS CO., LTD. - 530U3C/530U4C - VD - oobe - 05/1...	English	Windows 8 64	Virtual Disk	34300.892	2012/12/05 11:59:15	
<input type="checkbox"/> SAMSUNG ELECTRONICS CO., LTD. - 530U3C/530U4C - oobe - VD	English	Windows 8 64	Virtual Disk	34300.892	2012/12/05 11:59:15	
<input type="checkbox"/> Hewlett-Packard - p6-2312ef - VD - oobe - 05/12/2012	French	Windows 8 64	Virtual Disk	29391.293	2012/12/05 13:03:24	
<input type="checkbox"/> Hewlett-Packard - p6-2312ef - Wim - 06/12/2012	French	Windows 8 64	WIM	26510.369	2012/12/06 18:16:21	
<input type="checkbox"/> Dell Inc. - Inspiron 5720 - 27/12/2012	French	Windows 8 64	Casper V7	25061.536	2012/12/27 15:52:03	Inco
<input type="checkbox"/> Dell Inc. - Vostro 2520 - Cp7 - compact - oobe - 27/12/2012	French	Windows 8 64	Casper V7	7376.399	2012/12/27 16:44:57	
<input type="checkbox"/> Dell Inc. - Vostro 2520 - Cp7 - classic - 27/12/2012	French	Windows 8 64	Casper V7	16343.715	2012/12/27 18:13:57	Inco

Note: Deletion is permanent. There is no method to undo a delete. Be careful when selecting images for deletion and review them.

Smart Images

SmartImages are differential images which reflect the difference between the basic Windows installation on a Generic Master and the fully configured target device. In general, they contain all items that were added on top of the basic Windows installation: PC-specific drivers, bundle software and applications.

SmartImages are fast to set up and can be very useful for installing configurations that change very rarely; i.e. notebooks or PCs with all-in-one motherboards.

To view and edit the SmartImages stored in the database, click on the « SmartImages » tab or on the “SmartImages” item in the Database tree-view **1**.

When you select a Smart Image from the list **2**, or directly from the tree-view **1**, you can see its details below **3**, including the location where it is stored **4** on which you can click to directly open this folder.

The screenshot shows the SDSC - V: 3.0.0.272 Deployment Suite Console. The left sidebar contains a tree view under 'Database LOCAL - BLEU (SDS17.0.1)' with 'Smart Images' selected. The main area displays 'SDS Console SmartImage properties' with a table of SmartImages. Below the table is a 'Details' section showing the path, linked image, size, and signature. A 'Next >' button is visible at the bottom right.

Description	Language	Image associated	Article code
SmartImage From Dell Inc. - Inspiron 3847 - test migration - 01122015	French	Dell Inc. - Inspiron 3847 - test migration - 01122015	

Details:

- Path: Z:\SDKDB\DIFF\FRN\PRD000051
- Image linked: Dell Inc. - Inspiron 3847 - test migration - 01122015
- Size: 14826 MB
- Signature: 2015/12/01 22:56:56

When you selected a SmartImage, click on the "Next >" button **5** (or double-click on it) to edit its properties as its description or to add more details (specific revision ...) and click on the "Save" button to save your modifications:

Deployment Suite Console

SDS™ SmartImages properties

SmartImage information

Description	PNP

Smart Image Properties

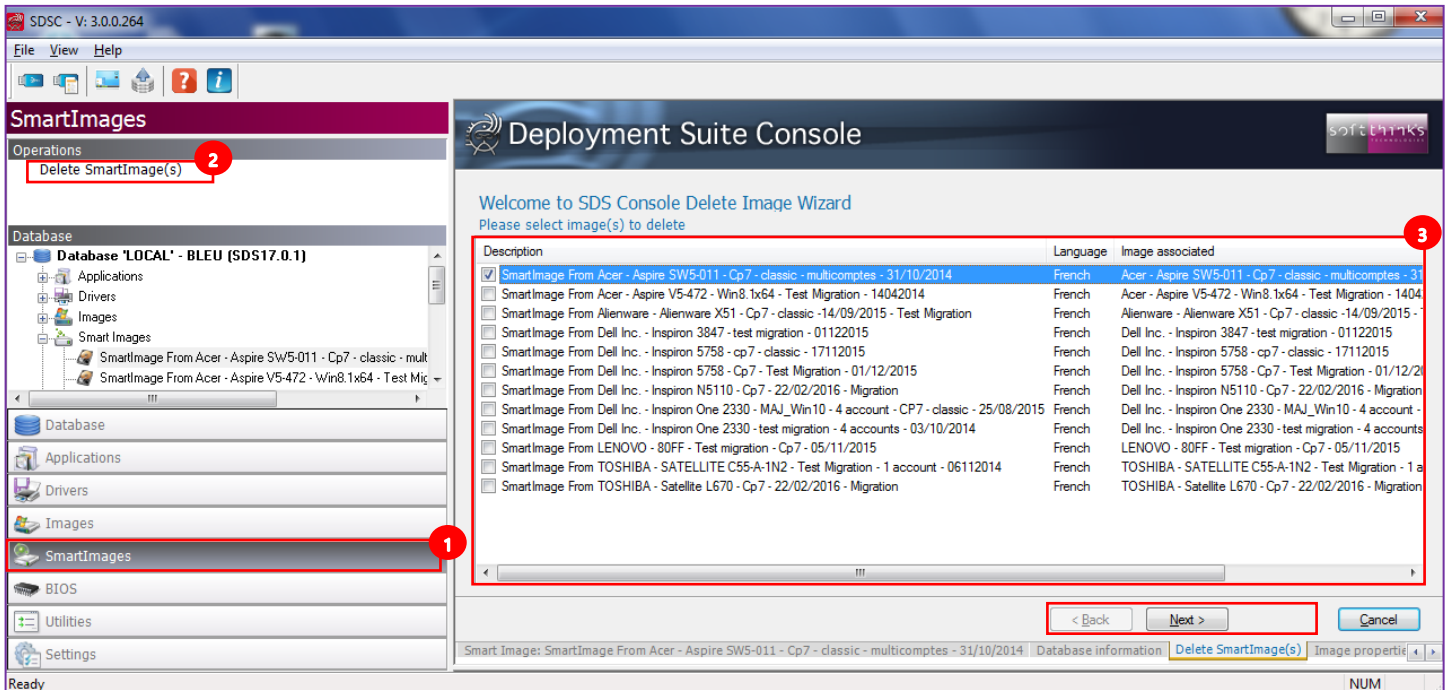
Description	SmartImage From Dell Inc. - Inspiron 3847 - test migration - 01122015
Article code	
Image linked	Dell Inc. - Inspiron 3847 - test migration - 01122015
Size (MB)	14826.00
Language	French
Signature	2015/12/01 22:56:56
Rank	1

Smart Image Properties

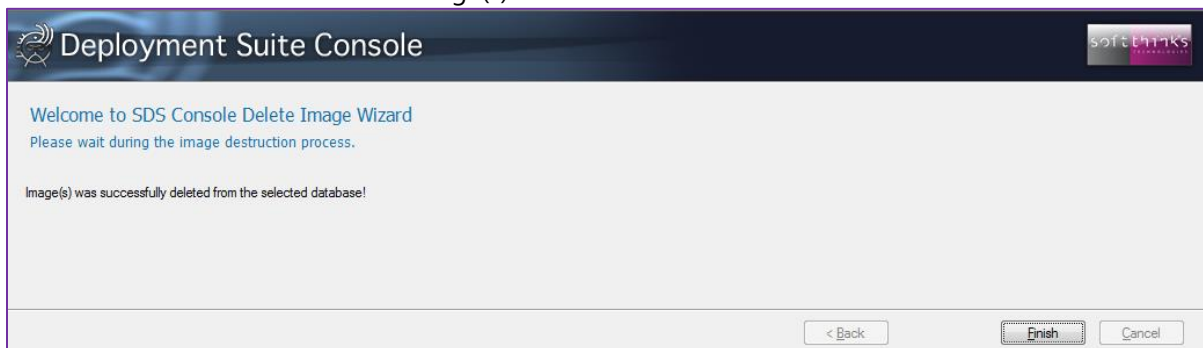
< Back Save Cancel

Deleting SmartImage(s)

1. Click on the "SmartImages" tab 1
2. Click on the "Delete SmartImage(s)" operation 2
3. Select the images to delete by clicking the check box next to each image to be deleted 3. If you don't see a SmartImage you recently added, press F5 to refresh the list contents.
4. Click on the "Next >" button 4



5. The wizard will confirm once the Smart Image(s) selected will have been deleted:



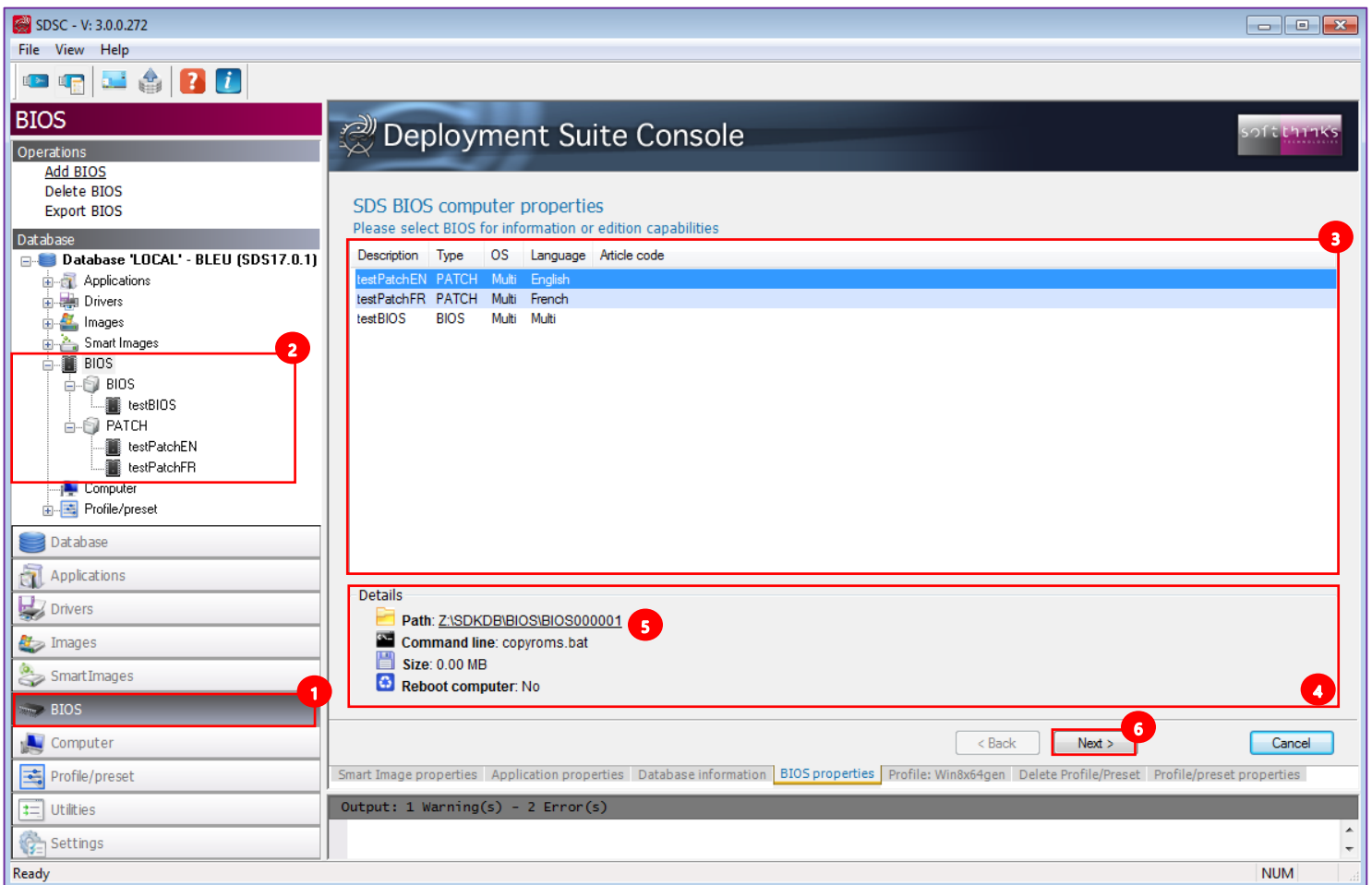
Note: Deletion is permanent. There is no method to undo a delete. Be careful when selecting SmartImages for deletion and review them.

BIOS

BIOS components are similar to application packages except that they are executed when the system is first booted to the deployment server and DeployJB is launched.

If DeployJB finds any components that are designated in the <profile>.selector.ini file, those components are executed prior to deployment or factory diagnostics. The BIOS components must be 32 bit applications and must be compatible with the WinPE environment. Any operation that must occur before the beginning of deployment could be accomplished using this feature. It was primarily designed to allow electronic assembly (BIOS flash, DMI flash, firmware updates, and PATCH (SDS18.0)) prior to factory diagnostics and deployment.

You can explore the BIOS Components of your database by clicking on the "BIOS" tab 1, or directly on the "BIOS" object in the tree-view 2:



When you select a BIOS Component in the list 3, you will see all of its details below 4, including its path that you can open by clicking on the link 5.

Click on the “Next >” button **6**, or double click on the application in the list, to edit its properties:

The screenshot shows the 'SDS Console BIOS properties' window. The 'BIOS settings' table is as follows:

BIOS settings	
Description	testPatchEN
Command line	copyroms.bat
Type	PATCH
Language	English
Supported OS	<input checked="" type="checkbox"/> (Multi OS)
Specific OS	
Reboot	<input type="checkbox"/> (No)
Priority	50
Article code	
Linking information	
Size (MB)	0.00

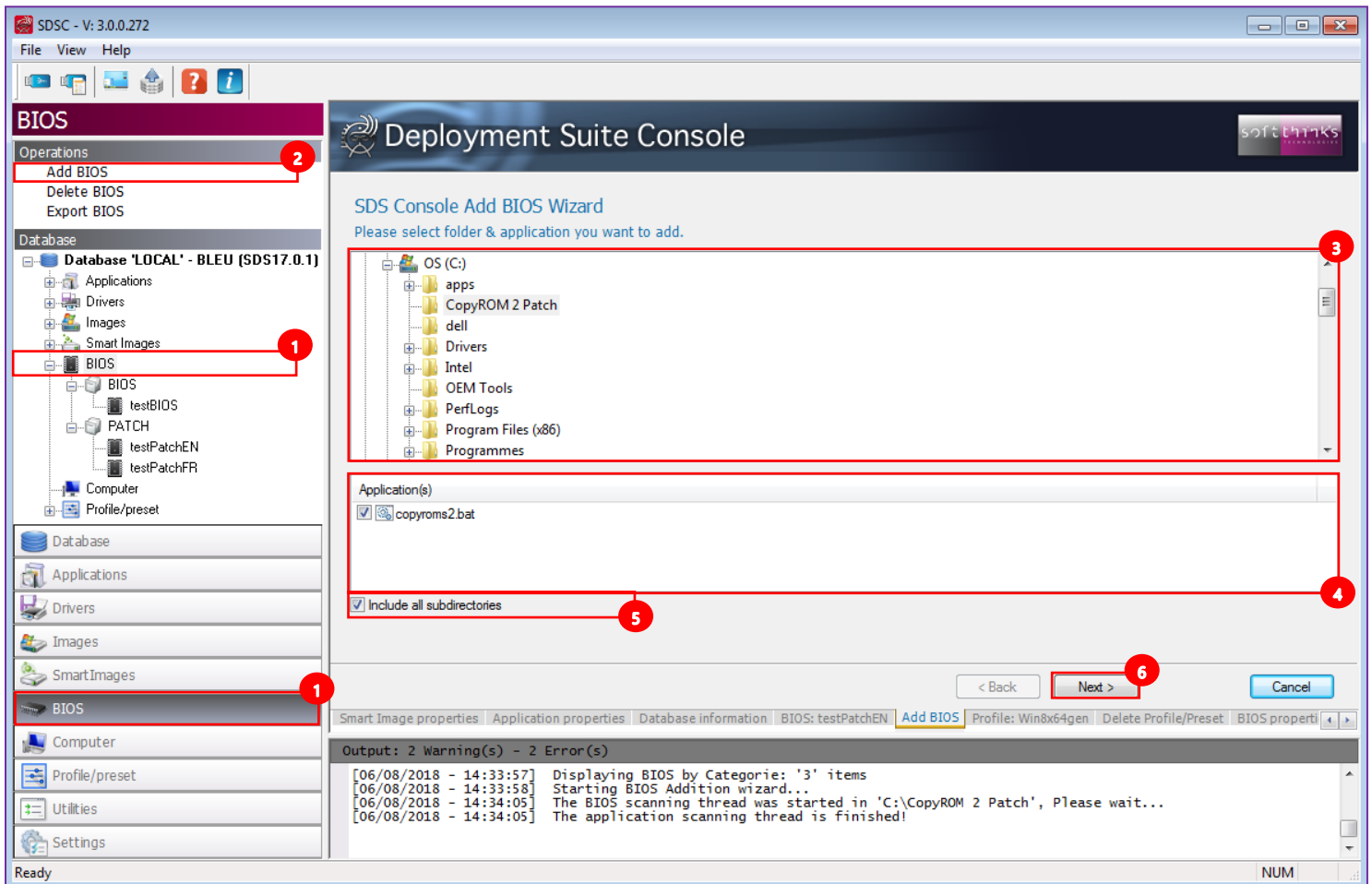
Below the table, it says 'BIOS settings' and 'These are settings from the ini file database for the selected item'. At the bottom, there are three buttons: '< Back', 'Save' (highlighted with a red circle and the number 8), and 'Cancel'.

- **Description:** BIOS component description
- **Command Line:** Full command line used to start the component (executable and command line arguments).
Note: This differs from the application interface where executable and command line were different fields
- **Type:** Category of the BIOS component (BIOS, Firmware, DMI utility, PATCH, etc...). The list of categories is configured using the Settings tool (See [BIOS settings](#))
- **Language:** Language supported by the BIOS component. Only used by PATCH components during deployment.
- **Supported OS:** OS for which the BIOS component can be applied. Only used by PATCH components during deployment.
- **Reboot:** Select this setting to reboot the computer after the component is executed. If there are additional BIOS components at a lower priority, they will be executed after the system boots back to the deployment server.
- **Priority:** Ranging from 0 to 99, all applications are arranged in <profile>.selector.ini file and execute them in ascending priority value. The lowest number, 0, goes first. Useful if more than one BIOS version is required to be installed.
- **Article Code:** The part number used in the SPL file to designate the BIOS component. (Not commonly used.)
- **Linking information:** String linking the BIOS component to an image, a PNP or a Motherboard model. By this way, the BIOS component can be filtered automatically if this information is matching during the deployment.
- **Size (MB):** Size of the BIOS Component folder

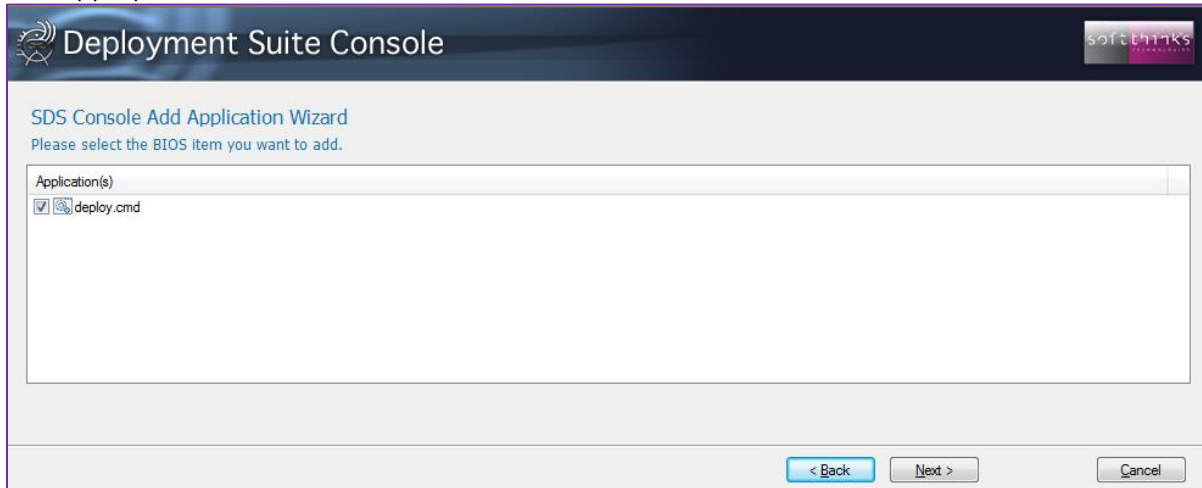
Click on the “Save” button **8** to complete the changes

Adding a BIOS component (“Add BIOS” operation)

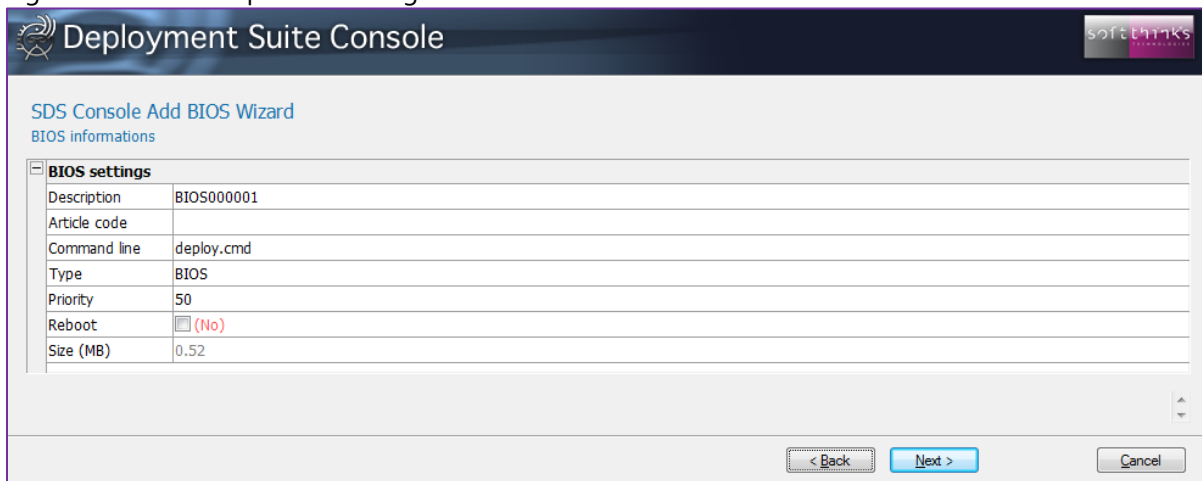
1. Click on the “BIOS” tab **1** or BIOS element **1** in the database tree-view
2. Click on « Add BIOS » operation **2**
3. Select the location where your BIOS components are stored from the tree-view **3**
4. Check the application(s) in the list below **4**
5. Check the “Include all subdirectories” option **5** if there are subfolders inside your source folder that are required by the BIOS component. Else, only the folder selected in tree-view will be read
6. Click on the “Next >” button **6**



7. Pick the appropriate file from the list of executable files and click “Next>”:



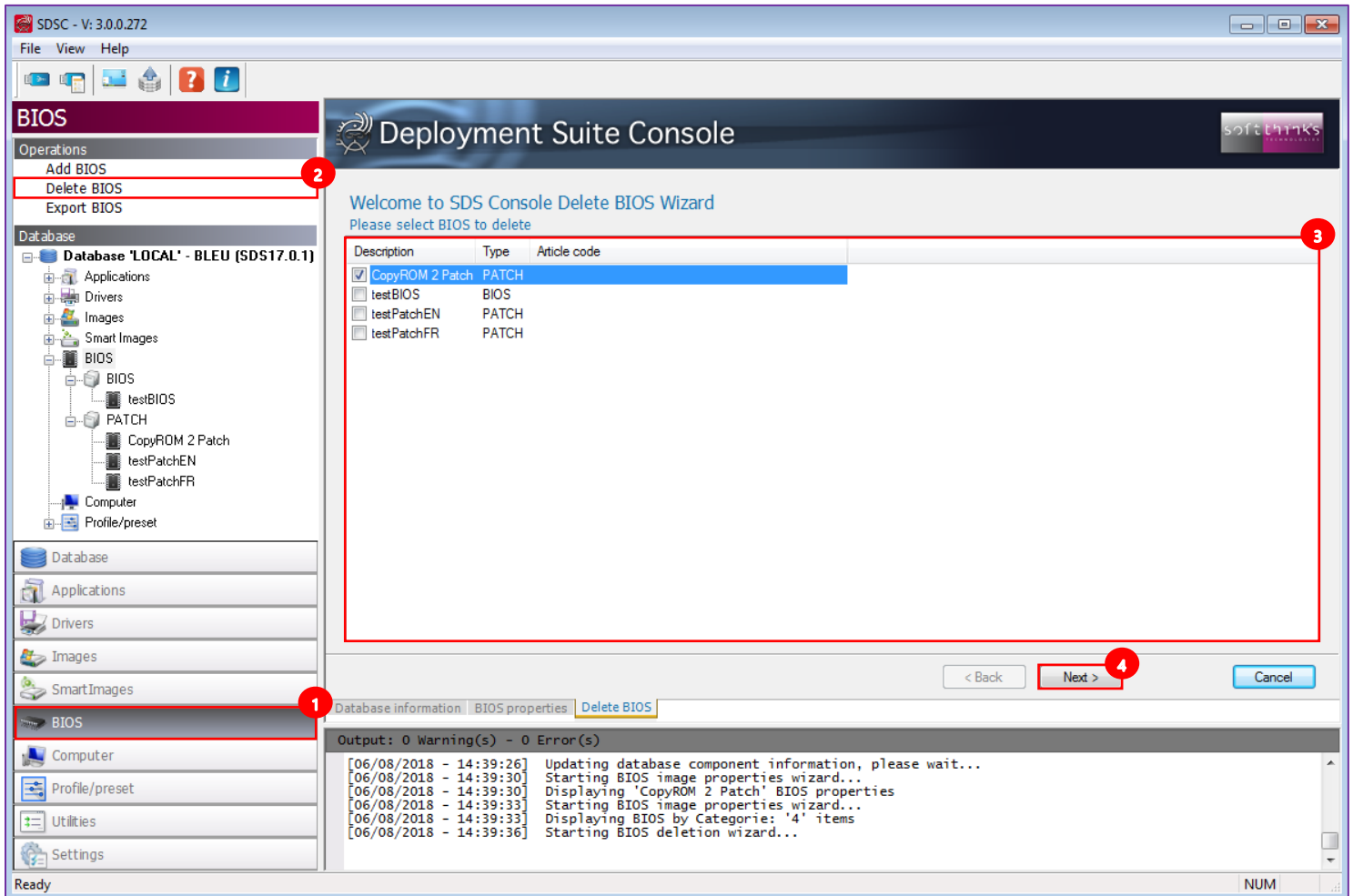
8. Configure the BIOS component settings:



- **Description:** A text description of the BIOS component.
- **Article Code:** The part number used in the SPL file to designate the BIOS component. (Not commonly used.)
- **Command Line:** Contains the executable and command line switches. **Note:** This differs from the application interface where executable and command line were different fields.
- **Type:** Category of the BIOS component (BIOS, Firmware, DMI utility, etc). The list of categories is configured using the Settings tool (See [BIOS settings](#))
- **Priority:** Ranging from 0 to 99, all applications are arranged in <profile>.selector.ini file and execute them in ascending priority value. The lowest number, 0, goes first. Useful if more than one BIOS version is required to be installed.
- **Reboot:** Select this setting to reboot the computer after the component is executed. If there are additional BIOS components at a lower priority, they will be executed after the system boots back to the deployment server.

Deleting BIOS components (“Delete BIOS” operation)

1. Click on the “BIOS” tab **1** or on the “BIOS” element in the Database tree-view
2. Click on the « Delete BIOS » operation **2**
3. Select all the BIOS components you wish to delete in the list **3**. If you don’t see a component you recently added, press F5 to refresh the list contents.
4. Click on the « Next > » button **4**:

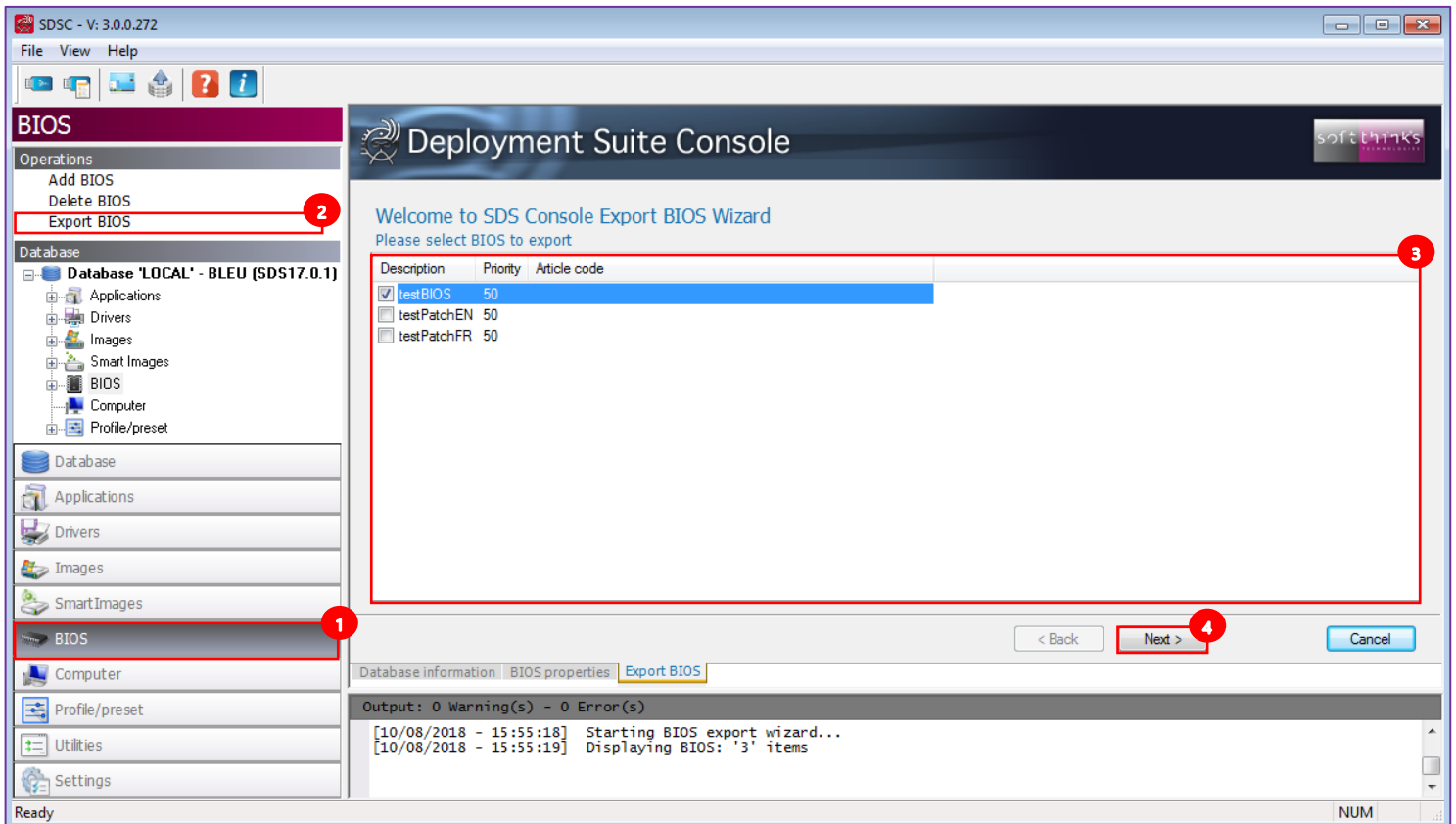


5. A message will confirm you when the BIOS components selected will have been deleted

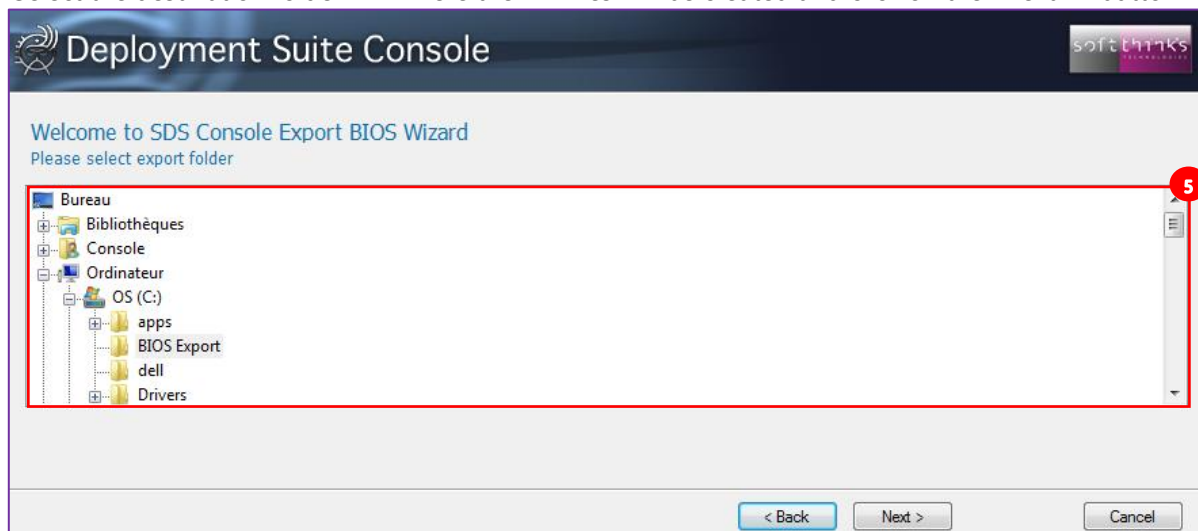
Note: Deletion is permanent. There is no method to undo a delete. Be careful when selecting BIOS components for deletion and review them.

Exporting BIOS components (“Export BIOS” operation)

1. Click on the “BIOS” tab **1** or on the “BIOS” element in the Database tree-view
2. Click on the « Export BIOS » operation **2**
3. Select the BIOS components you wish to export in the list **3**. If you don’t see a component you recently added, press F5 to refresh the list contents.
4. Click on the “Next >” button **4**



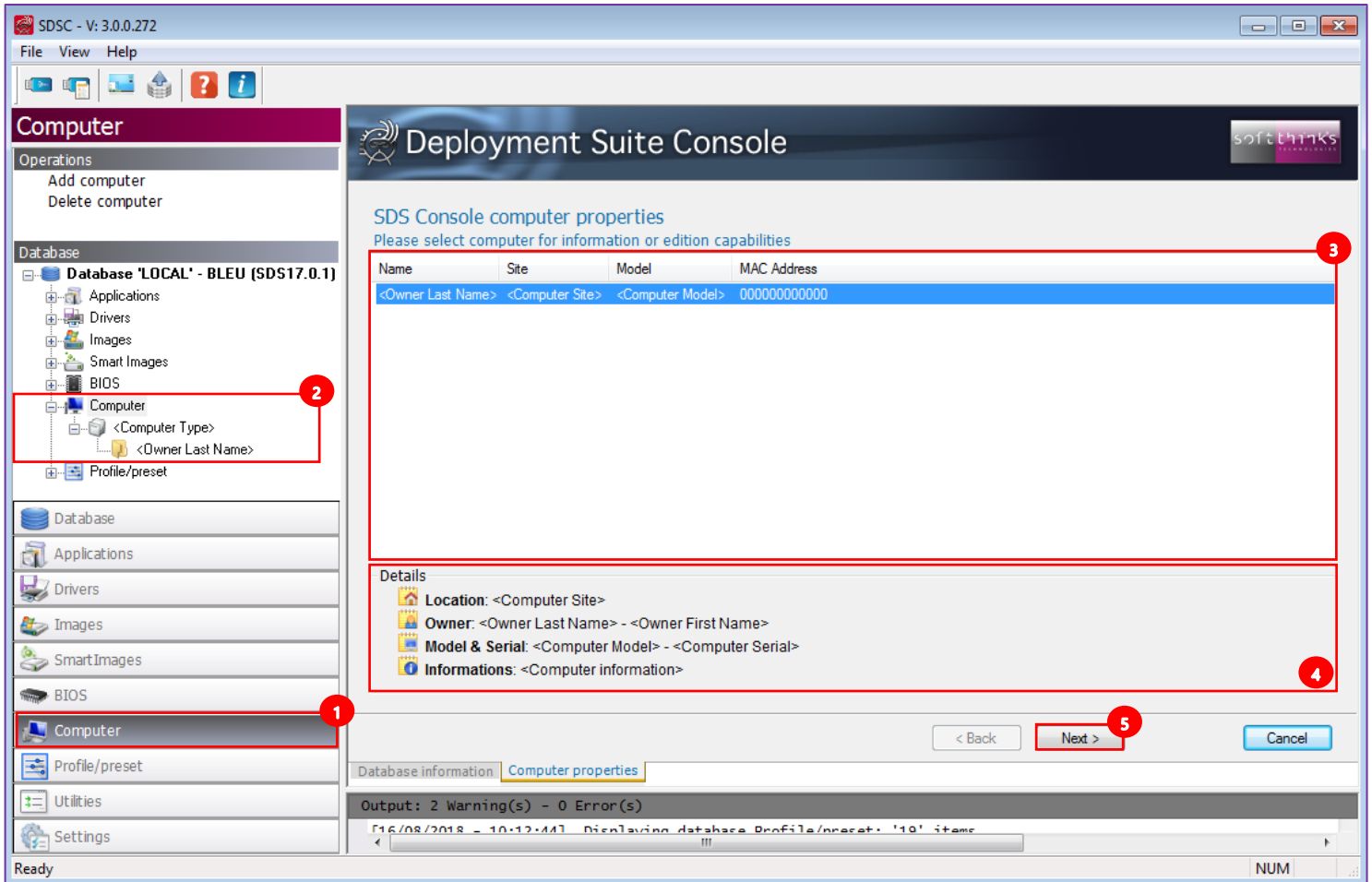
5. Select the destination folder **5** where the ZIP files will be created and click on the “Next >” button



Computer

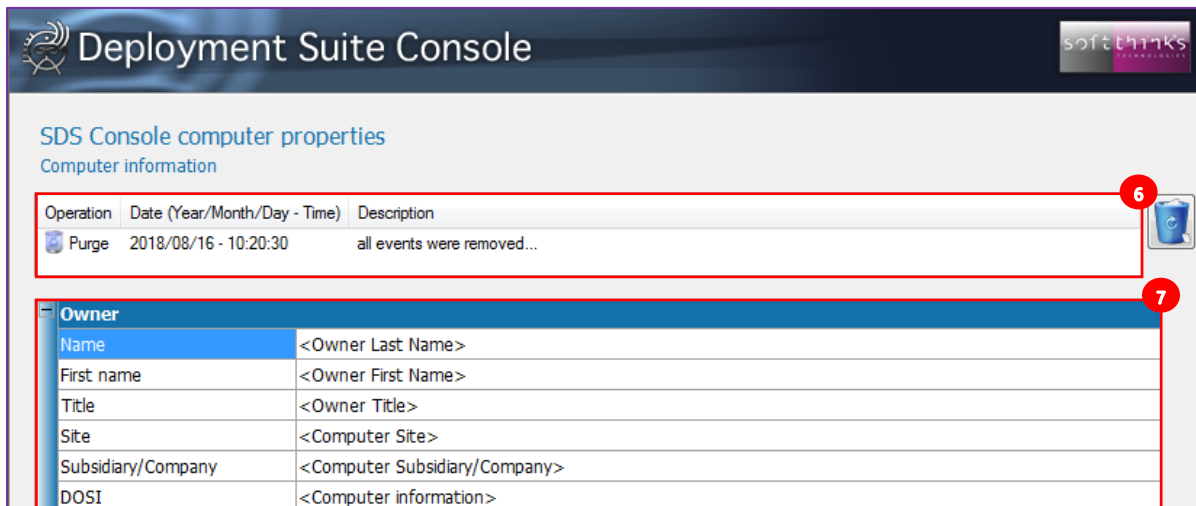
This Database item allows computers management. By default, the associated view will be empty and no operation will be available. If you need this feature please ask to your contact at Softthinks.

When this feature is enabled, you can explore the Computers of your database by clicking on the "Computer" tab **1**, or directly on the "Computer" object in the tree-view **2**:



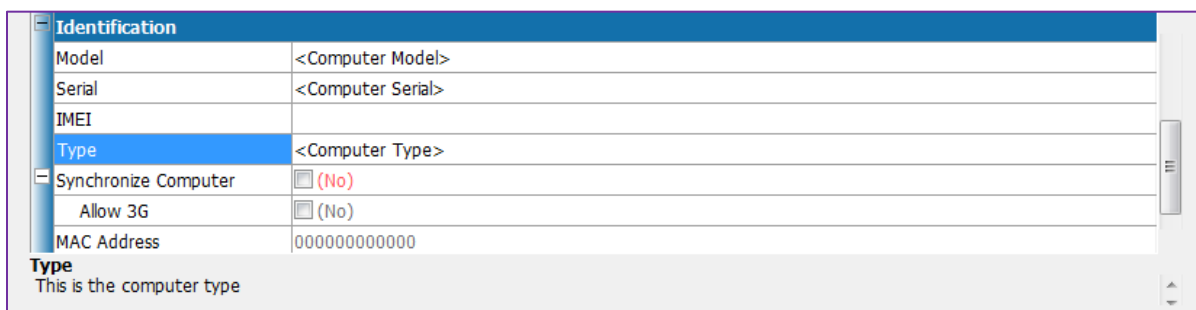
When you select a computer Component in the list **3**, you will see all of its details below **4**.

Click on the “Next >” button **5**, or double click on the computer in the list, to view the history of the operations made on this computer **6** (click on the recycle bin icon at its right to clear this history log), and edit its properties **7**, beginning with the “Owner” information:



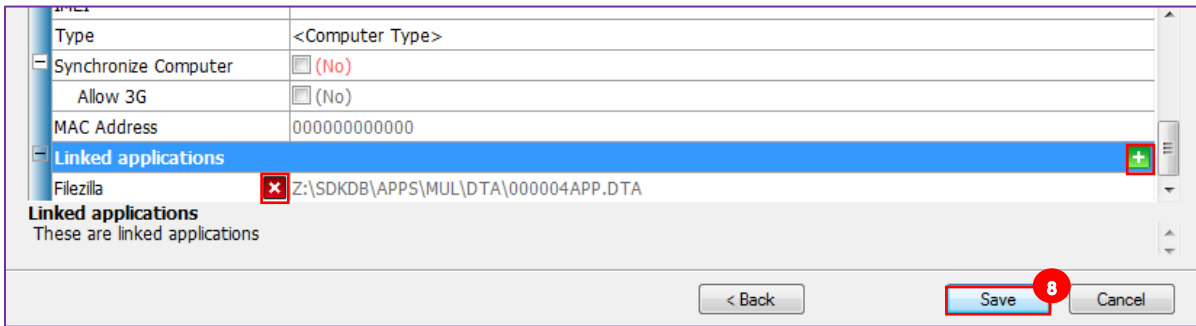
- **Name:** Last name of the owner
- **First Name:** First name of the owner
- **Title:** Title of the owner
- **Site:** Computer location
- **Subsidiary/Company:** Subsidiary / Company of the owner
- **DOSI:** User computer information (IP / Comment / Color / any information you need to store)

Scroll down to edit the “Identification” information:

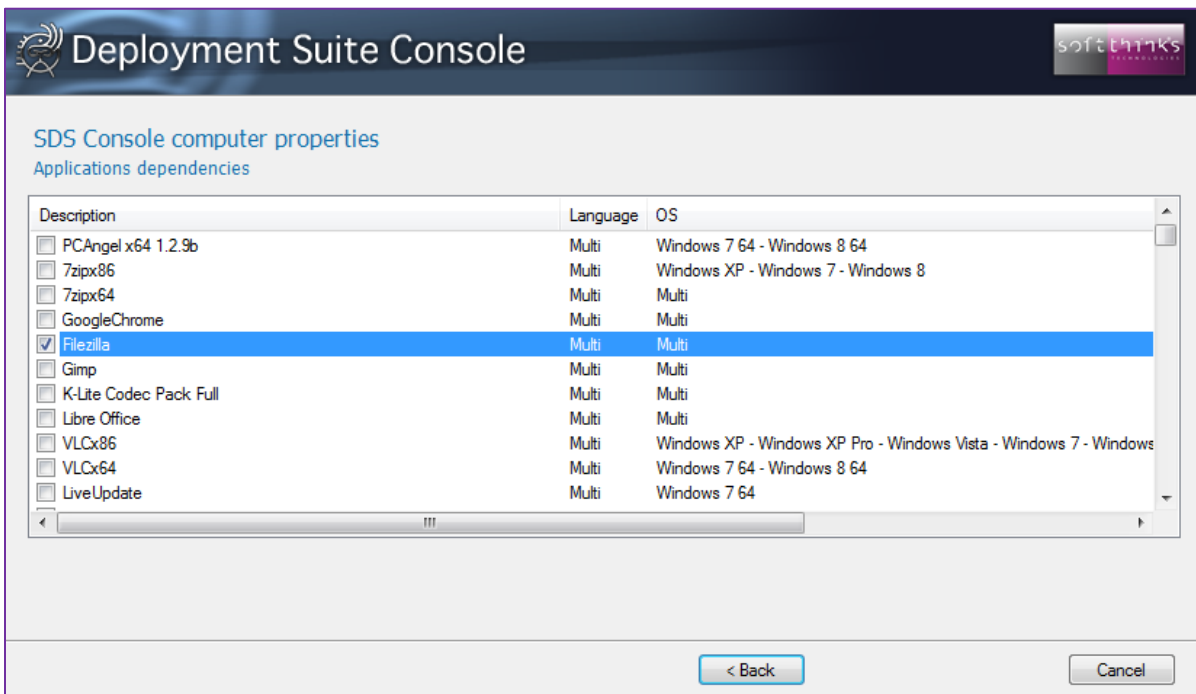


- **Model:** Computer model
- **Serial:** Computer serial number
- **IMEI:** Computer IMEI
- **Type:** Computer type
- **Synchronize Computer:** Synchronize the computer when connected
 - **Allow 3G:** Use the 3G connection if necessary to synchronize the computer
- **MAC Address:** Computer network card MAC Address

If you continue scrolling down you will see the applications linked to this computer:



Click on the **X** button in front of the linked application you want to remove, and click on the **+** button to add new linked applications from the list displayed (click on the “<Back” button to apply your selection or else on “Cancel” button):



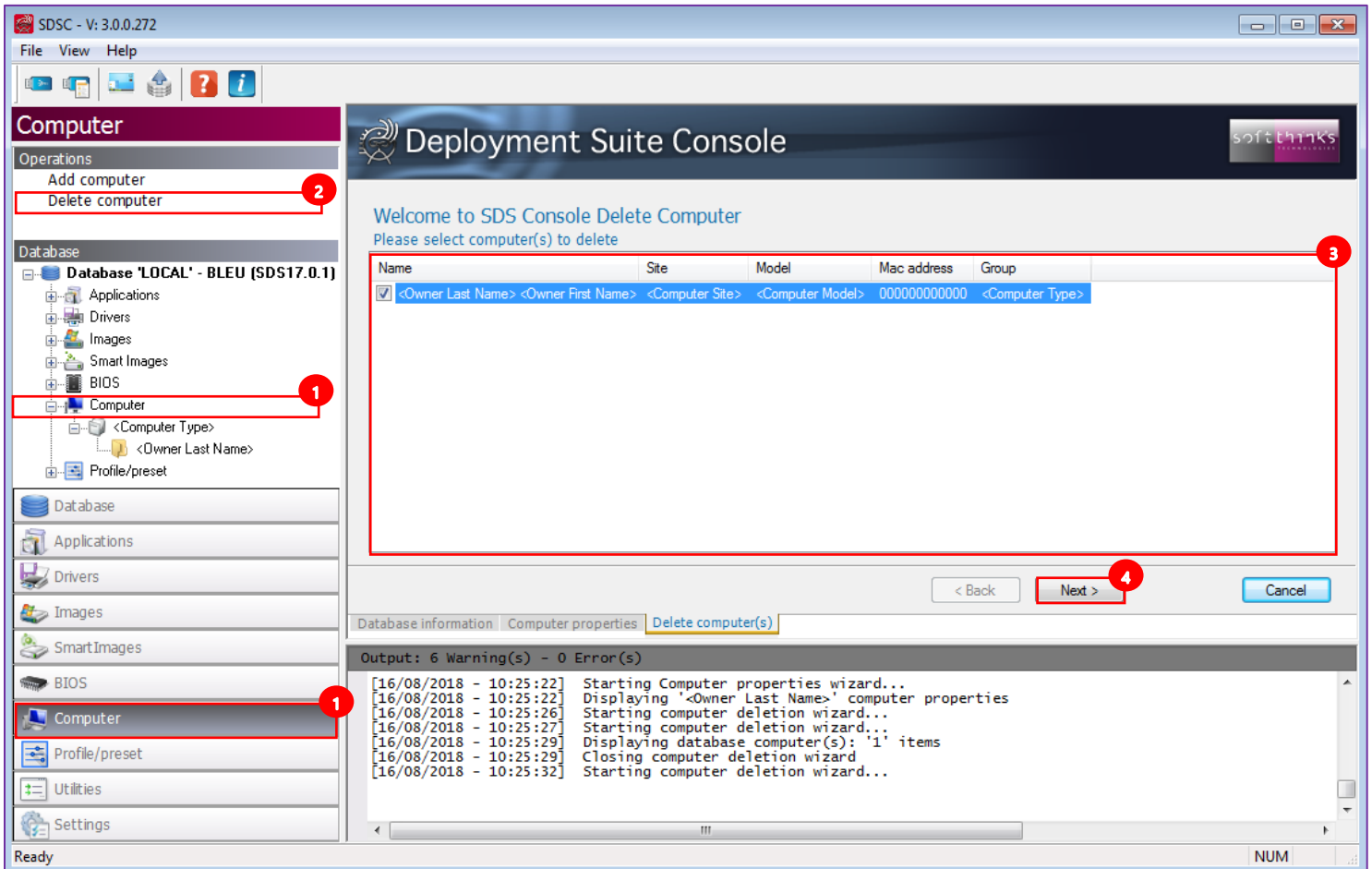
Click on the Save button **8** to save your modifications.

Adding a computer ("Add computer" operation)

1. Click on the "Computer" tab **1** or Computer element **1** in the database tree-view
2. Click on "Add computer" operation **2**
3. Fill the computer information **3** (please refer to computer edition explanations just above)
4. Click on the "Next >" button **4**

Deleting a computer (“Delete computer” operation)

1. Click on the “Computer” tab **1** or Computer element **1** in the database tree-view
2. Click on “Delete computer” operation **2**
3. Select the computer(s) you want to delete from the list **3**. If you don’t see a computer you recently added, press F5 to refresh the list contents.
4. Click on the “Next >” button **4**



5. A message will confirm you when the BIOS components selected will have been deleted

Note: Deletion is permanent. There is no method to undo a delete. Be careful when selecting BIOS components for deletion and review them.

Profile/Preset

This Database element has been introduced in SDS 18.0 in order to manage the profiles and presets created during deployment.

1. Click on the "Profile/Preset" tab **1a**, or directly on the "Profile/Preset" object in the tree-view **1b**:

SDSC - V: 3.0.0.272

File View Help

Profile/preset

Operations
Delete profile/preset

Database

Database 'LOCAL' - BLEU (SDS17.0.1)

- Applications
- Drivers
- Network
- Other
- SCSI/HDC
- Sound/Multimedia
- System
- USB
- Video
- Images
- Smart Images
- BIOS
- Computer
- Profile/preset
 - Preset
 - Windows 10
 - Windows 10 64
 - Windows 8 64
 - Win8x64gen
 - Profile
 - Windows 10 64
 - Windows 7
 - Windows 8

Database

Applications

Drivers

Images

Smart Images

BIOS

Computer

Profile/preset

Utilities

Settings

Ready

Deployment Suite Console

SDS Profile/preset properties

Please select Profile/preset for information or edition

Name	Type	OS	Image	Disk layout	Last modification
3B0M022test	Profile	Windows 10 64	TEST SBAR - Generic - GPT x64 - install with autounattend	GPT	2017-10-10 / 17:37:22
3b0m022	Profile	Windows 10 64	TEST SBAR - Generic - GPT x64 - install with autounattend	GPT	2017-10-10 / 17:37:22
Darty_NUC_27092017	Preset	Windows 10 64	darty windows creator last	GPT	2017-09-27 / 15:37:37
Inspiron 3847	Preset	Windows 10 64	Dell Inc. - Inspiron 3847 - CP7 - Compact - 01092016	GPT	2017-12-22 / 17:06:10
TEST_Win10x64_Gen_SBAR	Profile	Windows 10 64	Windows 10 -x64 - 14393 - frFR	GPT	2017-03-31 / 16:35:36
Test-crash-wim	Preset	Windows 10	ASUSTeK COMPUTER INC. - T100TA - Cp7 - 04/11/2015	GPT	2017-06-02 / 16:31:54
TestSBARSENECA2106	Preset	Windows 10 64	TEST SBAR - Generic - GPT x64 - install with autounattend	GPT	2018-04-17 / 18:25:44
Testbios	Preset	Windows 10 64	Acer - Aspire ES1-531 - Cp7 - Classic - 10/09/2015	GPT	2017-10-10 / 16:54:12
WIN10x64_MBR	Preset	Windows 10 64	Windows 10 Pro -x64 - MHDC 10.0.3 - mbr - 27052016	MBR	2018-05-28 / 11:12:59
Win10x64gen	Preset	Windows 10 64	Windows 10 Home Gen x64	GPT	2017-10-12 / 12:56:11
Win8x64gen	Preset	Windows 8 64	Windows 8.1 Pro -x64 - EN - MBR - 28/02/2014	MBR	2017-10-12 / 12:42:34
darty3	Profile	Windows 10 64	Darty National 3 17/03/2017	GPT	2017-11-07 / 15:03:29
inspiron3847andFileZilla	Profile	Windows 10 64	Dell Inc. - Inspiron 3847 - CP7 - Compact - 01092016	GPT	2017-11-13 / 14:39:25
test3B0M022	Profile	Windows 10 64	TEST SBAR - Generic - GPT x64 - install with autounattend	GPT	2017-10-10 / 17:37:22
test3B0M022test	Profile	Windows 10 64	TEST SBAR - Generic - GPT x64 - install with autounattend	GPT	2017-10-10 / 17:37:22
testBIOSgen	Preset	Windows 10 64	Windows 10 Home Gen x64	GPT	2017-10-11 / 10:11:51
test_Drivers_PACK_Latitude_10	Profile	Windows 8	Windows 8.1 Pro -x86 - EN - EFI - 10/03/2014	GPT	2016-11-14 / 11:48:49
test_SBAR_Win10_Gen_x64	Preset	Windows 10 64	Windows 10 -x64 - 14393 - frFR	GPT	2017-03-31 / 16:48:46
win7andFilezilla	Profile	Windows 7	LENOVO - 3395A38 - 14032017	MBR	2017-11-14 / 11:34:08

Details

Path: Z:\SDKDB\PRESETS\Win8x64gen.Selector.ini **3b**

Type: MBR / Generic

Image: Windows 8 64 / Windows 8.1 Pro -x64 - EN - MBR - 28/02/2014

Components: Apps 0 / Bdl 0 / Drv 0 / BIOS 0

< Back Next > **4** Cancel

Profile/preset properties

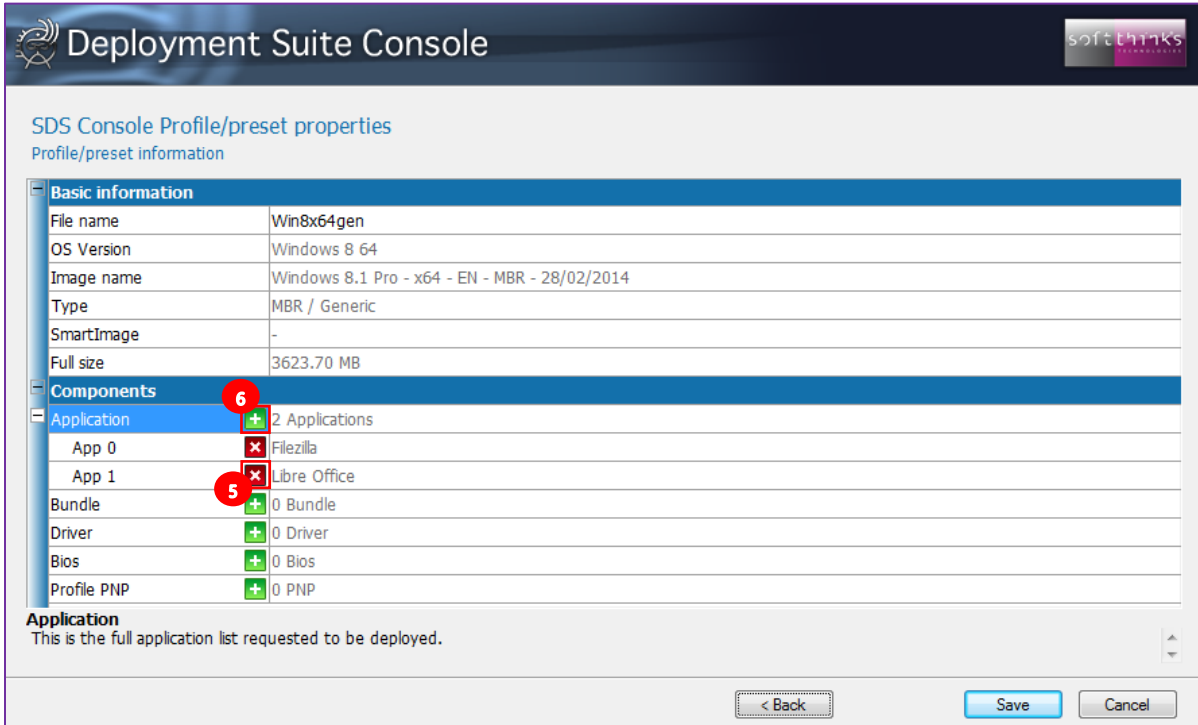
Output: 1 Warning(s) - 0 Error(s)

```
[31/07/2018 - 11:45:15] Displaying database driver(s): '42' items
[31/07/2018 - 11:45:15] Displaying database image(s): '259' items
[31/07/2018 - 11:45:15] Displaying database SmartImage(s): '1' items
[31/07/2018 - 11:45:15] Displaying database BIOS: '3' items
[31/07/2018 - 11:45:15] Displaying database application(s): '1082' items
[31/07/2018 - 11:45:15] Displaying drivers by Categories: '42' items
```

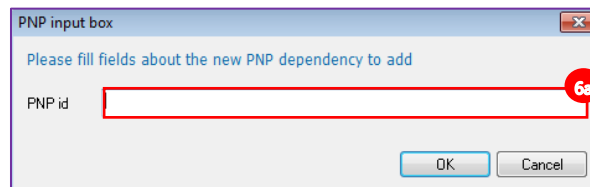
2. Select the profile or preset in the list **3** you want to review or edit

Hint: As for images, the number of profiles and presets is growing systematically and so the SDS Console highlights in orange the old ones to help you making some cleanup.

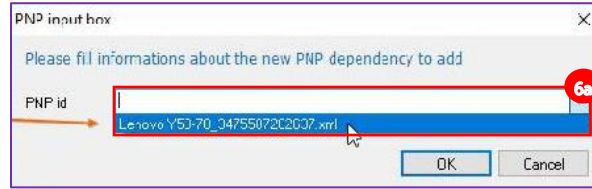
3. Review the information in the “Details” area **3**, including the path where it is stored that you can open by clicking on the link **3b**.
4. Click on the “Next >” button **4**, or double click on item in the list, to edit its basic information and the components associated to it (2 applications in our example below):



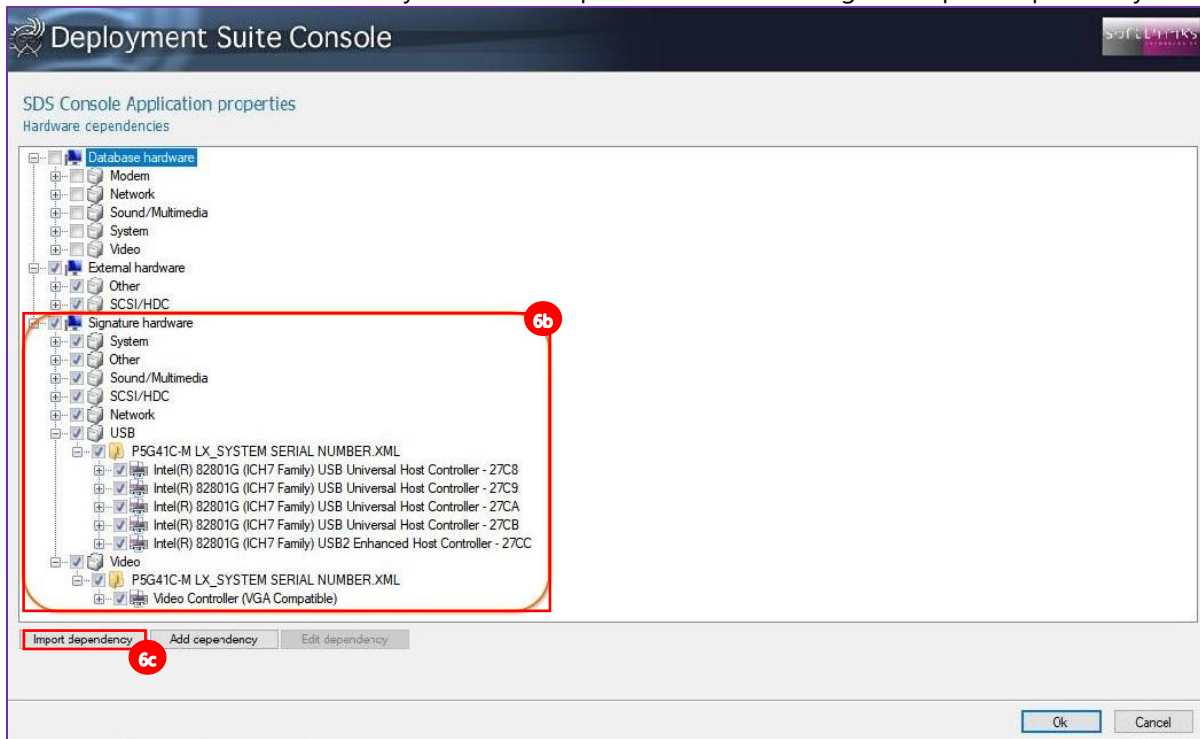
5. Click on the **x** button **5** in the front of an application / bundle / driver / BIOS / Profile PNP to unlink it.
6. Click on the **+** button **6** in the front of a component category to add application / bundle / driver / BIOS / Profile PNP.
 - a. For a Profile PNP, you will be asked to enter the PNP ID **6a**:

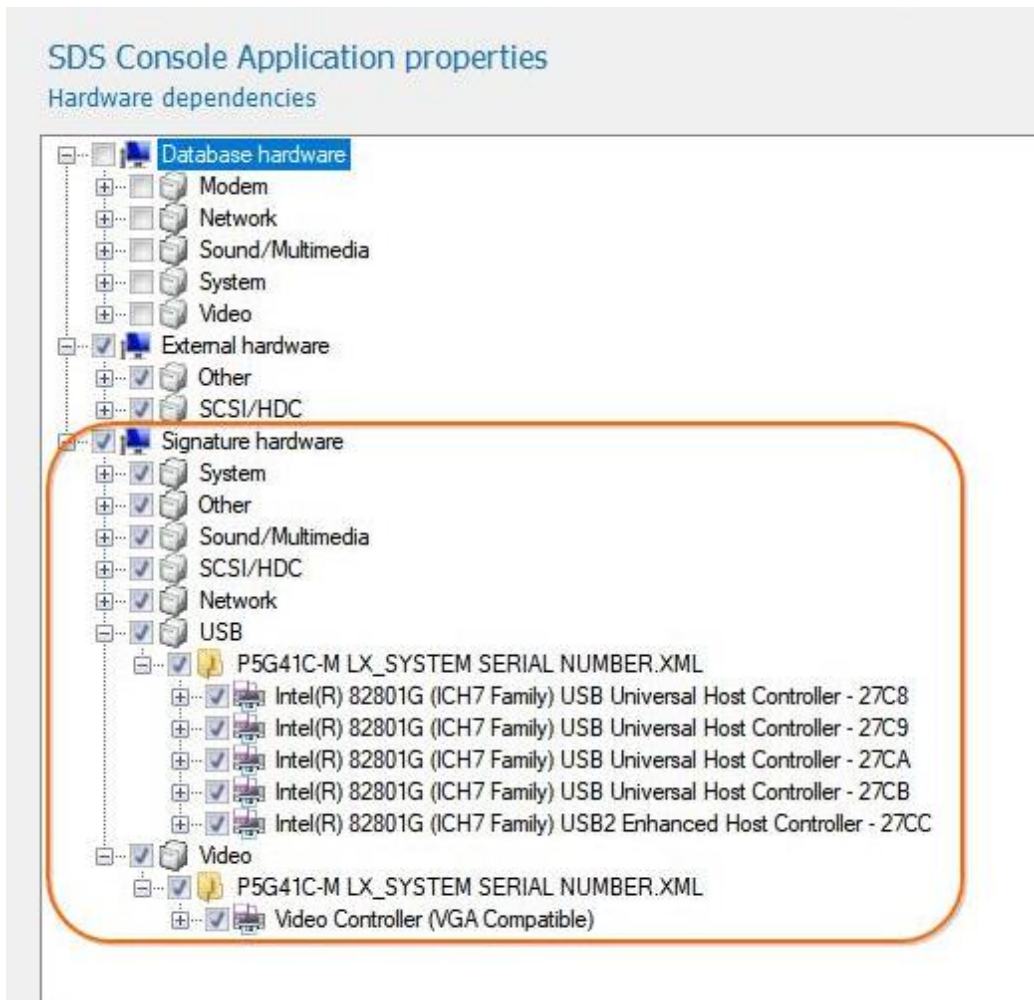


Or, since SDS 19.0, you can select a PNP definition file you have created previously through Ctrl+F9 keystroke on the device **6a**:

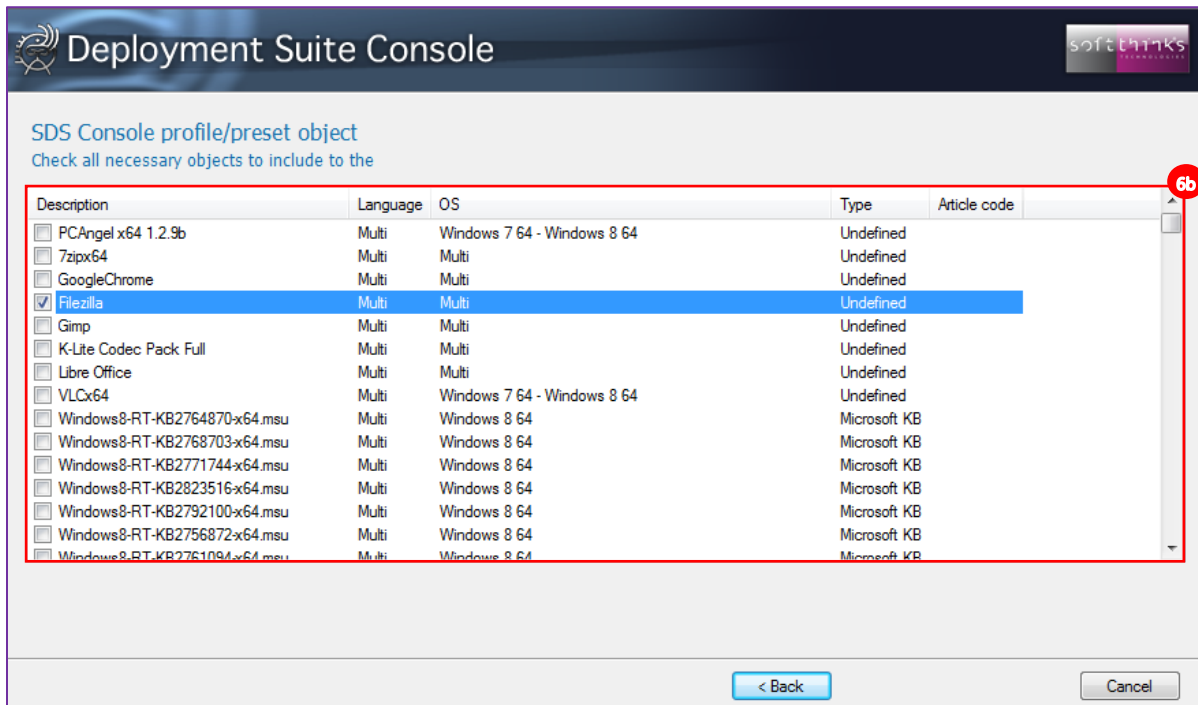


And then select the elements you want to import **6b** before clicking on "Import Dependency" **6c**:





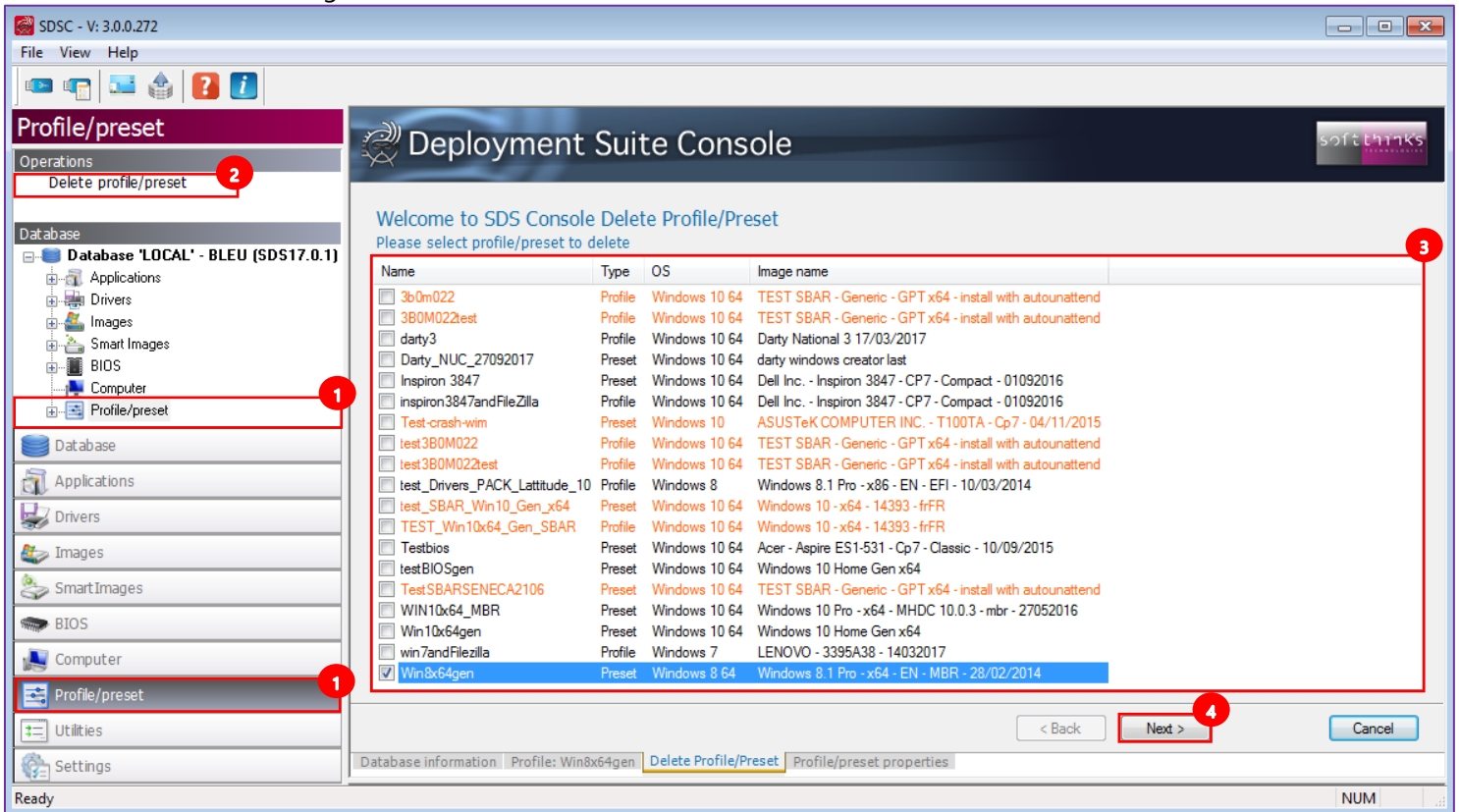
- b. For any other type of component (such as application in our example below), you will be invited to select the elements you want to link from the list displayed ^{6a} to the current profile/preset:



Note: The elements already linked appear as preselected (as "Filezilla" in our example). If you unselect them they will be removed from the list of the elements linked.

Deleting a profile/preset (“Delete profile” operation)

In order to delete one or more profile/preset, click on “Profile/Preset” tab **1**, or on “Profile/Preset” node **1** in the database arborescence, and then “Delete profile/preset” operation **2**. Select the profile(s)/preset(s) you want to remove from the database in the list on the right **3** and click on “Next >” button **4**:



The wizard will confirm you that your profile(s)/preset(s) have been deleted once the process has completed.

Note: Deletion is permanent. There is no method to undo a delete. Be careful when selecting applications for deletion and review them before continuing.

Utilities

General

Create Deployment USB stick

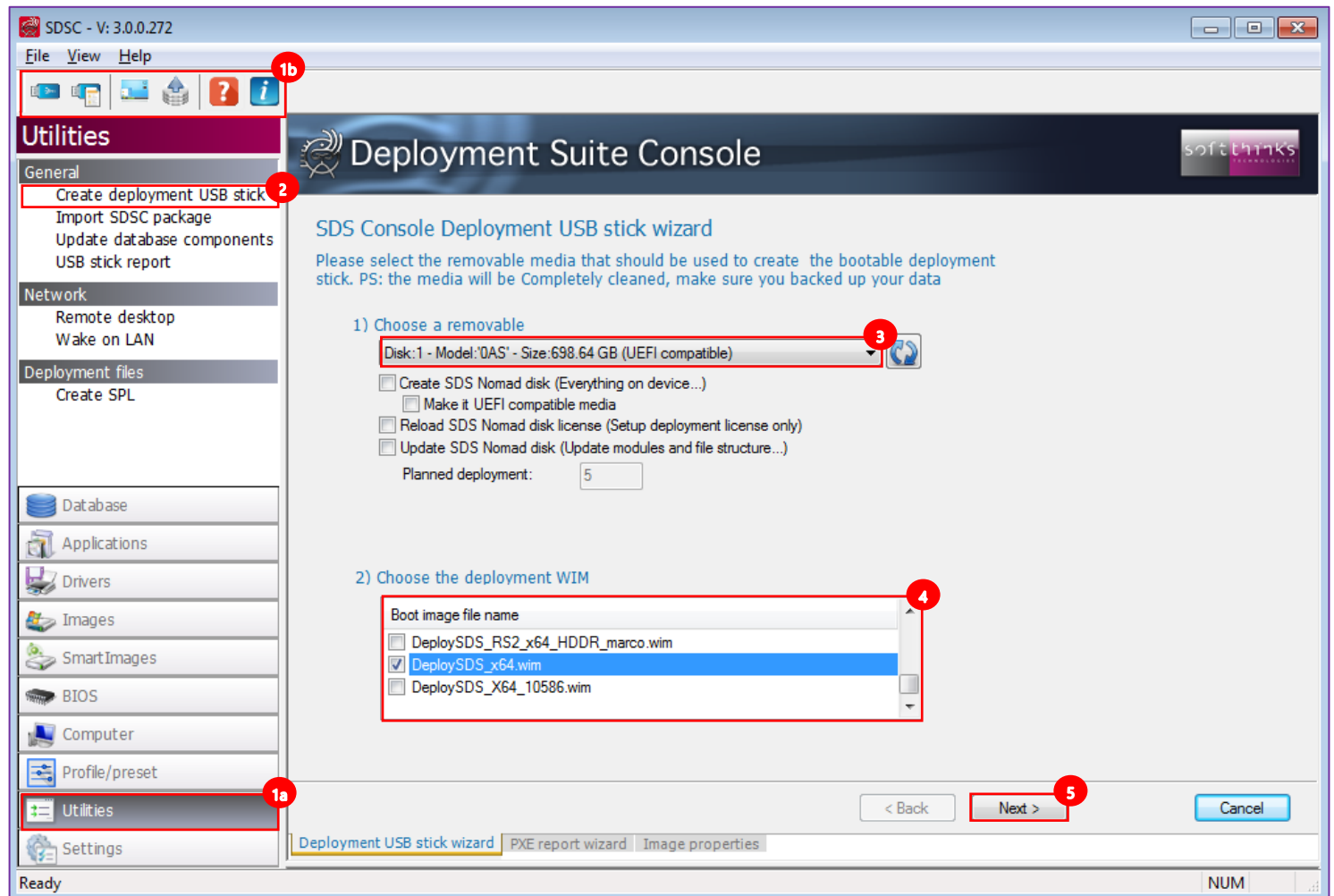
This tool offers you the ability to create a bootable deployment USB stick. If you already created one with a previous version of SDS, you will have to update it in order to benefit from all of the new SDS features and to be compliant with latest OS version.

You can either create a Boot Key or a Nomad Disk.

Boot key

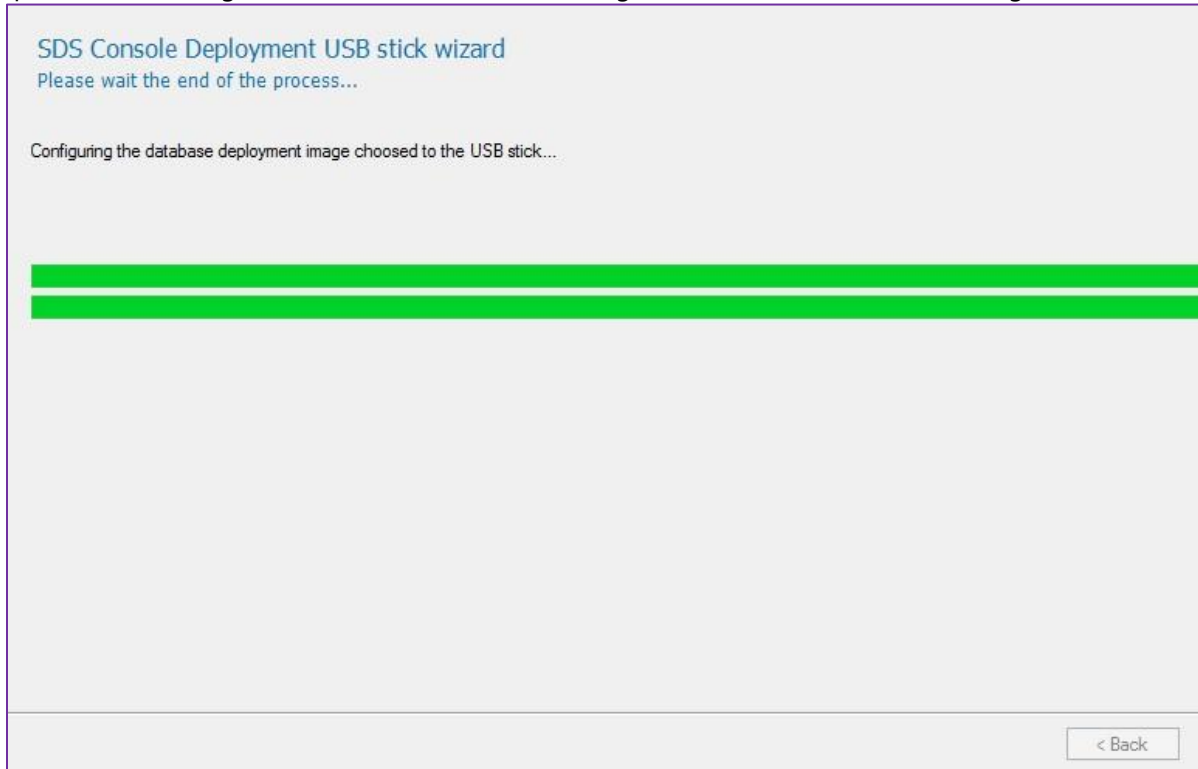
Create a boot key when you want to use SDS on a computer that doesn't support PXE boot.

1. Click on "Utilities" tab **1a**, or directly on  button in the toolbar **1b** and go to step 3
2. Click on « Create deployment USB stick » operation **2**

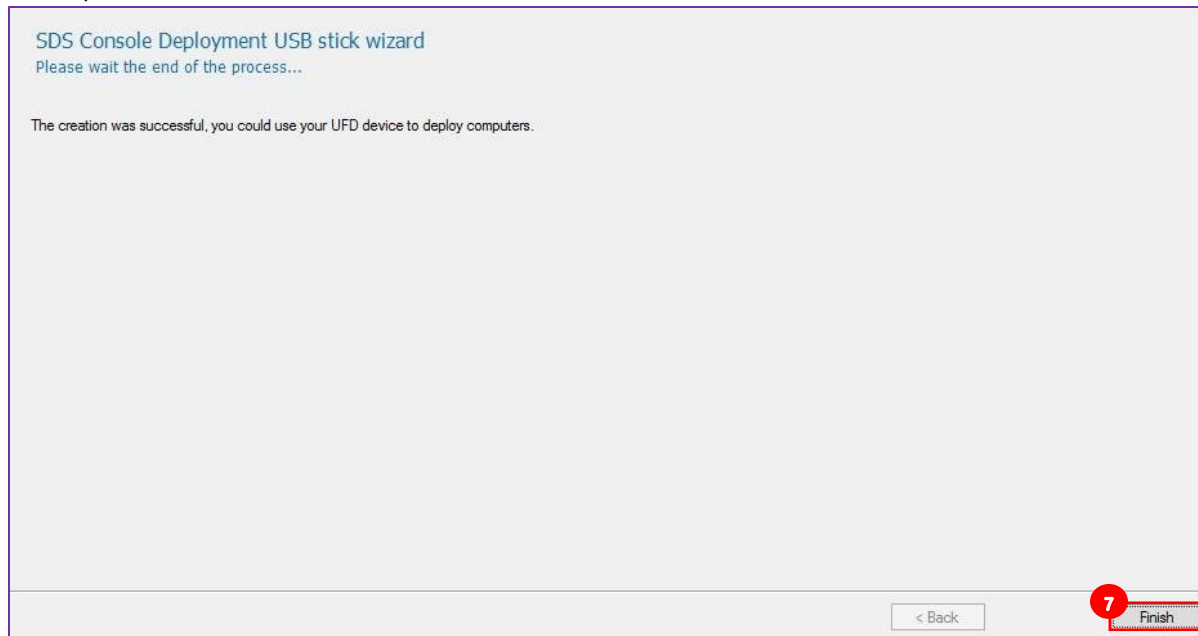


3. Insert a blank USB stick (See [How to format a USB Flash Drive before converting it to a SDS USB Flash Drive](#) to format it) or the USB stick previously created and select it in the list **3**
4. Select the deployment image to use **4**
5. Click on "Next >" button **5**

6. The process of creating the bootable flash drive can range from 2 to 10 minutes on average:



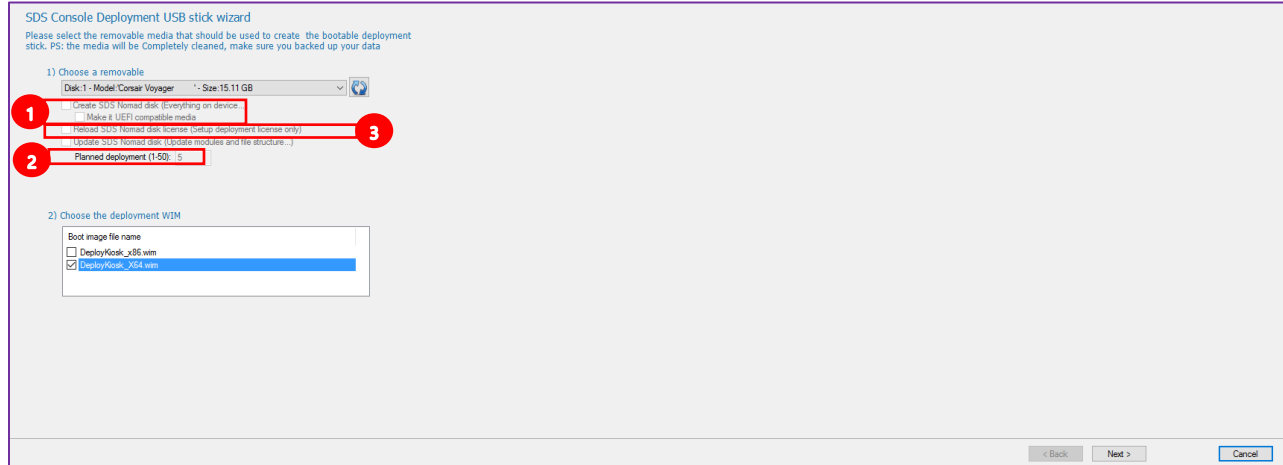
7. Once completed, click on « Finish » button **7**:



Nomad disk

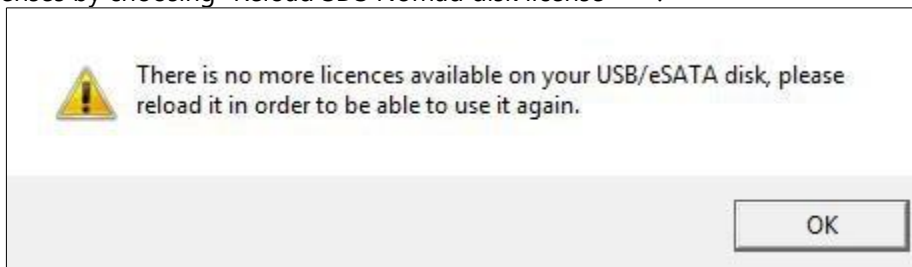
Instead of using a server, you install the software on an external hard drive that we call a Nomad Disk.

- To create your Nomad Disk, follow the same process as for the Boot Key, except that you have to check the options « Create a SDS Nomad disk (Everything on device...) » and « Make a UEFI compatible device » (if needed since all USB media are not UEFI compliant), and enter the number of licenses you want installed (between 1 and 50):



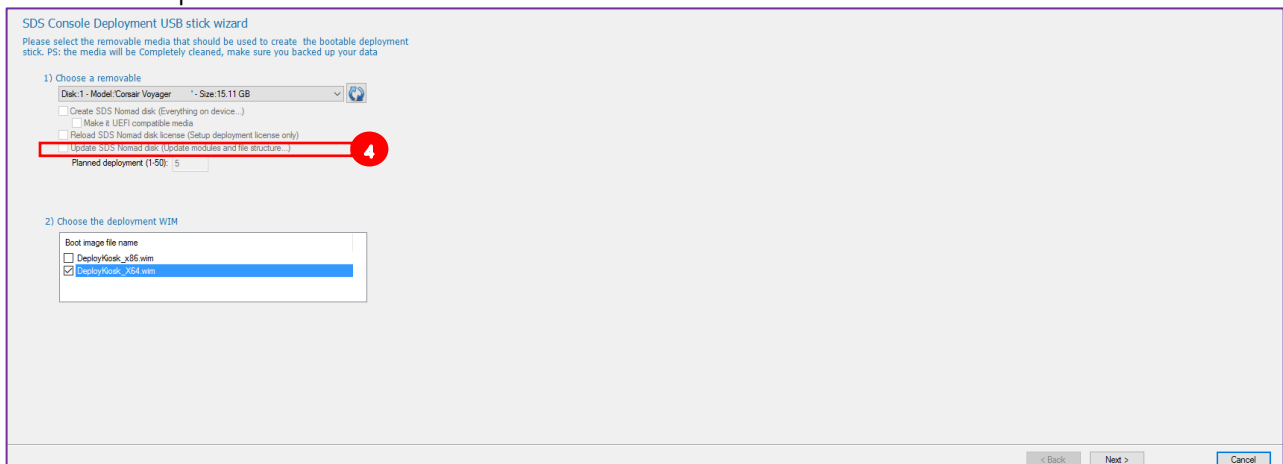
Note: Do not use USB Hard Drive larger than 2TB.

- When you will have reached the deployments limit on a **nomad disk**, you will get the message below and will be able to add more licenses by choosing “Reload SDS Nomad disk license” ³.



Note: You can check the number of deployment available by plugging your USB Stick into the server and selecting « **USB Stick Report** » (See [USB stick report](#)).

- You can also update the components (in case of new SDS version) in your Nomad Disk through the “Update SDS Nomad disk” option ⁴:




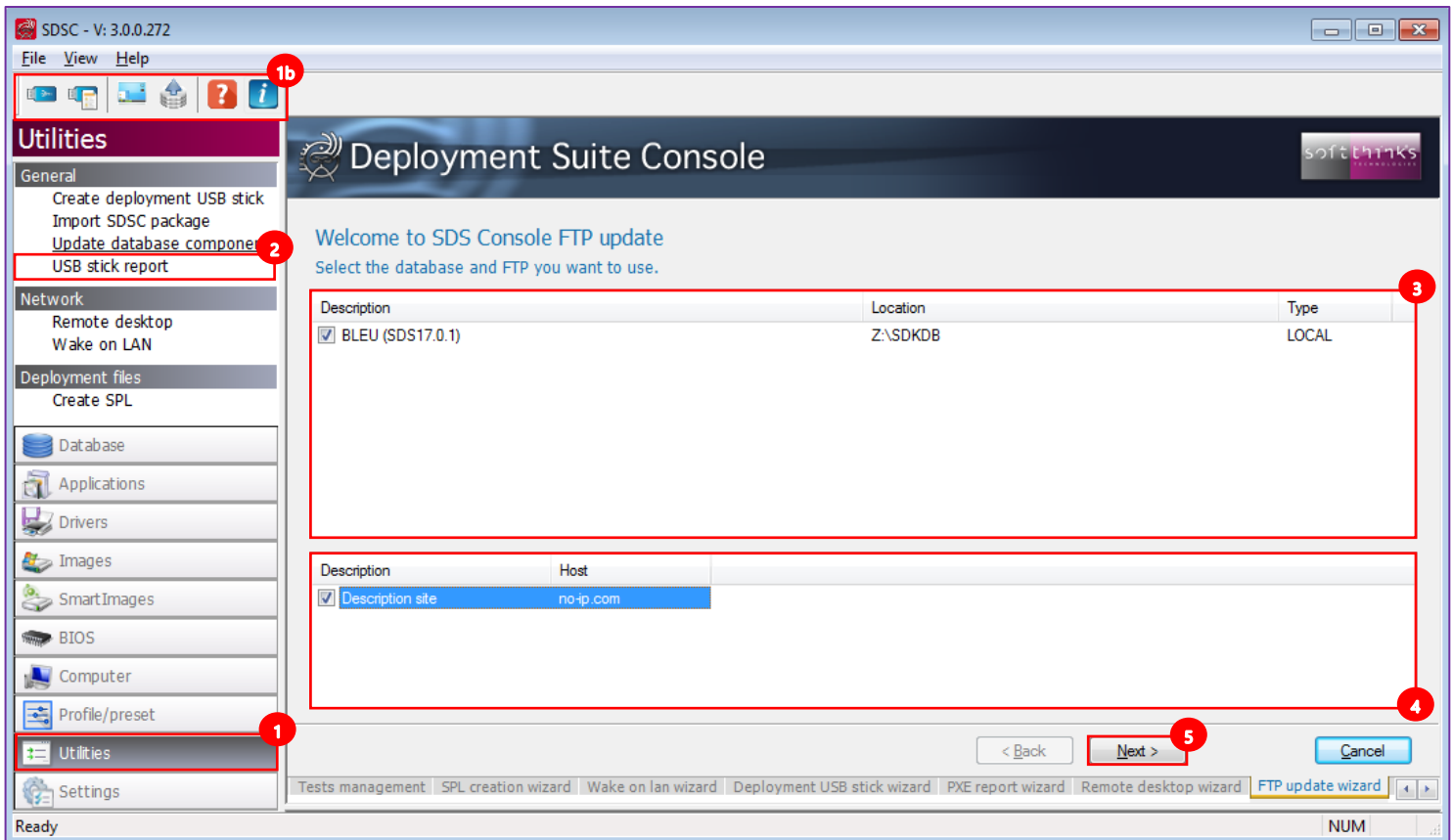
Import SDSC package

This feature offers you the ability to import a package (applications and drivers packages typically) into the database. Please see [Importing application\(s\) \("Utilities\Import SDSC Package"\)](#).

Update database components

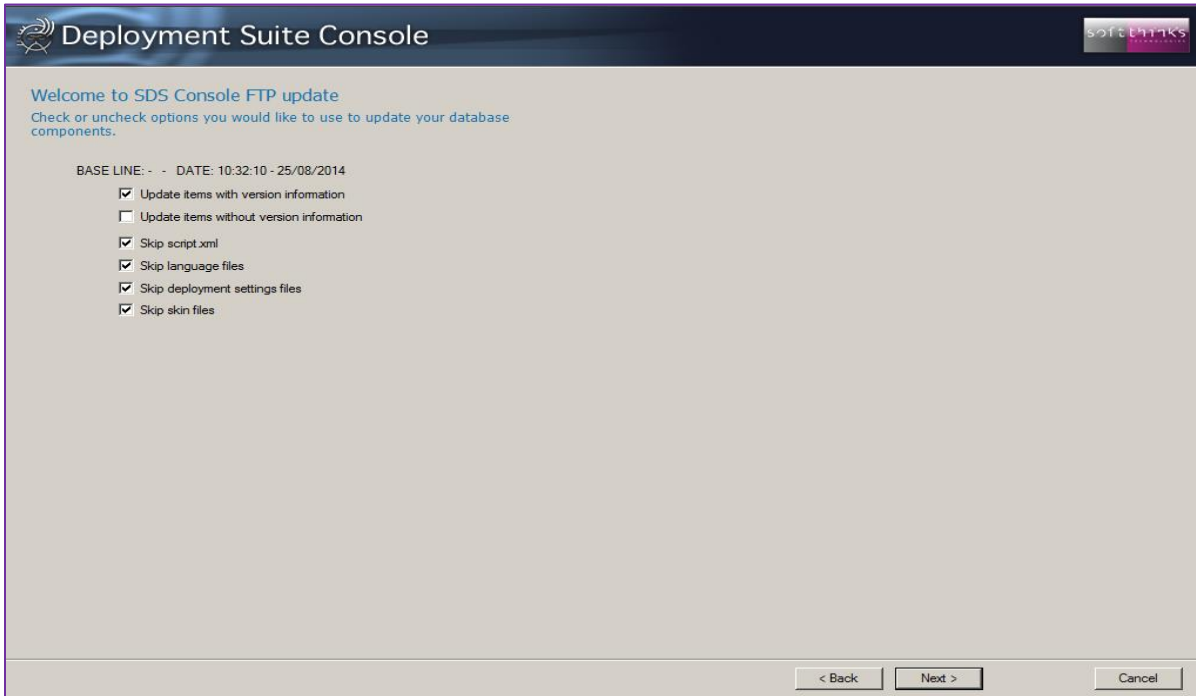
This utility will update your database components from a FTP containing the reference database (See [How to prepare the database for the "Update database components" feature](#)).

1. Click on the "Utilities" tab **1**, or directly on the  button located in the toolbar **2b** and go to step 3
2. Click on the "Update database components" operation **2**:

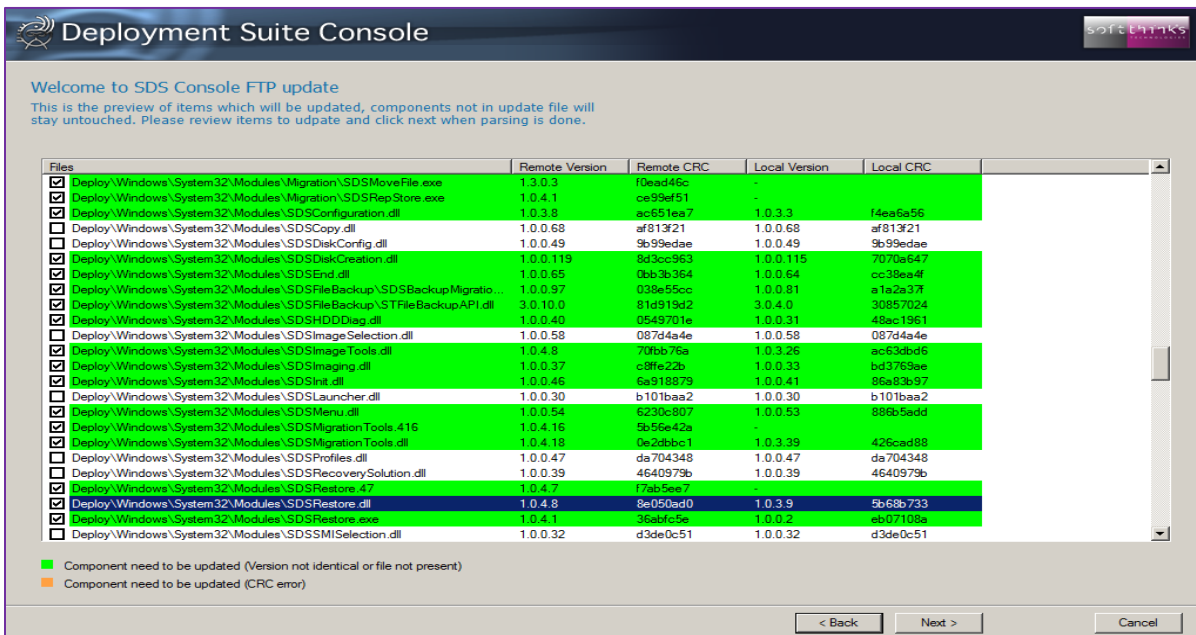


3. Choose the database you wish to update **3**
4. Select the FTP site where you put the reference database **4**
Hint: The FTP sites are configured in [Database settings](#)
5. Click on the "Next >" button **5**

6. Select the components you wish to update:




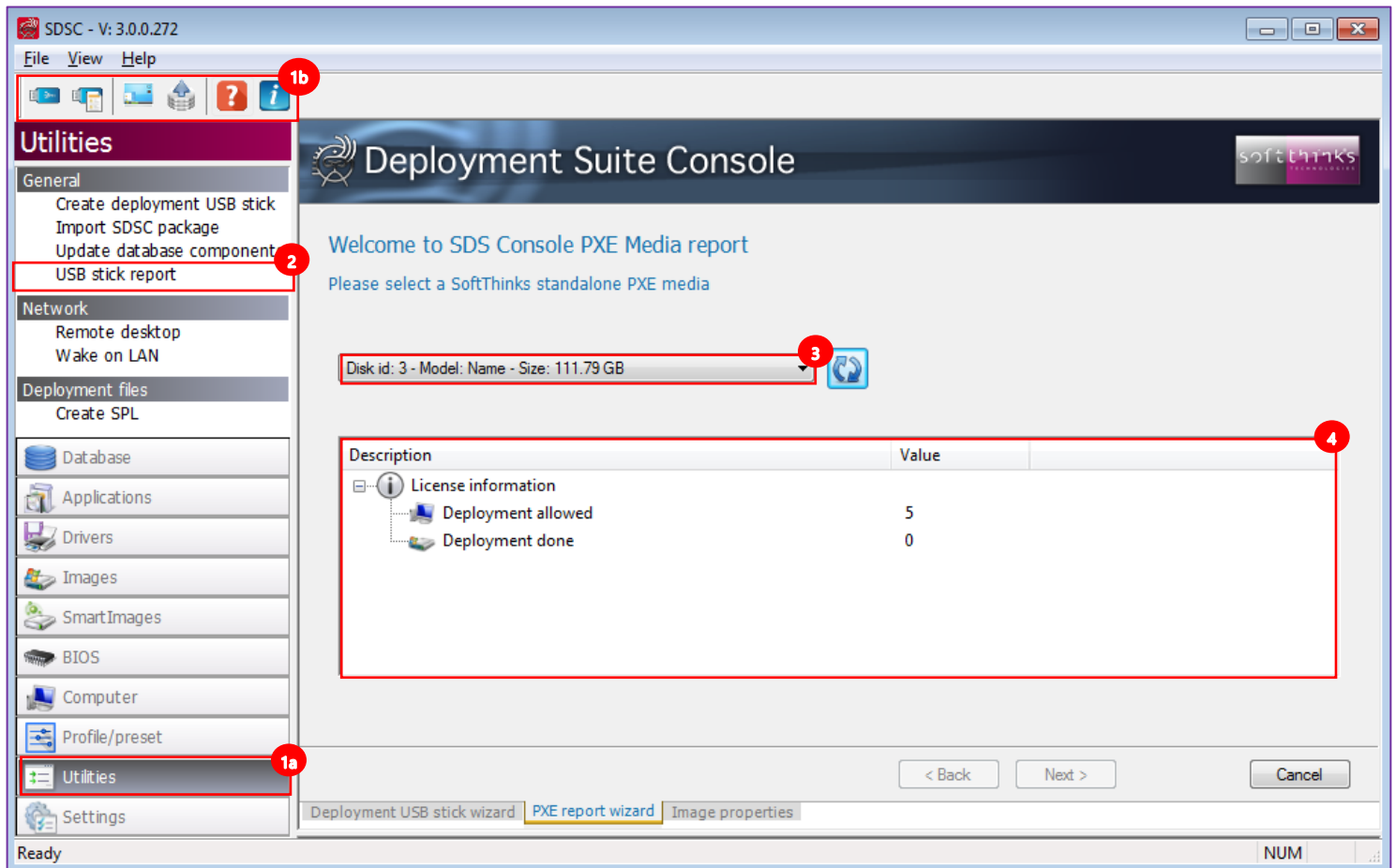
7. Review and modify the files if necessary (checked and displayed with green background) which have been pre-selected based on your component selections from the previous step and click on the "Next >" button:




USB stick report

Use this utility to check the number of deployments available on a Nomad Disk.

1. Click on the "Utilities" tab **1a**, or click directly on the  button in the toolbar **1b** and go to step 3
2. Click on the "USB stick report" operation **2**




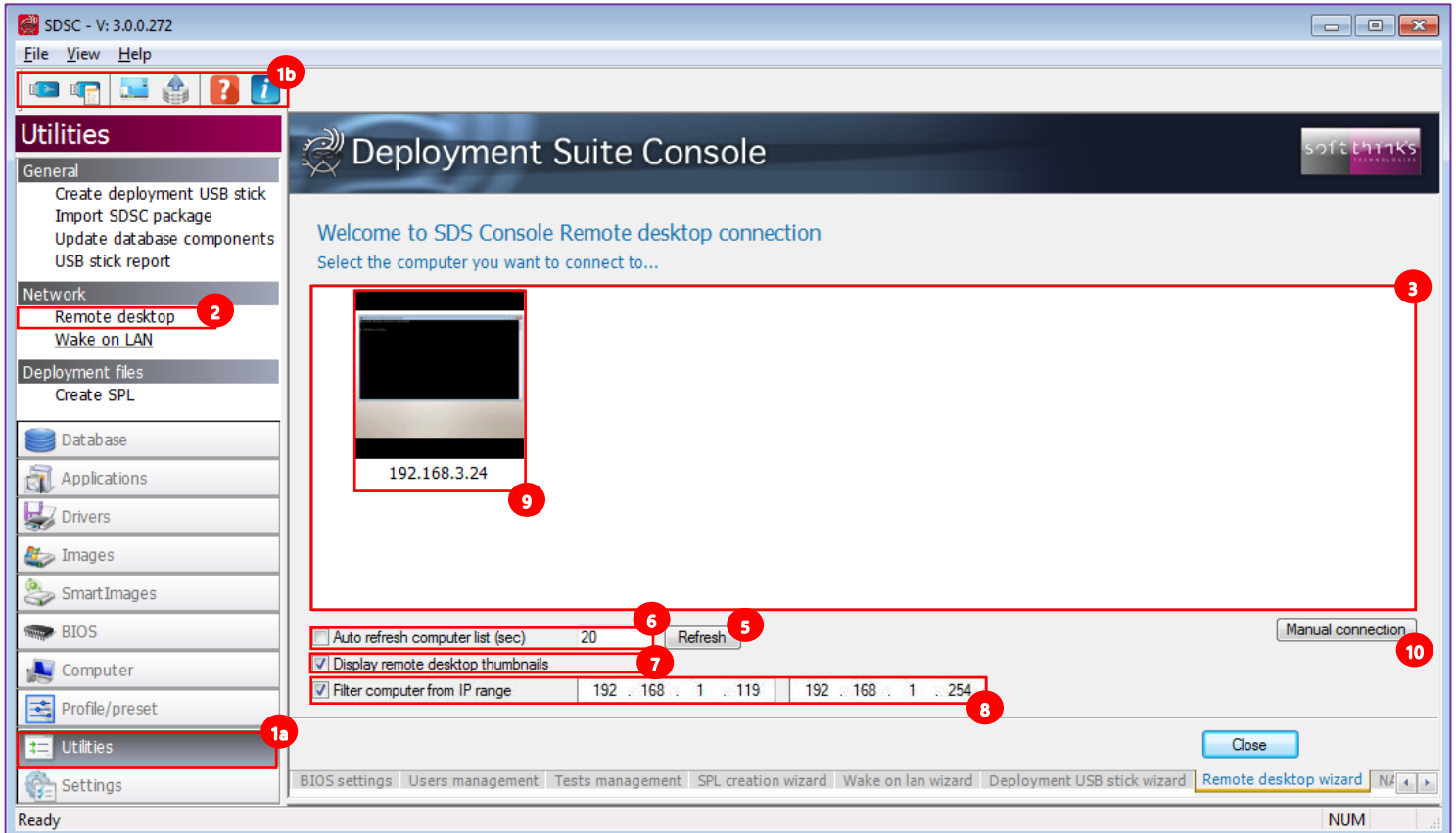
3. Insert your Nomad Disk, if it is not yet the case, and select it in the list **3**. If your Nomad Disk doesn't appear in the list, click on the  button to refresh the list.
4. Check the license information **4**

Network

Remote Desktop

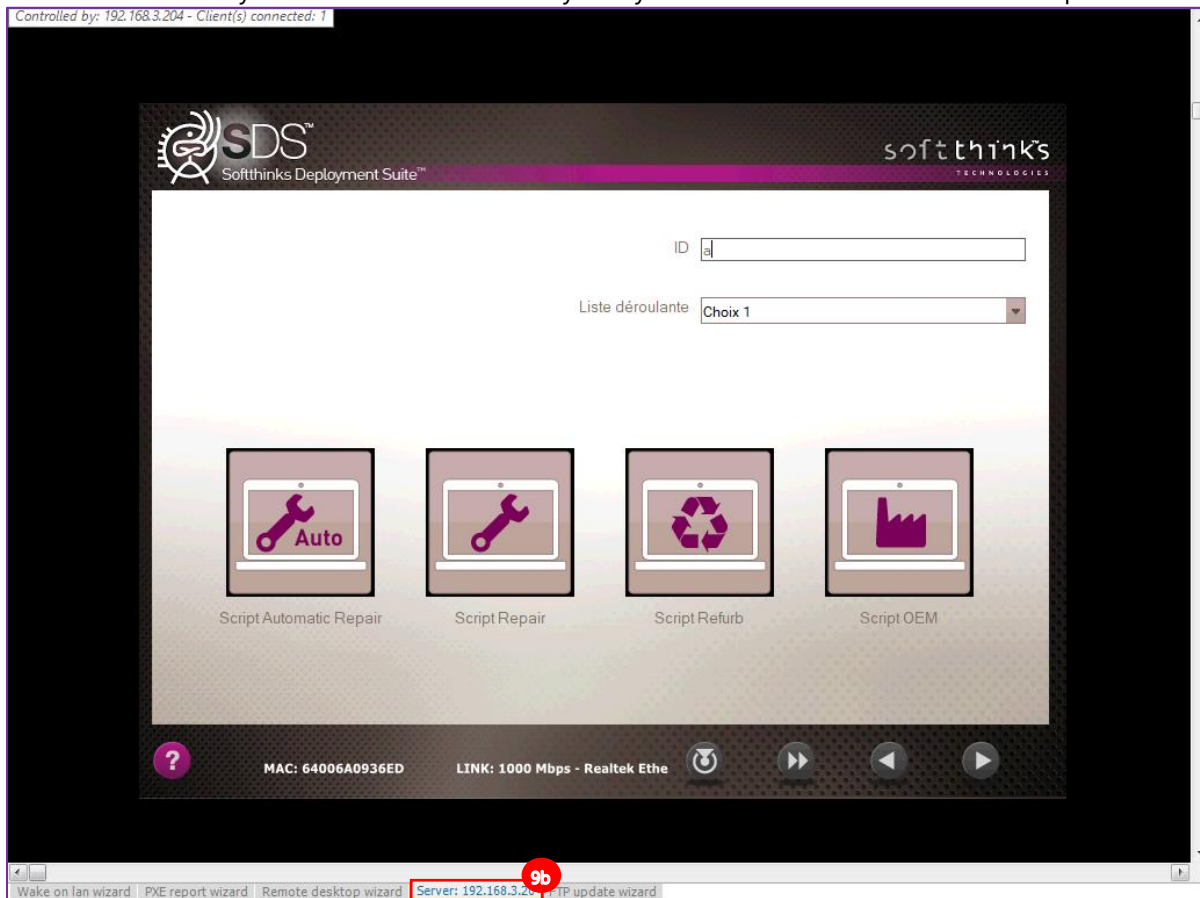
This utility gives you the ability to view the activity on all of the devices connected to the server and to remotely manage them.

1. Click on the "Utilities" tab **1a**, or directly on the  button located in the toolbar **1b** and go to step 3
2. Click on "Remote desktop" **2**
3. You will see all the PCs connected to the server in real time **3**

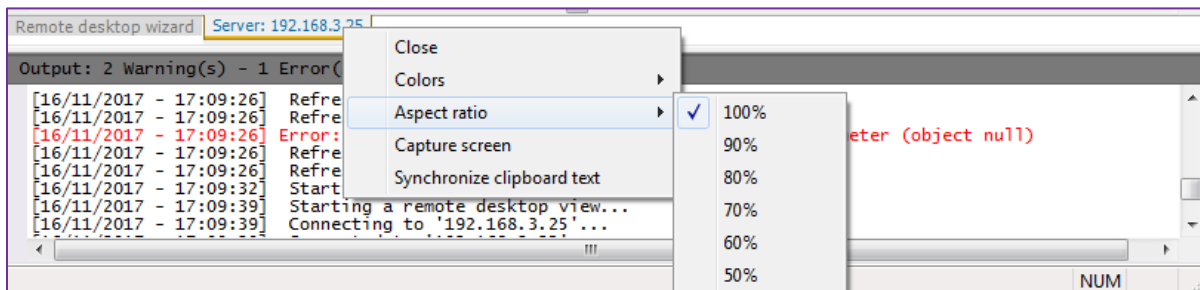


Hint: You can refresh this view **4** on demand by clicking on the "Refresh" button **5**, or automatically every x seconds **6**, and choose to display or not display the thumbnails **7**. You can also filter the clients to display through an IP range **8**

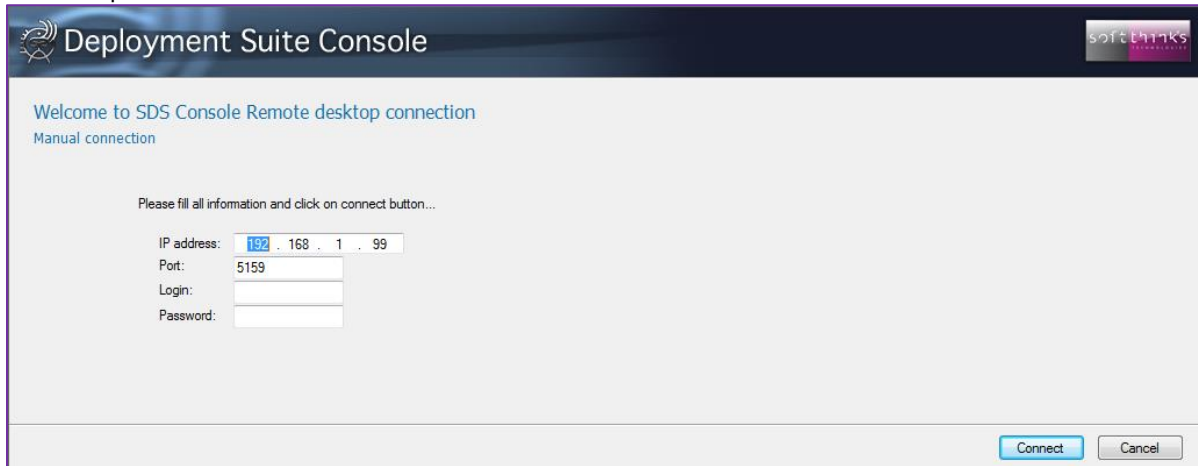
4. Click on the device **9** you wish to control remotely and you will obtain its screen contents replicated:



Hint: Right click on the remote display tab **9b** to display a popup menu which allows you to choose a more appropriate aspect ratio, change the colors depth (16 / 256 / 64K / 16M), capture the screen and synchronize clipboard text:



5. You can also connect to a device manually by clicking on the « Manual connection » button **11** and entering the elements required:

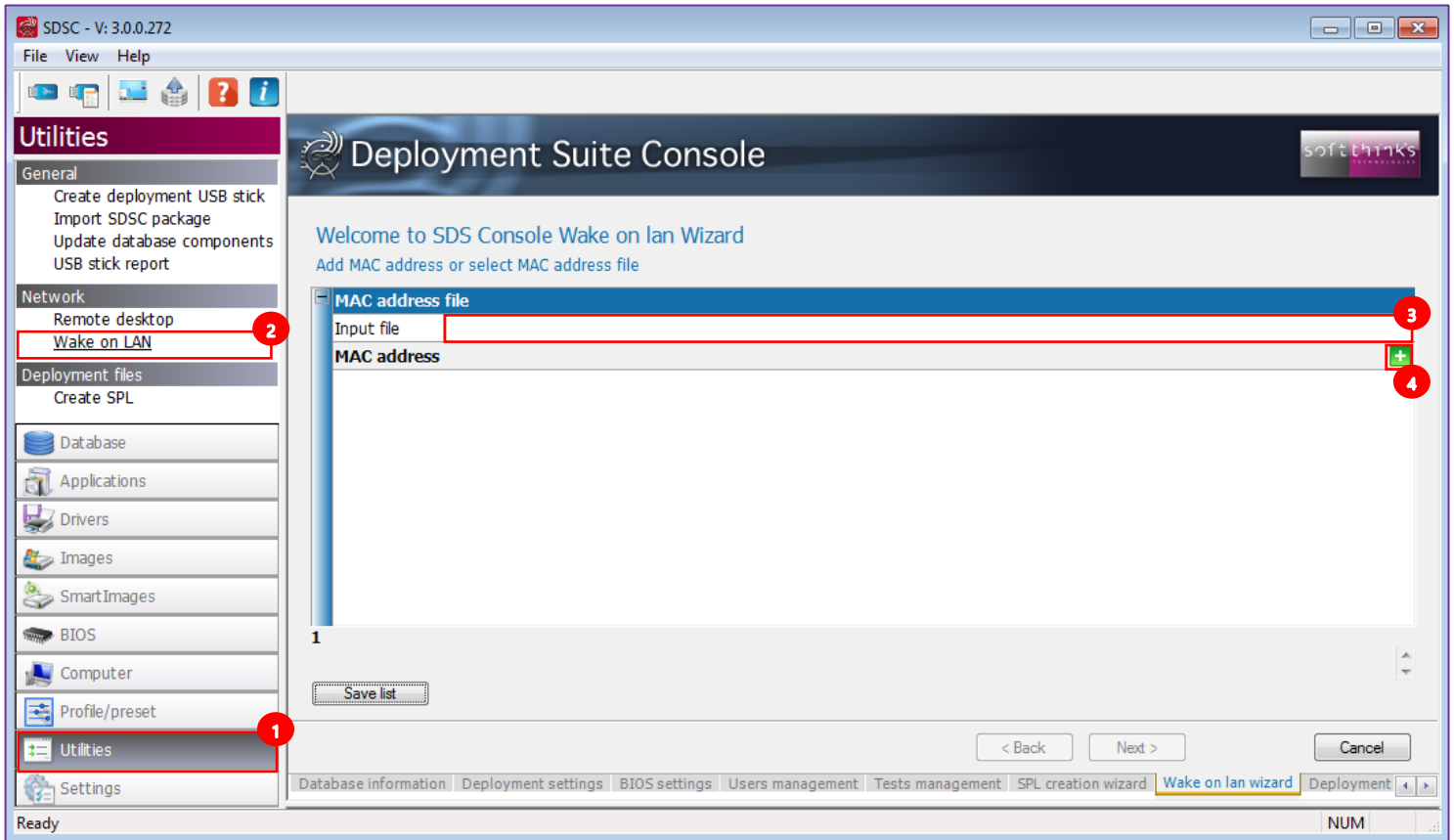


The screenshot shows a web-based interface titled "Deployment Suite Console" with a "softthinks" logo in the top right corner. The main heading is "Welcome to SDS Console Remote desktop connection" with a sub-heading "Manual connection". Below this, a message reads "Please fill all information and click on connect button...". There are four input fields: "IP address:" with the value "192 . 168 . 1 . 99", "Port:" with the value "5159", "Login:", and "Password:". At the bottom right, there are two buttons: "Connect" and "Cancel".

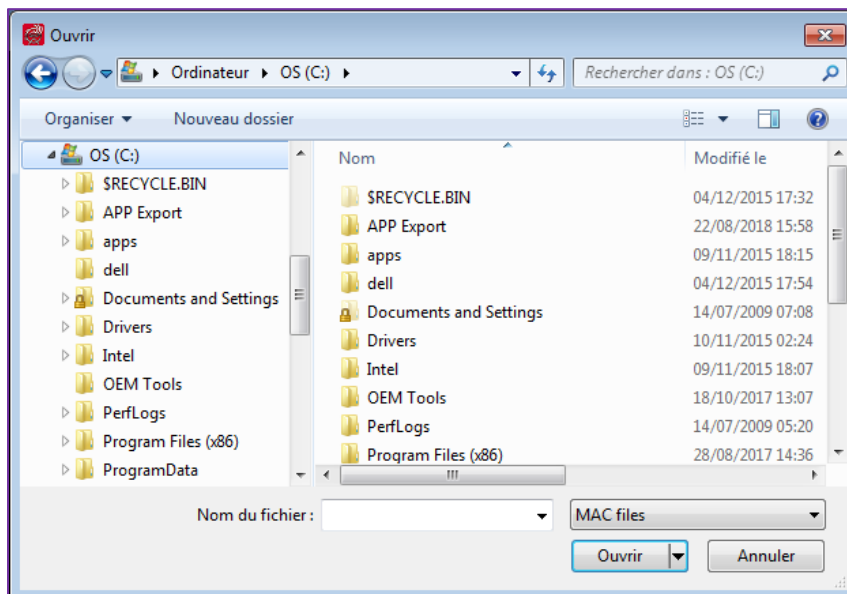
Wake on LAN



Use this utility to manage the Wake on LAN feature for devices which support it.

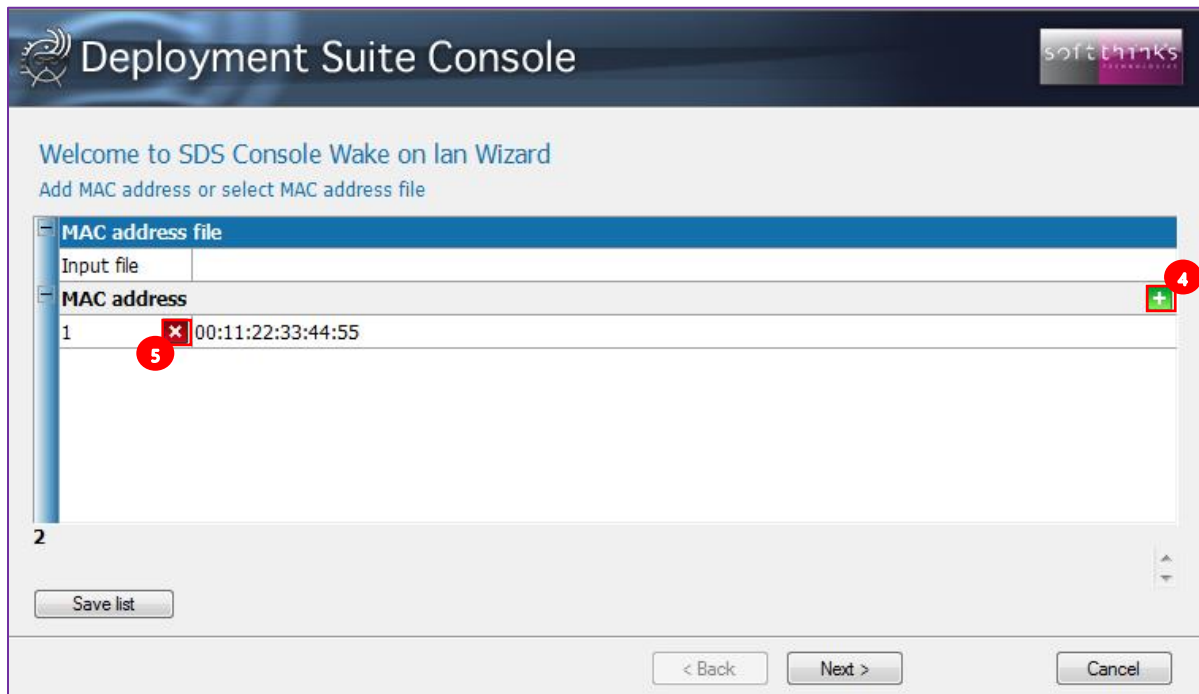
1. Click on the "Utilities" tab 1
2. Click on "Wake on LAN" 2



3. Click on the "Input File" field 3 and browse for the file containing the MAC addresses to add:



4. Or you can add manually a MAC address by clicking on the  button :



5. To delete a MAC address, click on the  button  in front of the MAC address you wish to delete.

Deployment Files

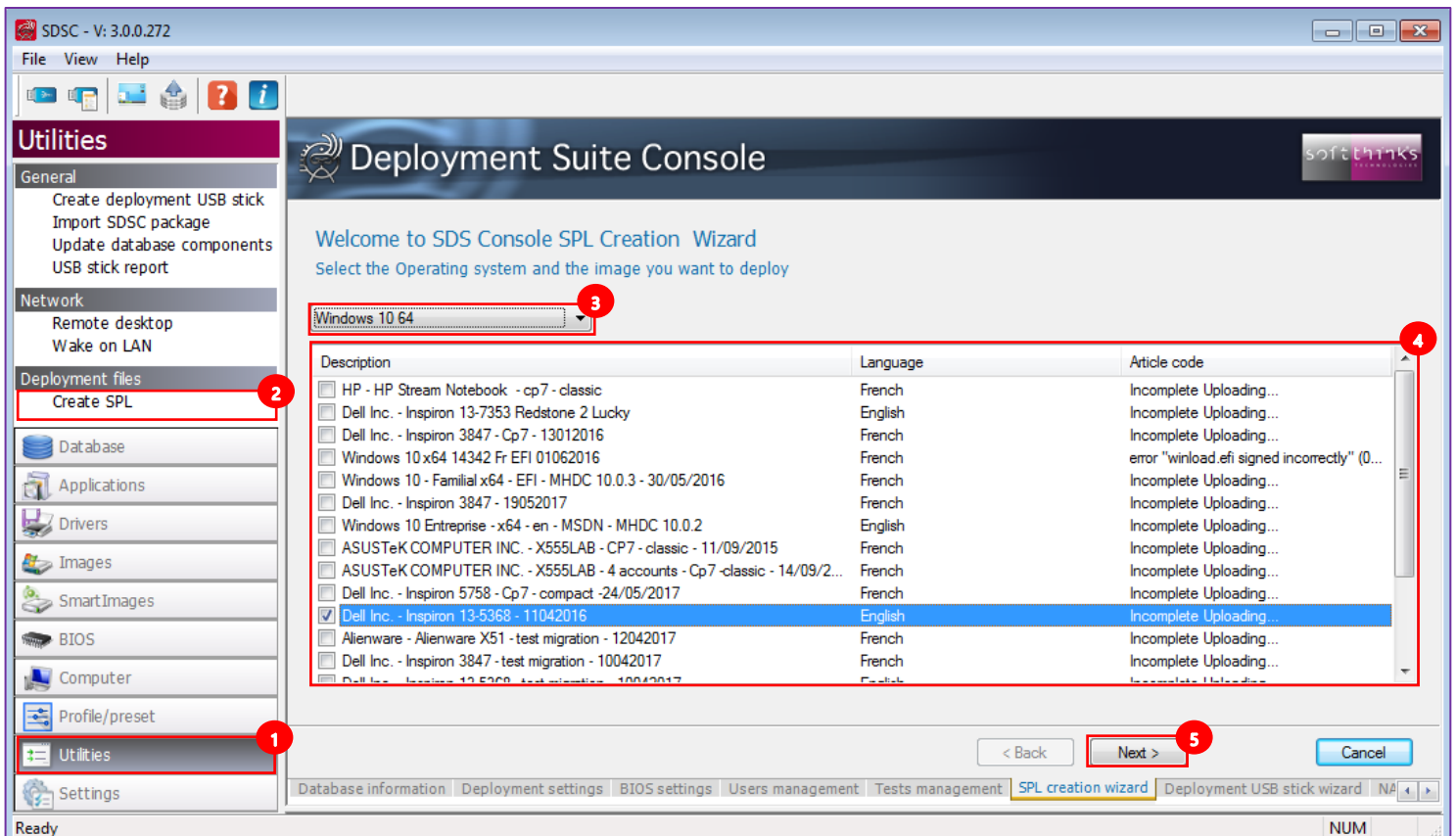
Create SPL

Note: SPLs are not commonly used any longer. They have been replaced with the ADF, Profile, and Preset files which are easily created directly from the source computers.

This utility generates SPL files containing information about what to automatically deploy to a specific model of computer. The SPL files are used for the automatic deployment of:

- Partition scheme,
- Tools used for enabling/disabling SDK features,
- Operating System,
- Smart Image,
- Applications,
- Drivers,
- Bundles,
- Security patches and updates,
- Tests to be run.

1. Click on the "Utilities" tab **1**
2. Click on "Create SPL" **2**
3. Select the Operating System **3**
4. Select the image you want to deploy in the list **4** (filtered by the OS you selected)
5. Click on the "Next >" button **5**



6. Select the recovery scenario and options **6** you would like to use:

Deployment Suite Console

Welcome to SDS Console SPL Creation Wizard
Select the recovery scenario & options you would like to use

Recovery & Options	
Recovery type	Recovery from specific partition
Manual size	<input type="checkbox"/> (No)
Size (MB)	500
Hide Boot Key	<input checked="" type="checkbox"/> (Yes)
RP at disk end	<input checked="" type="checkbox"/> (Yes)
Visible	<input type="checkbox"/> (No)
Brand used	Nothing
Use percent value	<input checked="" type="checkbox"/> (Yes -> Percent size)
Disk layout	GPT
Boot disk	<input type="button" value="+"/>

Recovery type
'Recovery_Type' value allow to set the recovery strategie used

< Back Next > Cancel

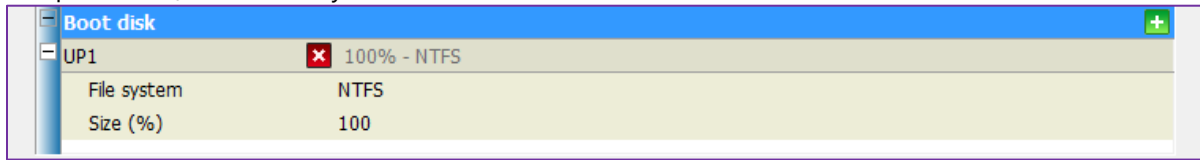
- **Recovery type:** Recovery scenario

- « No recovery »
- « Recovery from specific location »
- « Recovery from user partition »
- « No Recovery solution, use only original image disk typology »

If you choose the « Recovery from specific location » scenario you will have to set the parameters relevant to the Recovery Partition (RP):

- **Manual Size:** « Yes » to force the size of the Recovery Partition to the « **Size (MB)** » value (else the size is dynamically estimated)
 - **Hide Boot Key:** « Yes » to hide the message about the RP boot key
 - **RP at disk end:** « Yes » to create the RP at the end of the disk
 - **Visible:** « Yes » to make the RP visible
- **Brand used:** Customizes the interface of the restore solution for a brand (logo...). Default « nothing » in the absence of specific customization.
 - **Use percent value:** « Yes » to set the relative size (%) / « No » for absolute size (not relevant for the « No Recovery solution, use only original image disk typology » scenario)
 - **Disk Layout:** Layout (MBR/GTP) of the disk. Depends on the image selected and cannot be modified.

7. You can specify the partitions to create on the target disk during deployment in the Boot disk section **7** by clicking on the **+** button and by settings for each partition added its size (in % or in MB depending on « **User percent value** » parameter) and its file system:



On the RIS Server, the newly created SPL file must be placed in the following location:

- X:\SPL\SXXXXXXXXX.SPL

Note: This transfer to the server can be an automated process. The transfer MUST be completed prior to deploying (PXE booting on the RIS server) the image to the PC.

After the SPL has been placed in the above location on the RIS server, the selectorSRV service will translate the file and output to the following locations based on the following conditions:

- Success:
 - X:\SPL\Success\SXXXXXXXXX.SPL
 - X:\SPL\Success\SXXXXXXXXX.SDK
 - X:\Deploy\XXXXXXXXX.Selector.ini (Used for deployment)
 - X:\Deploy\XXXXXXXXX.RSSelect.ini (Used for deployment)
- Error:
 - X:\SPL\Error\S00000000.SPL

The following outlines the deployment process:

1. Create SPL file.
2. Transfer SPL file to the RIS server.
3. Start RIS deployment (PXE boot).
4. Deployment tools will read DMI field and find matching deployment .ini files.
5. Display "Software List" for download with confirmation screen.
6. Deploy software image to recovery partition (RP).
7. Disconnect from server.
8. Deploy from RP to UP.
9. Test.
10. Shutdown.

Please refer to [How to edit SPL Files](#) for more details on SPL files contents.

Find components

This new feature introduced in SDS 19.0 allow you to search for components of any type through their description (with wildcards):

The screenshot displays the 'Find components' utility in the SDS 20.0 interface. The search filter is set to 'dell'. The results table shows the following data:

Result	Type	Date	Language
Dell Inc. - Inspiron 5537 - 2210	Image	2018/10/22 22:08:59	French
SmartImage From Dell Inc. - ...	SmartImage	2019/06/14 20:36:46	English
Dell Inc. - Inspiron 5758	Image	2019/06/14 20:36:46	English
Dell Inc. - RS4 Gen Pro Skinny	Image	2018/07/09 14:49:52	English

The 'Output' window at the bottom shows the following log entries:

```

[03/10/2019 - 09:55:05] Closing boot image setting wizard
[28/11/2019 - 13:34:22] '1' item(s) matching requested filter
[28/11/2019 - 13:34:37] '4' item(s) matching requested filter
[28/11/2019 - 13:35:01] '4' item(s) matching requested filter
[28/11/2019 - 13:35:12] Starting database information dialog...
[28/11/2019 - 13:35:12] Showing 'Database release 18.0.0' database information from 'E:\REMOTEI
[28/11/2019 - 13:35:12] Updating database component information, please wait...
[28/11/2019 - 13:35:18] Starting application properties wizard...
[28/11/2019 - 13:35:18] Displaying 'APP000003' application properties
[28/11/2019 - 13:35:18] Starting application properties wizard...
[28/11/2019 - 13:35:18] Displaying 'APP000003' application properties
[28/11/2019 - 13:35:20] Starting driver properties wizard...
[28/11/2019 - 13:35:20] Displaying drivers by Categories: '7' items
[28/11/2019 - 13:35:41] Starting BIOS image properties wizard...
[28/11/2019 - 13:35:41] Displaying 'BIOS000000' BIOS properties
[28/11/2019 - 13:36:38] Updating database component information, done.
    
```

Once you found the component you were searching for, you can directly delete it, edit it, show it or copy it to another database through the contextual menu displayed when you right click on any item of the search results:

The screenshot shows the 'Find components' utility with a right-click context menu over the search results. The menu options are:

- Delete
- Edit
- Show
- Copy to >
 - Database
 - Database release 18.0.0

Settings

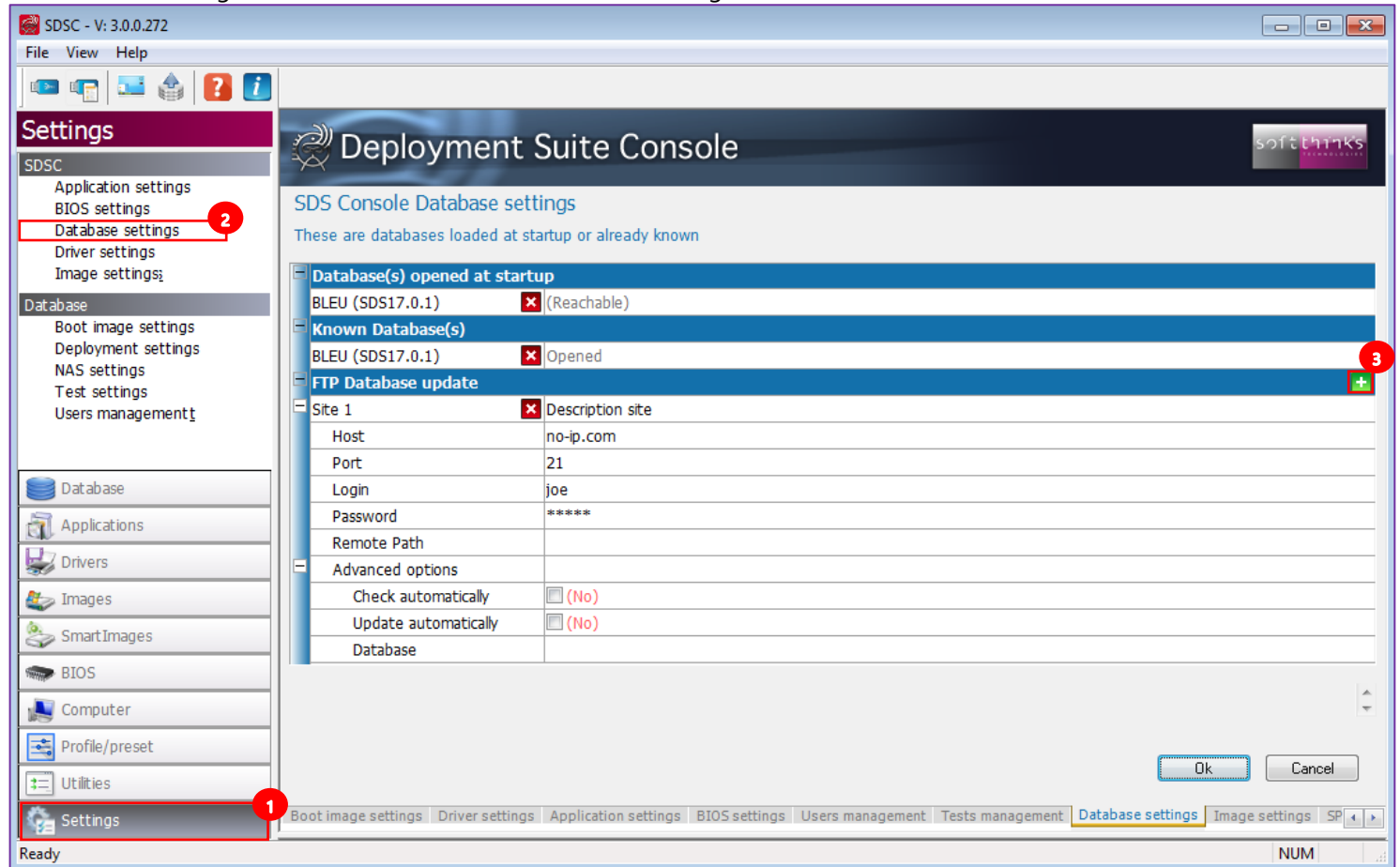
SDSC

Database settings

You will find the database settings below:

- Database(s) opened at startup
- Known Database(s)
- FTP Database update (See [Update database components](#))

Click on the "Settings" tab **1** and then on the "Database settings" item **2** :



You can enter several FTP sites for the database update feature by clicking on the **+** button **3** and filling in those fields:

- **Site <x>**: FTP description
- **Host** : FTP address (domain name or IP)
- **Port**: FTP port (21 by default)
- **Login/Passwor**: FTP credentials
- **Remote path**: Remote path where is located the master database
- **Advanced options**
 - **Check automatically**: « Yes » to automatically check for a new update
 - **Update automatically**: « Yes » to apply automatically an update
 - **Database**: Database to update

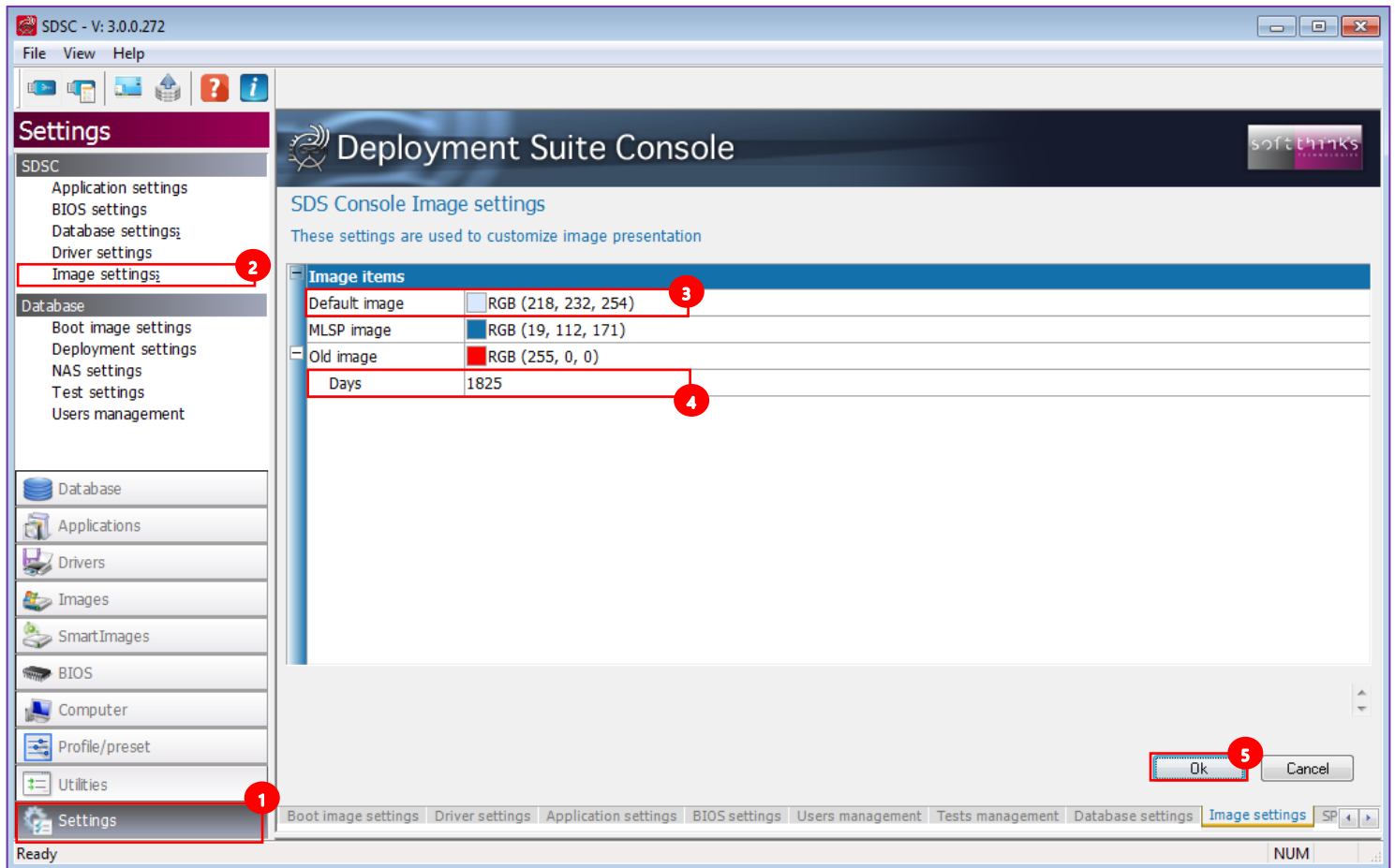
To remove an FTP site, click on the **✖** button in front of it.

Image settings

When you look at the images list you might notice that some of those images have a specific background color. Those different background colors allow you to quickly identify which ones are default deployment images, which ones are multilingual and which ones are old.

You can customize those colors as well as the number of days after which you consider an image as old.

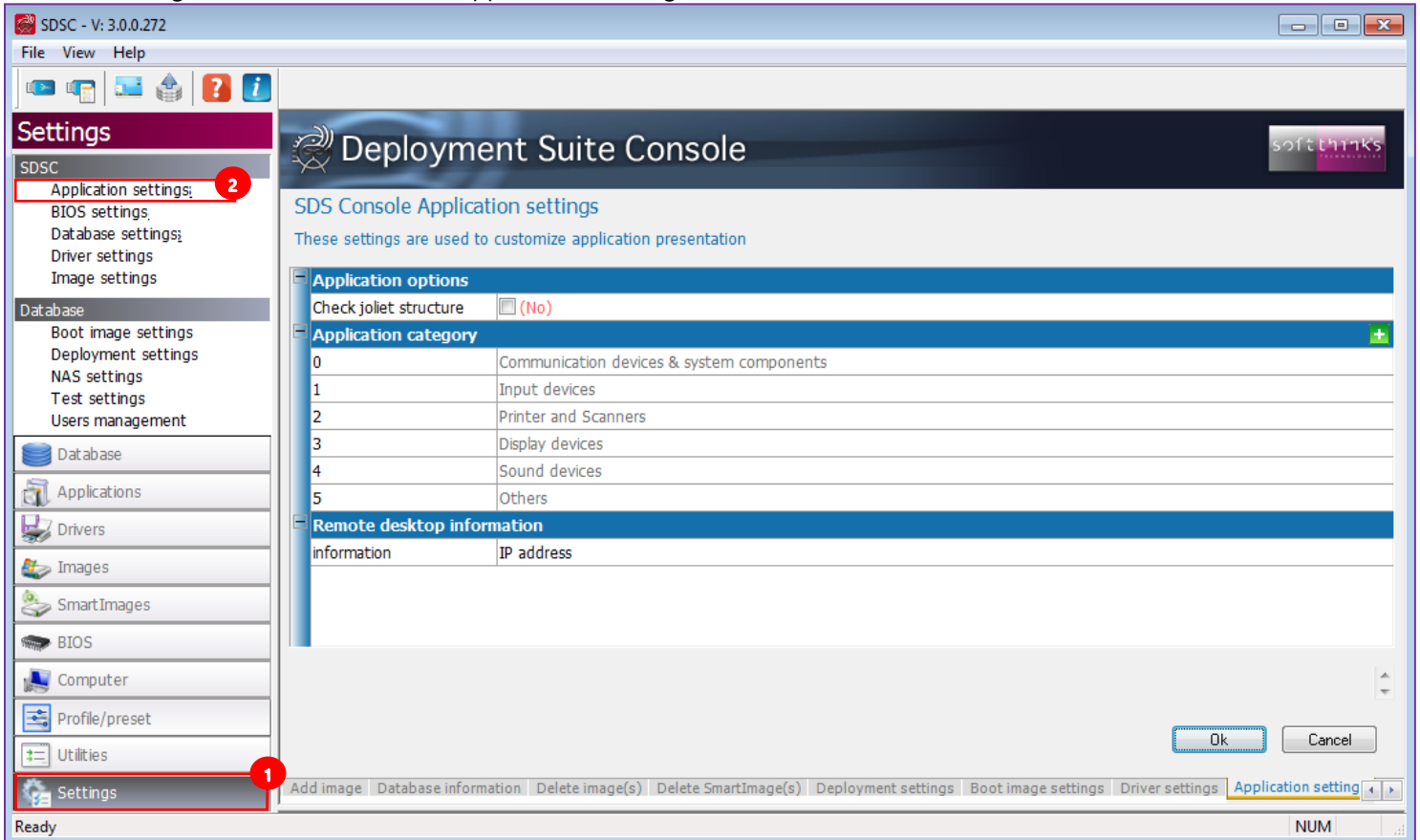
1. Click on the "Settings" tab 1
2. Click on "Image settings" 2



3. Click on the image type for which you want to change the background color (Default image in our screenshot) and select the new color. 3
4. Indicate the number of days after which you consider an image as old 4
5. Click on the "OK" to apply your changes 4

Application settings

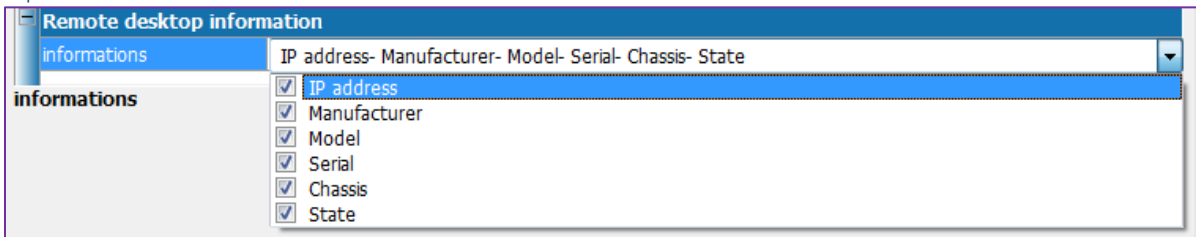
Click on “Settings” tab **1** and then on “Applications settings” **2**:



Application options

Check the « Check Joliet structure » option to ensure that the directories containing applications are compliant to ISO9660 + Joliet. This is helpful when applications are stored on optical media.

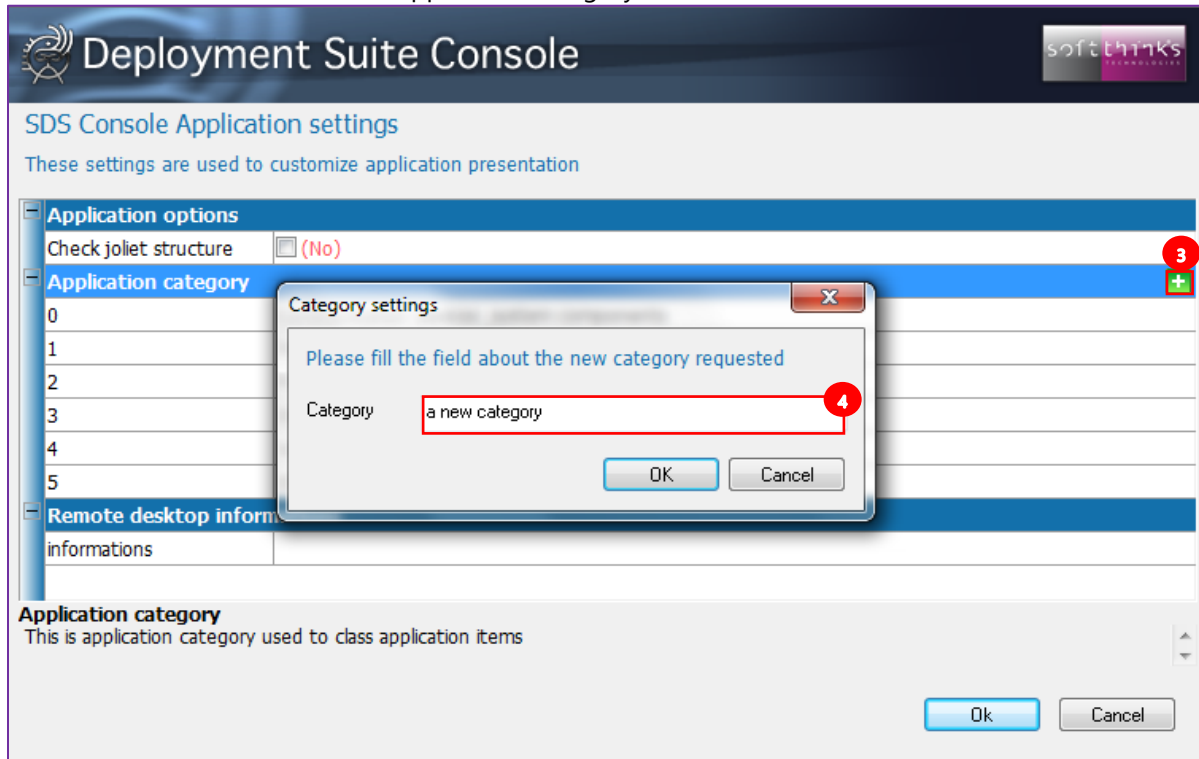
Remote desktop information



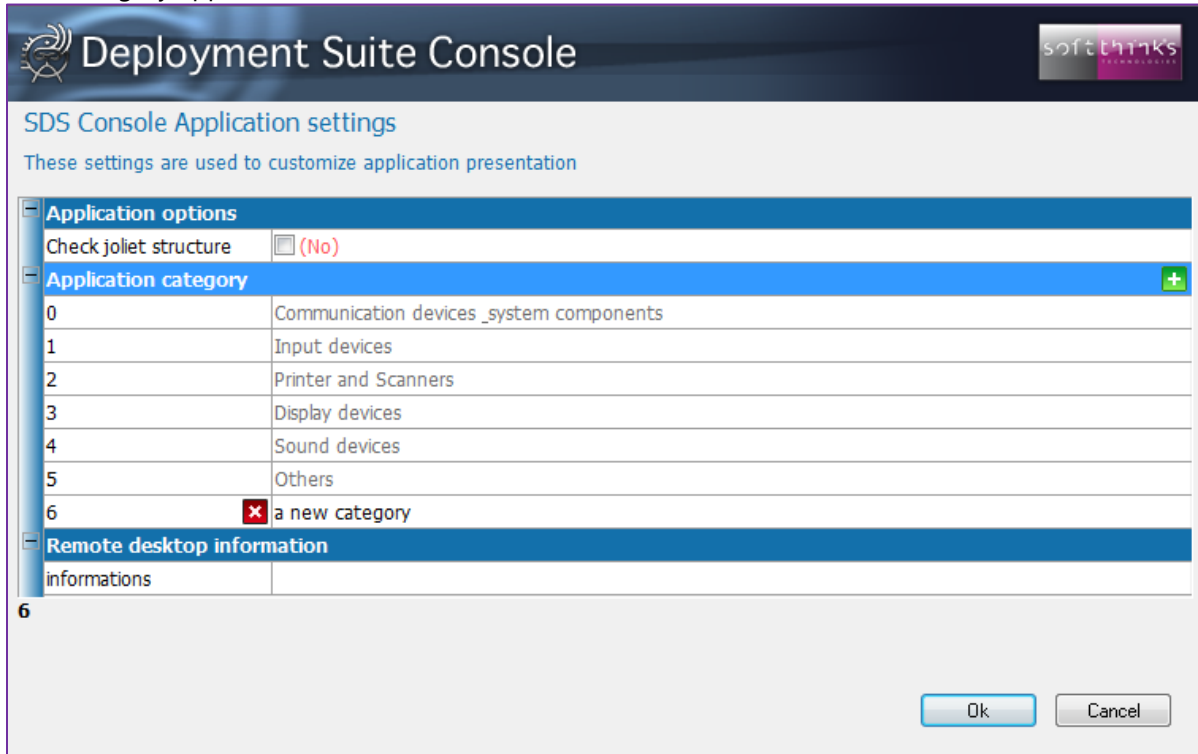
Application categories


An application category is used to define the type of application in the database. This is useful for organizing the database and makes sorting and searching by category easier. You may add new categories to the Application type and these will be available when creating or editing an application in the database.

1. Click on the **+** button **3** to add an application category enter its name in the text field **4**:



- The new category appears at the end of the list:

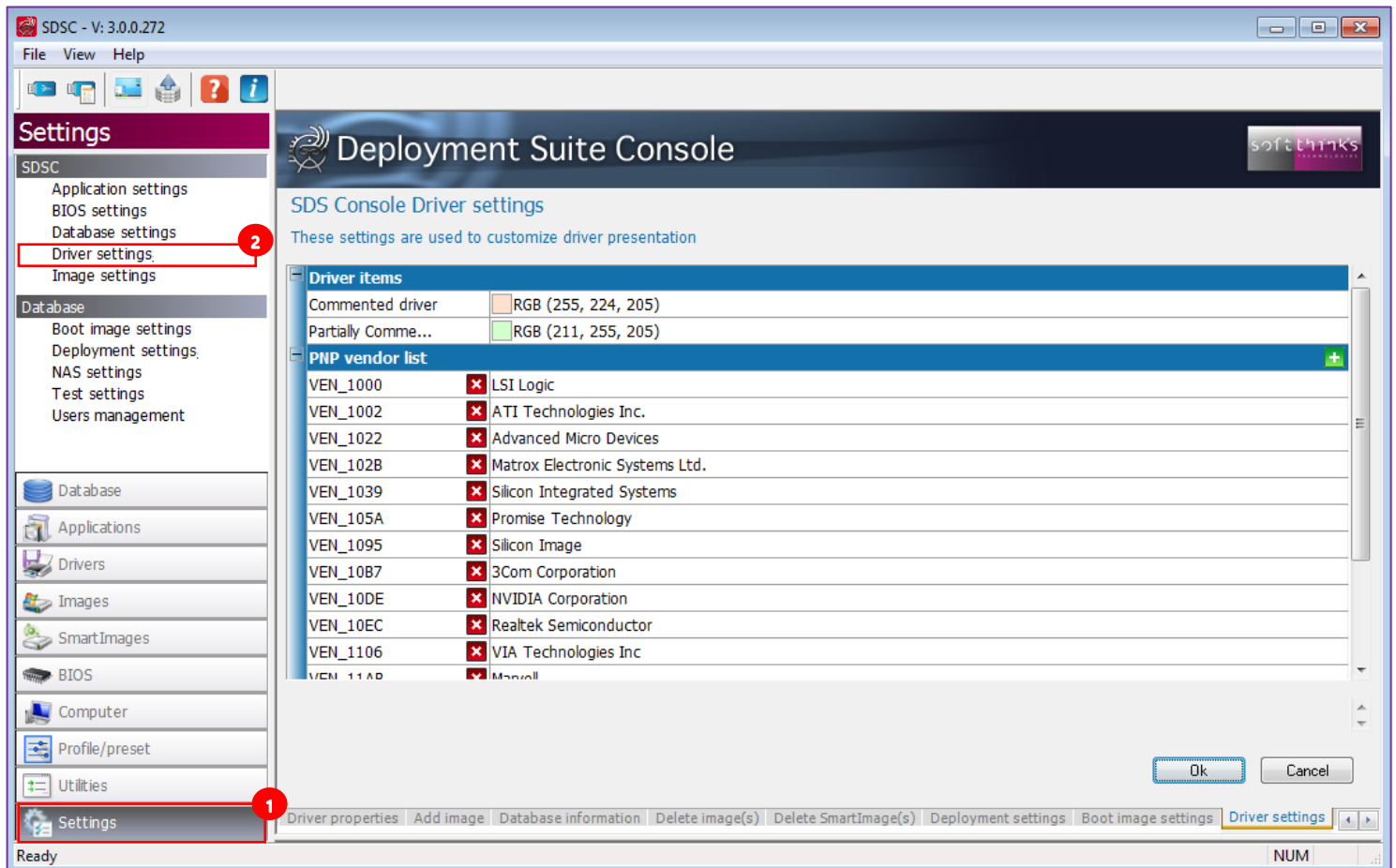


Hint: Click on the  button in front of a category you added to delete it (you cannot remove predefined application categories).

Driver settings

The driver settings are used to customize driver presentation.

1. Click on the "Settings" tab 1
2. Click on the "Driver settings" operation 2



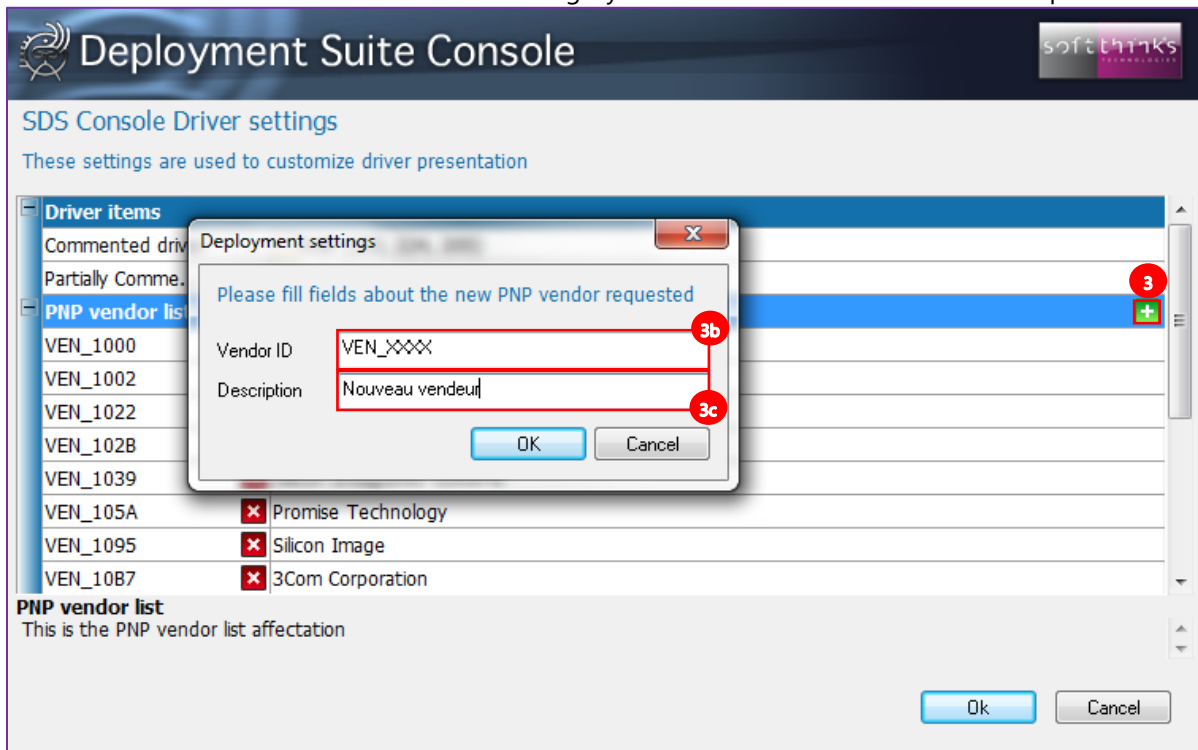
Driver items

You can customize the background color of the drivers depending if they are commented or partially commented.

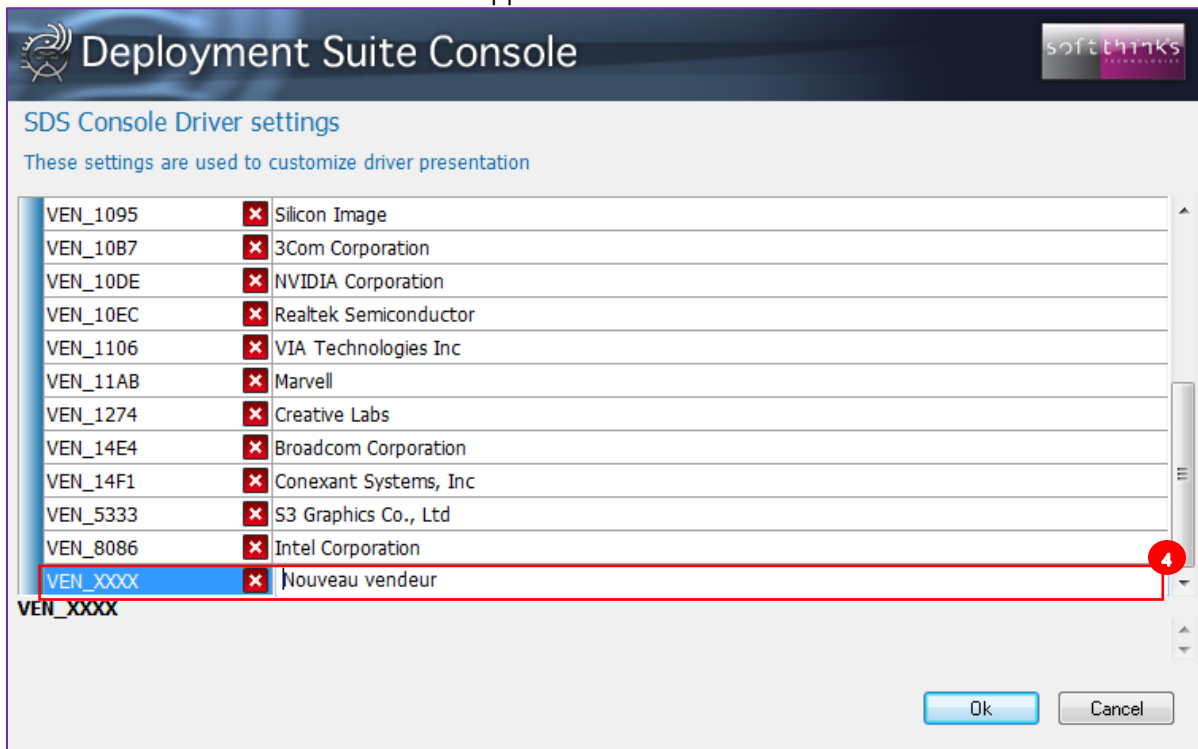
PNP vendor list

A vendor category is used to define the type of drivers in the database. This is useful for organizing the database and makes sorting and searching by category easier. You may modify, add and remove categories and these will be available when creating or editing a driver in the database.

3. Click on the **+** button **3** to add a new vendor category and fill the Vendor ID **3b** and Description **3c** text fields:



4. The new Vendor ID manufacturer name will appear at the end of the list:

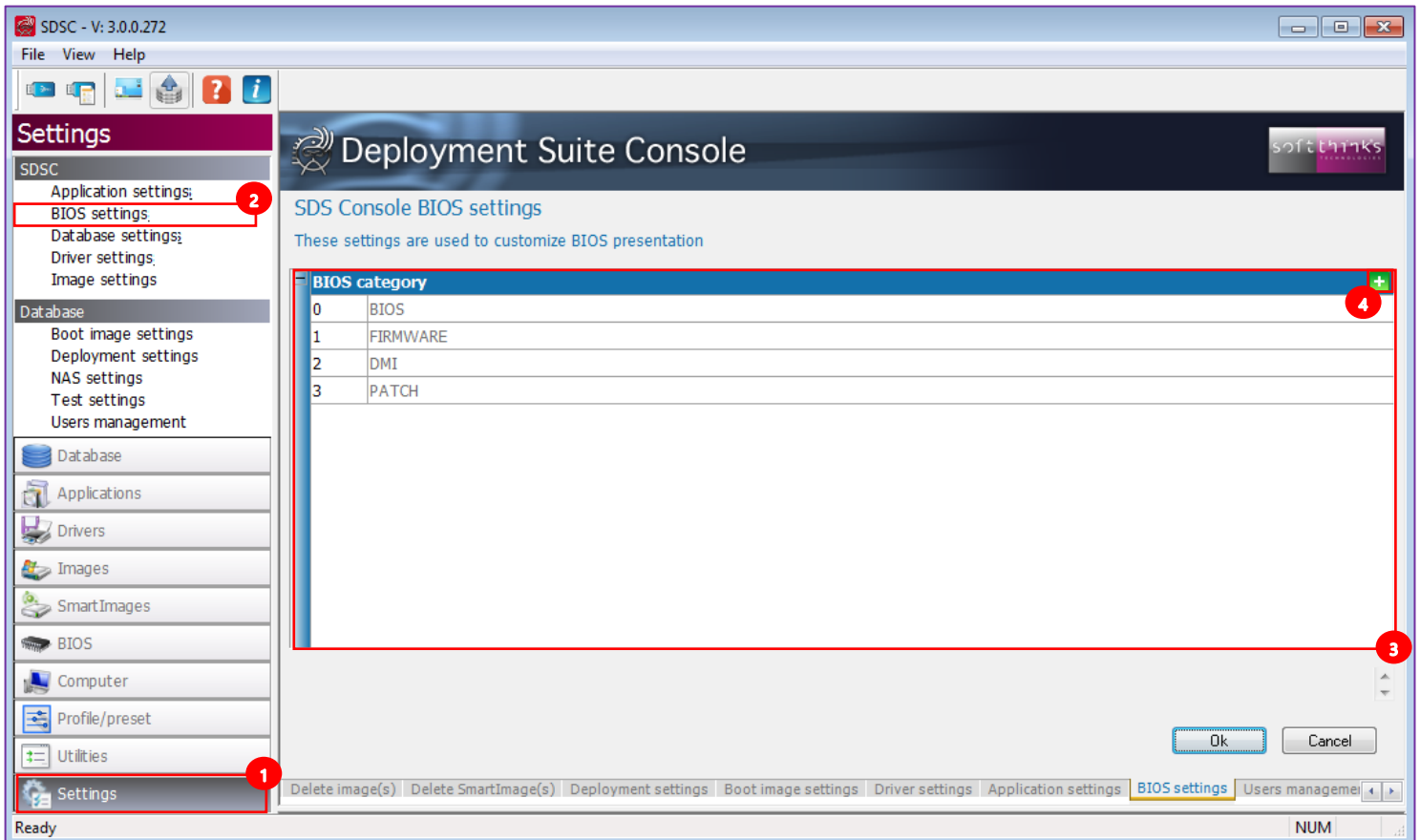


Hint: Double-click on an item to edit it and click on the **✖** button in front of a category to delete it.

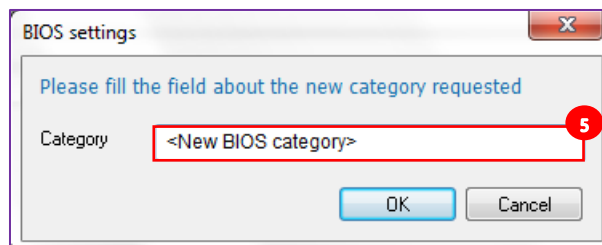
BIOS settings

A BIOS category is used to define the type of BIOS component in the database. This is useful for organizing the database and makes sorting and searching by category easier. You may add new categories to the BIOS component type and these will be available when creating or editing BIOS components in the database.

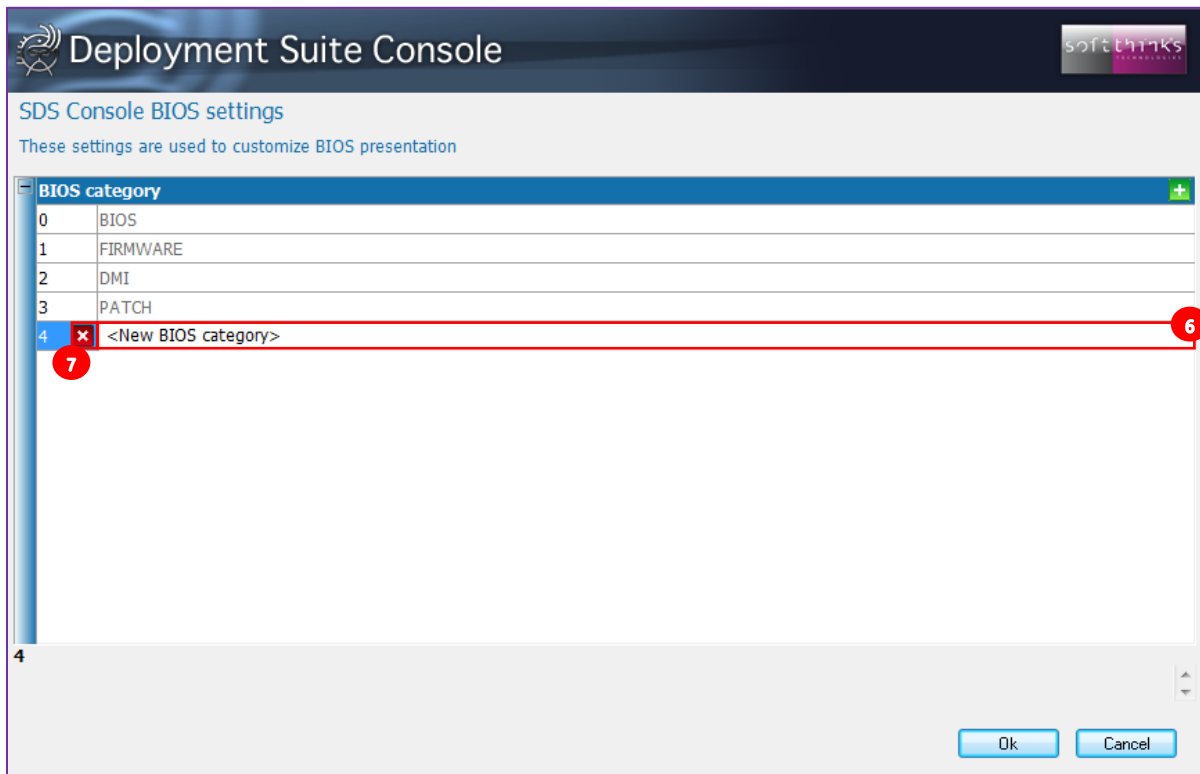
1. Click on the "Settings" tab **1**
2. Click on "BIOS settings" **2**
3. You will see the current BIOS categories on the right **3**. Here you have the predefined categories which cannot be modified or deleted.



4. If you want to add your own category, click on the **+** button **4** to add a new BIOS component category
5. Enter its name **5** in the pop-up dialog box which appears:



6. The new category is added to the list **6** and you can directly rename it by double-clicking on it



7. To delete a non-predefined category, click on the **X** button in front of it **7**.

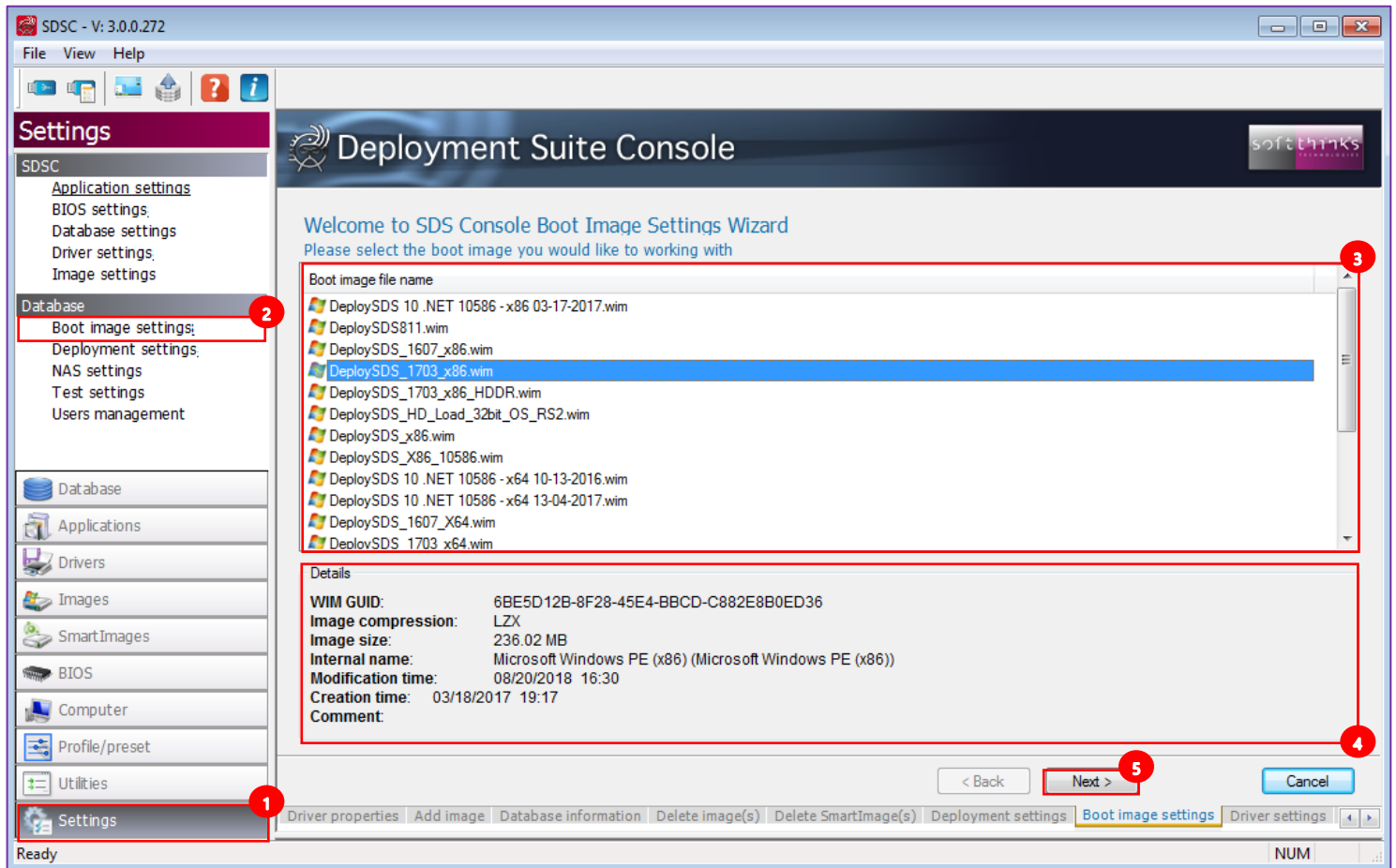
Database

Boot Image settings

The SDS Console Boot Image Settings Wizard allows you to perform several operations on boot images:

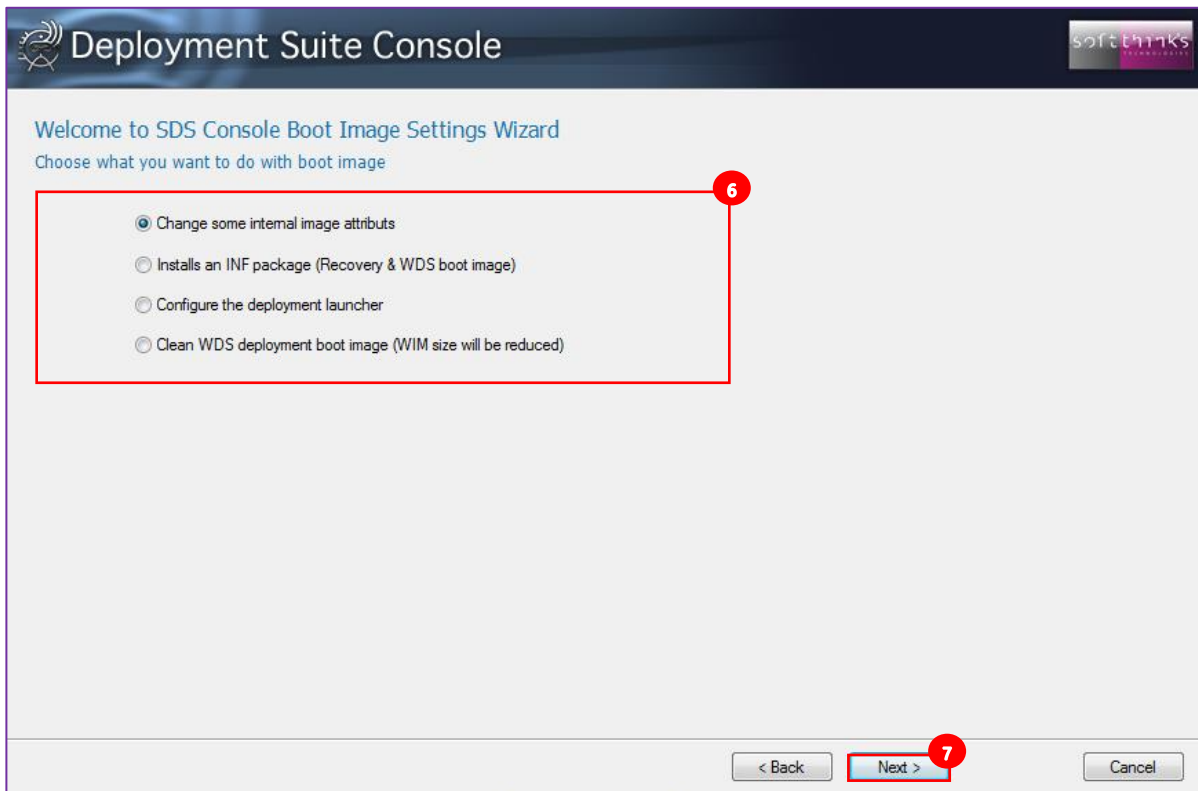
- Modifying some internal attributes
- Injecting driver(s) to a boot image
- Configuring the deployment launcher: domain, username, password...
- Cleaning up WDS Boot Image (image size will be reduced)

1. Click on the "Settings" tab **1**
2. Click on "Boot image settings" **2**



3. Select the boot image you would like to work with **3**
4. You can review the selected image properties in the Details section at the bottom **4** to confirm your choice
5. Click on the "Next >" button **5**

6. Choose the action you want perform on the selected boot image **6** :




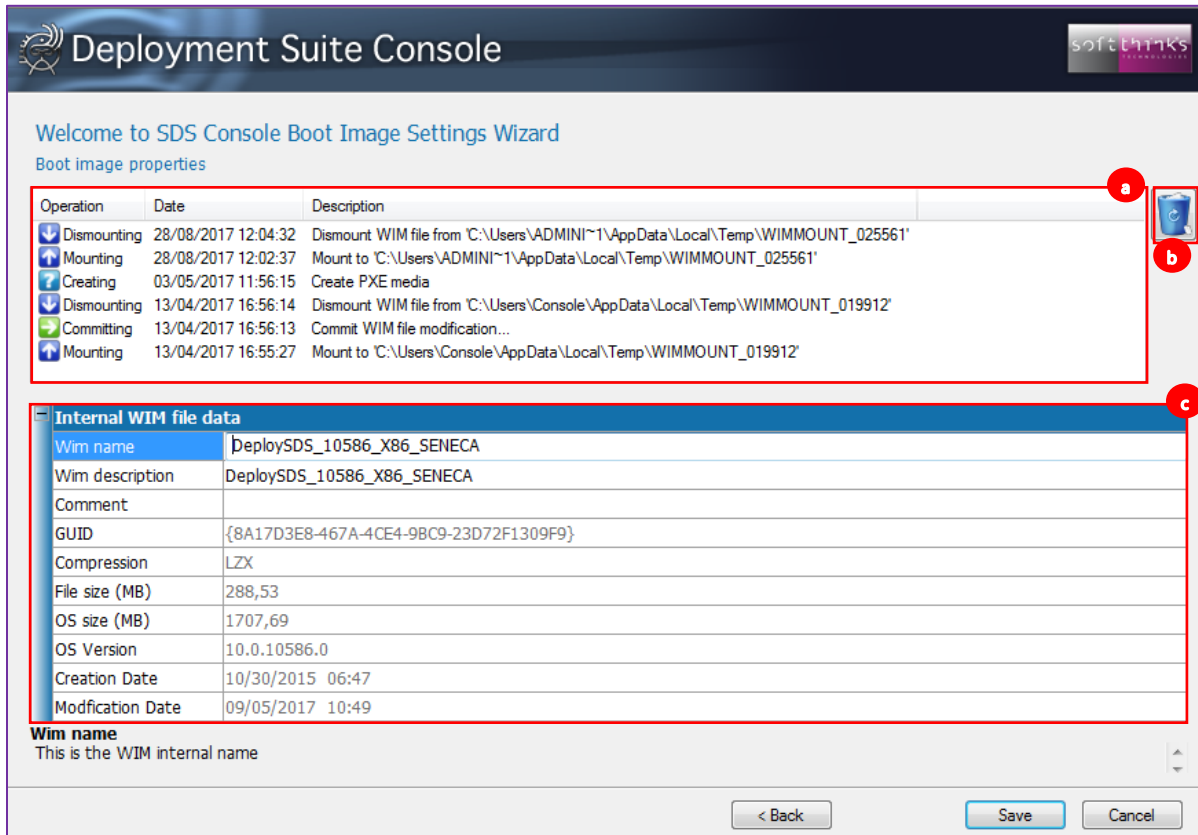
- **Change some internal image attributes:** View and edit the boot image activities and properties
- **Installs an INF package (Recovery & WDS boot image):** Inject a driver in the boot image
- **Configure the Deployment launcher:** View and edit the properties of the deployment launch process
- **Clean WDS deployment boot image:** Clean up the boot image from older copies of files modified

7. And click on the "Next >" button

8. If you selected "Installs an INF package (Recovery & WDS boot image)" as in our screenshot above, please refer to [Injecting a driver \("Inject Driver\(s\)" operation\)](#).

- Change some internal image attributes

If you selected the “Change some internal image attributes” option in step 6, you can view the last activities made on the selected boot image **a** and purge this history by clicking on the  button **b** :

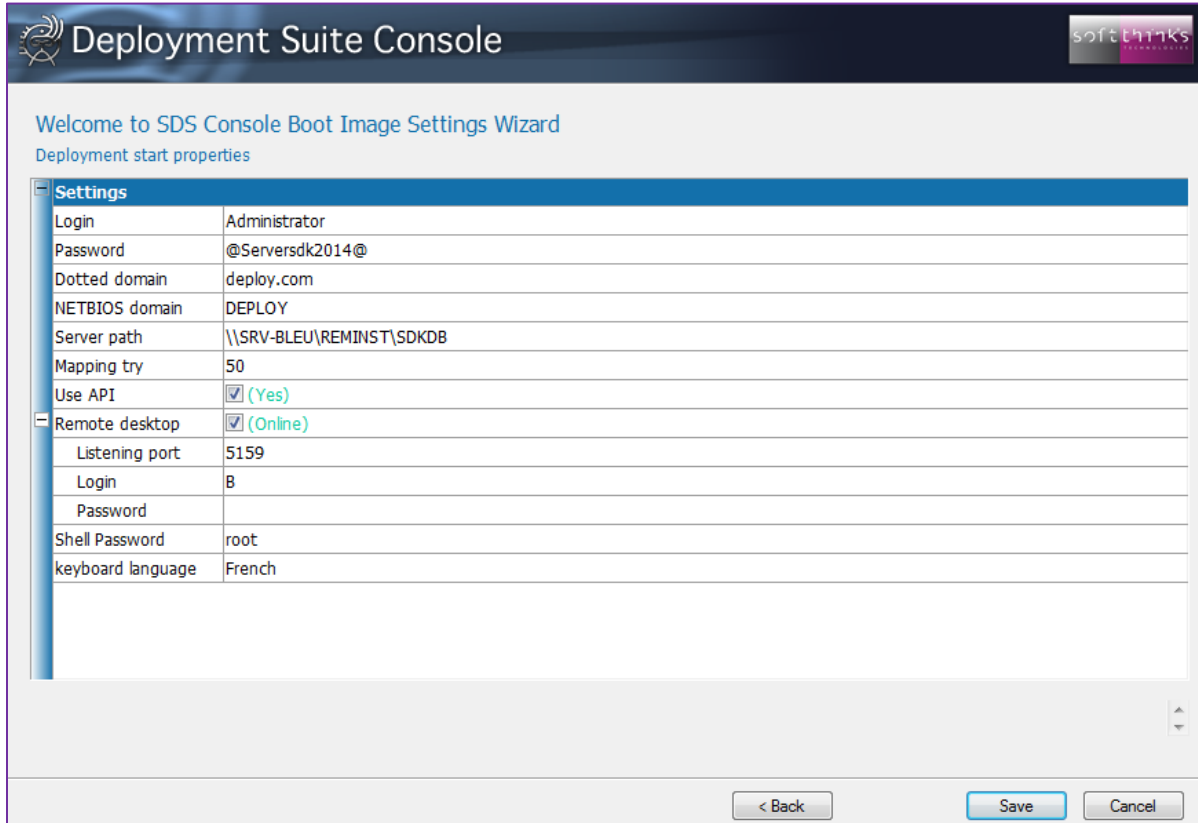


You can also view the boot image properties **c** and modify some of them (the first three):

- **Wim name:** Boot image name
- **Wim description:** Boot image description
- **Comment:** Optional comment
- **GUID:** Boot image ID
- **Compression:** Compression method (LZX...)
- **File Size (MB):** Boot image size (compressed)
- **OS Size (MB):** Boot image contents size (uncompressed)
- **OS Version:** Version of the boot image OS
- **Creation Date:** Boot image creation date
- **Modification Date:** Boot image last modification date

- Configure the Deployment launcher

If you selected the “Configure the Deployment launcher” option in step 6, you can change attributes related to networking so a network connection can be established during deployment to transfer data to the target system:



Deployment Suite Console

Welcome to SDS Console Boot Image Settings Wizard

Deployment start properties

Settings	
Login	Administrator
Password	@Serversdk2014@
Dotted domain	deploy.com
NETBIOS domain	DEPLOY
Server path	\\SRV-BLEU\REMINST\SDKDB
Mapping try	50
Use API	<input checked="" type="checkbox"/> (Yes)
Remote desktop	<input checked="" type="checkbox"/> (Online)
Listening port	5159
Login	B
Password	
Shell Password	root
keyboard language	French

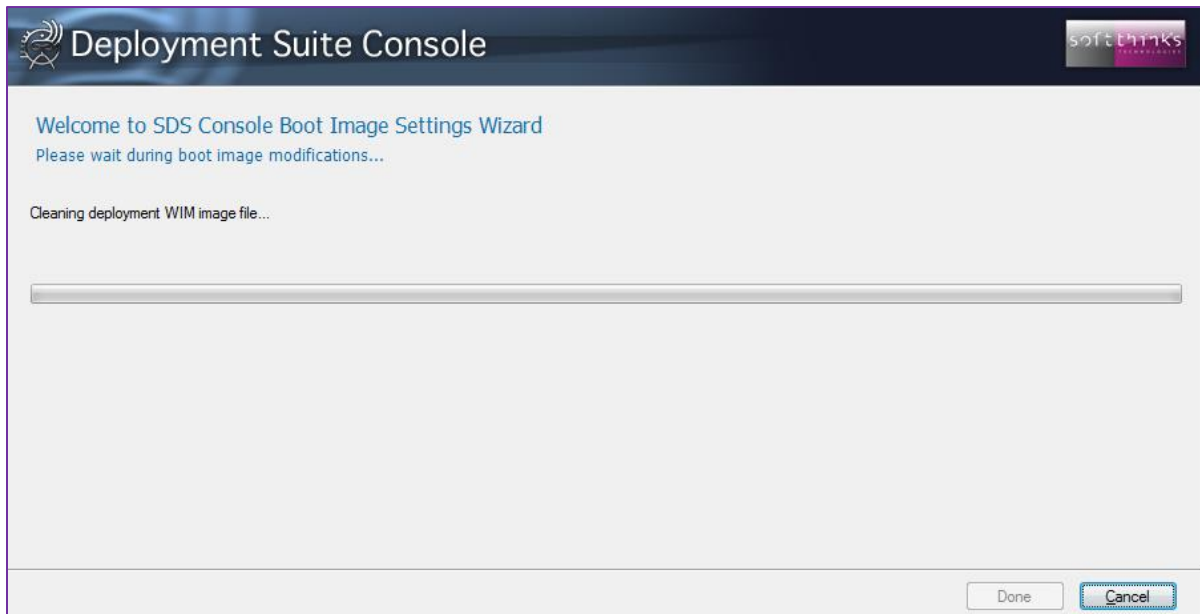
< Back Save Cancel

- **Login / Password:** Network credentials to use when mapping the “N:” drive on the deployment server
- **Dotted domain:** Fully qualified Windows Server domain name of the deployment server
- **NETBIOS domain:** Domain name of the deployment server used by systems before Windows 2000
- **Server path:** UNC path to the database on the server
- **Mapping try:** Number of times to retry if mapping fails
- **Use API:** Use the Microsoft connect API if a standard ‘net use’ failed to connect to server (leave it checked unless you encounter connection issues)
- **Remote desktop:** « Yes » to activate remote desktop feature
 - **Listening port:** Port used to listen for incoming connection
 - **Login / Password:** Credentials to open a remote session
- **Shell password:** Password required to launch the shell. Leave it empty unless you want to enter credentials.
- **Keyboard language:** Keyboard layout

Note: If you change the Administrator password on the server, don’t forget to update it here or else the devices will no longer be able to connect to the server.

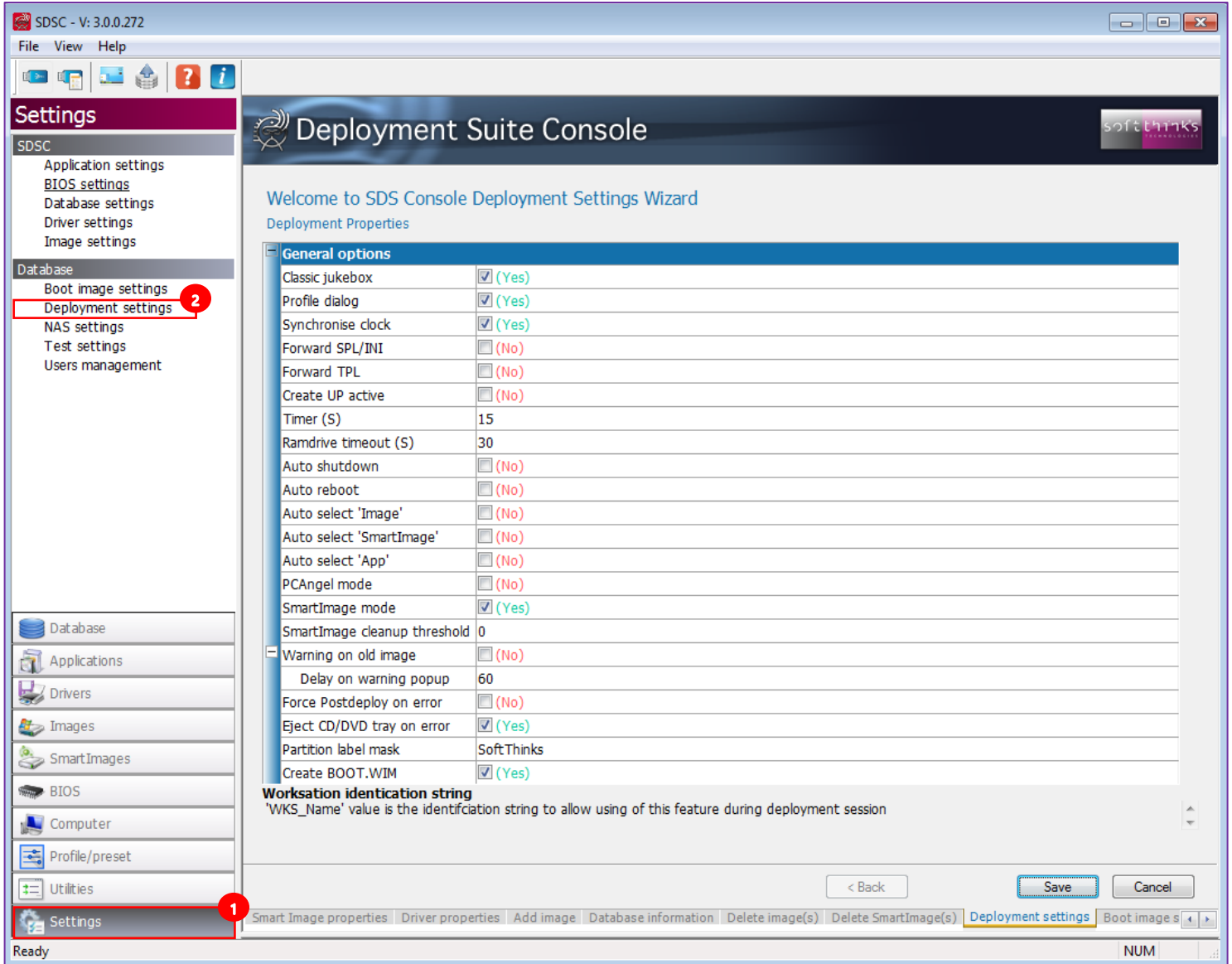
- Clean WDS deployment boot image

If you selected the “Clean WDS deployment boot image” option in step 6, we will remove all the previous versions of the modified files and so will decrease the boot image size (each time you update the boot image its size increases, because instead of replacing the old version of a modified file, it adds the new version to the image):



Deployment settings

1. Click on the "Settings" tab 1
2. Click on "Deployment Settings" 2 to customize the deployments:



General options

- **Classic Jukebox:** Present a skip button on profile dialogue box if no preset is found for the jukebox mode
- **Profile Dialog:** Show the Profile Dialog box otherwise going directly to the jukebox mode
- **Synchronize Clock:** Synchronize the target device CMOS clock with the date and time from the server
- **Forward SPL/INI:** Copy SPL and deployment INI files to UserPartition:\Windows\Options folder
- **Forward TPL:** Forwards the TPL file to the deployment server after deployment completes
- **Create UP Active:** Ensure that the user partition is set to active
- **Timer (S):** Time before deployment begins and before a reboot occurs after deployment completion
- **Ramdrive timeout:** The time to wait to retry accessing the Ramdrive
- **Auto shutdown:** Automatically shutdown the device at the end of a successful deployment
- **Auto reboot:** Automatically reboot the device at the end of a successful deployment
- **Auto select 'Image':** Automatically select the image during the deployment
- **Auto select 'SmartImage':** Automatically select the SmartImage that is compliant with the image if available
- **Auto select 'App' :** Automatically selected applications during deployment
- **PCAngel mode:** Kept for compatibility. Do not modify
- **SmartImage mode:** « Yes » to create a Smart Image based on plugged disk
- **SmartImage cleanup threshold:** Delete the previous SmartImage when creating a new one
- **Warning on old image:** Display a message when the image selected is older than « **Delay on warning popup** » days if no SmartImage has been selected
- **Force PostDeploy on error:** Force PostDeploy on error
- **Eject CD/DVD tray on error:** Eject optical device tray on error
- **Partition label mask:** User partition label mask
- **Create BOOT.WIM:** Create the boot image for the recovery solution

Recovery partition options

Recovery partition options	
Automatic mode	<input type="checkbox"/> (No)
Recovery type	Recovery from specific partition
Manual size	<input type="checkbox"/> (No)
Size (MB)	2000
Hide Boot Key	<input type="checkbox"/> (No)
Timeout (Sec)	6
Create NTFS RP	<input type="checkbox"/> (No)
RP at disk start	<input type="checkbox"/> (No)
Visible	<input type="checkbox"/> (No)
Change partition t...	<input checked="" type="checkbox"/> (Yes)
Language	Auto
Brand used	

- **Automatic mode:** Bypass recovery options at run time
- **Recovery type:** System recovery scenario:
 - "No recovery"
 - "Recovery from specific location"
 - "Recovery from user partition"
 - "No Recovery solution, use only original image disk typology"

If you select the "Recovery from specific location" option you have to fill those settings:

- **Manual Size:** "Yes" to force the Recovery Partition size to the "Size (MB)" value (else it will be estimated dynamically)
 - **Hide Boot Key:** "No" to show the message inviting the user to press a key to boot into the RP during "Timeout (Sec)"
 - **Create NTFS RP:** "Yes" to format the RP in NTFS filesystem
 - **RP at disk start:** "Yes" to create the RP at the start of the disk
 - **Visible:** "Yes" to make the RP visible (in Windows explorer for example)
 - **Change partition type:** "Yes" to change the partition type
- **Language:** Recovery solution language ("Auto" to let it dynamically detected)
 - **Brand used:** To customize the recovery solution interface to as specific brand (logo...)

Note: Windows 10 does not allow for a separate Recovery Partition. The two viable options for Windows 10 are "No recovery" and "No Recovery solution, use only original image disk typology".

ODM option

ODM options	
Network path	x:\
Status path	x:\
Enable load balancing	<input type="checkbox"/> (No)
Cluster path	x:\Cluster
Load balancing method	

- **Network Path:** Drive letter where the root of the deployment files is located
- **Status Path:** Path where deployment status will be saved. Depending on pass or fail status, different info will be saved here
- **Enable Load Balancing:** Allows DeployJB to map to a different server if primary server is too busy
 - **Cluster path:** Path where network cluster is located
 - **Load Balancing method:** Trigem or Quanta Load balancing method

Updating master options

Updating master options	
Use computer PNP	<input checked="" type="checkbox"/> (Yes)
New format	<input checked="" type="checkbox"/> (Yes)

- **Use Computer PNP:** Use all PNP that can be detected on the PC. If no, use only the driver from selector.ini
- **New Format:** Leave this setting set to 1. Changing this will remove the benefit of the new database format

Reseal options

Reseal options	
Forward request	<input type="checkbox"/> (No)
Output passed folder	\\192.168.X.X\reminst\sdkdb\passed
Output failed folder	\\192.168.X.X\reminst\sdkdb\failed
Login	XXXXX@deploy.com
Password	XXXXXX
Login timeout (S)	15
Forward TPL file	<input type="checkbox"/> (No)
Forward XPL file	<input type="checkbox"/> (No)
Forward SPL file	<input type="checkbox"/> (No)
Forward INI file	<input type="checkbox"/> (No)

- **Forward request:** Send reseal information to the server
 - **Output passed folder:** Storage location for machine-specific info from target system after reseal occurs in audit mode successfully
 - **Output Failed folder:** Storage location for machine specific info from target system after reseal occurs in audit mode with failure
 - **Login / Password:** Credentials to log onto server
 - **Login timeout:** Time to wait before retry to login
 - **Forward TPL file:** Include TPL file as part of info to send to server
 - **Forward XPL file:** Include XPL file as part of info to send to server
 - **Forward SPL file:** Include SPL file as part of info to send to server
 - **Forward INI file:** Include INI file as part of info to send to server

Precheck test options

Precheck test options	
Force Precheck manually	<input checked="" type="checkbox"/> (Yes)
Start Precheck even ...	<input type="checkbox"/> (No)
Sector used	45
Value passed	PASS
Value failed	FAIL
Executable	bit32.exe
Command line	-D 5 -R -X -C test_rapide.bitcfg
Valid exit code	0
Invalid exit code	0
Time Out	8
Action to process	Continue
Diagnostic path	X:\burnintest
Scripts folder	X:\

- **Force Precheck manually:** Allow to start Precheck test manually
- **Start Precheck even if a disk is absent:** Start Precheck even if is a disk is not plugged to the device
- **Sector used:** Sector on the HDD where is stored the test status
- **Value passed:** Value written to the sector when the diagnostics pass
- **Value failed:** Value written to the sector when the diagnostics fail
- **Executable:** Executable to launch for the diagnostic tests
- **Command Line:** Switches for the executable
- **Valid Exit Code:** Exit code for "PASS" condition of the diagnostics
- **Invalid Exit Code:** Exit code for "FAIL" condition of the diagnostics
- **Action to Process:** If test passes, continue deployment
- **Diagnostic path:** Location of the files used for diagnostics
- **Scripts folder:** Location of the diagnostics scripts

BurnInTest test options

BurnInTest test options	
Executable	
Command line	
Result folder	
Pass flag file	
Invalid flag file	
Result folder	

- **Executable:** BurnInTest executable to launch
- **Command Line:** BurnInTest executable command line arguments
- **Result Folder:** Location where BurnInTest results are stored
- **Pass flag file:** Flag file created for pass condition
- **Invalid flag file:** Flag file created for fail condition
- **Result Folder:** Folder where previous flags file will be present

Customer options

Customers options	
Pre_Send_result	<input type="checkbox"/> (No)
Wait for profiles	<input checked="" type="checkbox"/> (Yes)
Ask for profile	<input type="checkbox"/> (No)
Retry	3
Delay (S)	30
Create TAG file	<input type="checkbox"/> (No)
Move INI files	<input type="checkbox"/> (No)
Target folder	
Use disk sector	<input type="checkbox"/> (No)
Sector used	10
Default profile	

- **Pre_Send_Result:** Send info to server during reseat operation. Oemreset can now duplicate S<serial>.log file in TP/TF folder for pass/fail results
- **Wait for profiles:** Wait for deployment INI files to becoming available
 - **Ask for profile:** Ask for the profile to use at run time through a popup (ex: if DMI is not set correctly)
 - **Retry:** Retry attempt before failing
 - **Delay (S):** Retry delay between each try
 - **Create TAG file:** Create serial number tag file if the profile is not present at startup to ask to a third party soft to give it available
- **Move INI files:** Move Selector.ini & Rsselect.ini to the « **Target folder** » location after deployment (this target folder must be a local path on the RIS)
- **Use disk sector:** Use a disk sector with the DMI to validate the profile to use
 - **Sector Used:** Sector id where to check for the serial or model number (9 to 62)
 - **Default profile:** Default profile to use if the signature does not match

BIOS flashing options

BIOS flashing options	
Use marker file	<input type="checkbox"/> (No)
Backup marker file	<input type="checkbox"/> (No)
MarkerFile path	
Login	
Password	

- **User Marker File:** Force the use of a marker file instead of the disk itself to log BIOS flashing. The file is located in BIOS\TEMP\BIOSxxxxx.TBIF
 - **Back up Marker File:** Move the TBIF file into a sub folder "DONE" for backup purposes when all flashing operations have processed. These files will overwrite if a collision occurs
 - **Marker file path:** Marker file path
 - **Login / Password:** Credentials to access to the Marker file path above

PC Angel

PCAngel	
Splitting size (MB)	650

No longer used.

Backup tool

Backup tool	
Activate backup tool	<input type="checkbox"/> (No)
Executable path	
Executable arguments	

- **Activate backup tool:** Enable the possibility to launch a backup tool before deploying an image
 - **Executable path:** Backup tool executable path
 - **Executable arguments:** Backup tool executable command line arguments

ISO Workstation

ISO Workstation	
Workstation identification string	
Destination path	
Login	
Password	
Domaine	
ISO process iteration	50

No longer used.

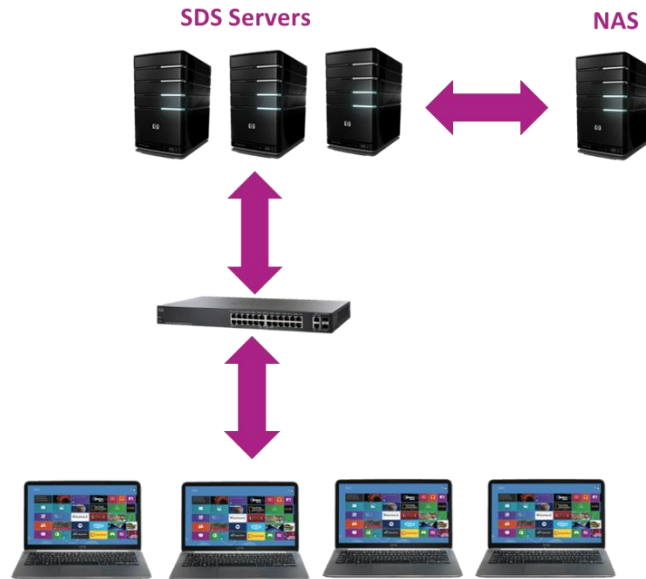
Image test options

Image test options	
000	<input type="checkbox"/> TO BE FILLED
000	

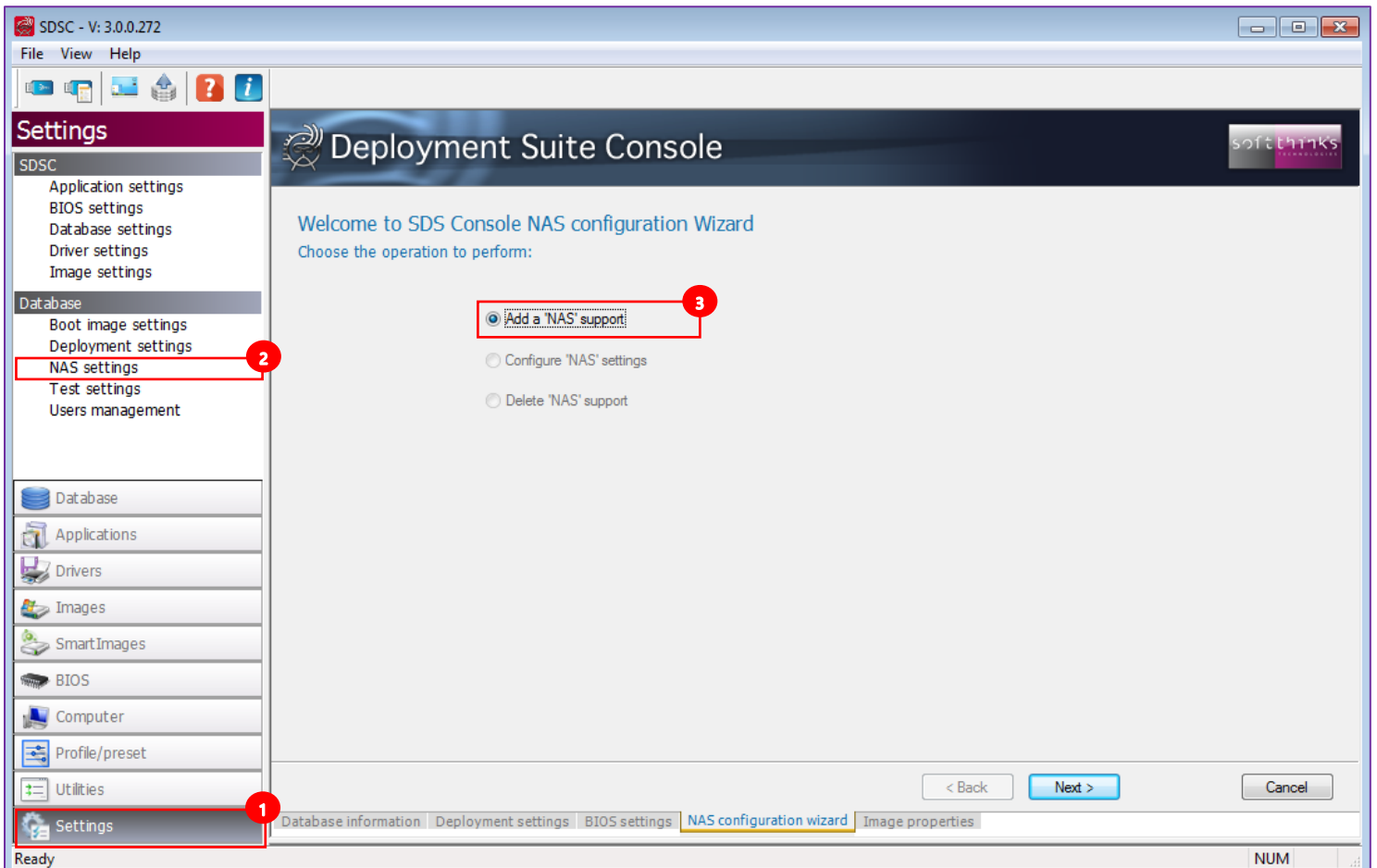
No longer used.

NAS settings

Potential NAS Configuration. Setup can vary depending on your needs:



1. Click on the "Settings" tab 1
2. Click on "NAS settings" 2



Add a 'NAS' support

Since you can configure only 1 NAS, only the option "Add a 'NAS' support" ³ is available initially. After having selected this option and clicked on the "Next >" button, you will be able to fill in all of the necessary information required to get the NAS properly setup:

The screenshot shows the 'Deployment Suite Console' interface. At the top, it says 'Welcome to SDS Console NAS configuration Wizard' and 'Please fill all necessary values in order to get NAS properly setup.' Below this is a table for 'NAS Settings' with the following data:

NAS Settings	
Login	exemple_John
Password	nopass
Dotted domain	deploy.com
Network path	\\10.0.0.10\reminst\sdkdb

At the bottom of the form, there are three buttons: '< Back', 'Save', and 'Cancel'.

- **Login / Password:** Credentials to connect to the NAS
- **Dotted domain:** Dotted domain name where the network share is
- **Network path:** Sharing UNC path used to deploy (please use IP address only)

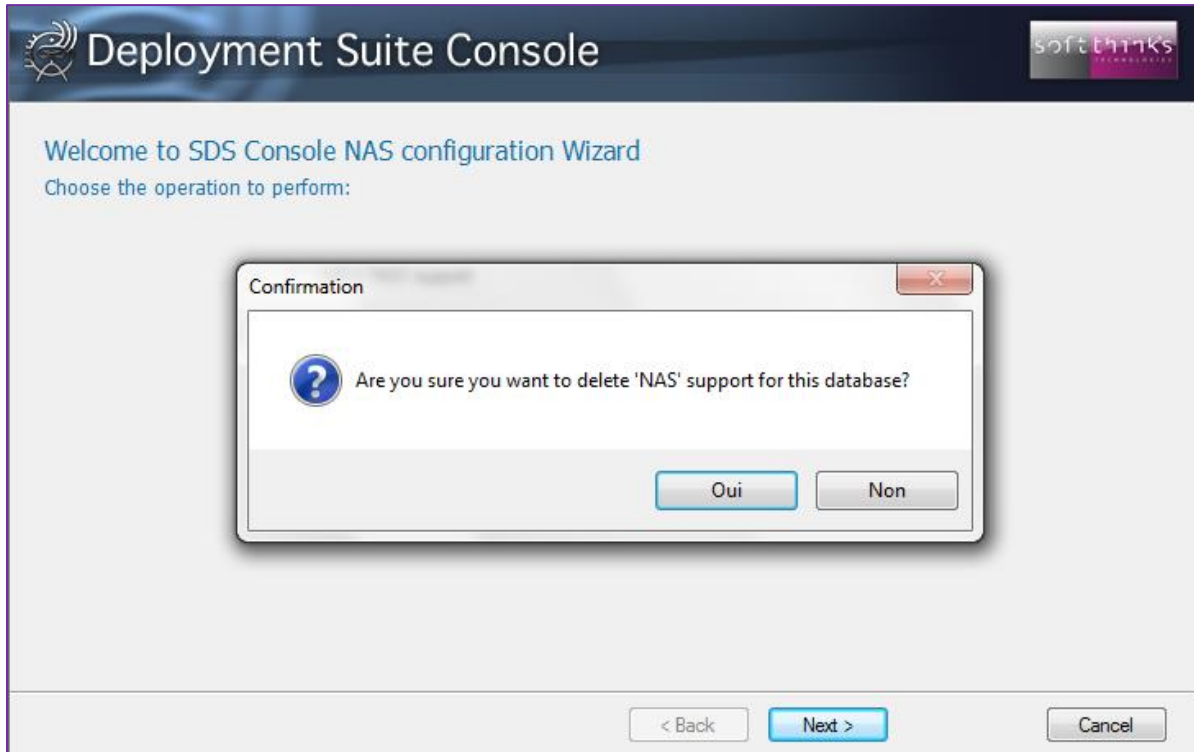
Configure 'NAS' settings

Once a NAS has been setup you can choose the option "Configure 'NAS' settings" in order to review or edit its settings as in the previous screenshot:

This screenshot is identical to the one above, showing the 'Deployment Suite Console' interface with the 'NAS Settings' table and navigation buttons.

Delete 'NAS' support

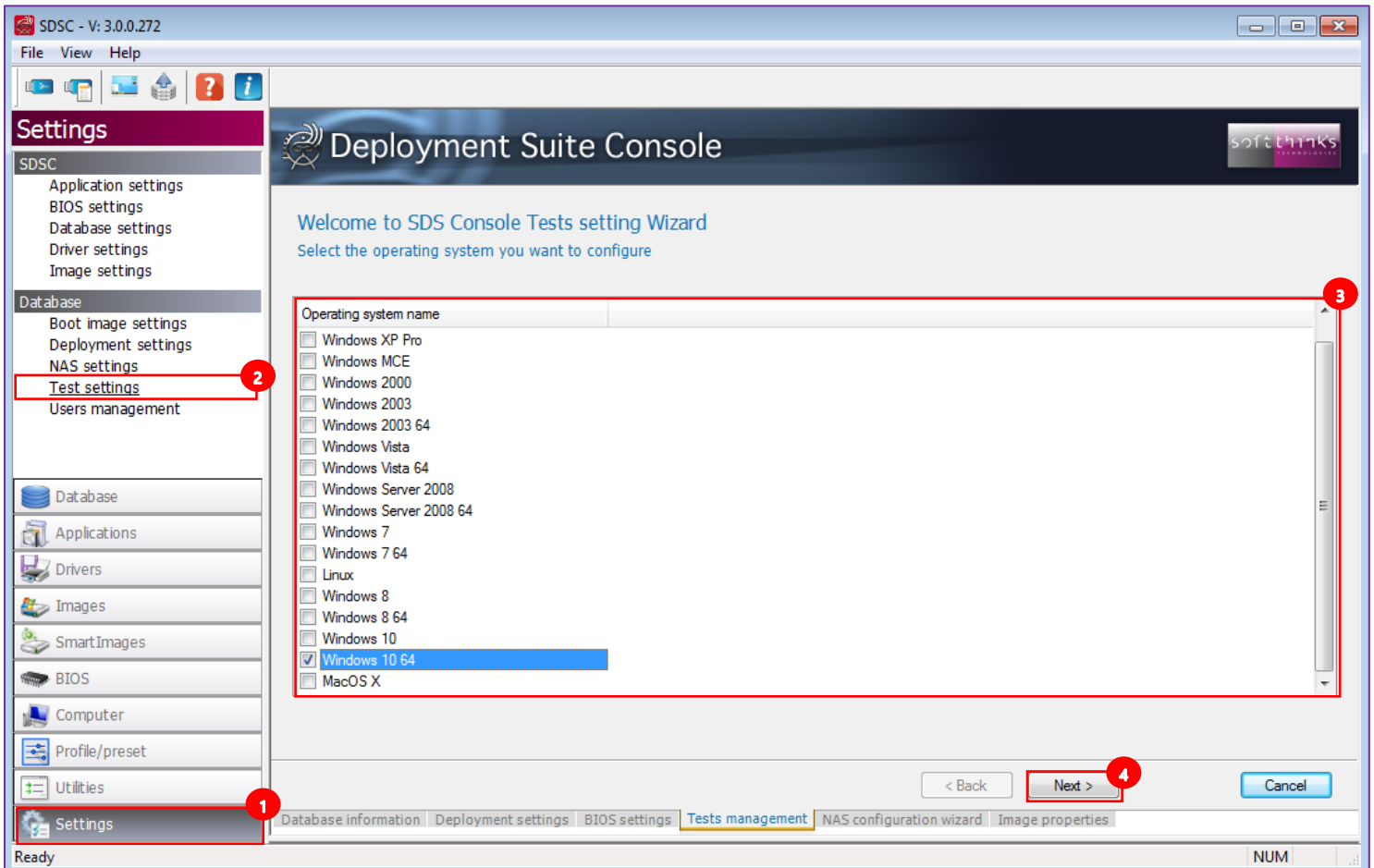
You can delete a NAS previously setup with the "Delete 'NAS' support" option which will ask you to confirm:



Test settings

The SDS Console Tests settings wizard allows you to customize the tests run during the Quality Check depending on the operating system.

1. Click on the "Setting" tab 1
2. Click on "Test settings" 2
3. Select the operating system for which you want to configure the tests 3
4. Click on the "Next >" button 4



General

Deployment Suite Console

Welcome to SDS Console Tests setting Wizard

Test Properties

General	
Mode	manual
Test files	<input type="checkbox"/> (No)
Device manager	<input type="checkbox"/> (No)
Audit mode	<input checked="" type="checkbox"/> (Yes)
Conflict start	<input checked="" type="checkbox"/> (Yes)
SysPrep	<input type="checkbox"/> (No)
Success dialog	<input checked="" type="checkbox"/> (Yes)
Failed dialog	<input checked="" type="checkbox"/> (Yes)
OEMReset auto reseat	<input checked="" type="checkbox"/> (Yes)
timeout	15
Show events	<input type="checkbox"/> (No)
Events viewer	warning

OEMReset auto reseat
This setting enable auto reseat

< Back Save Cancel

- **Mode:** "manual" to configure the tests at run time, or "auto" to run all tests automatically
- **Test files:** "Yes" to check the drivers signature ("No" by default)
- **Device manager:** "Yes" to open the device manager if an error is detected ("No" by default)
- **Audit mode:** "Yes" (by default) to start the tests in audit mode
- **Conflict start:** "Yes" (by default) to start the tests if conflicts are detected
- **Sysprep:** "Yes" to show Microsoft Sysprep button (No longer used. Do not check)
- **Success / Failed dialog:** Show a report dialog if test succeeded / failed
- **OEMReset auto reseat:** Automatically reseat the device at the end of the tests after "**timeout**" (Deprecated)
- **Show events:** Open the event viewer with the filter specified by the "**Events viewer**" value ("information" / "warning" / "error")

Multimedia

Multimedia	
WAV file	<input type="checkbox"/> (No)
MIDI file	<input checked="" type="checkbox"/> (Yes)
MP3 file	<input checked="" type="checkbox"/> (Yes)
Microphone	<input checked="" type="checkbox"/> (Yes)
WebCam	<input checked="" type="checkbox"/> (Yes)
Headphone	<input type="checkbox"/> (No)

- **WAV files:** Test WAV file
- **MIDI files:** Test MIDI file
- **MP3 files:** Test MP3 file
- **Microphone:** Test the microphone
- **Webcam:** Test the webcam
- **Headphone:** Test the headphone

Network

Network	
Wired	
Test LAN	<input type="checkbox"/> (No)
Auto DHCP	<input type="checkbox"/> (No)
Auto DNS	<input type="checkbox"/> (No)
IP	
Mask	
Gateway	
DNS 1	
DNS 2	
Wifi	
Test WLAN	<input type="checkbox"/> (No)

- **Wired**
 - **Test LAN:** "Yes" to test the wired connection
 - **Auto DHCP:** "Yes" if using DHCP server
 - **Auto DNS:** "Yes" if using DNS server
 - **IP:** IP address to set if you don't use DHCP
 - **Mask:** Subnetwork mask to set if you don't use DHCP
 - **Gateway:** Gateway to set if you don't use DHCP
 - **DNS 1:** Primary DNS server to set if you don't use DHCP
 - **DNS 2:** Secondary DNS server to set if you don't use DHCP
- **Wifi**
 - **Test WLAN:** "Yes" to test the WiFi connection

Network log

Network log	
Send Log	<input type="checkbox"/> (No)
volume Letter	
Domain	
Login	
Password	
Network Path	

- **Send log:** "Yes" to send the logs to the SDS server
- **Volume letter:** Letter to which is mapped the SDS server share folder where logs have to be sent
- **Domain:** SDS Server domain name (Ex: « deploy.com »)
- **Login / Password:** Credentials to access the shared folder
- **Network path:** UNC path where logs have to be sent (Ex: [\\192.16.0.17\remisnt\SDKDB\Logs](#))

OEM

You can add your own tests here:

OEM	
OEM Tests	<input type="button" value="+"/>

1. Click on the button and select the folder containing the test tool you want to integrate:

The screenshot shows the 'Deployment Suite Console' interface. A dialog box titled 'OEM Tests' is open, displaying a file explorer view of the local drive C:\. The 'OEM Tools' folder is selected. The console title is 'Deployment Suite Console' and the subtitle is 'Welcome to SDS Console Tests setting'. The dialog has 'Back', 'Next', and 'Cancel' buttons at the bottom.

2. Fill the information required to launch your test tool and manage its result, and click on the « Save Test » button:

Deployment Suite Console

Welcome to SDS Console Tests setting Wizard

Test information

OEM test settings	
Application to start	OEM Test Tool 1.exe
Command line	
Remove application	<input type="checkbox"/> (No)
Show application	<input type="checkbox"/> (No)
Success code	0
Failed code	0
Stop if failed	<input type="checkbox"/> (No)
Log file	

OEM test settings
This part group test settings from 'WindowsTestmanager.xml' file

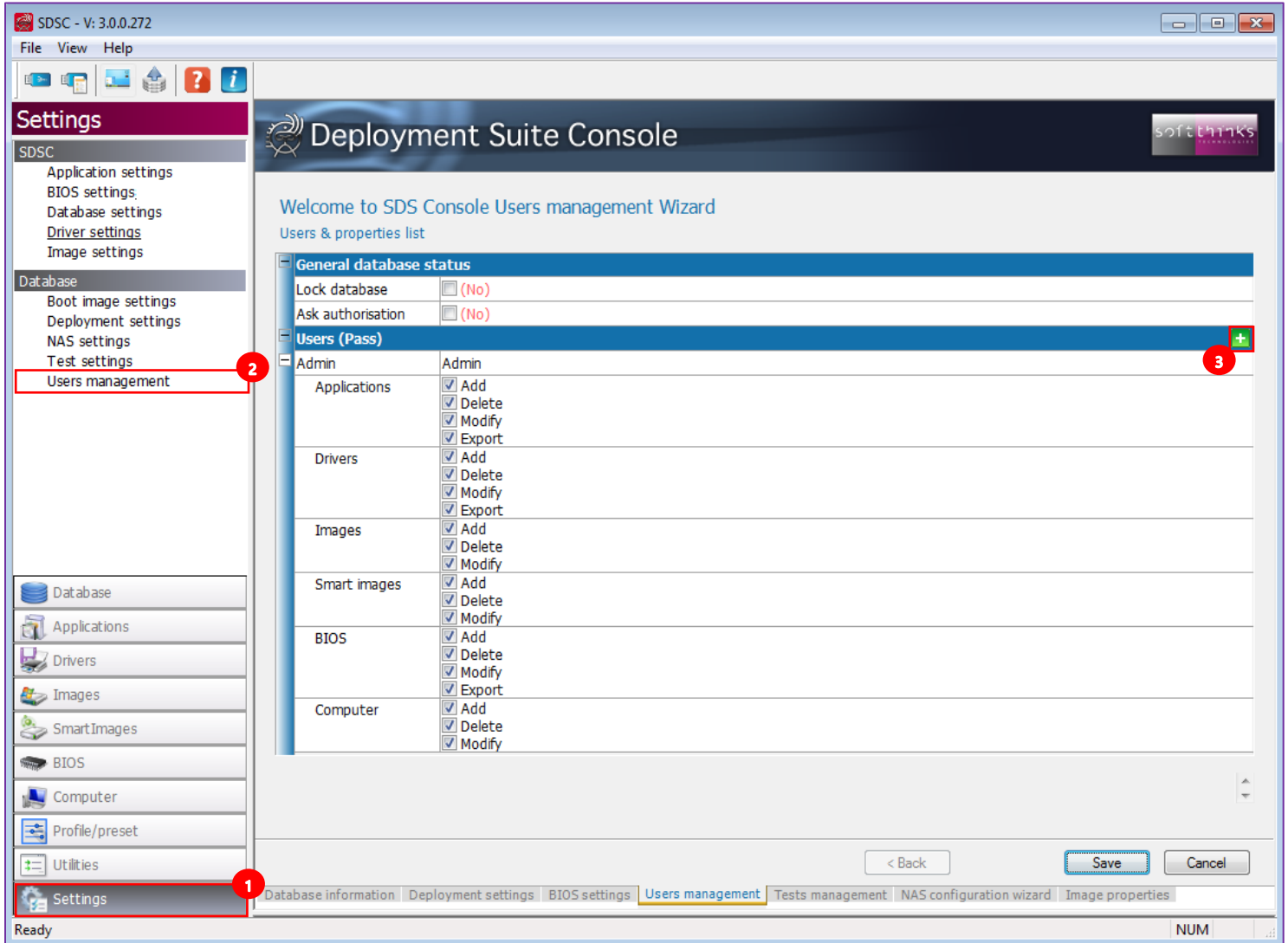
< Back Save Test Cancel

- **Application to start:** Executable to launch (.bat, .cmd or .exe)
- **Command line:** Executable command line arguments
- **Remove application:** "Yes" to remove the test tool after its execution
- **Show application:** "Yes" to show the test tool UI
- **Success code:** Value returned by the test tool in case of success
- **Failed code:** Value returned by the test tool in case of failure
- **Stop if failed:** "Yes" to stop the process if the test tool returned a failure
- **Log file:** Path where the test tool log is generated (will be sent with other logs if the "send log" option is checked)

Users management

This wizard allows you to restrict access to a database.

1. Click on the "Settings" tab 1
2. Click on "User management" 2



General database status

- **Lock database:** Restrict the access to the database to the administrator only
- **Ask authorization:** Restrict the access to the database to selected users

Users (Pass)

You can add a user by pressing the + button 3 and then define the user's rights for Add, Delete, Modify and Export database components for each component category (Images, Smart Images, Applications, Drivers, BIOS).

Booting a device in SDS environment

Windows / Linux Devices

The first step in the process for using SoftThinks Deployment Suite will be to PXE boot a unit (Laptop, Desktop or Server) to the SoftThinks Server. In order to do this, you will have to go to the unit's BIOS or Startup Menu and set or select Network Interface or NIC as the boot option.

You can also use a bootable USB stick as an alternative to PXE booting (See [How to boot from Bootable USB Flash Drive with USB Ethernet adapter](#)).

macOS Devices

macOS devices can be booted only through a [UEFI](#) SDS USB Boot Stick.

[macOS devices with T2 chipset only \(for imaging purpose please see \[macOS Image Preparation\]\(#\)\)](#)

On macOS devices with T2 chipset, you could not boot from USB by default or boot from a windows device. For this you will need to use MAC Recovery and change boot options. To achieve this, you will need the administrator account from the OS version installed. Without it, user configuration is impossible to change those settings.

1. You have to boot in MAC Recovery with the appropriate macOS recovery:

- **MacOS Recovery**

Turn on your Mac and immediately press and hold these two keys: Command-R

- **MacOS Recovery over Internet**

Turn on your Mac and immediately press and hold one of the combinations

- Option-Command-R
- Shift-Option-Command-R

2. Once in recovery open a terminal:



3. Insert EUFI version of the SDS USB Boot Stick (PXE_SDSC) plugged in the USB port that also has the folder and files from the MACOS SUPPORT\T2 folder on your server.

4. Run **DISKUTIL** list to determine the first internal, physical disk with EFI partition. The example below would be disk1

```

Terminal Shell Edit View Window Help
Terminal -- -bash -- 157x44
-bash-3.2# diskutil list
/dev/disk0 (disk image):
#:          TYPE NAME          SIZE          IDENTIFIER
0:          GUID_partition_scheme  +2.1 GB       disk0
1:          Apple_HFS macOS Base System  2.0 GB       disk0s1

/dev/disk1 (internal, physical):
#:          TYPE NAME          SIZE          IDENTIFIER
0:          GUID_partition_scheme  +500.3 GB     disk1
1:          EFI EFI              314.6 MB     disk1s1
2:          Apple_APFS Container disk2  500.0 GB     disk1s2

/dev/disk2 (synthesized):
#:          TYPE NAME          SIZE          IDENTIFIER
0:          APFS Container Scheme -   +500.0 GB     disk2
                    Physical Store disk1s2
1:          APFS Volume Macintosh HD - Data  3.6 GB       disk2s1
2:          APFS Volume Macintosh HD - Data  737.3 KB     disk2s2
3:          APFS Volume Preboot             79.4 MB     disk2s3
4:          APFS Volume Recovery           528.9 MB     disk2s4
5:          APFS Volume VM                 1.1 GB       disk2s5
6:          APFS Volume Macintosh HD       11.1 GB     disk2s6

/dev/disk3 (disk image):
#:          TYPE NAME          SIZE          IDENTIFIER
0:          untitled             +10.5 MB     disk3
  
```

5. Move to the USB drive with the following command:

```
cd /Volumes/PXE_SDSC
```

6. Run the following command and substitute the "Disk0" with the disk you identified in step 2 above:

```
./SDST2 -W1 -I disk0 -E
```

```

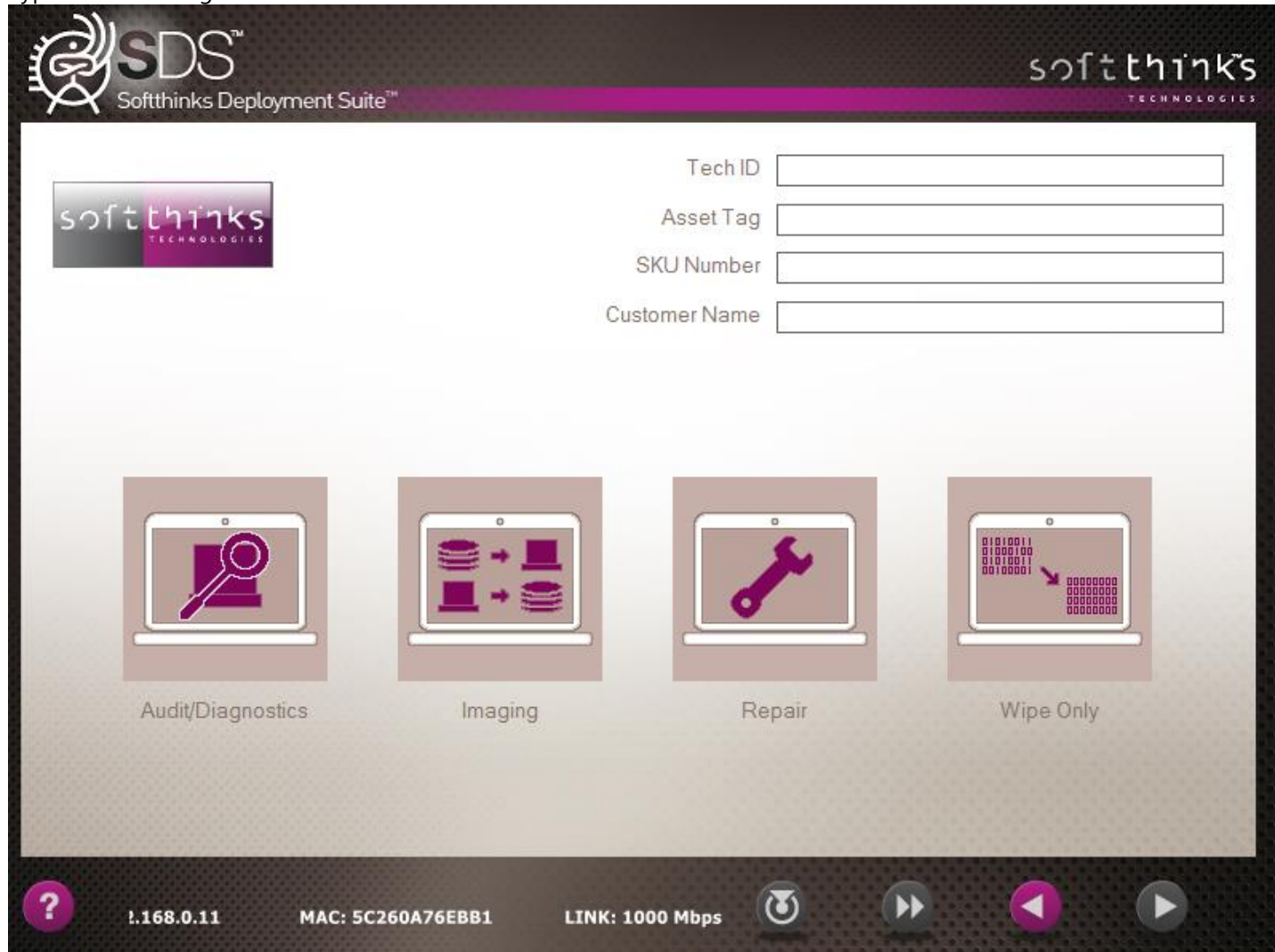
PXE_SDSC -- -zsh -- 80x24
Last login: Thu Feb 20 09:35:50 on ttys000
[sft@mac-mini-de-sft ~ % cd /Volumes/PXE_SDSC
sft@mac-mini-de-sft PXE_SDSC % ./SDST2 -W1 -I disk0
  
```

7. Then remove USB device and reboot. The unit will start automatically to SDS. Now you can run all functions of SDS except image capture. If you need to capture an image from a MAC with T2 enabled, please refer to [macOS Image Preparation](#).

SDS Welcome Screen

Once the unit has booted you will see the SDS Welcome screen. This screen can be fully customized (See [How to customize welcome menu](#)).

Typical refurbishing Welcome Screen:



Note: This is just one of an almost unlimited number of configurations that are possible with the software. The Welcome Page can be modified to fit your specifications exactly to make it as easy as possible for your technicians.

From this Welcome Screen you can choose from: Audit/Diagnostics, Imaging, Repair, and Wipe Only

- **Audit/Diagnostics:**
This selection brings you to a menu where you can select from: Audit Only, Audit with Diagnostics, and Audit with Diagnostics W/O HDD.
- **Imaging:**
This selection brings you to a menu where you can select from: Create, Deploy/Wipe/Diagnostics, and Deploy Only

- **Create:**
This will take you Image Capture page and allow you to capture either a Windows Generic or a model specific Static Image for Windows or MAC.
- **Deploy/Wipe/Diagnostics:**
This selection will take you through a series of screens to make your choices for deploying an image to a computer and do the diagnostics and hard drive wiping along with it.
- **Deploy Only:**
This selection will take you through a series of screens to make your choices for deploying an image only.

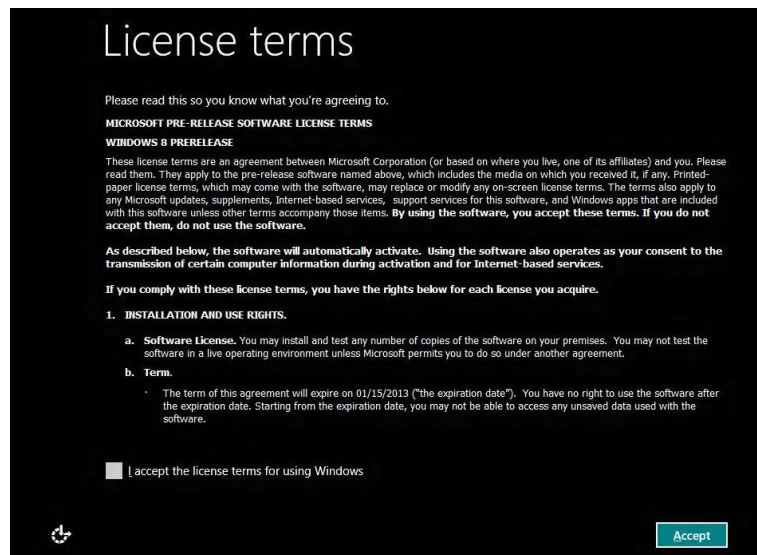
- **Repair:**
This selection brings you to a menu where you can select from: Auto-Repair, Smart Repair, Hardware Check and OS Tools.
 - **Auto-Repair:**
Will attempt to fix boot issues of a computer, if that fails it will prompt you to back up the user's data, reimage the computer, and then restore the user's data.
 - **Smart Repair:**
Will attempt to fix the boot issues of a computer.
 - **Hardware Check:**
Gives you the options to check various systems of the computer.
 - **OS Tools:**
This selection brings you to a menu where you can select from: Un-delete, Create Migration and data backup, and Apply Migration and data backup.
 - **Undelete:**
Allows you to restore a previously deleted file or folder.
 - **Create Migration and data backup:**
Will allow you to create a backup of a user's files and settings
 - **Apply Migration and data backup:**
Will restore a previously created backup to a user's computer.

- **Wipe Only:**
This selection brings you to a menu where you can select from: Wipe – 1 Pass, Wipe – 1 Pass with Diagnostics, Wipe – 3 Pass, Wipe 3 – Pass with Diagnostics.
 - **Wipe – 1 Pass:**
Allows you perform SoftThinks Adisa Certified Basic 0 Wipe on any hard drive found in a computer, server, or wipe-array.
 - **Wipe – 1 Pass with Diagnostics:**
Allows you perform SoftThinks Adisa Certified Basic 0 Wipe on any hard drive found in a computer, server, or wipe-array, and do the diagnostics of the hard drive(s) and the hardware of the computer that it is in.
 - **Wipe – 3 Pass:**
Allows you to perform the U.S. Standard, DoD 5220.22-M 3-Pass Wipe on any hard drive found in a computer, server, or wipe-array.
 - **Wipe – 3 Pass with Diagnostics:**
Allows you to perform the U.S. Standard, DoD 5220.22-M 3-Pass Wipe on any hard drive found in a computer, server, or wipe-array, do the diagnostics of the hard drive(s) and the hardware of the computer that it is in.

Preparing an image

Static Windows Image preparation (Factory Image)

1. Reload a known good system completely via factory recovery discs, recovery partition, or new in the box – power on/reboot and let the unpacking process proceed to Windows welcome / license screen (might defer depending on Windows version):

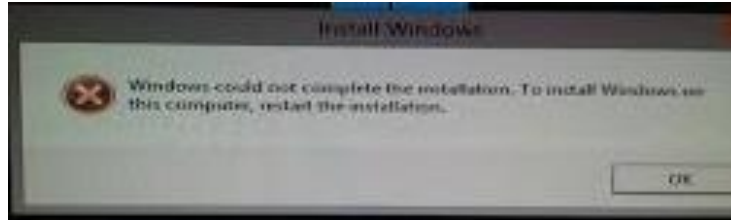


2. While in this screen, press simultaneously SHFT+F10 and a command prompt will appear. Go to the C:\Windows\Panther directory and check to see if there is a unattend.xml or an unattend folder. If there is rename them to unattend_bak.xml and unattend_bak respectively. Exit the command prompt after checking the panther folder. At this point, simultaneously press SHFT+CRTL+F3 (You may need to press the Fn key as well for the Function Keys depending on the system). The system will proceed to reboot into MS Windows Audit Mode and System Preparation Tool (« Sysprep ») will appear on the desktop:

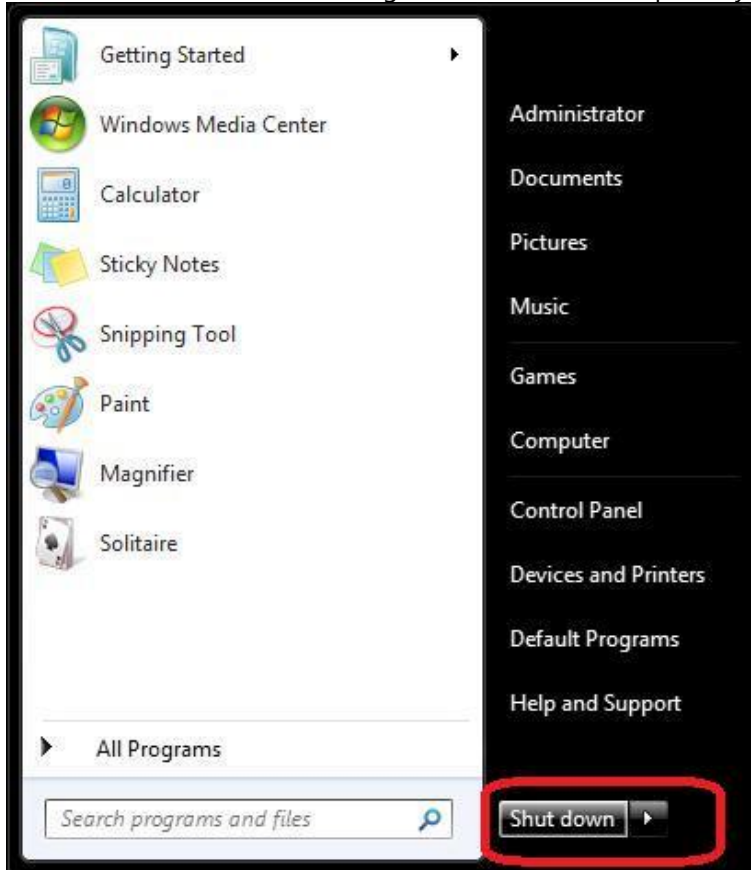


If you receive an error message (below) when attempting to go to Audit mode, you will need to follow these steps :

- a. Press the keys SHIFT+F10 to open a command prompt.
- b. Change the directory to C:\Windows\System32\Sysprep and run the sysprep.exe.
- c. Choose the option for Enter System Out-of-box Experience (OOBE).
- d. Leave the generalize box empty and select OK. The system will reboot to the OOBE screen. You will need to complete OOBE at this point.
- e. Once you are in user mode, to the C:\Windows\System32\Sysprep directory again and run Sysprep.exe.
- f. Select "System Enter Audit Mode" and again leave the generalize box empty.
- g. Select OK and it should reboot into Audit mode at this point.
- h. Open Control Panel, User Accounts and delete the user you created during OOBE process. Make sure to delete the user data as well.
- i. Now the system should stay in OOBE mode.



3. Close the sysprep Windows by using the "X" in the corner. Open a command prompt and run the command "slmgr /upk". The command will clear the current product key from the registry and inactivate Windows. Shutdown system from the start menu or from Settings/Power. This will keep the system in Audit Mode.

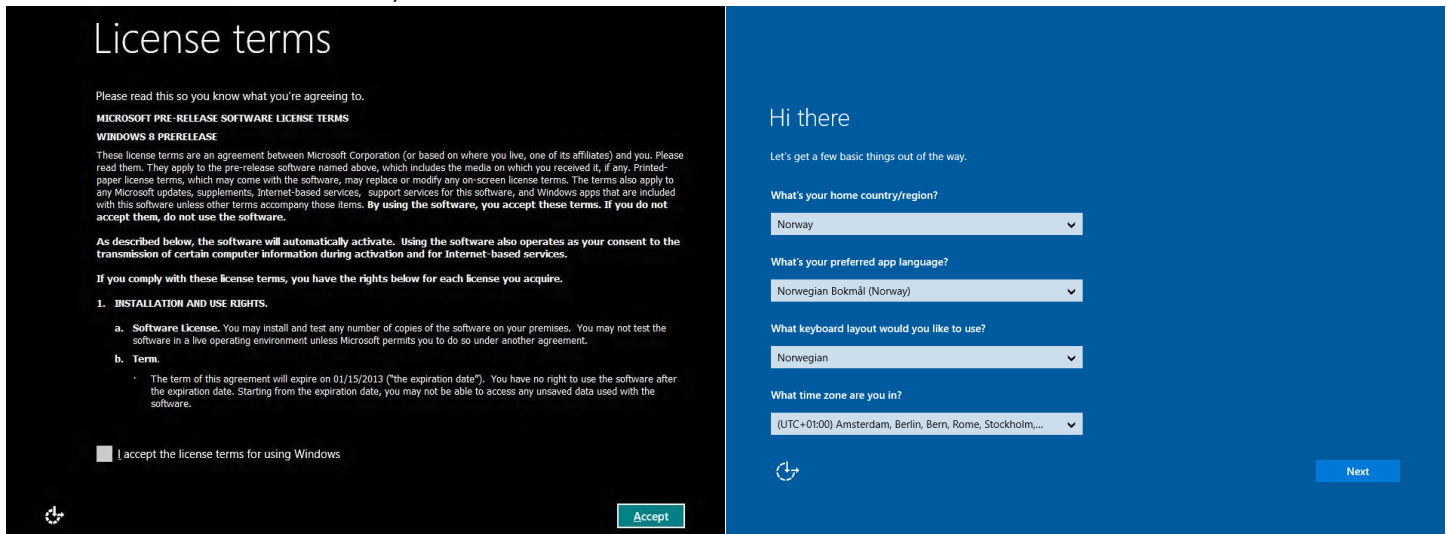


Note: Do not use the SYSPREP tool.

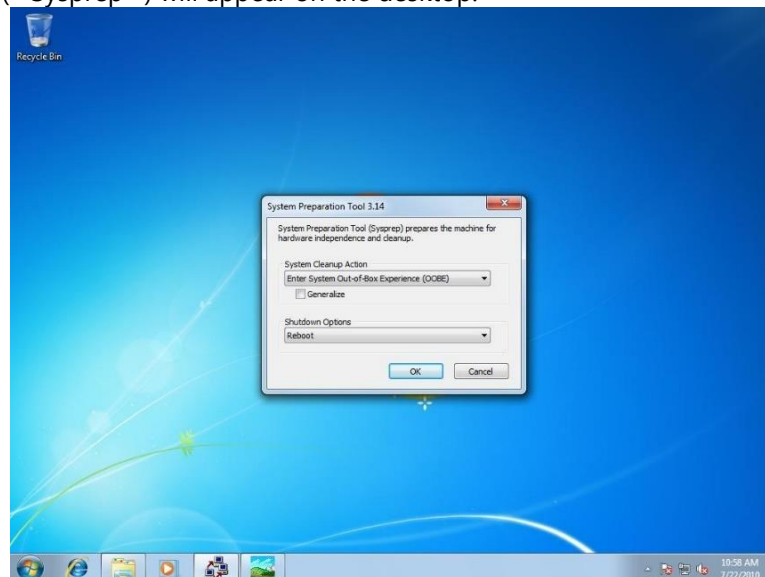
4. The image is ready to be captured. Please follow the steps in the *Image Capture Section*.

Generic Windows Image preparation

1. Reload a known good system completely via Windows install media. After installation is complete, it should be at the Windows License screen / OOB E welcome screen:



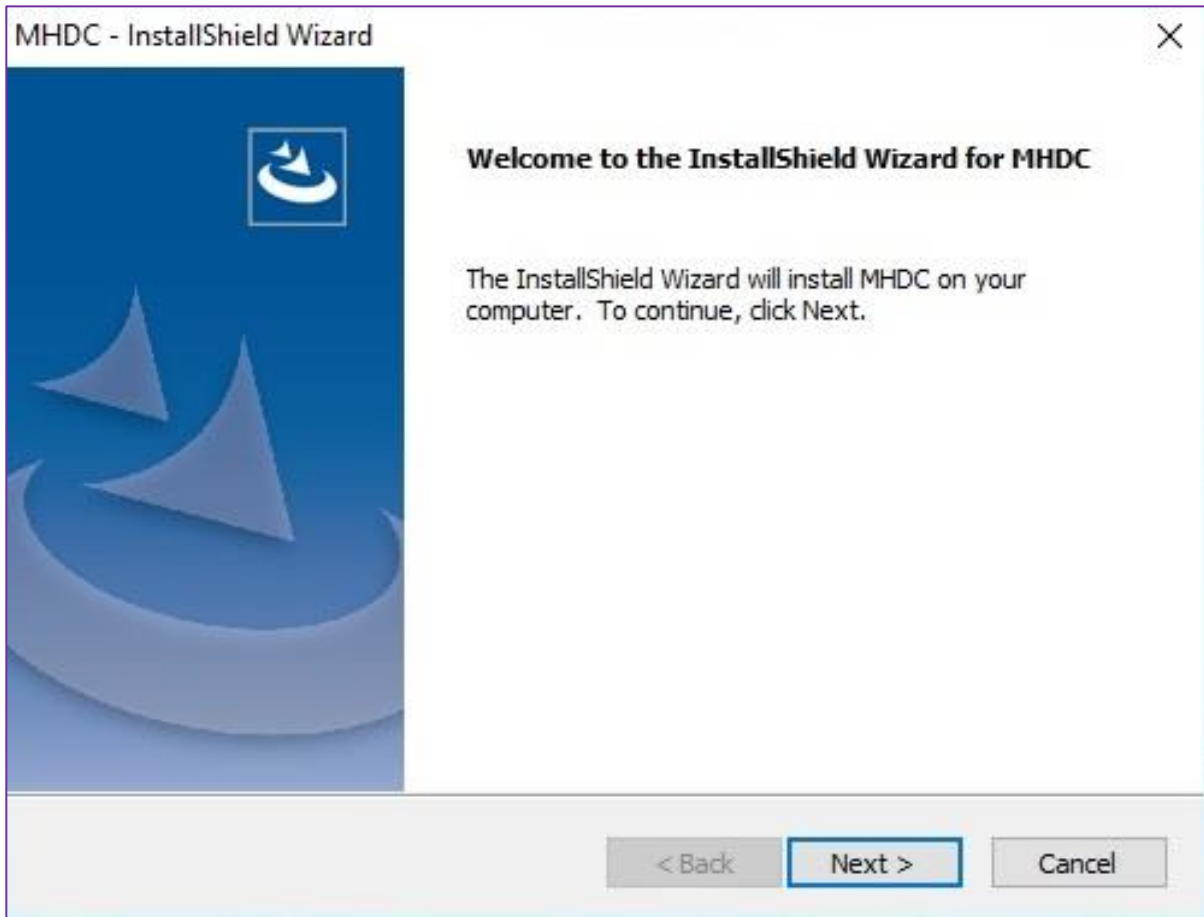
2. Enter in Audit mode by simultaneously pressing CTRL+SHIFT+F3 (you may need to press the Fn key as well for the Function Keys depending on the system). The system will proceed to reboot into MS Windows Audit Mode and the System Preparation Tool (« Sysprep ») will appear on the desktop:



3. At this point, you can install Windows Updates or any other applications you want added to the image. For Windows 7, you can use Windows updates to update the operating system. For Windows 8 and 10, you would have to use PowerShell to update the operating system.

Note: Only install applications that should be a part of the base image, and so pushed to every device deployed with this image (ex: Microsoft Office, Anti-virus programs, etc...). Applications that would need to be installed as part of a special order can be deployed during the deployment process.

- Since the OS has been updated and the necessary applications are installed, the system is ready to have Master Hard Disk Creator (SoftThinks provided software for Generic Image preparation) installed. Follow the prompts to install and run it to begin the process. At the end, the system will be shut down:





Note: You have to provide your own unattend.xml to fully configure your image (by default, all localization parameters are set to EN-US).

5. The image is now ready to be captured, please follow the steps in the image capture section.

Static Image built from a Generic preparation

1. Deploy the required Windows Image to a known good system. During the deployment process, install **SoftThinks Backup and Recovery** (SoftThinks provided Recovery Solution software) if needed. The Image should be configured exactly how you would want it deployed for the final version.
2. Once the image has been deployed to the system, verify that everything is installed as requested and that drivers have been installed. Also verify that the recovery is working as expected.
3. Once everything has been verified, shut down the system using normal Windows functions. **Do not use the OEMReset that is showing in the right corner of the screen.**
4. The image is ready to be captured, please follow the steps in the image capture section.

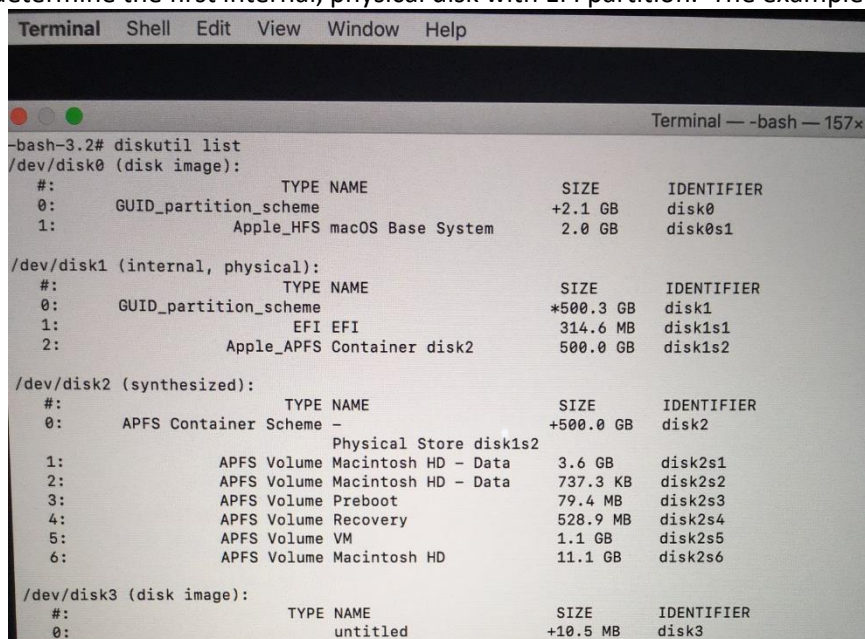
macOS Image Preparation

Setup Recovery over Internet

[Preliminary steps for macOS devices with T2 chipset only](#)

You need to boot in recovery mode to install the EFI PXE SDS device to your disk without changing disk topology. This will instruct the mac to support booting from the specific USB Drive used in the steps below as a supported external boot device. Once installed you use only this device, it will be dedicated to the macOS device where you install it. A USB device could be associated to several Apple computer.

8. Insert EFI version of the SDS USB Boot Stick (PXE_SDSC) plugged in the USB port that also has the folder and files from the MACOS SUPPORT\T2 folder on your server.
9. Run **DISKUTIL** list to determine the first internal, physical disk with EFI partition. The example below would be disk1



```
Terminal Shell Edit View Window Help
Terminal — -bash — 157x8
-bash-3.2# diskutil list
/dev/disk0 (disk image):
#:          TYPE NAME          SIZE          IDENTIFIER
0:          GUID_partition_scheme  +2.1 GB       disk0
1:          Apple_HFS macOS Base System  2.0 GB       disk0s1

/dev/disk1 (internal, physical):
#:          TYPE NAME          SIZE          IDENTIFIER
0:          GUID_partition_scheme  *500.3 GB     disk1
1:          EFI EFI             314.6 MB     disk1s1
2:          Apple_APFS Container disk2  500.0 GB     disk1s2

/dev/disk2 (synthesized):
#:          TYPE NAME          SIZE          IDENTIFIER
0:          APFS Container Scheme -   +500.0 GB     disk2
                Physical Store disk1s2
1:          APFS Volume Macintosh HD - Data  3.6 GB       disk2s1
2:          APFS Volume Macintosh HD - Data  737.3 KB     disk2s2
3:          APFS Volume Preboot             79.4 MB     disk2s3
4:          APFS Volume Recovery            528.9 MB     disk2s4
5:          APFS Volume VM                  1.1 GB       disk2s5
6:          APFS Volume Macintosh HD        11.1 GB     disk2s6

/dev/disk3 (disk image):
#:          TYPE NAME          SIZE          IDENTIFIER
0:          untitled             +10.5 MB     disk3
```

10. Move to the USB drive with the following command:

```
cd /Volumes/PXE_SDSC
```

11. Run the following command and substitute the "Disk0" with the disk you identified in step 2 above:

```
./SDST2 -w1 -I disk0 -E
```

This will install our solution into EFI boot partition from disk0 and use External method.

```
/dev/disk20 (disk image):
#:          TYPE NAME          SIZE          IDENTIFIER
0:          untyped           +6.3 MB      disk20

/dev/disk21 (disk image):
#:          TYPE NAME          SIZE          IDENTIFIER
0:          untyped           +524.3 KB    disk21

/dev/disk22 (disk image):
#:          TYPE NAME          SIZE          IDENTIFIER
0:          untyped           +2.1 MB      disk22

/dev/disk23 (disk image):
#:          TYPE NAME          SIZE          IDENTIFIER
0:          untyped           +10.5 MB     disk23

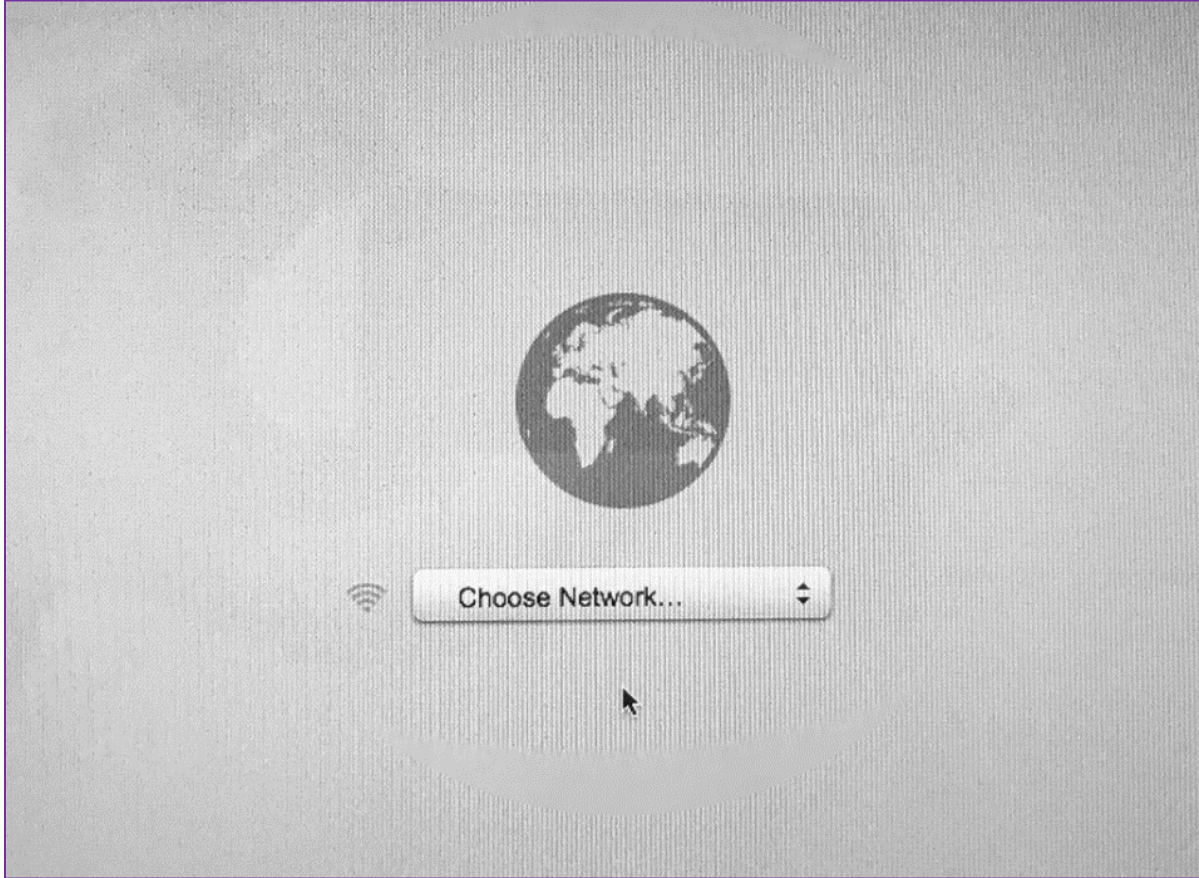
/dev/disk24 (disk image):
#:          TYPE NAME          SIZE          IDENTIFIER
0:          untyped           +2.1 GB      disk24

-bash-3.2# ./SDST2 -w1 -I disk0 -E
-- MacOS SDS tool 1.2, SoftThinks 2020 --
-- Setup SoftThinks SDS Boot --
Install external boot
SDS disk signature: d1187547
Install boot files
SoftThink PXE device associated to this computer, reboot and choose proper device.
Install done
-bash-3.2#
```

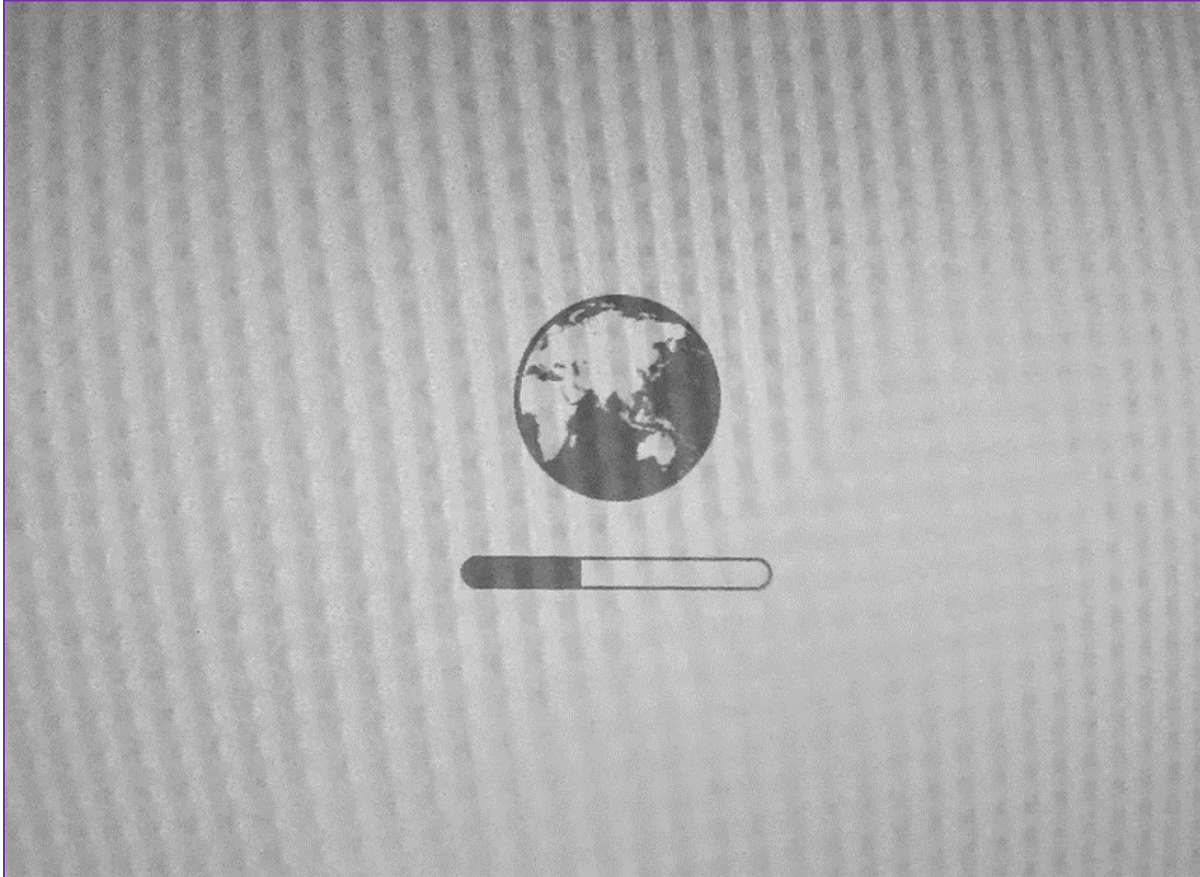
12. Once installed, reboot the computer, leaving the USB disk device connected.
13. When you hear the startup chime, follow the steps common to all x86 devices below

Steps common to all x86 macOS devices (with or without T2 chipset)

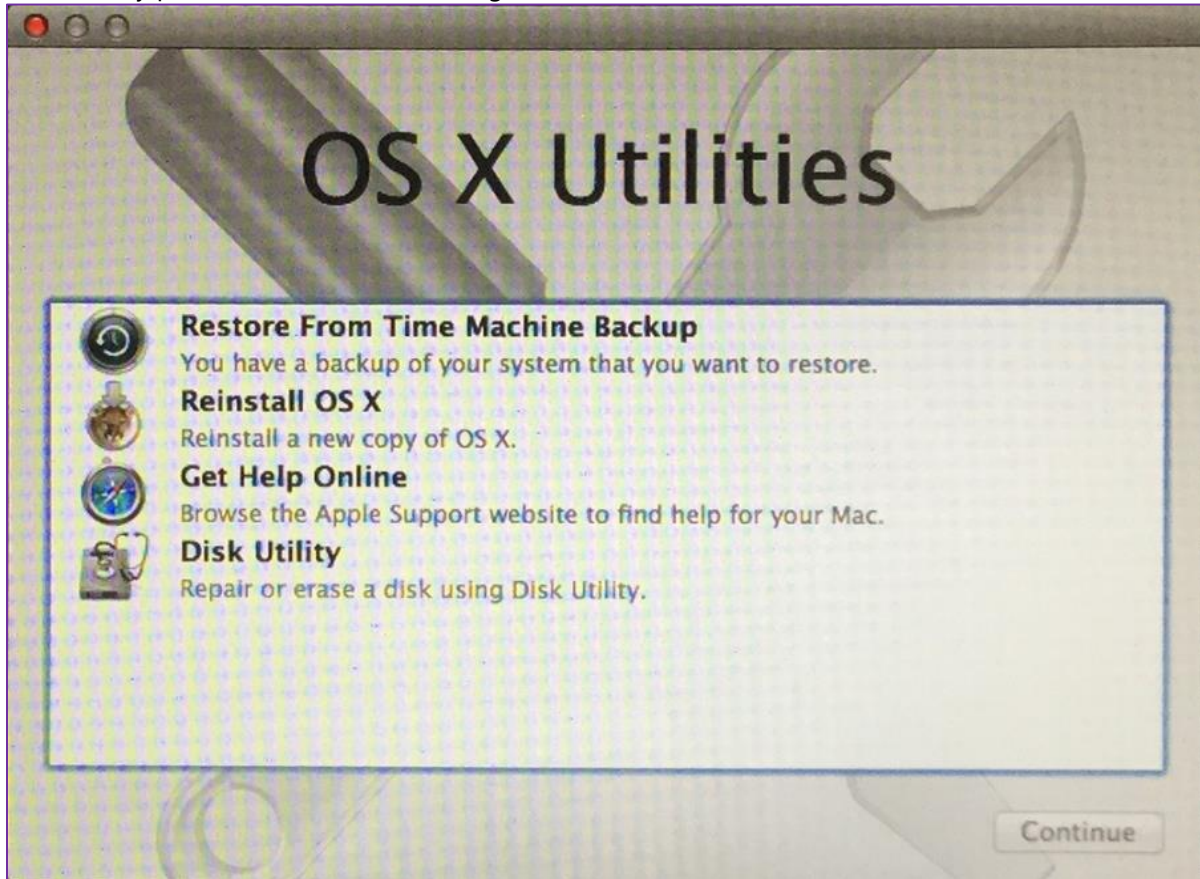
1. Boot the Mac in recovery mode: Press Option-Command-R or Shift-Option-Command-R, or press the option to display boot menu. Sometimes the internet recovery is displayed natively, depending on the BIOS.
2. Choose a Wi-Fi hotspot or plug in a network cable to initiate the recovery:



3. It will immediately start to download the recovery program:



4. Let the recovery process finalize. You should get this screen:



Partition the macOS system disk

5. Launch the Terminal from the "Utilities" menu:



6. Plug your SDS PXE boot key with the partitionDisk.sh script attached below that you will have been put on it, then navigate to the volume inserted and execute the script to setup the system disk size (we recommend to set the size to 32GB, knowing that the smaller will be the size, the faster will be that capture process):



partitionDisk.sh

- For a [APFS] single disk

```
./partitionDisk.sh -single[apfs] 32 "Mac OS X" 1
```

- For a [APFS] Fusion drive

```
./partitionDisk.sh -fusion[apfs] 32 "Mac OS X" 2
```

Note: On a Mac with a fusion drive, each disk will be setup with 32GB, so the logical container will be 64GB but it does not matter since the 2 disks will be captured.

Note: You can create two images on a Mac with Fusion Drive:

- One with the fusion drive (2 disks) to deploy on Macs with Fusion Drive
- One with only the first disk (SSD) to deploy on Macs without Fusion Drive

7. The partitionDisk.sh script will create the volume for you:

```

Terminal — -bash — 97x42
[-bash-3.2# cd /Volumes/
[-bash-3.2# ls
OS X Base System      PXE_SDSC
[-bash-3.2# cd PXE_SDSC/
[-bash-3.2# ./partitionDisk.sh -single 32 "MacOS_X" 1
Creates a single partition jhfs+ with name MacOS_X on disk /dev/disk0
Started erase on disk0
Unmounting disk
Creating the partition map
Waiting for partitions to activate
Formatting disk0s2 as Mac OS Extended (Journaled) with name MacOS_X
Initialized /dev/rdisk0s2 as a 113 GB case-insensitive HFS Plus volume with a 16384k journal
Mounting disk
Finished erase on disk0
Resize Physical Volume MacOS_X to 32g
Resizing to 32000000000 bytes
Started partitioning on disk0s2 MacOS_X
Verifying the disk
Verifying file system
Checking Journaled HFS Plus volume
Checking extents overflow file
Checking catalog file
Checking multi-linked files
Checking catalog hierarchy
Checking extended attributes file
Checking volume bitmap
Checking volume information
The volume MacOS_X appears to be OK
File system check exit code is 0
Resizing
Shrinking file system
Modifying partition map
Finished partitioning on disk0s2 MacOS_X
/dev/disk0 (internal, physical):
#:          TYPE NAME                SIZE      IDENTIFIER
0:          GUID_partition_scheme    *121.3 GB  disk0
1:          EFI EFI                    209.7 MB  disk0s1
2:          Apple_HFS MacOS_X          32.0 GB   disk0s2
End of process - 0
[-bash-3.2# █

```

Install macOS

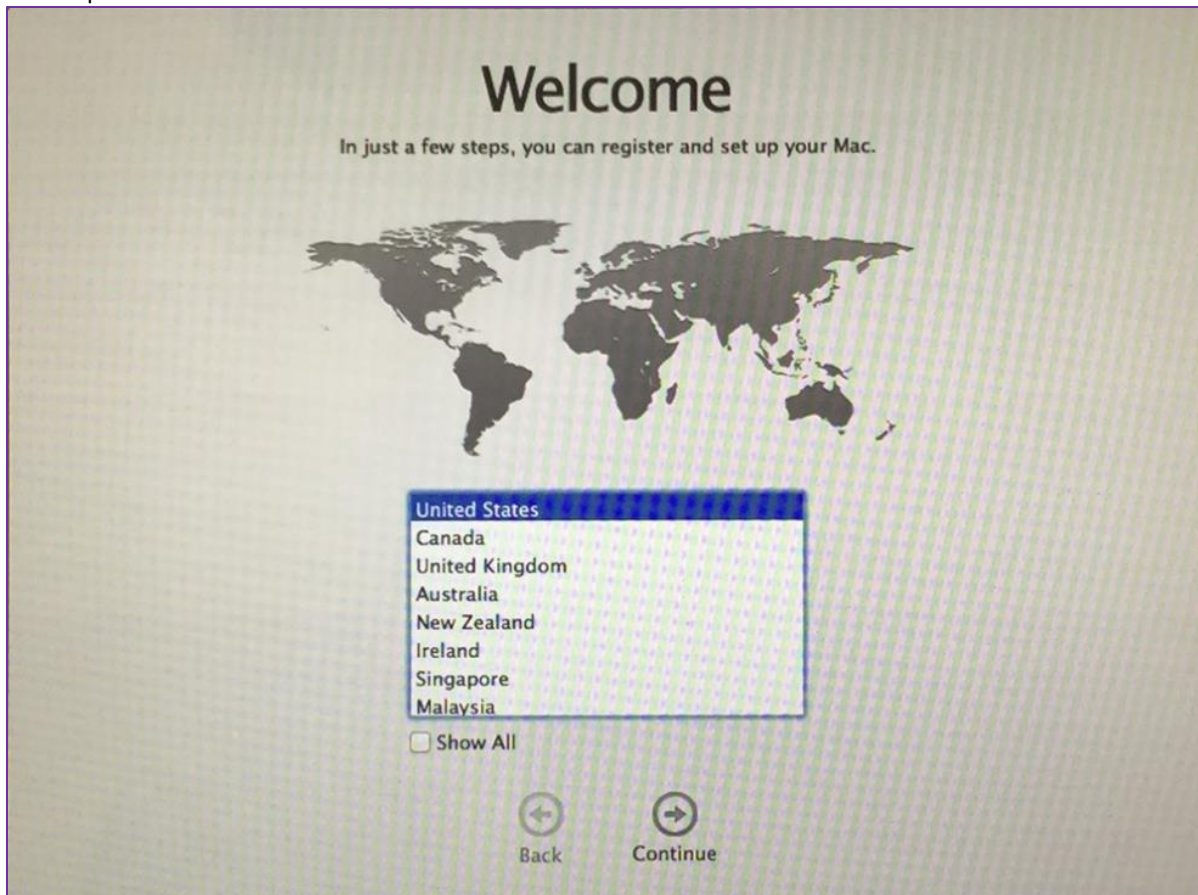
8. Select the option to reinstall:



9. Select the volume previously created:



10. After some minutes or hours depending on your connection speed (about 5 GB to download), the computer will stop in the setup assistant welcome screen:



DO NOT CONTINUE this assistant or you will need to redo the whole process from the beginning.

Resize macOS partition

11. To complete the master creation, we need to install a resizing script. So, reboot to recovery (Option-Command-R or Shift-Option-Command-R or for option key at start depending on the Mac bios):



12. Open the terminal:



13. Execute the install.sh script from the "Resize" folder you had previously extracted from the archive below to your SDS PXE boot key:



Resize.zip

```
./install.sh
```

14. The script will copy the Automator com.softthinks.resize.app onto the Mac OS System Volume and install the service com.softthinks.resize.plist, which will be started automatically after the first setup assistant:

```
Terminal — -bash — 80x24
[-bash-3.2# ls /Volumes
MacOS_X          OS X Base System      PXE_SDSC
[-bash-3.2# cd /Volumes/PXE_SDSC/Res
-bash: cd: /Volumes/PXE_SDSC/Res: No such file or directory
[-bash-3.2# cd /Volumes/PXE_SDSC/resize/Resize/
[-bash-3.2# ls
Install.sh          com.softthinks.resize.plist
com.softthinks.resize.app
[-bash-3.2# ./Install.sh
Install Resize agent on 'MacOS_X'
-bash-3.2#
```

15. Now Switch off the Mac, the image preparation is done.

Linux Image Preparation

We recommend you to wipe completely your disk before installing Linux.

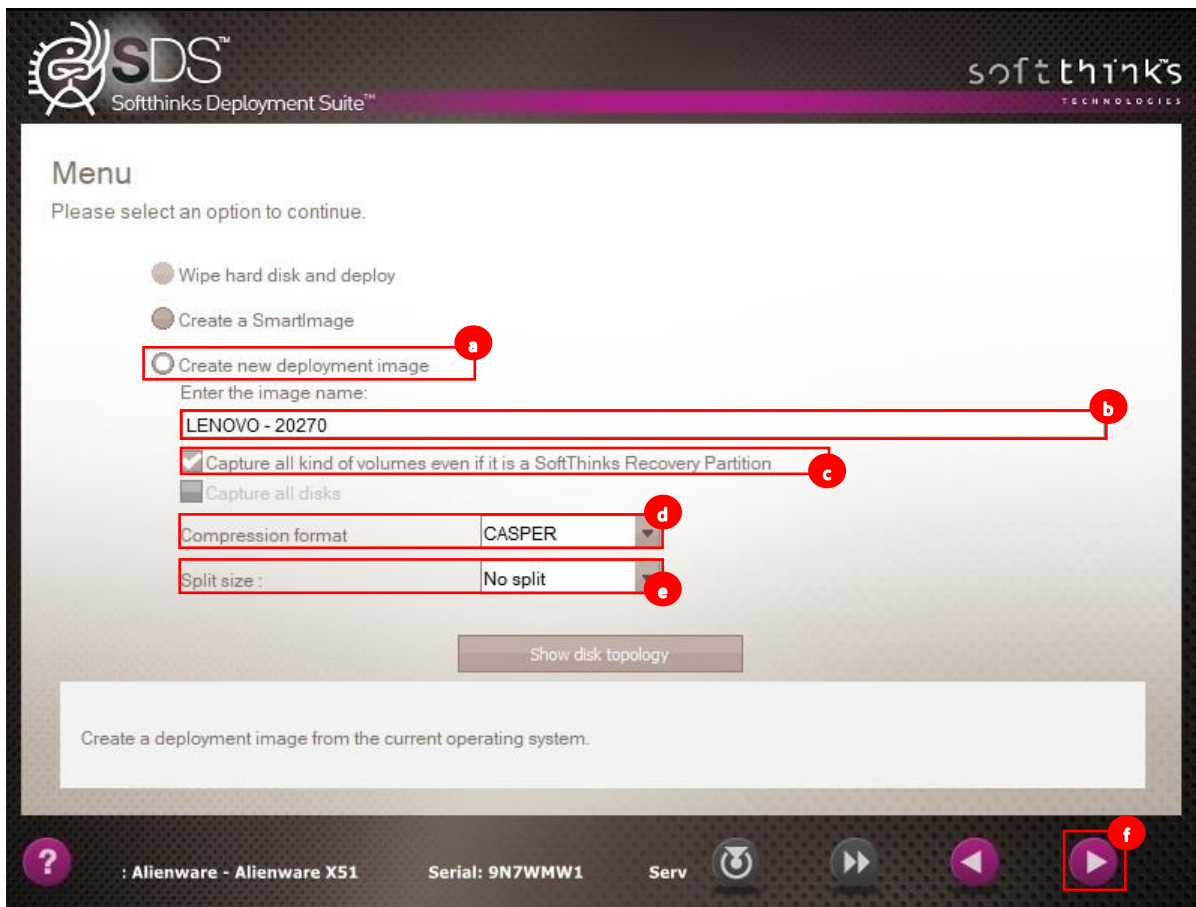
SDS 18.0 has been validated with the following Linux distributions (default disk layout and filesystem):

- Ubuntu 16.04.4 LTS (x64)
- Mint 18.2 Sonya (x64)

Capturing an image

Windows Image

1. PXE boot the computer to the SDS server (If needed, enable BIOS network boot option) or use bootable USB Flash drive with USB Ethernet adapter (See [How to boot from Bootable USB Flash Drive with USB Ethernet adapter](#)).
2. From the Welcome screen, select "Imaging" then on the next page select "Create Image".
3. In the menu screen,
 - a. Select the "Create new deployment image" option **a** (the radio button will turn from grey to white)
 - b. Enter a description for the image **2** (there is no naming convention required).
 - c. Check the option "Capture all kinds of volumes even if it is a Softthinks Recovery Partition" **c** to create a **Static Image** or uncheck it for a **Generic Image**
 - d. Select your compression format **d** (WIM is the default format, and the only one possible for **Generic Image**)
 - e. Set the split size **e** to "No split" (except if you want to put the image on optical media)
 - f. Click on the Next button **f**

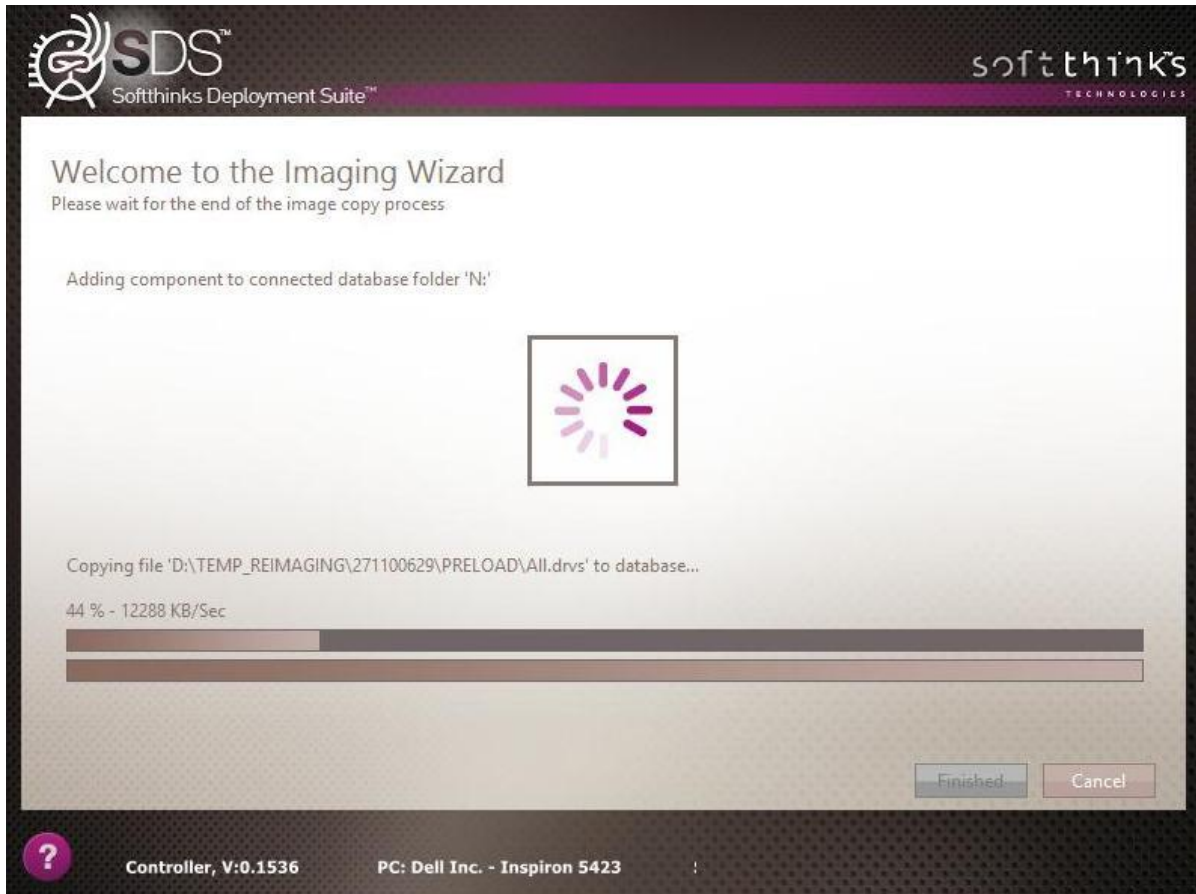


- The image capture will proceed automatically (screens may differ):



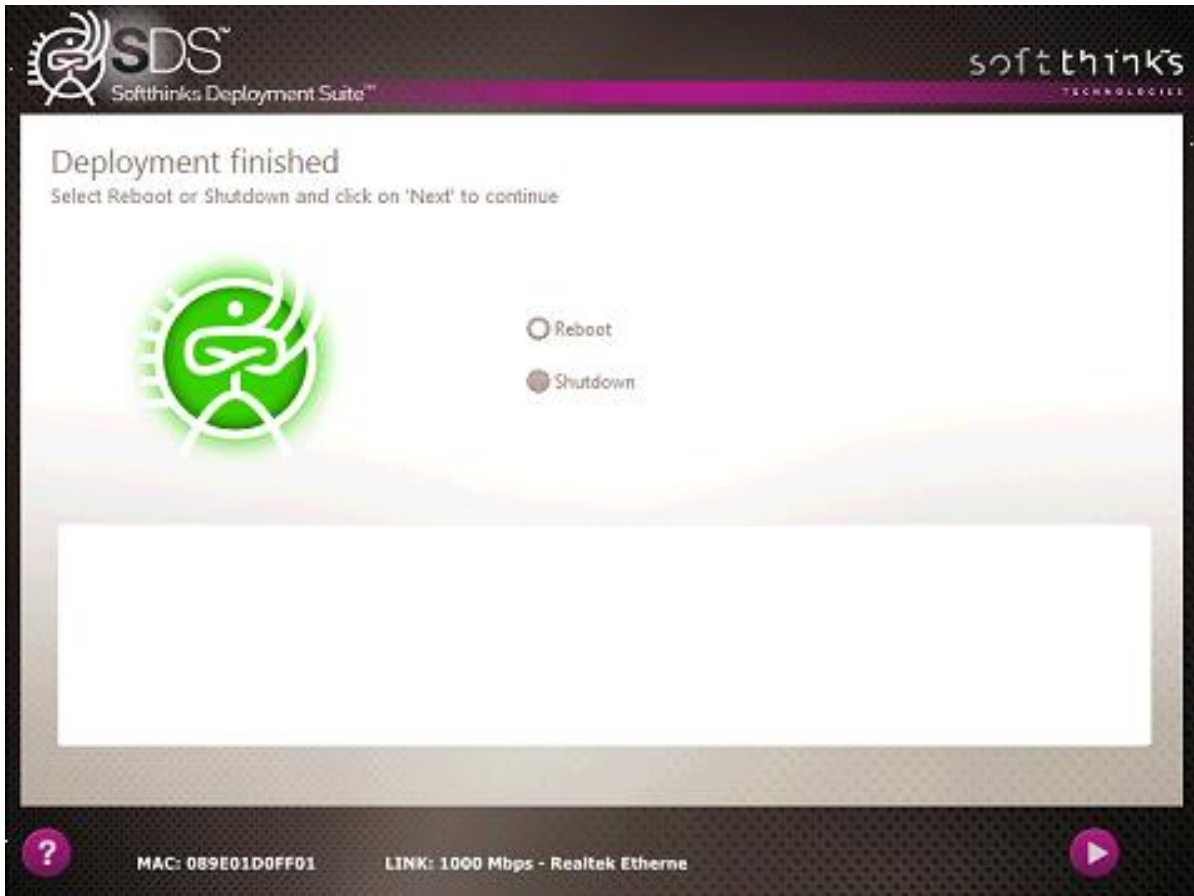
Note: If there is any failure, the process will stop.

- The image created will be transferred to the server:



Note: If there is any failure, the process will stop.

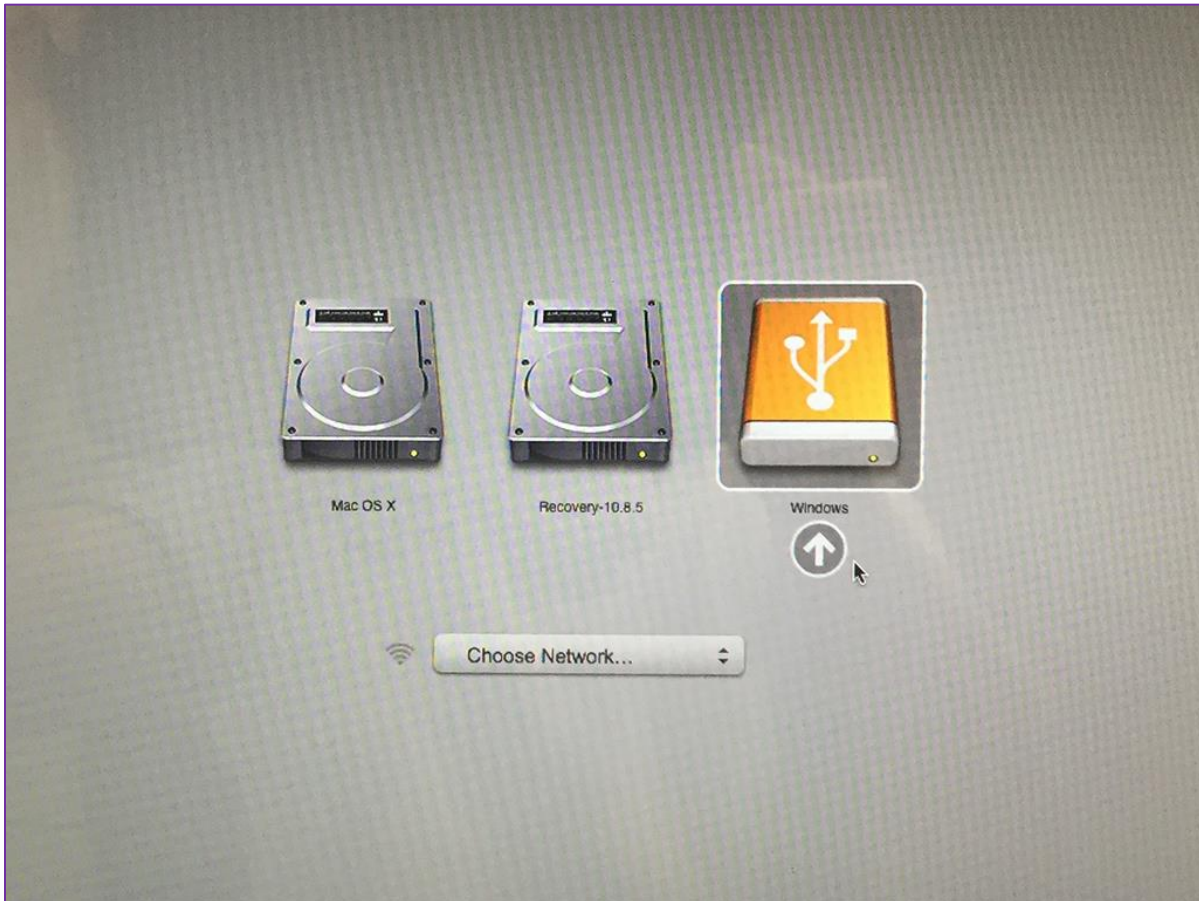
- You will be notified that the process finished with no issues and you can choose to reboot or shutdown, or manually power down the device:



- After the Image Capture is completed, it will be added automatically to the SDS Database and will be available to be deployed (See [Adding images](#)).

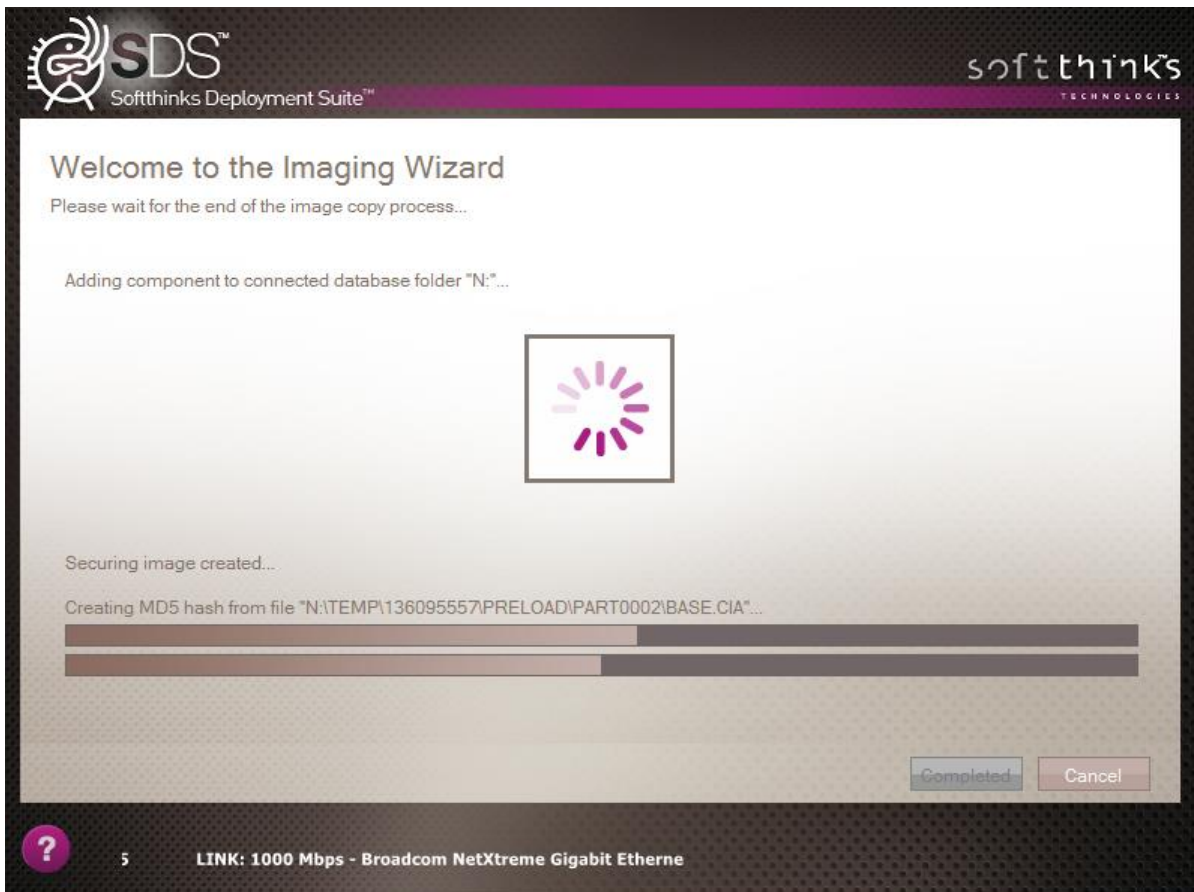
macOS Image

1. You will first need to restart into SDS environment. Plug the UEFI SDS PXE boot key and press Option key and Select your Windows PXE boot key. Sometimes you will get two entries Windows + Windows EFI. Start with 'Windows' then 'Windows EFI' if the first one did not work:

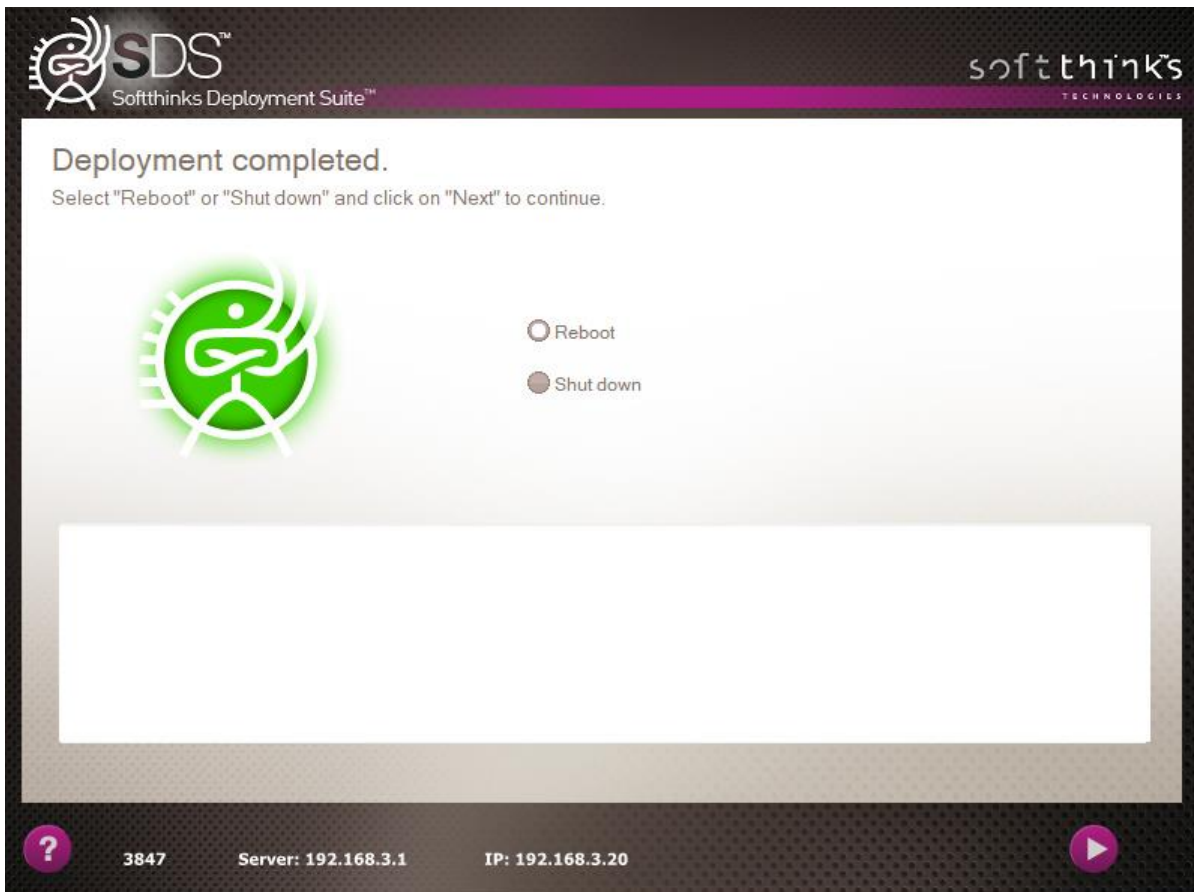


2. From the Welcome screen, select "Imaging" then on the next page select "Create Image".

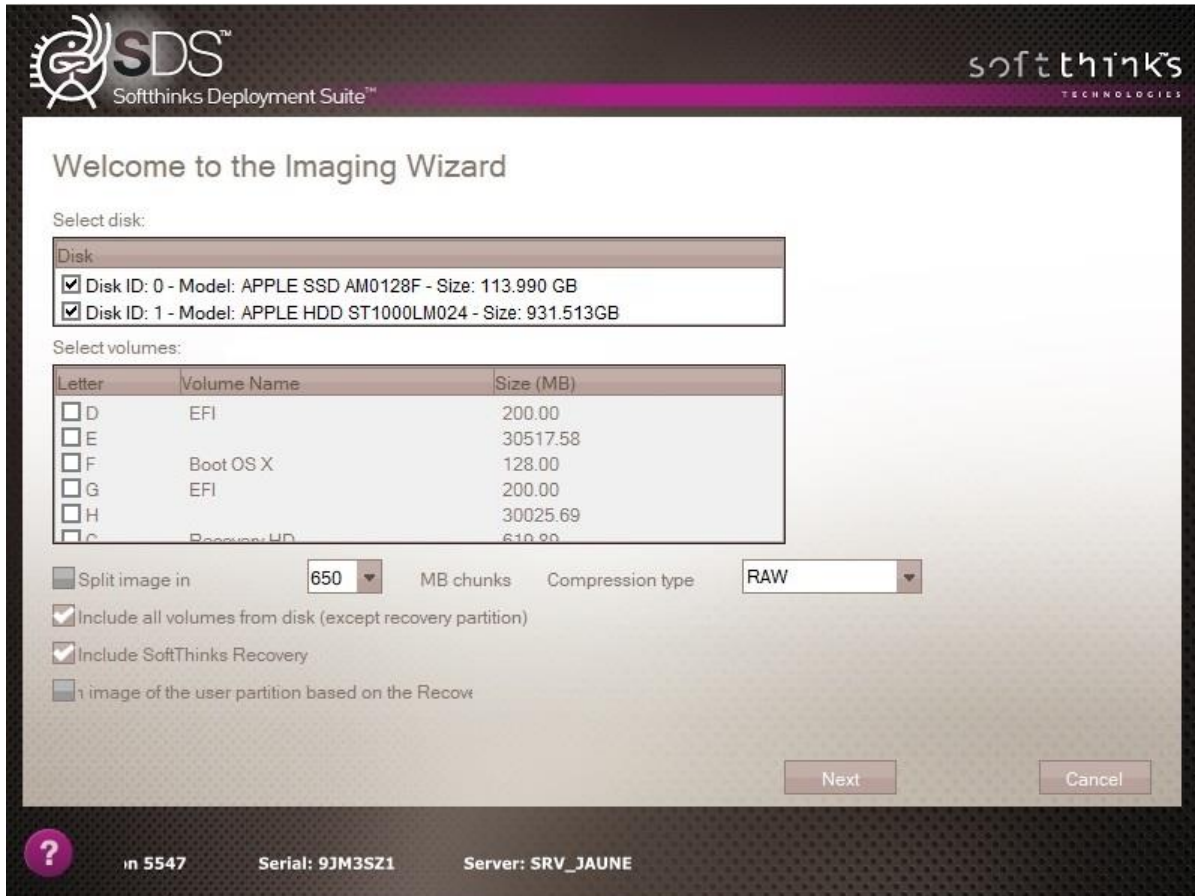
3. The image is now being copied:



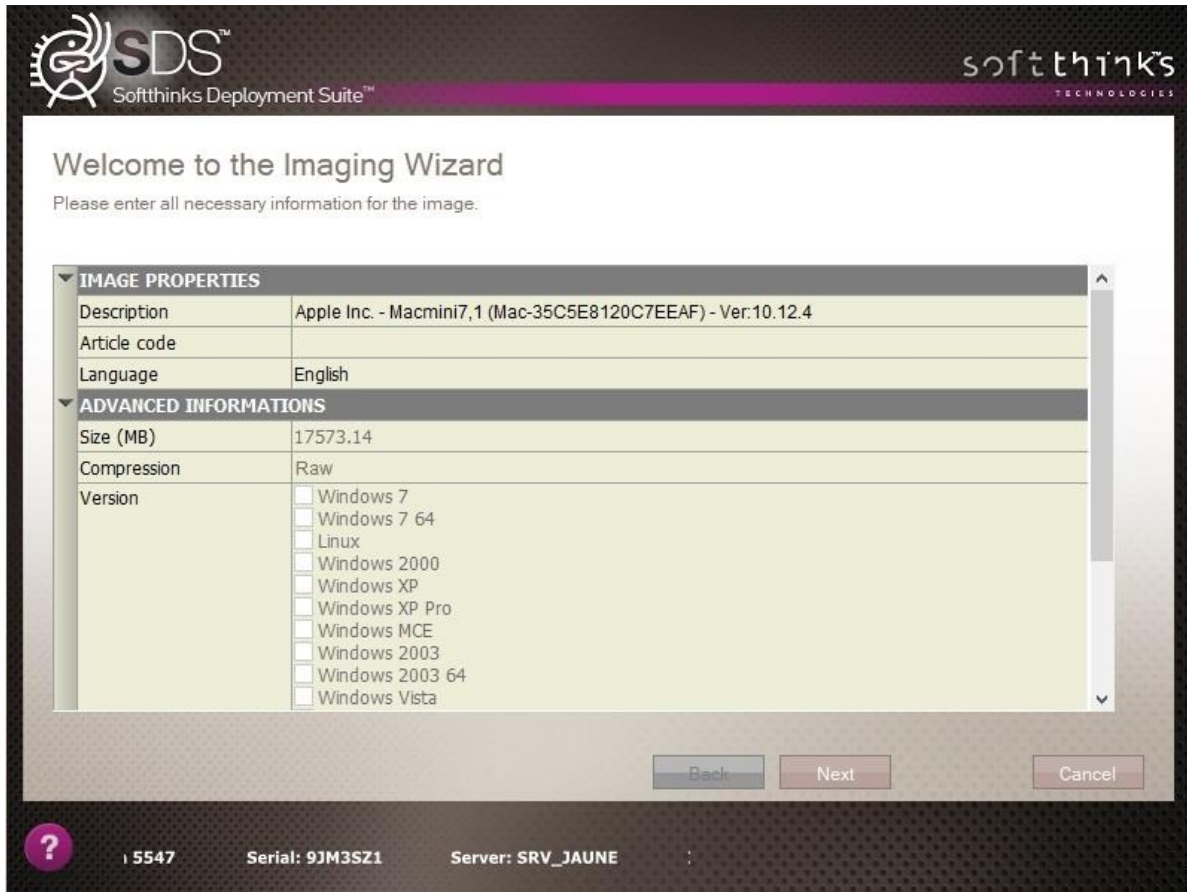
4. The image will be automatically added to the database and you will get next screen:



In manual mode (when SDSImaging module is set to work manually), you will get the additional screen below between steps 2 and 3. On a Fusion Drive configuration, select both disks, if not select only the system disk as below:

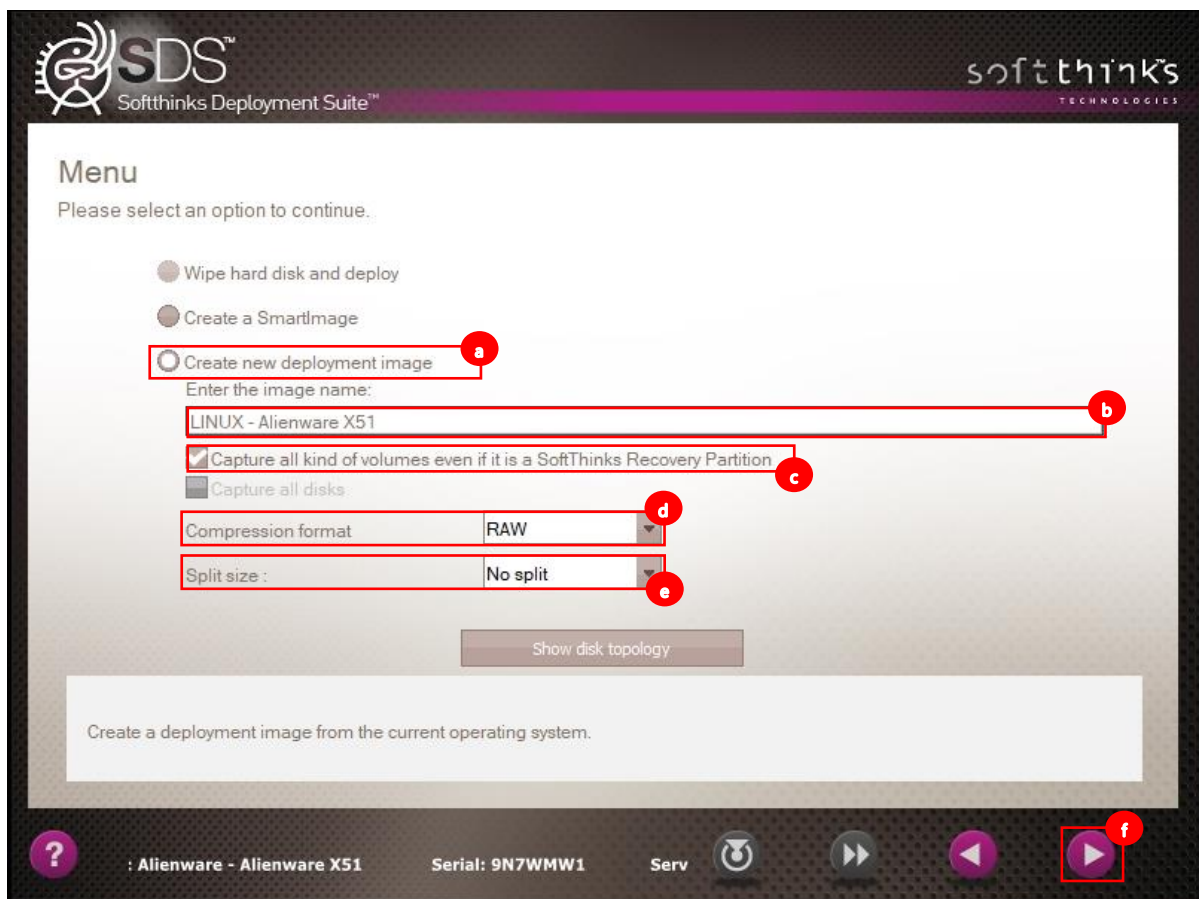


And, still in manual mode, this one between step 3 and 4, once the copy is finished, where we suggest you to indicate the macOS version in the image description and to adjust other properties and information before clicking on the Next button:

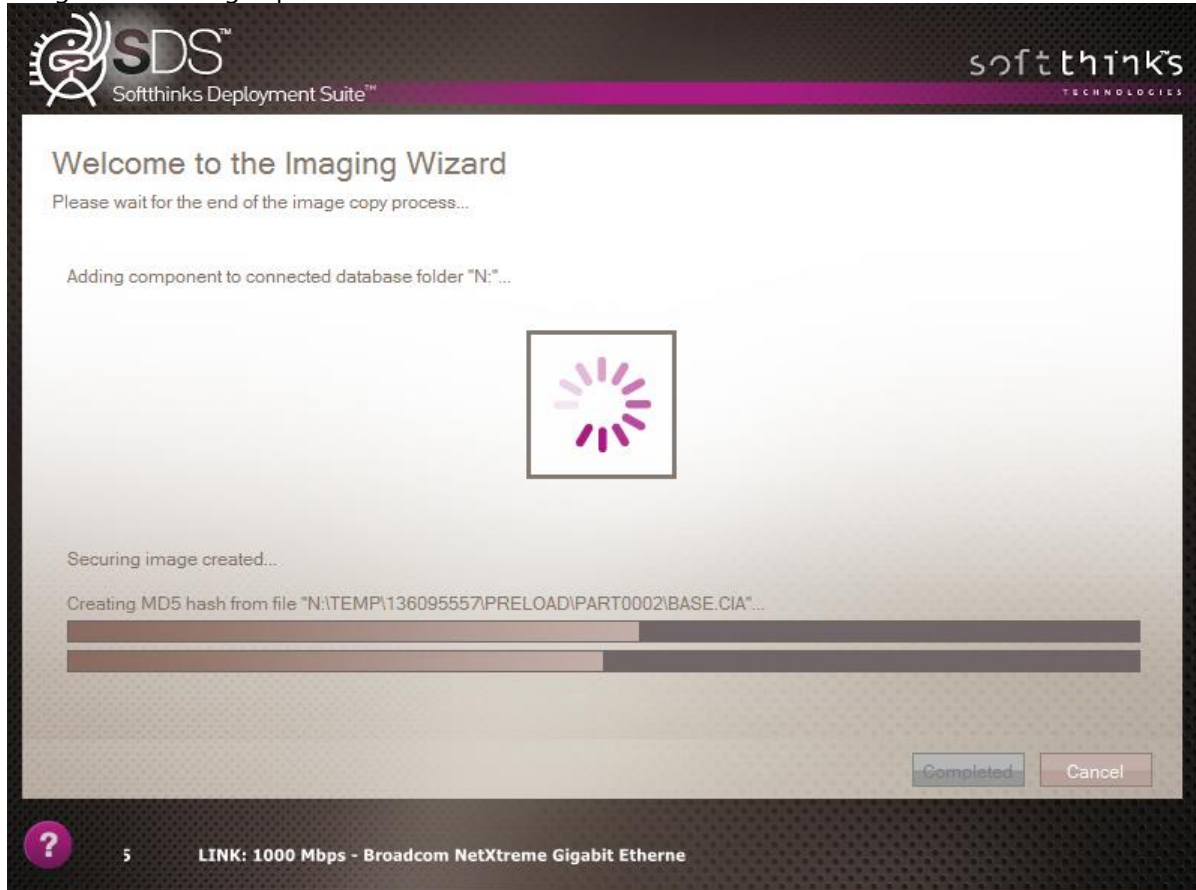


Linux Image

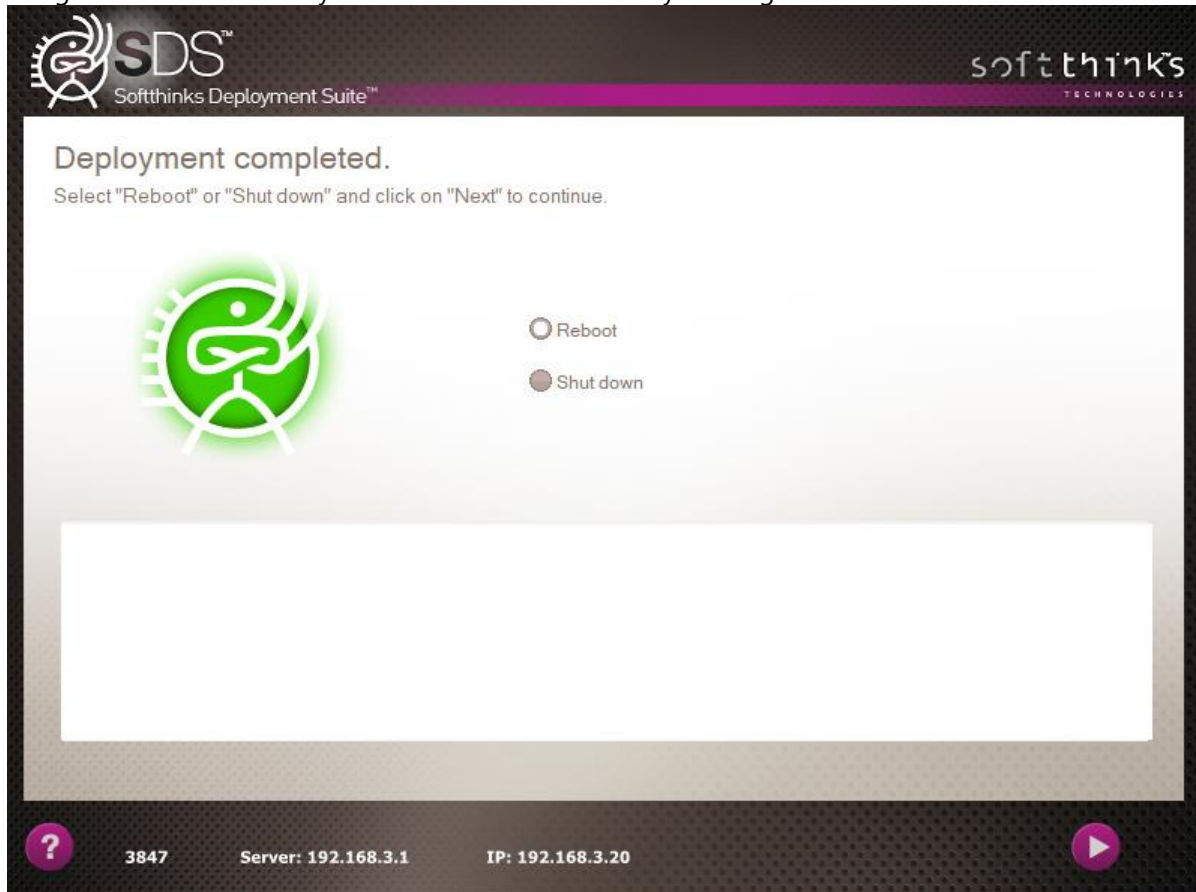
1. PXE boot the computer to the SDS server (If needed, enable BIOS network boot option) or use bootable USB Flash drive with USB Ethernet adapter (See [How to boot from Bootable USB Flash Drive with USB Ethernet adapter](#)).
2. From the Welcome screen, select "Imaging" then on the next page select "Create Image".
3. In the Menu screen,
 - a. Select the "Create new deployment image" option **a** (the radio button will turn from grey to white)
 - b. Enter the name of the image **b** (there is no naming convention required)
 - c. Ensure that the option "Capture all kind of volumes even if it is a Softthinks Recovery Partition" **c** is checked
 - d. Select "RAW" compression format **d** (other formats are not compatible with Linux images)
 - e. Set the Split size to "No Split" **e**
 - f. Click on the next button **f**



4. The image is now being copied:



5. The image will be automatically added to the database and you will get next screen:



Deploying an image


Windows Image

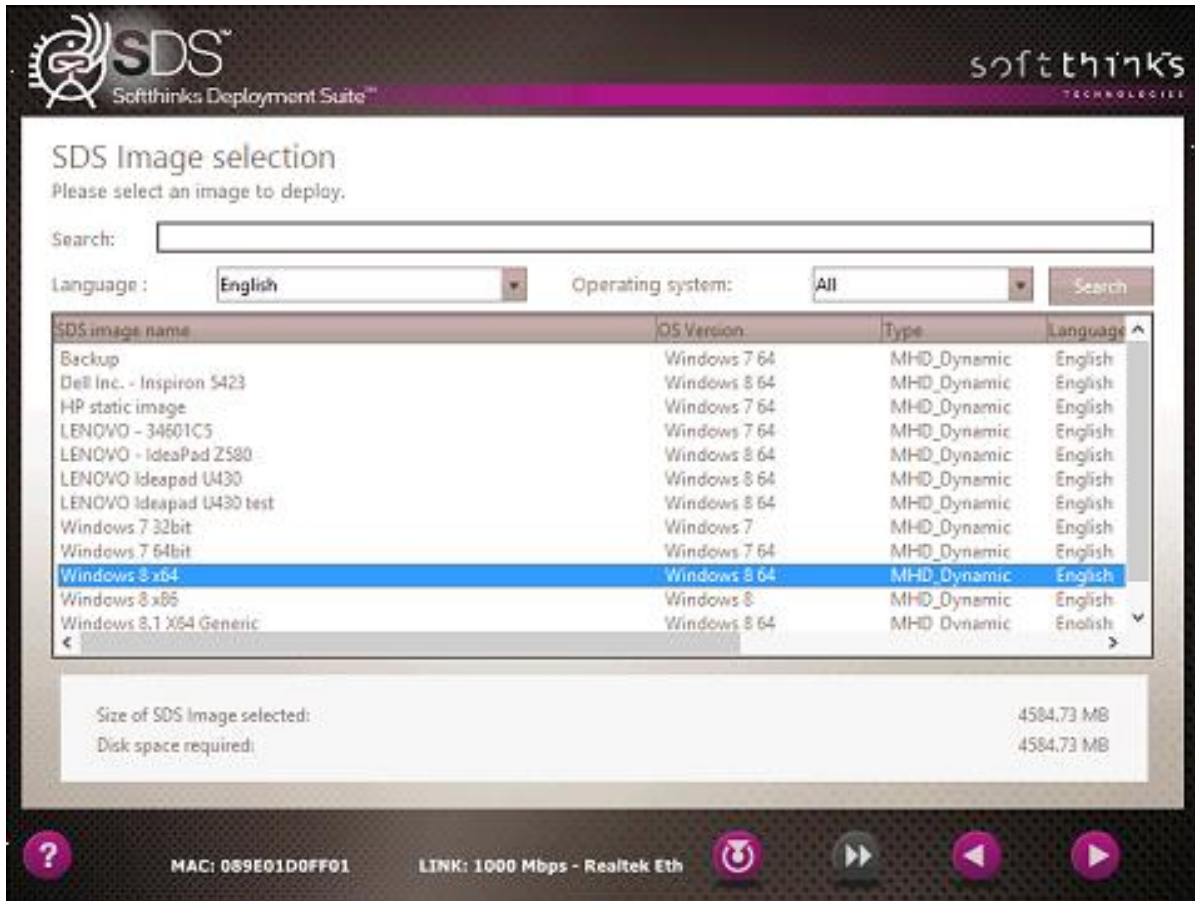
SDS solution give you the ability to deploy the images you created either manually or automatically. This chapter will first describe you the manual process, but you can go directly to [Automatic deployment](#) if you want more details on how to automate this process.

1. Boot your Windows device to the server and select the Imaging option from the Welcome Page.
2. If no ADF file is found you will proceed to the Profile, Preset screen:

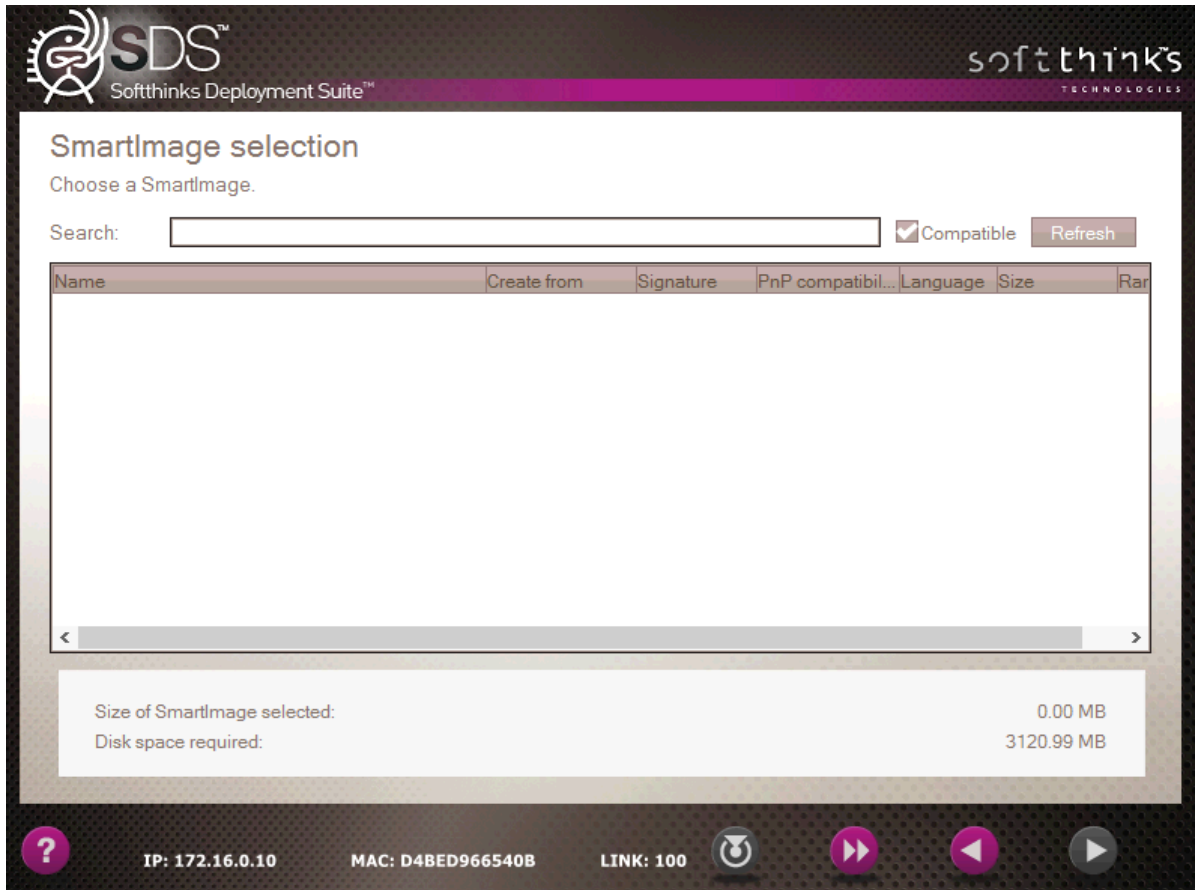


Manual Deployment

- If you want to deploy an image manually (or have not yet setup a Profile, Preset, or ADF file), click on the Skip button  in the "Profile, Preset" screen.
- You will be taken to the SDS Image Selection Page and there you will select the image to be applied to the hardware that is connected. You can select the image you want from the full list (filtered by Language and/or Operating System) or search by name:



- If you have created a Smart Image for the computer model you are deploying then you can select it at this screen, or else click on Skip button:



- Select the applications to be installed during the deployment (choose them in the left list and click on '>' button to add them to the right list), or else click on Skip button:

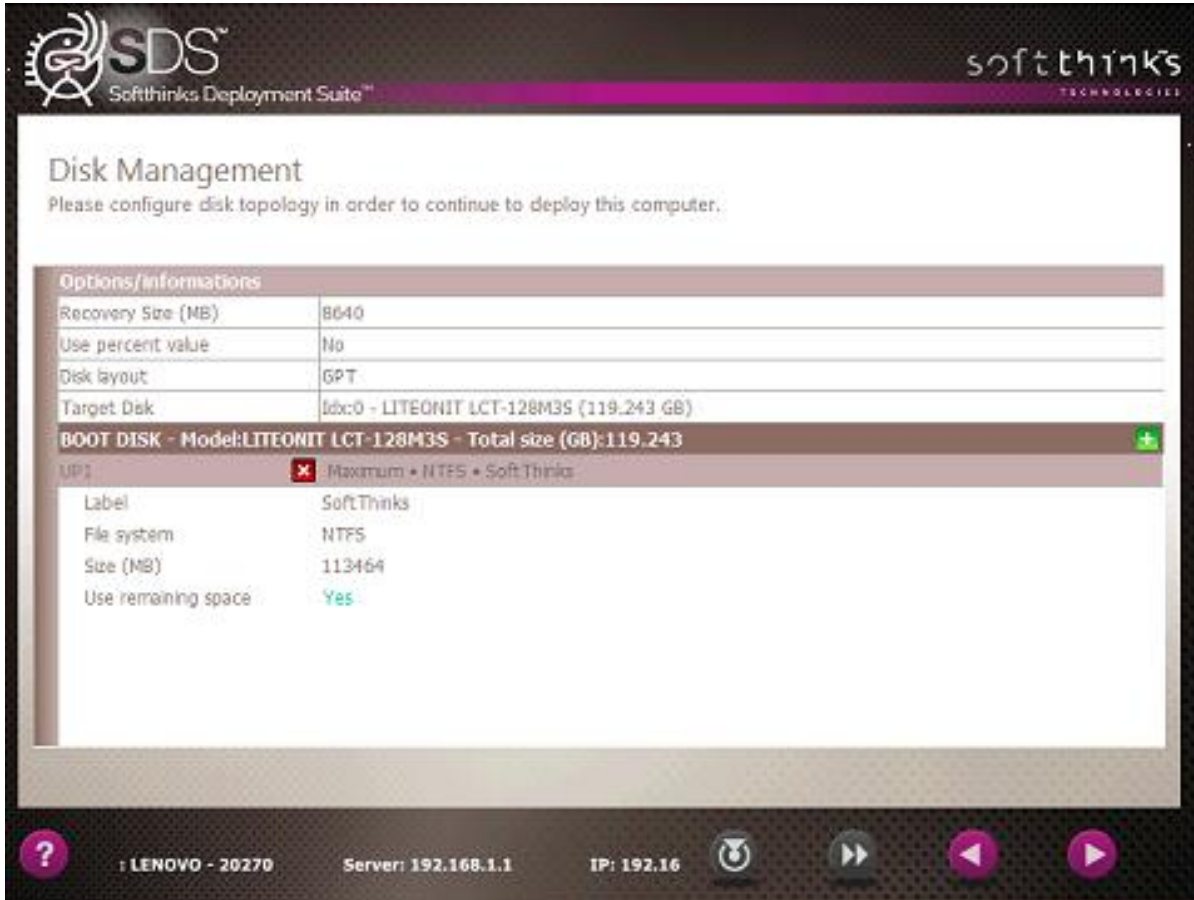


7. Choose the recovery solution option:



Note: For a Windows 10 image, there is no “Recovery Solution on additional partition (dedicated recovery partition)” option. Select “No recovery solution” (restore user partition only)” for a Generic Image. You can install the SoftThinks Backup and Recovery (SBAR) solution as an application (please contact your commercial contact). For a Static image select “Keep original disk topology”.

- Configure the disk topology (the default disk layout can be changed if required, otherwise nothing needs to be selected):



Note: Additional User Partitions can be created by changing the Size (%) of UP1 to a smaller amount and then clicking the green « + » symbol on the right side of the Boot Disk line. The new partition will be created with the space that was made available.

- Review the options that were selected for the deployment. After the countdown (15 seconds) or when you click on next button the deployment process will begin:



- If anything is incorrect you can hover over the Left Purple Arrow and thumbnails of all the screens will show up. You can go back as far as you need to, but hurry as you only have 15 seconds to make your choice or it will advance to the next screen.
- If you wish to create a new preset with the choices you made, click the “Create a Preset” button highlighted below. Please keep in mind the delay is only 15 seconds before the deployment starts automatically in order to click this button.
- Once the countdown is finished, the process will begin based on your script and the choice you made from the Welcome Page.

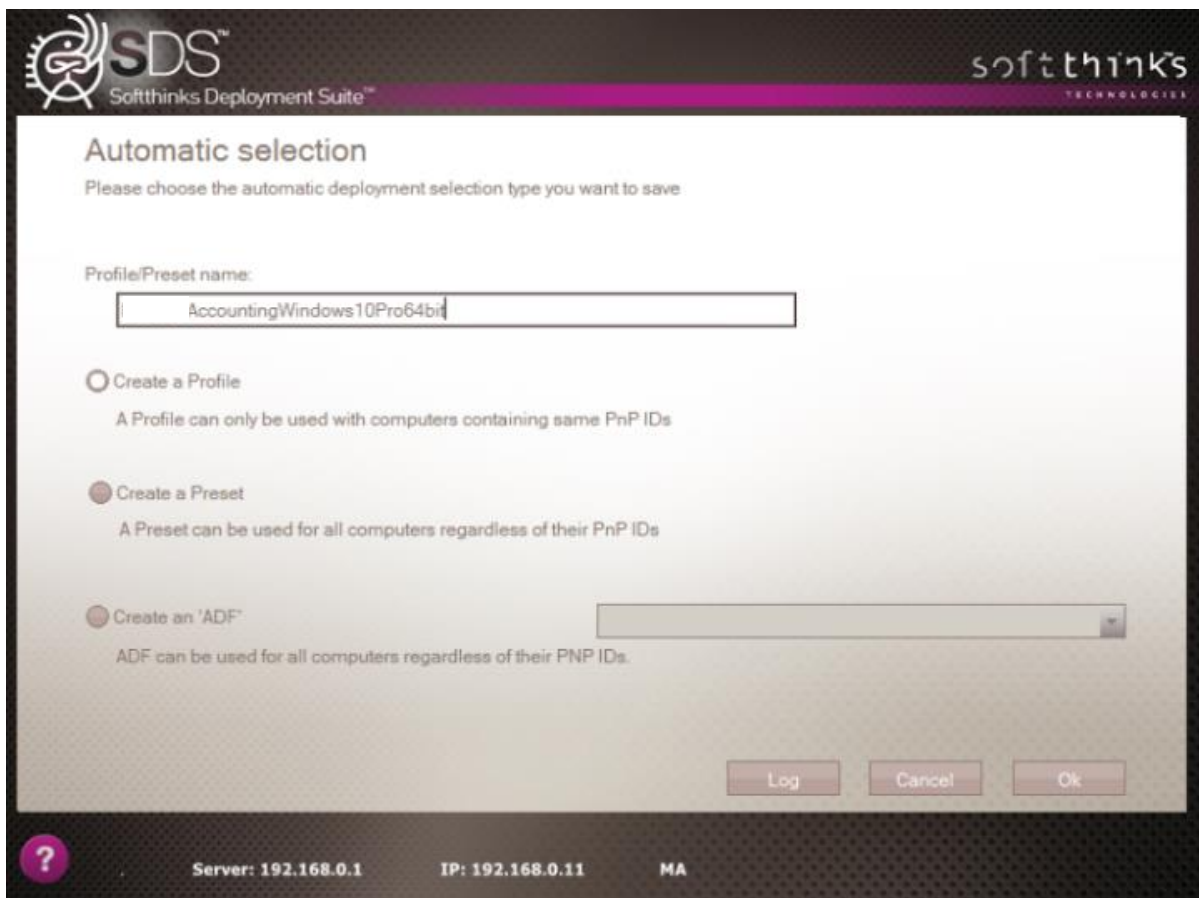
Automatic Deployment

Automatic image deployments are what set SDS apart from other methods on the market. Three types of the Automatic Deployments (Preset, Profile, and ADF) are available to be created depending on what is being deployed. Once an Automated File is selected, all of the choices that were made will be set for the computer and the screens will blink all the way through to the Summary page.

Profile

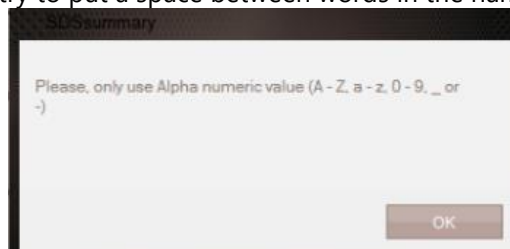
A Profile is linked to the hardware of a model of computer, but does not have a unique identifier in the name. Profiles are useful when you have multiple images of the same OS for the same model of computer (i.e. computers for schools or other organizations that have different images for different departments). A profile needs to be selected from the Profile/Preset Page in order to run.

To create a Profile, click on the "Create a Profile" button and give it a name without spaces or symbols related to the image (note: the button is selected when it turns white), and click on "OK" button to continue:



Your profile has now been created and will be available to use on future deployments.

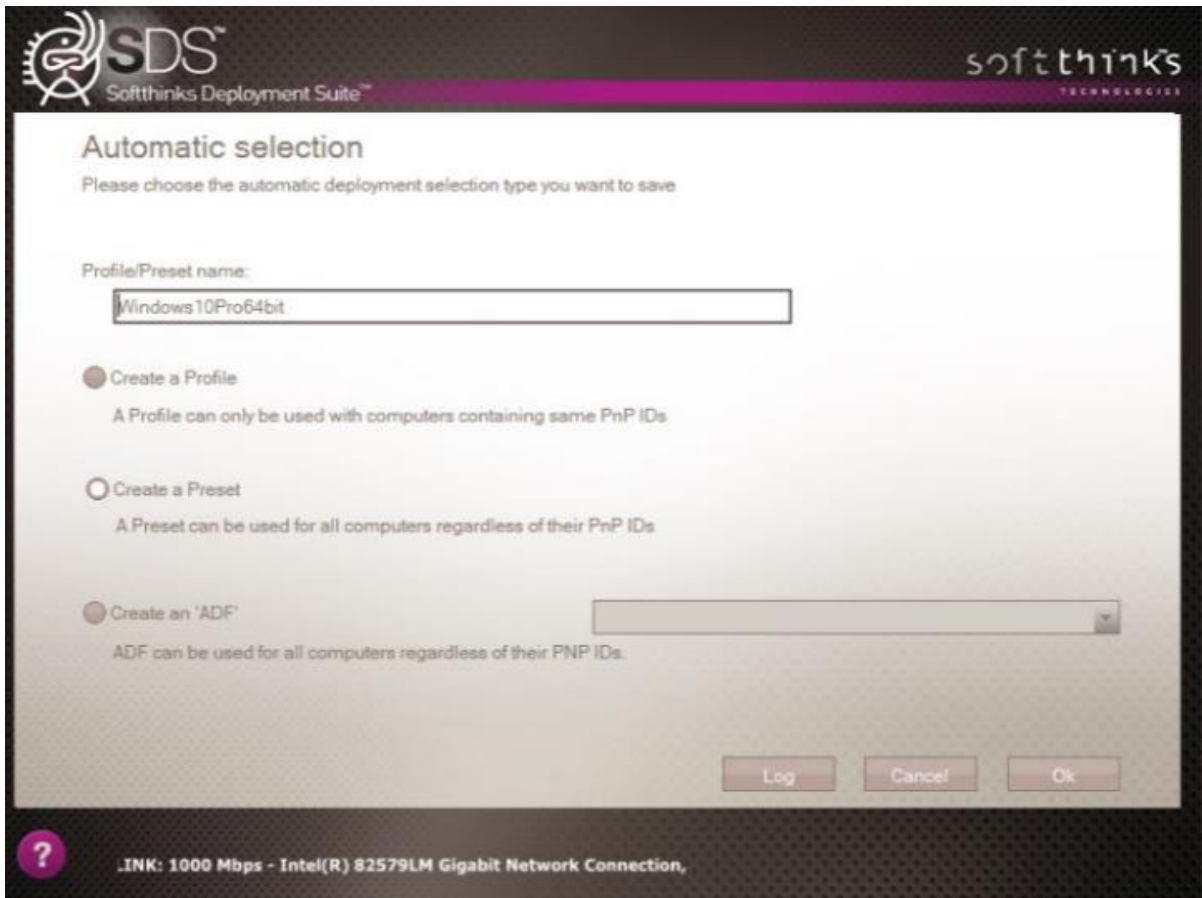
Note: You will get this error if you try to put a space between words in the name:



Preset

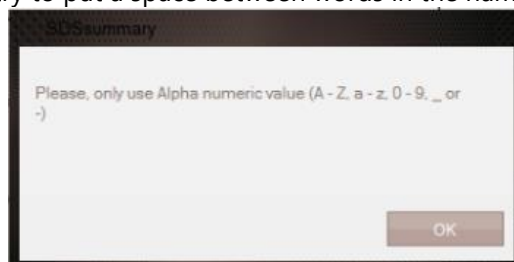
A Preset is not linked to any hardware and does not have a Unique Identifier in the name. It is used to deploy Generic Images to any model of computer with the same choices. A preset needs to be selected from the Profile/Preset Page in order to run.

To create a Preset, click on the "Create a Preset" button and give it a name without spaces or symbols related to the image (note: the button is selected when it turns white), and click on "OK" button to continue:



Your profile has now been created and will be available to use on future deployments.

Note: You will get this error if you try to put a space between words in the name

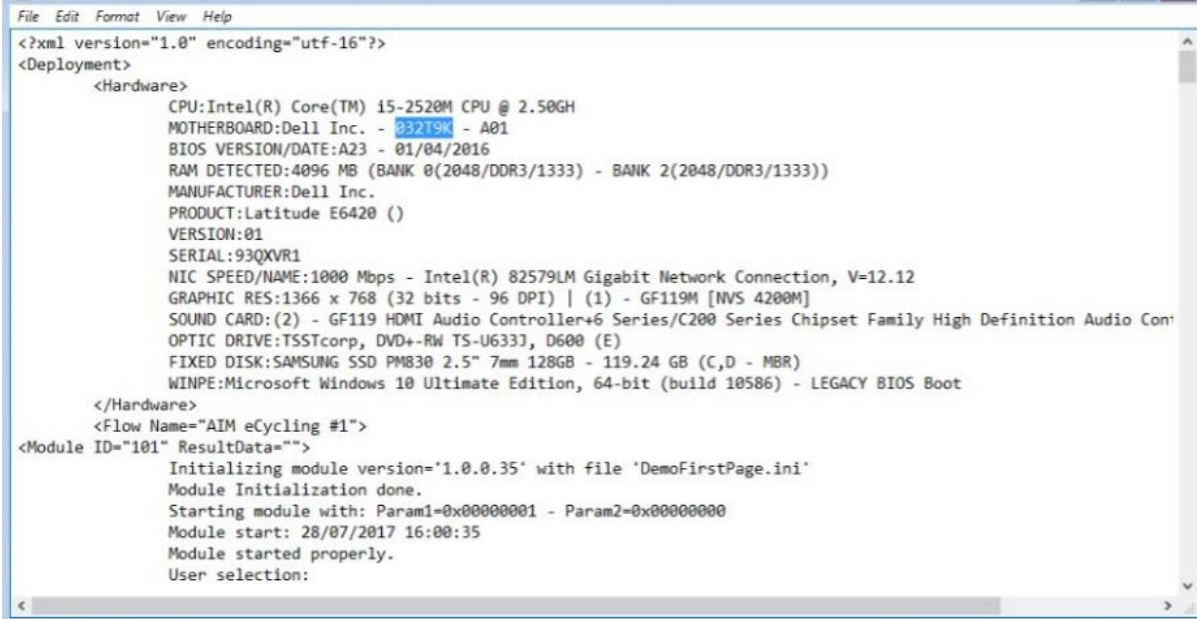


ADF (Automated Deployment File)

An ADF is linked to the hardware of a model of computer, and uses a unique identifier in the name. An ADF does not need to be selected to run. If the hardware of a computer matches the hardware of the ADF and the Unique Identifier also matches, then the system will automatically run the ADF as soon as Deploy or any variation of Deploy is selected. ADF are useful if you only have one image for an Operating System for a specific model of computer.

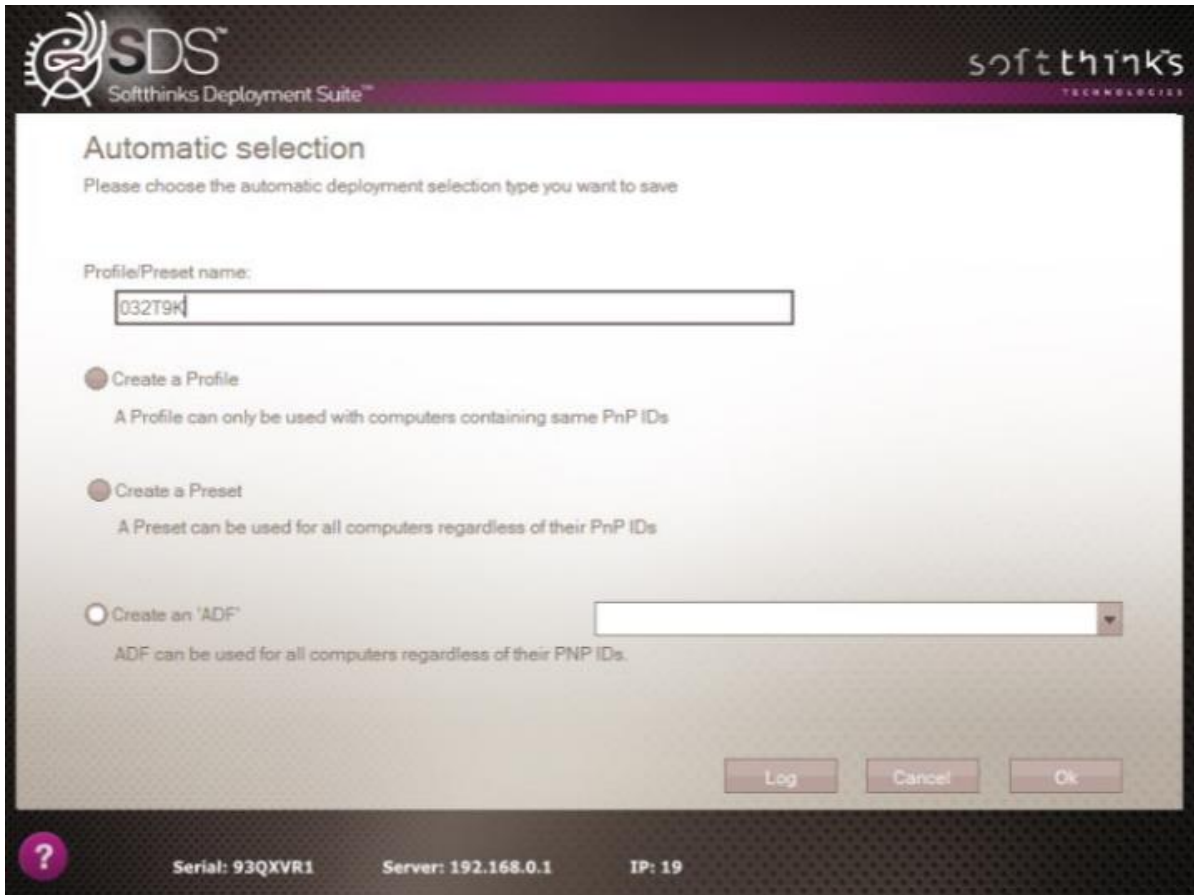
To create an ADF, click on the Create an ADF button. In most cases the name for the ADF will be the Motherboard Part Number (sometimes the computer model number will have to be used.)

To get the Motherboard Part Number, click the Log button near the bottom of the screen and the Log file for the deployment of that computer will open up from the RAM of the computer:



```
File Edit Format View Help
<?xml version="1.0" encoding="utf-16"?>
<Deployment>
  <Hardware>
    CPU: Intel(R) Core(TM) i5-2520M CPU @ 2.50GH
    MOTHERBOARD: Dell Inc. - 93219K - A01
    BIOS VERSION/DATE: A23 - 01/04/2016
    RAM DETECTED: 4096 MB (BANK 0(2048/DDR3/1333) - BANK 2(2048/DDR3/1333))
    MANUFACTURER: Dell Inc.
    PRODUCT: Latitude E6420 ()
    VERSION: 01
    SERIAL: 93QXVR1
    NIC SPEED/NAME: 1000 Mbps - Intel(R) 82579LM Gigabit Network Connection, V=12.12
    GRAPHIC RES: 1366 x 768 (32 bits - 96 DPI) | (1) - GF119M [NVS 4200M]
    SOUND CARD: (2) - GF119 HDMI Audio Controller+6 Series/C200 Series Chipset Family High Definition Audio Con
    OPTIC DRIVE: TSSTcorp, DVD+-RW TS-U6333, D600 (E)
    FIXED DISK: SAMSUNG SSD PM830 2.5" 7mm 128GB - 119.24 GB (C,D - MBR)
    WINPE: Microsoft Windows 10 Ultimate Edition, 64-bit (build 10586) - LEGACY BIOS Boot
  </Hardware>
  <Flow Name="AIM eCycling #1">
<Module ID="101" ResultData="">
  Initializing module version='1.0.0.35' with file 'DemoFirstPage.ini'
  Module Initialization done.
  Starting module with: Param1=0x00000001 - Param2=0x00000000
  Module start: 28/07/2017 16:00:35
  Module started properly.
  User selection:
```

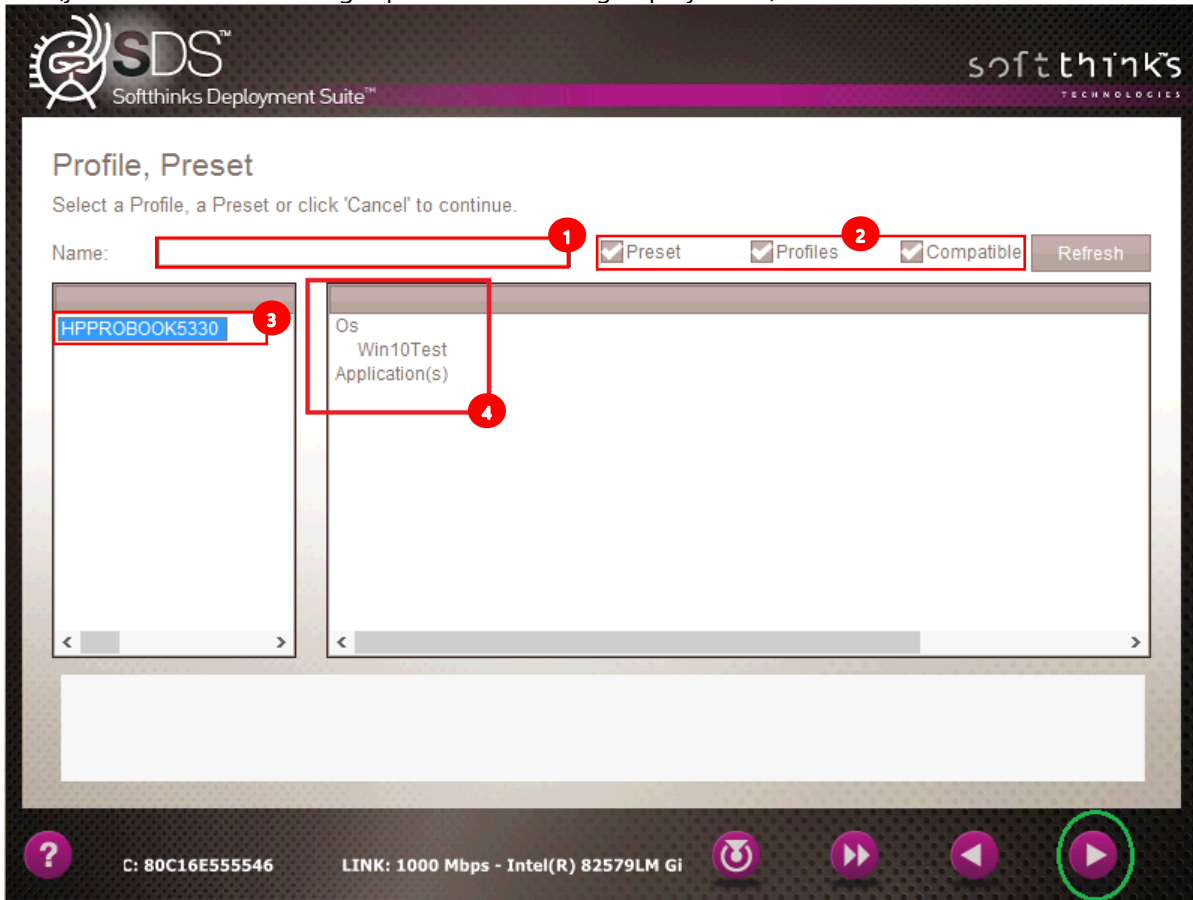
The Motherboard Part number (if listed in the BIOS of the computer) will be in the hardware list of the computer in the top section of the log file. Highlight it and Copy the Name. Then close the log and paste the name into the Profile/Preset name box:



The screenshot shows the 'Automatic selection' dialog box in the SDS (Softthinks Deployment Suite) interface. The dialog has a title bar with the SDS logo and 'Softthinks Deployment Suite™' on the left, and the 'softthinks TECHNOLOGIES' logo on the right. The main content area is titled 'Automatic selection' and contains the instruction: 'Please choose the automatic deployment selection type you want to save'. Below this is a text input field labeled 'Profile/Preset name:' containing the text '032T9K'. There are three radio button options: 'Create a Profile' (selected), 'Create a Preset', and 'Create an 'ADF''. Each option has a brief description: 'A Profile can only be used with computers containing same PnP IDs', 'A Preset can be used for all computers regardless of their PnP IDs', and 'ADF can be used for all computers regardless of their PnP IDs.' To the right of the 'Create an 'ADF'' option is a dropdown menu. At the bottom right of the dialog are three buttons: 'Log', 'Cancel', and 'Ok'. At the bottom left is a help icon (a question mark in a circle). At the bottom center, there is a status bar with the text: 'Serial: 93QXVR1 Server: 192.168.0.1 IP: 19'.

Your ADF has now been created and will be available to use on future deployments.

If the current device doesn't match an existing ADF file, select a Profile / Preset (See [Definitions, Acronyms and Abbreviations used in this user guide](#)) to deploy **automatically**. You can search for specific profile/preset/ADF name **1** and filter them by type **2**, and if one is matching your need in the list **3** ("HPPROBOK5330" in our example), select it (you will notice on the right panel the OS being deployed **4**) and click on Next button:



macOS Image

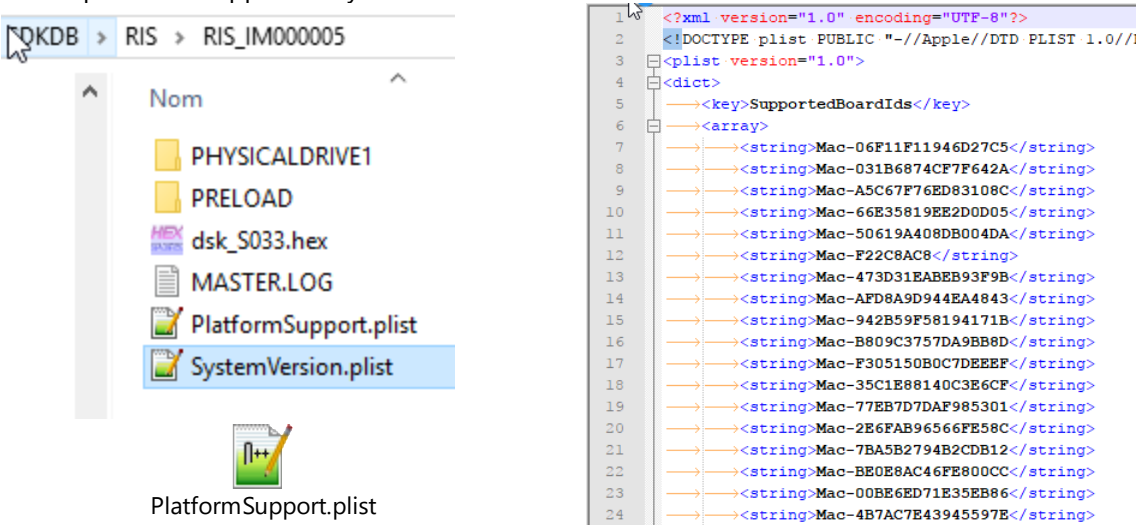
Once an image is added to the SDS database, it will be possible to apply it to any Mac, usually the same Model that you captured the image from. However, some other models could use the same image.

A Mac can be identified in BIOS with a hardware ID.

For example, in red.

```
CPU: Intel(R) Core(TM) i5-4308U CPU @ 2.80GHz
MOTHERBOARD: Apple Inc. - Mac-35C5E08120C7EEAF - Macmini7,1
BIOS VERSION/DATE: MM71.88Z.0220.B14.1702161608 - 02/16/2017
RAM DETECTED: 8192 MB (BANK 0(0/DDR3/1600) - BANK 1(0/DDR3/1600))
MANUFACTURER: Apple Inc.
PRODUCT: Macmini7,1 (System SKU#)
VERSION: 1.0
SERIAL: C0KT800UGF1T
NIC SPEED/NAME: 100 Mbps - Broadcom NetXtreme Gigabit Ethernet Driver, V=17.2
GRAPHIC RES: 1024 x 768 (32 bits - 96 DPI) | (1) - Haswell-ULT Integrated Graphics Controller
SOUND CARD: (2) - Haswell-ULT HD Audio Controller+8 Series HD Audio Controller
OPTIC DRIVE:
FIXED DISK: APPLE SSD SM0128F - 113.00 GB ( - GPT)
APPLE HDD ST1000LM024 - 931.51 GB ( - GPT)
```

If you look closer at the recovery in the RIS folder of the image you will find 2 *.plist files which identify the Mac OS version and the platforms supported by the OS version:



You can check this file to see what other Mac platforms can use this same image. Some Mac mini could have different hardware but this image could probably support other Mac. You have to check in those files.

If you have an old MacBook Pro 10.8.5 like this one: 'Apple Inc. – MacBook Pro 9.2 (Mac-6F01561E16C75D06)' you will notice that the image captured is supporting my MacBook Pro so you can download it directly without update through iTunes.

Since we are using a Bootcamp driver to mount HFS+ partition only reading is possible.

To download a Mac OS image in SDS you will need an adapted script. Since volumes are read-only no modules are able to add anything to the image deployed under WinPE environment.

Adapt your SDS script. It is identical for the capture, only the download was adjusted as follow:

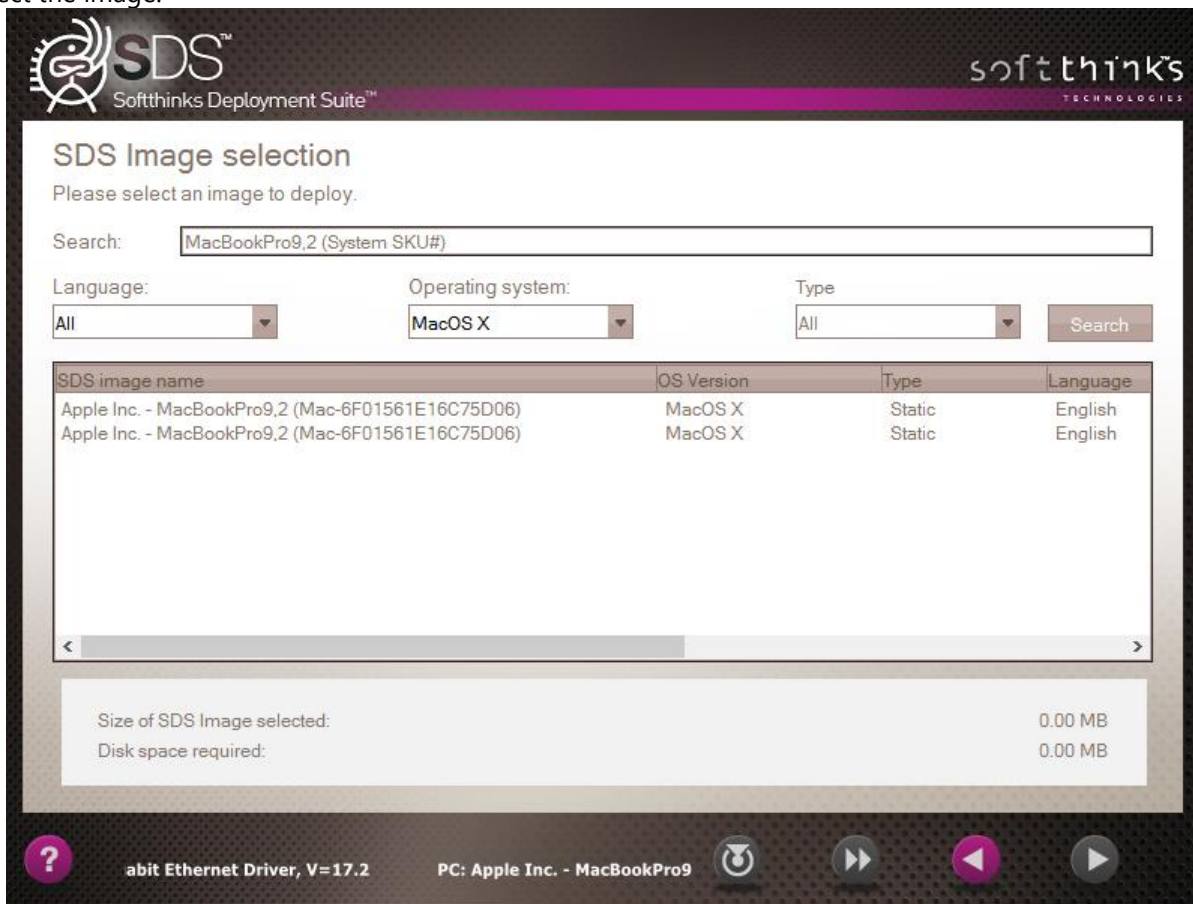
```
<!-- if mac, only restore ...-->
<SETVAR MACOS="%OS%"></SETVAR>    → DETECTING IF WE HAD SELECTED A MACOS IMAGE
<IF MACOS="20">
  <Module Id="115" ConfigFile="" Param1="1" Param2="6" FullScrn="0"></Module>
  <SEND_LOGS></SEND_LOGS>
  <SETVAR RESTORE="RESULT"></SETVAR>

  <IF CREATE="0" OP="&" RESTORE="1">
    <Module Id="119" ConfigFile="" Param1="0x1" Param2="0" FullScrn="0"></Module>
  </IF>
  <ELSE>
    <SEND_LOGS Source="X:\windows\system32\*.log" Destination="R:\ " ></SEND_LOGS>
    <Module Id="119" ConfigFile="" Param1="0x2" Param2="0" FullScrn="0"></Module>
  </ELSE>
</IF>
```

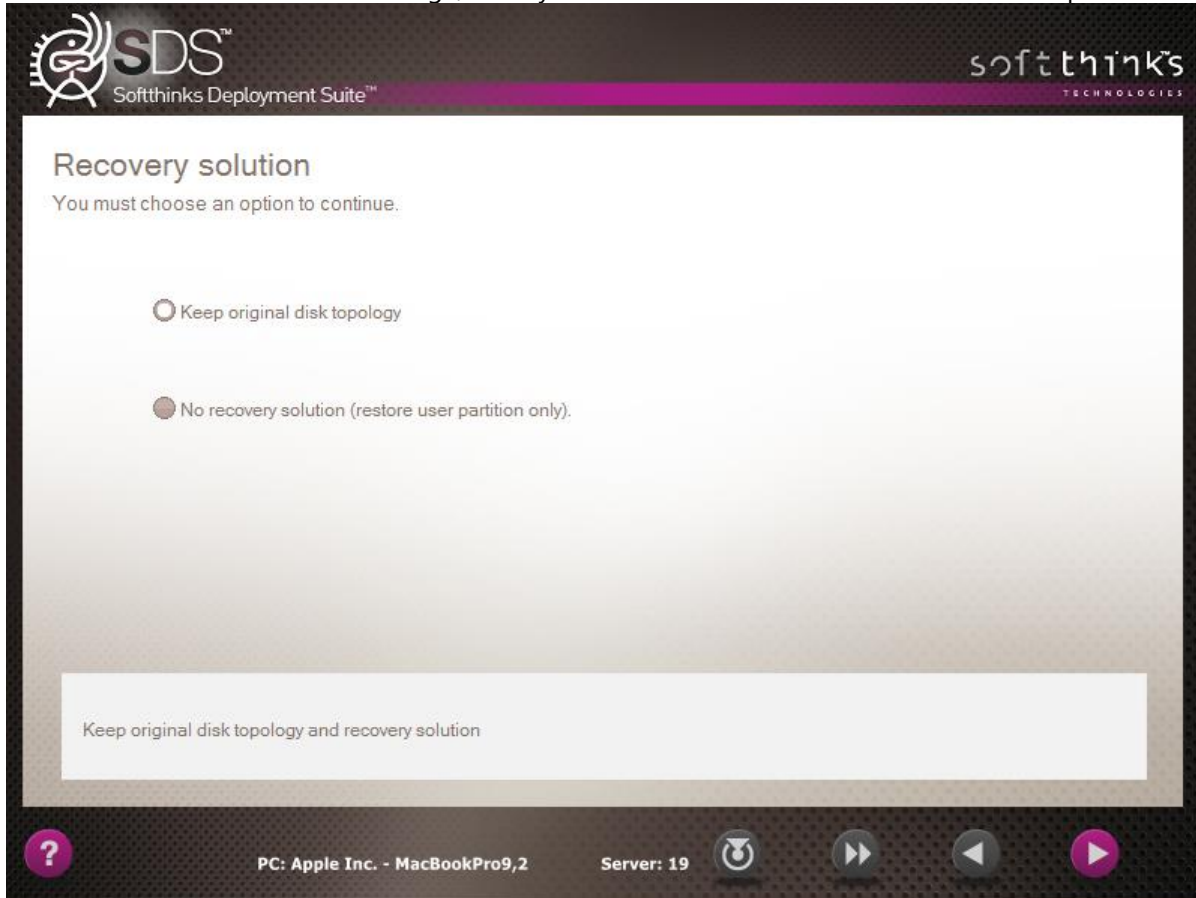


script.xml

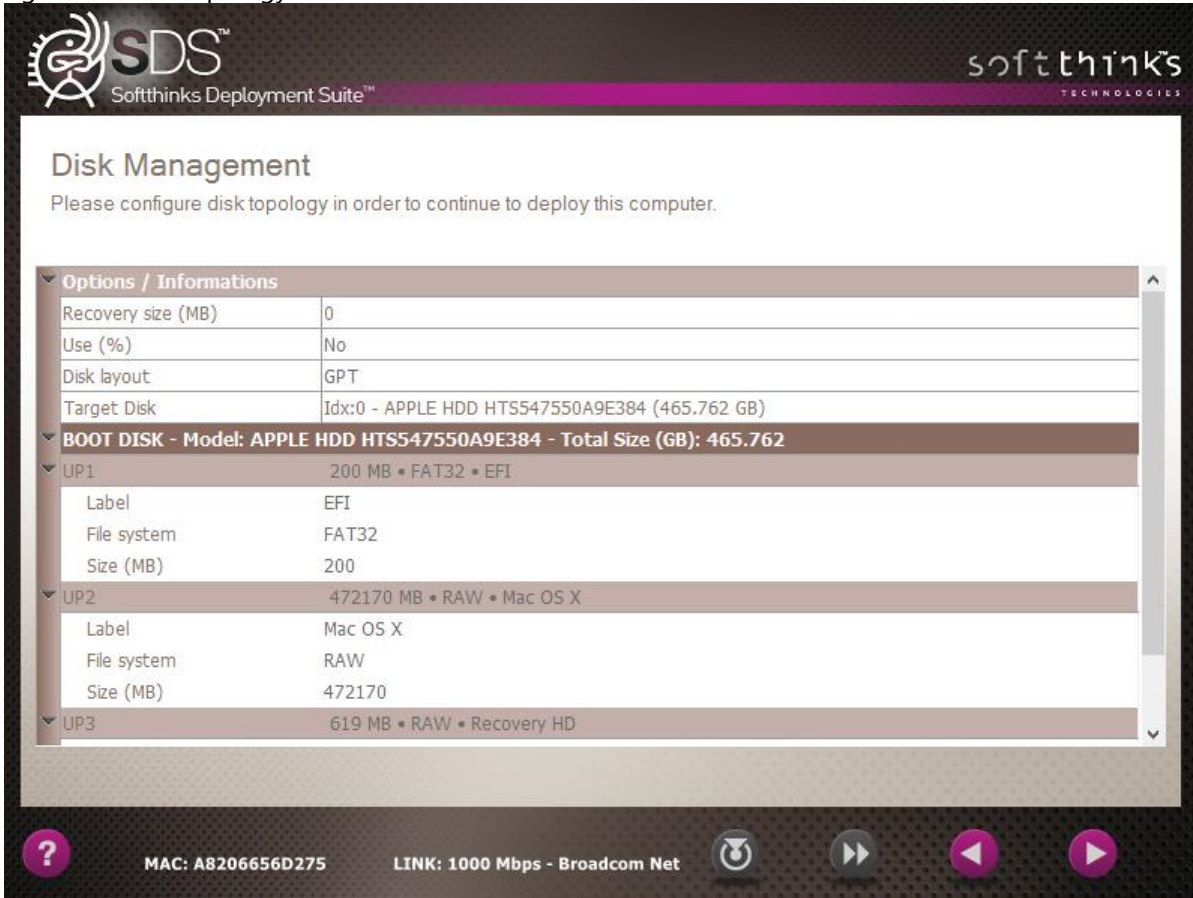
1. Boot your device to the SDS Server and select the image deployment option
2. Select the image:



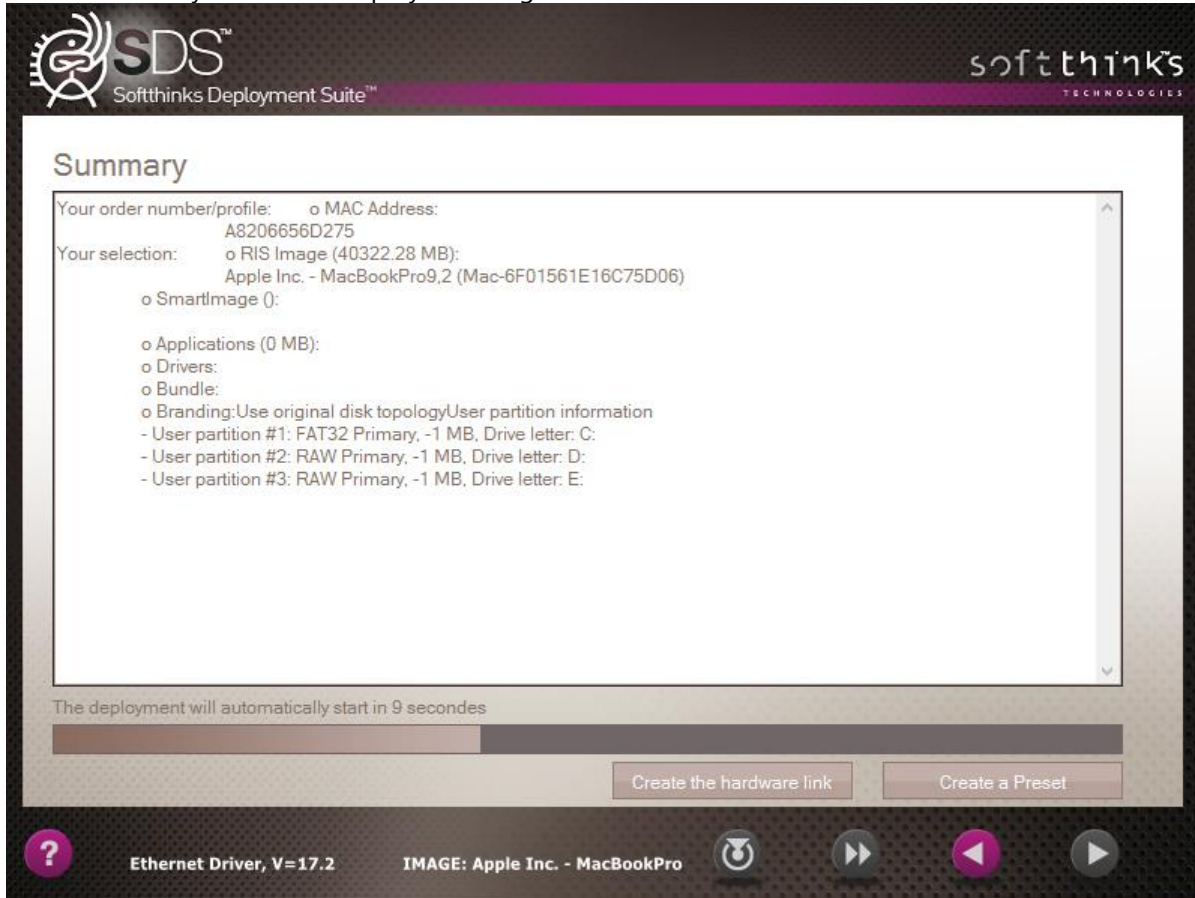
3. Select the method to download the image, usually it is automatic but here we are in a manual process:



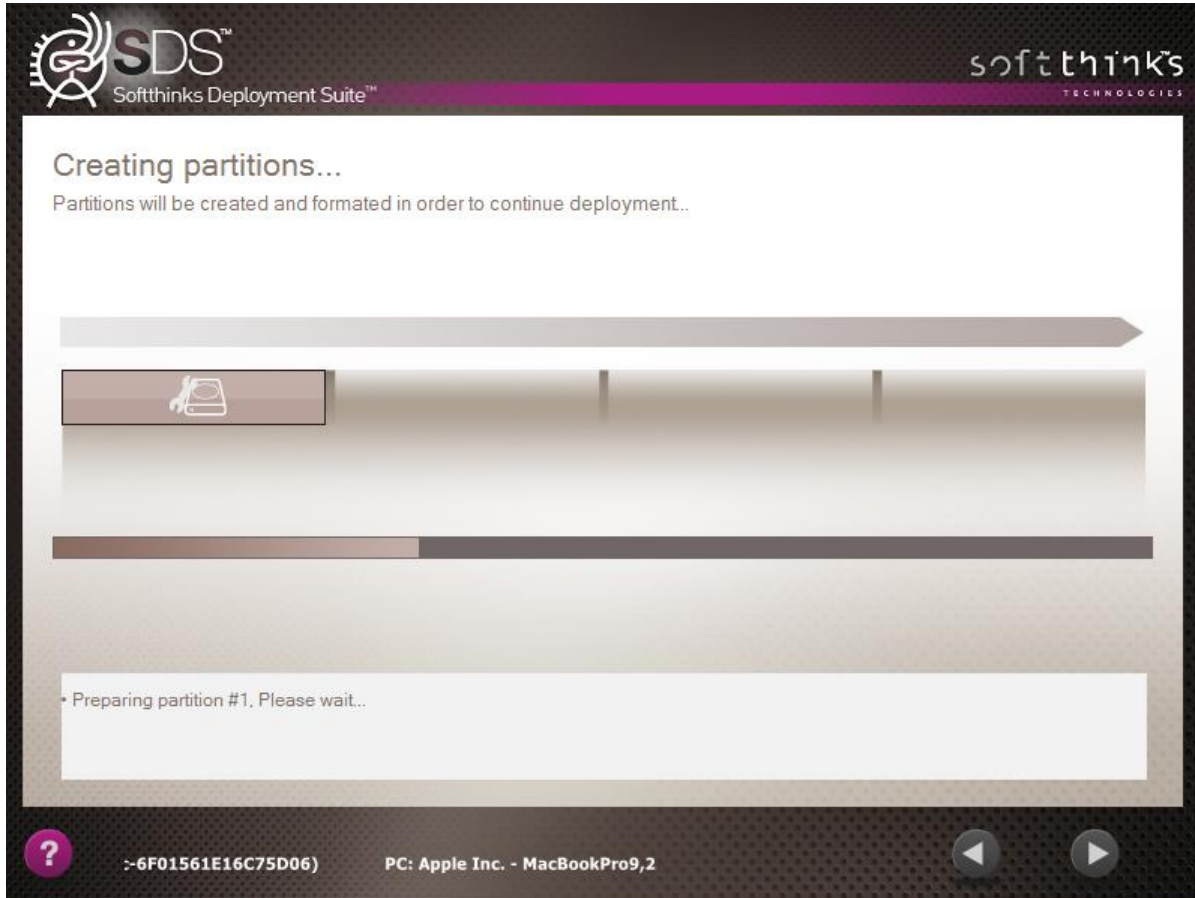
4. Configure the disk topology:



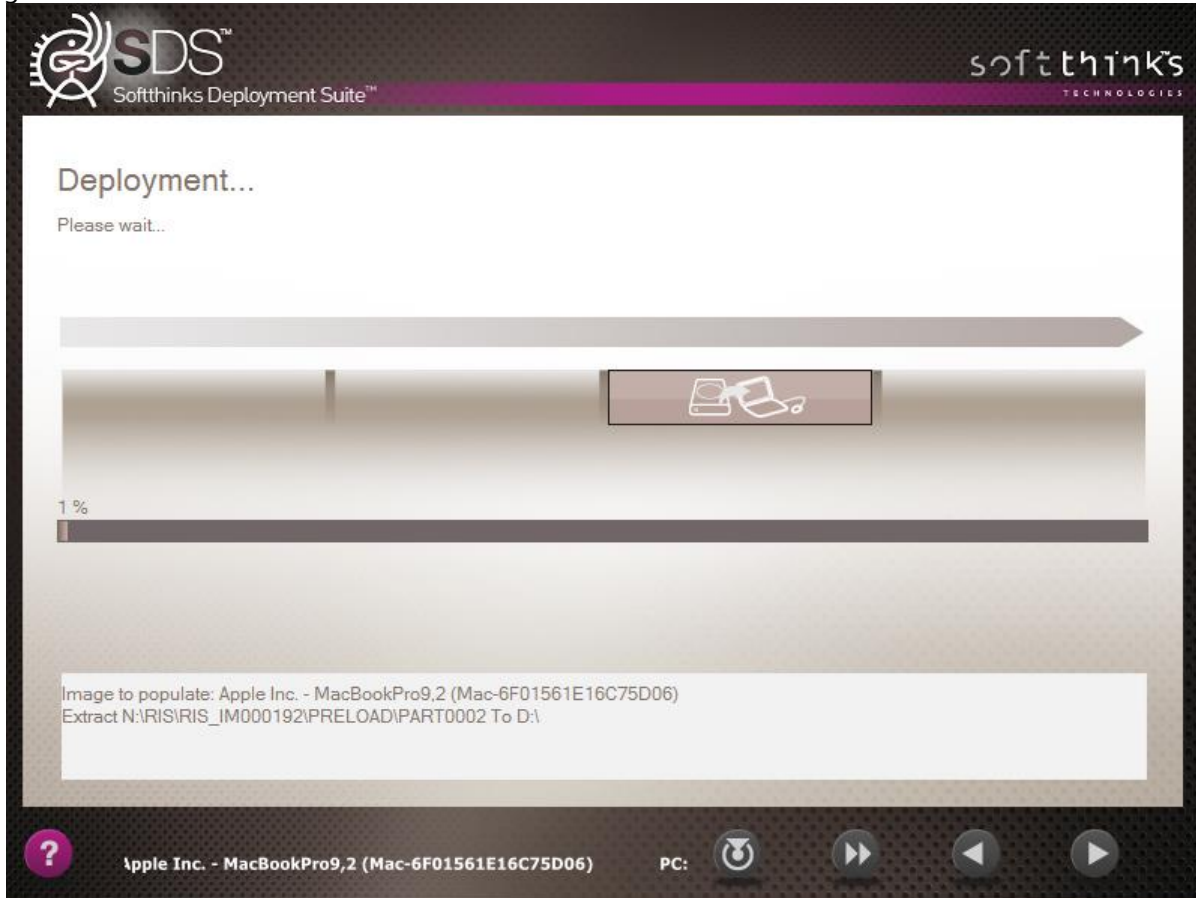
5. Review the summary before the deployment begins. You will have 15 seconds:



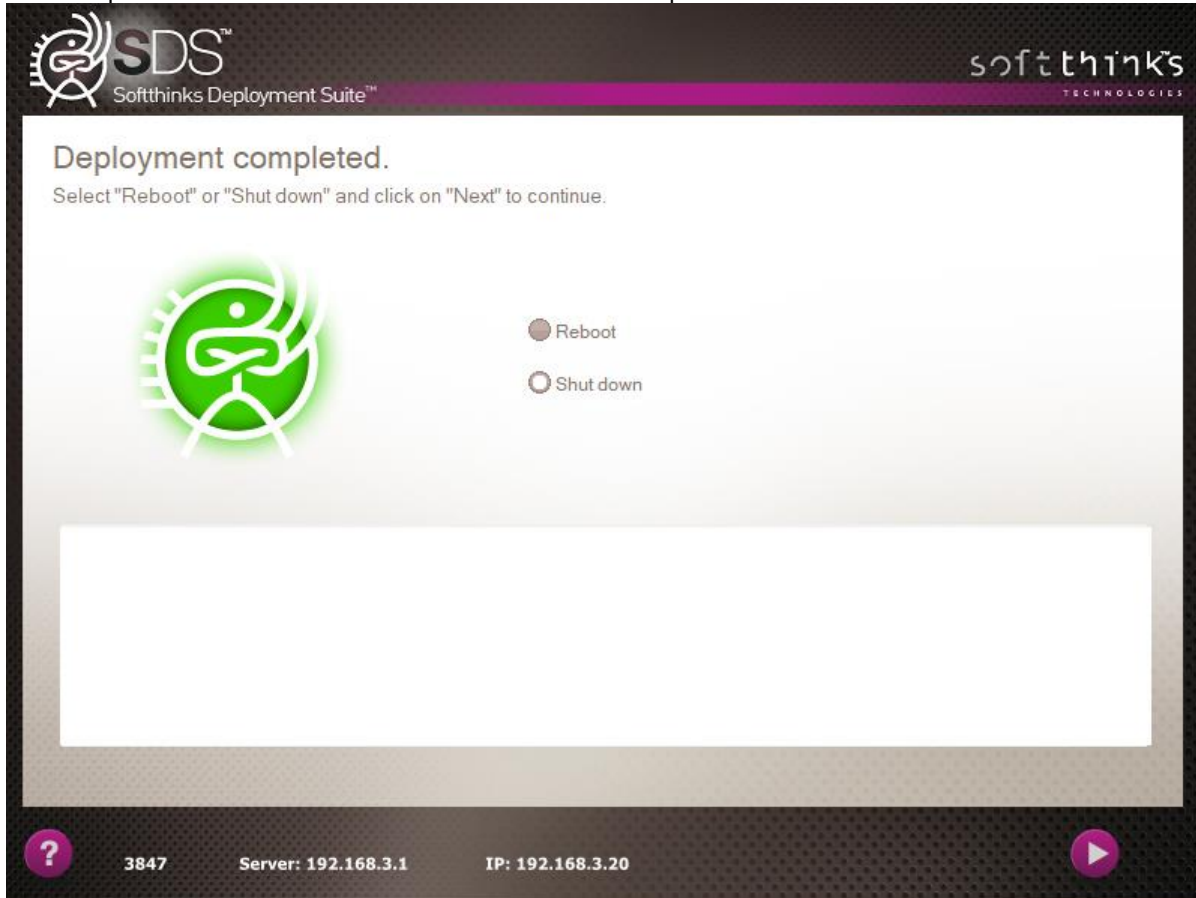
6. Partition creation:



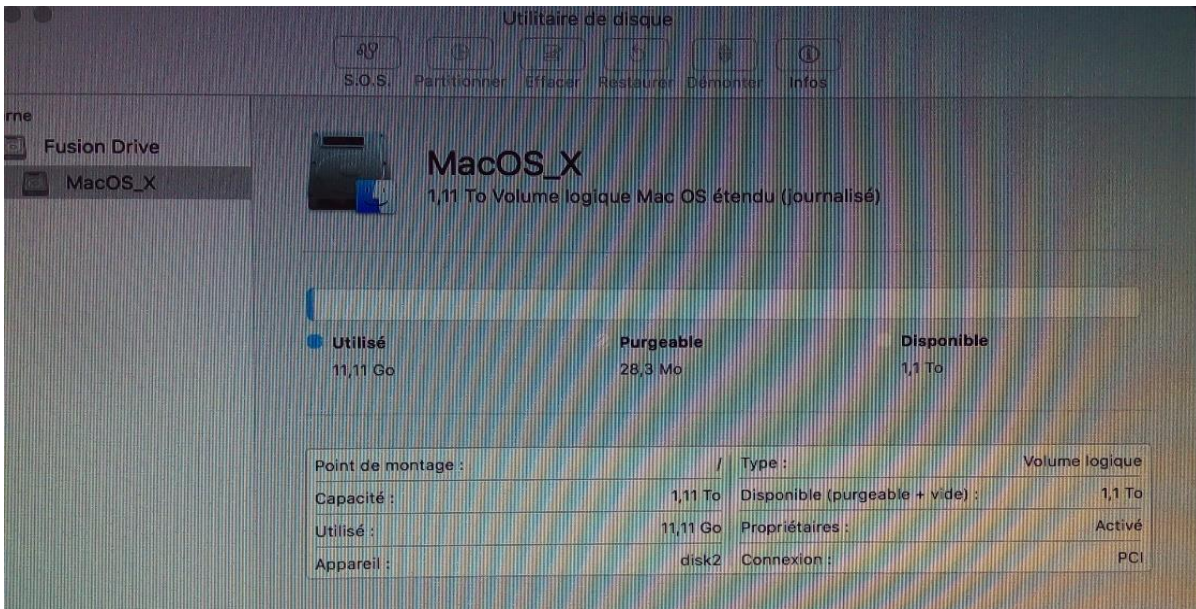
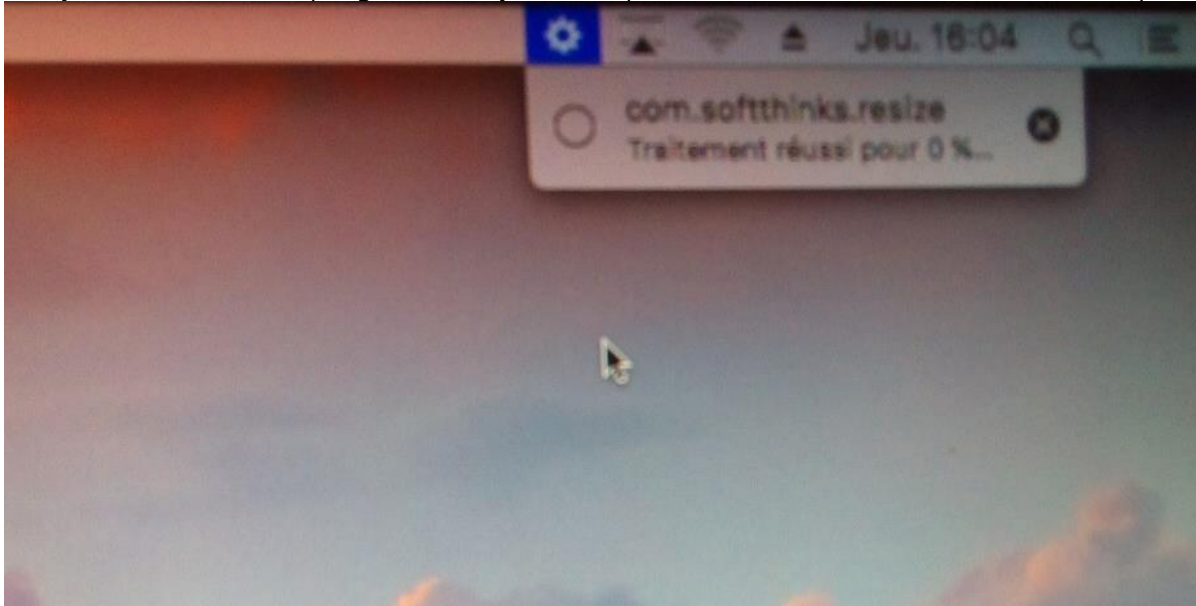
7. Image restoration:



8. Process completed. You can now reboot the Mac to the setup assistant:



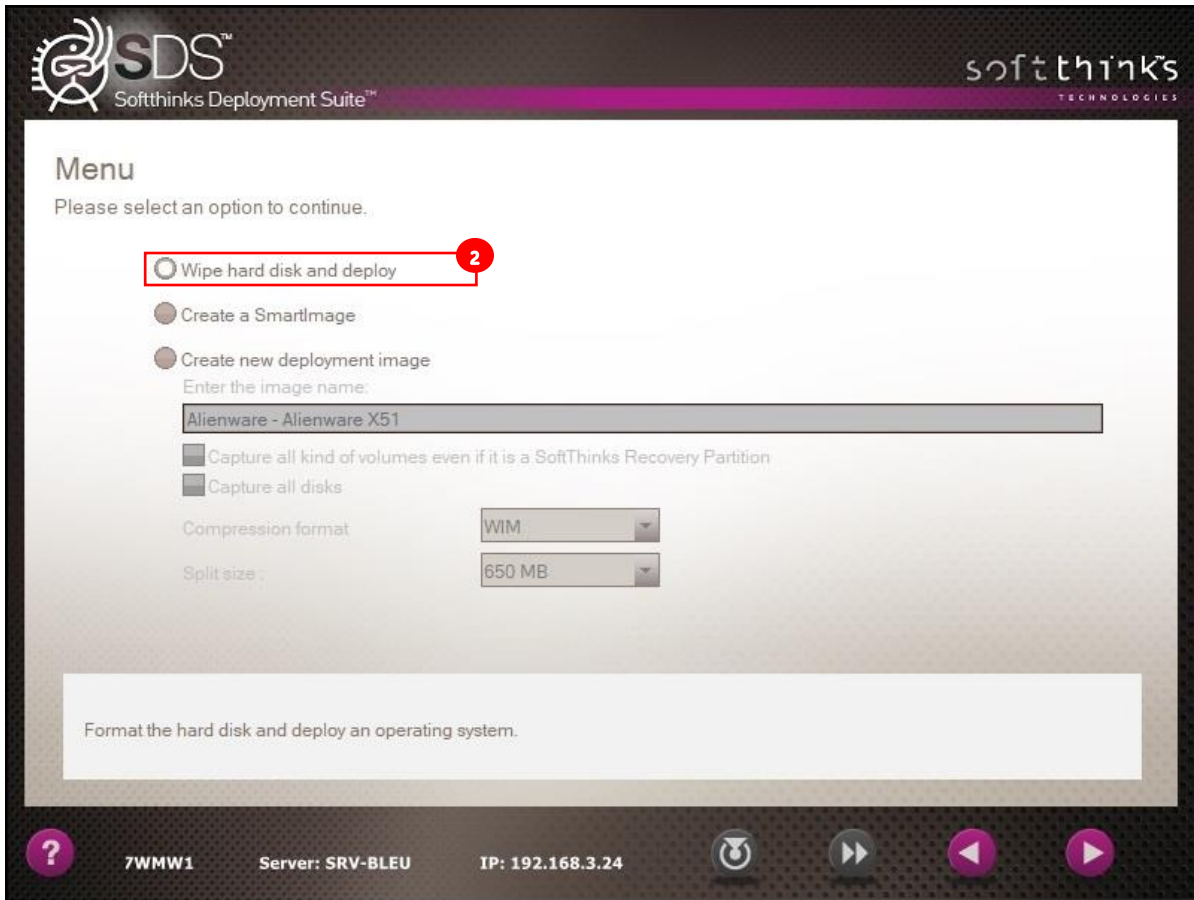
9. On first boot, once the user has setup his account, the setup assistant will be executed and the System Volume will be extended to its maximum size available. A file ResultResize.txt will be created in Library folder of the current user (~/.Library). It contains the output generated by Shell Script in the automator. It will look like those 2 pictures:



You can see that our image of 32GB by disk is expanded to the whole disk capacity of 1.1TB.

Linux image

1. Boot your device to the SDS Server
2. Select the image deployment option **2** ("Wipe hard disk and deploy" in our example) and click Next:



3. Select the Linux image and click Next:

SDS Image selection
Please select an image to deploy.

Search:

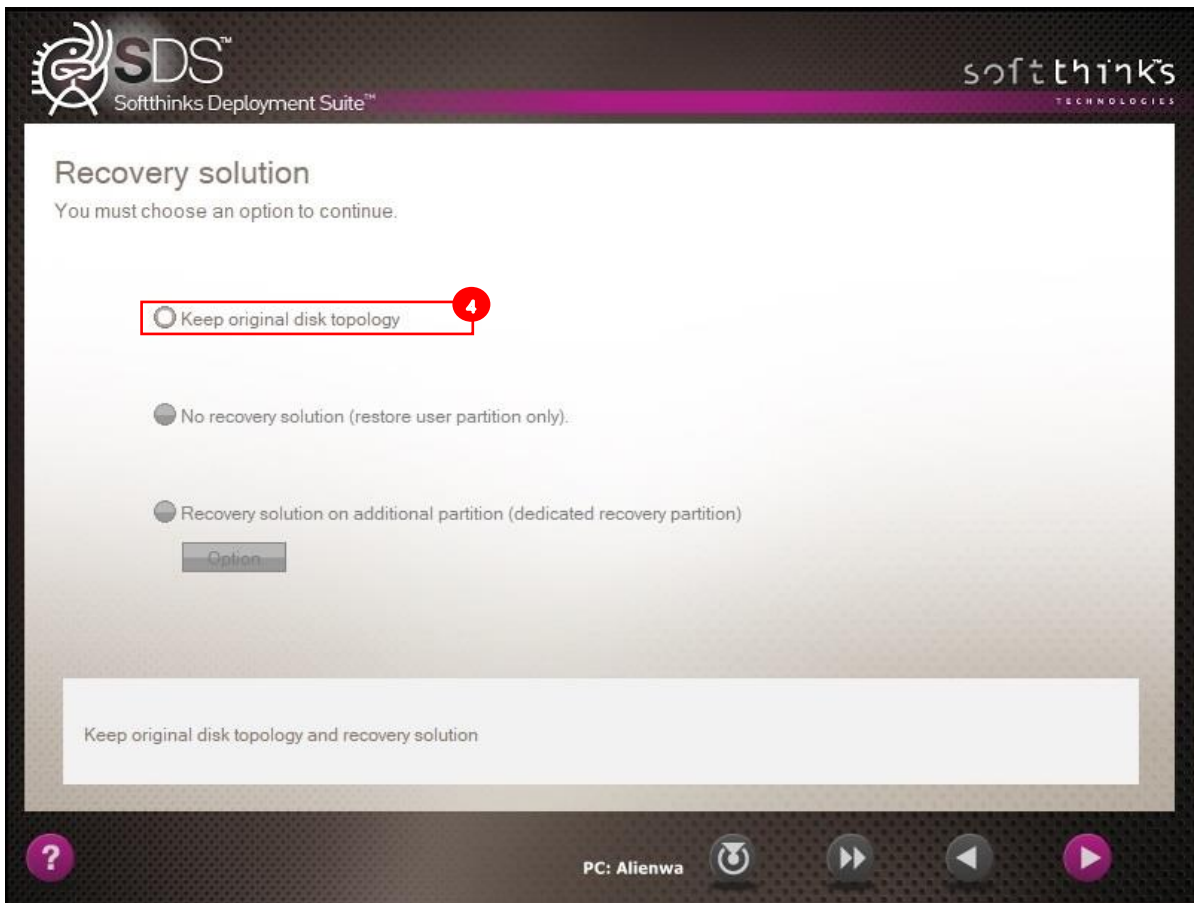
Language: Operating system: Type:

SDS image name	OS Version	Type	Language
LINUX - Alienware X51 - Ver.Linux Mint 18.2 Sonya	Linux	Static	English

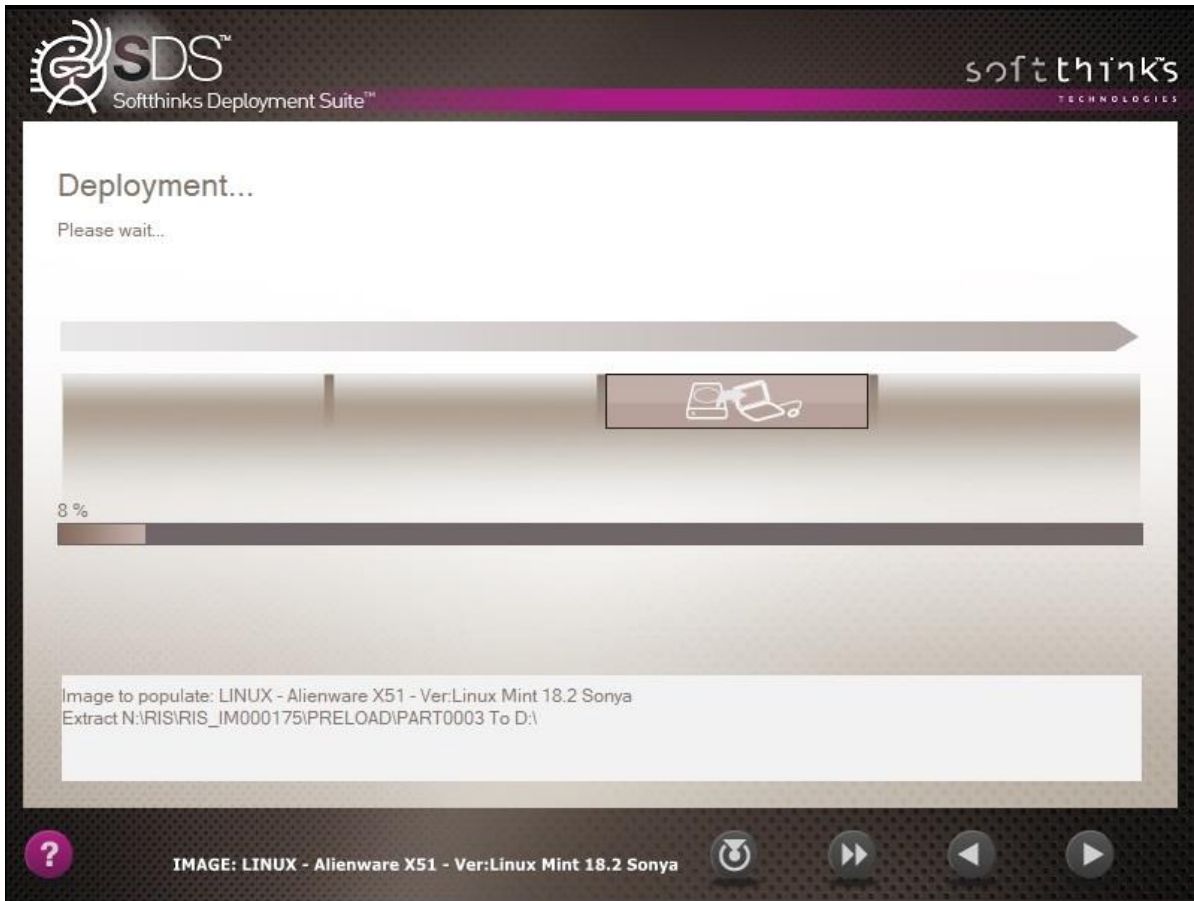
Size of SDS Image selected: 5588.02 MB
Disk space required: 5588.02 MB

18F69F55C5A LINK: 1000 Mbps - Realtek PCIe GBE Family

4. Choose "Keep original disk topology" option and click Next:

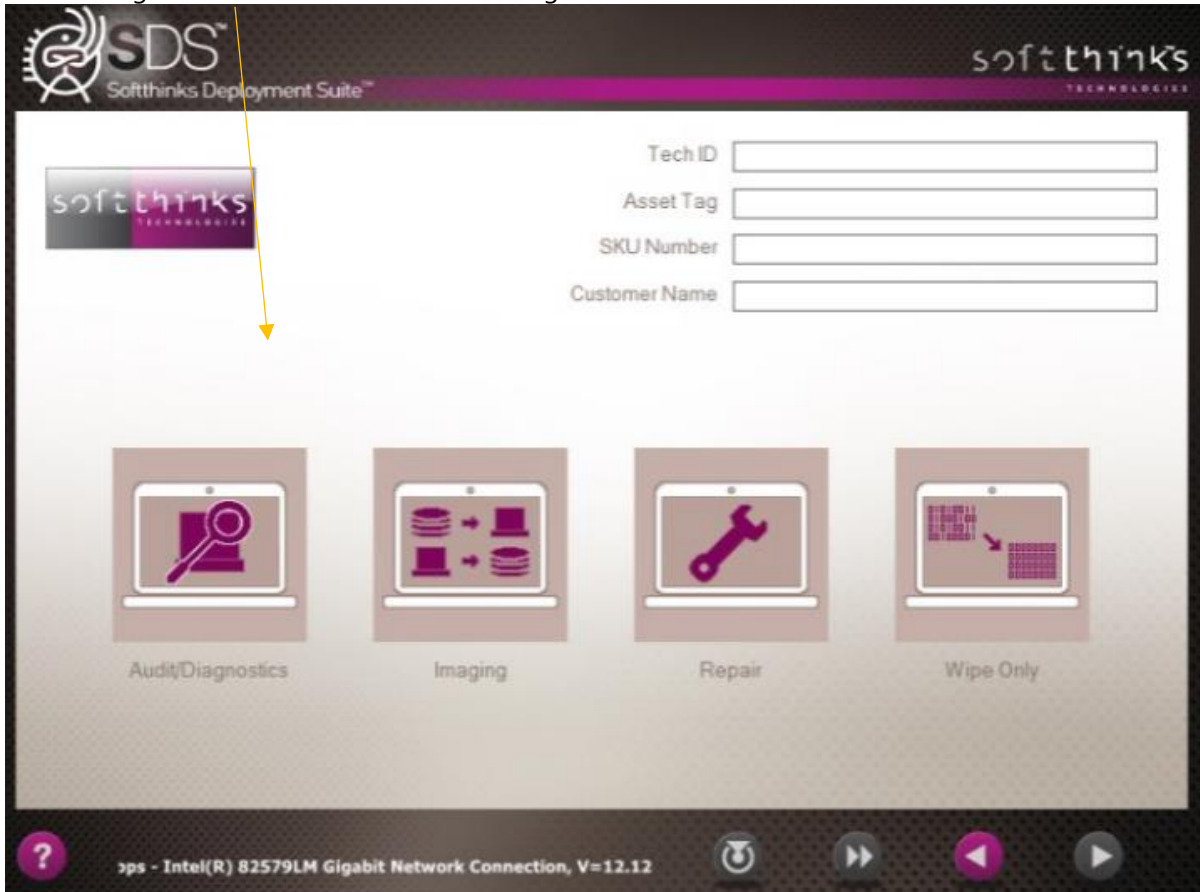


5. Your image is now being deployed:

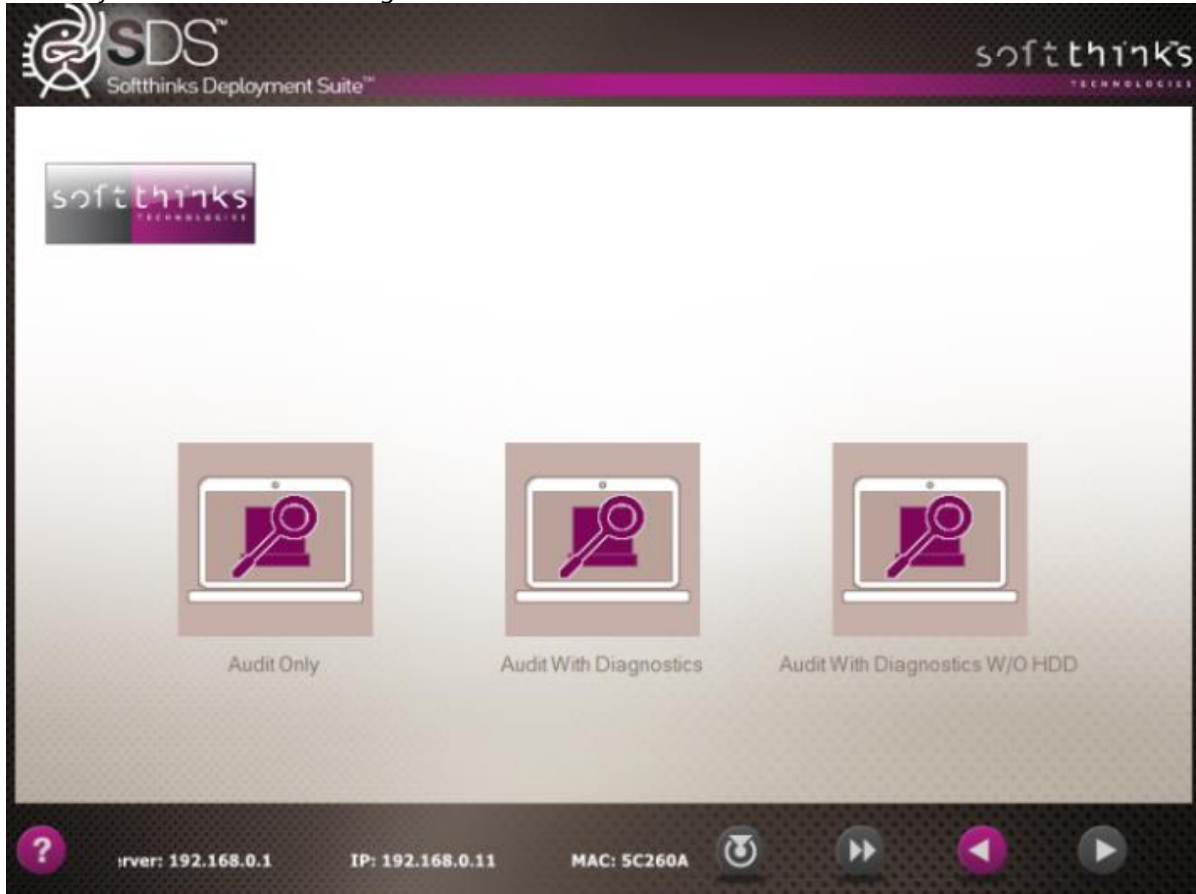


Auditing and/or Diagnosing a Windows or Mac OS device

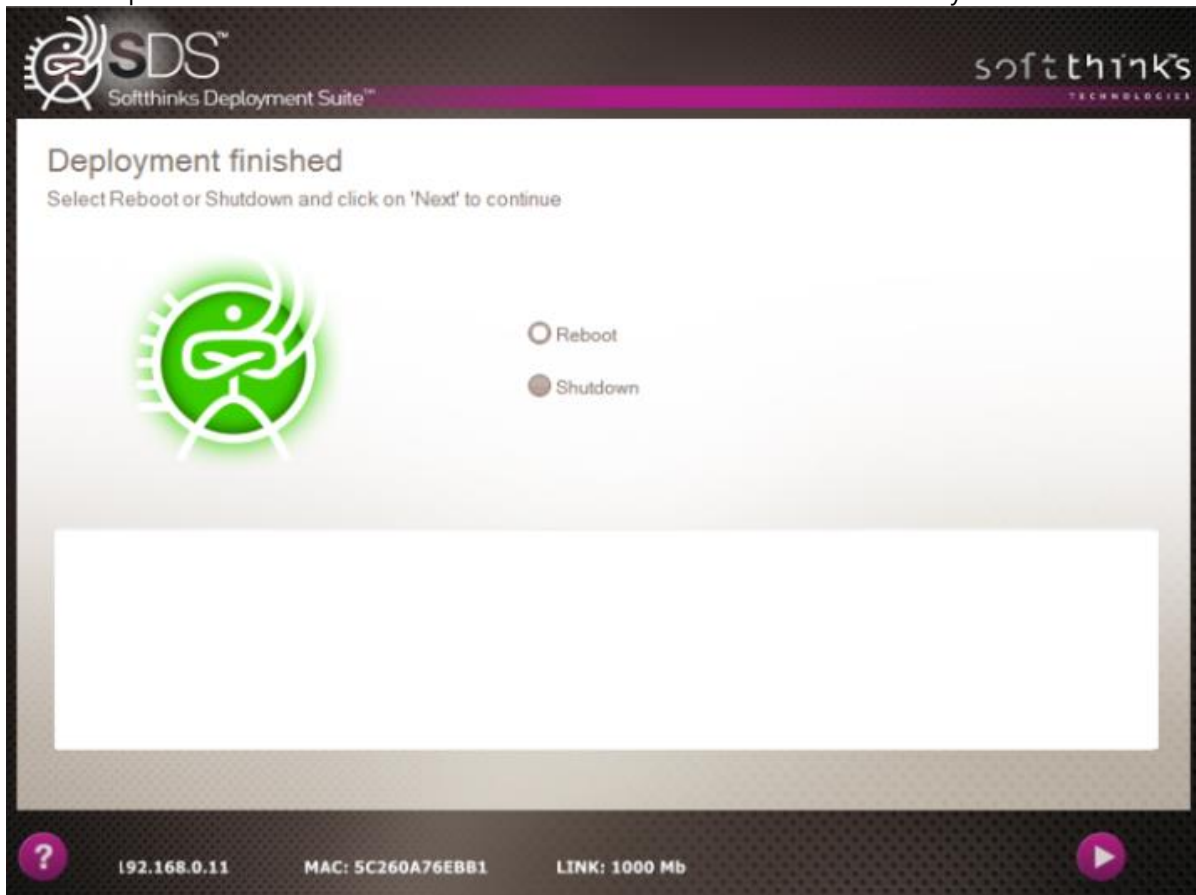
1. Click the Audit/Diagnostics button as seen on the image below :



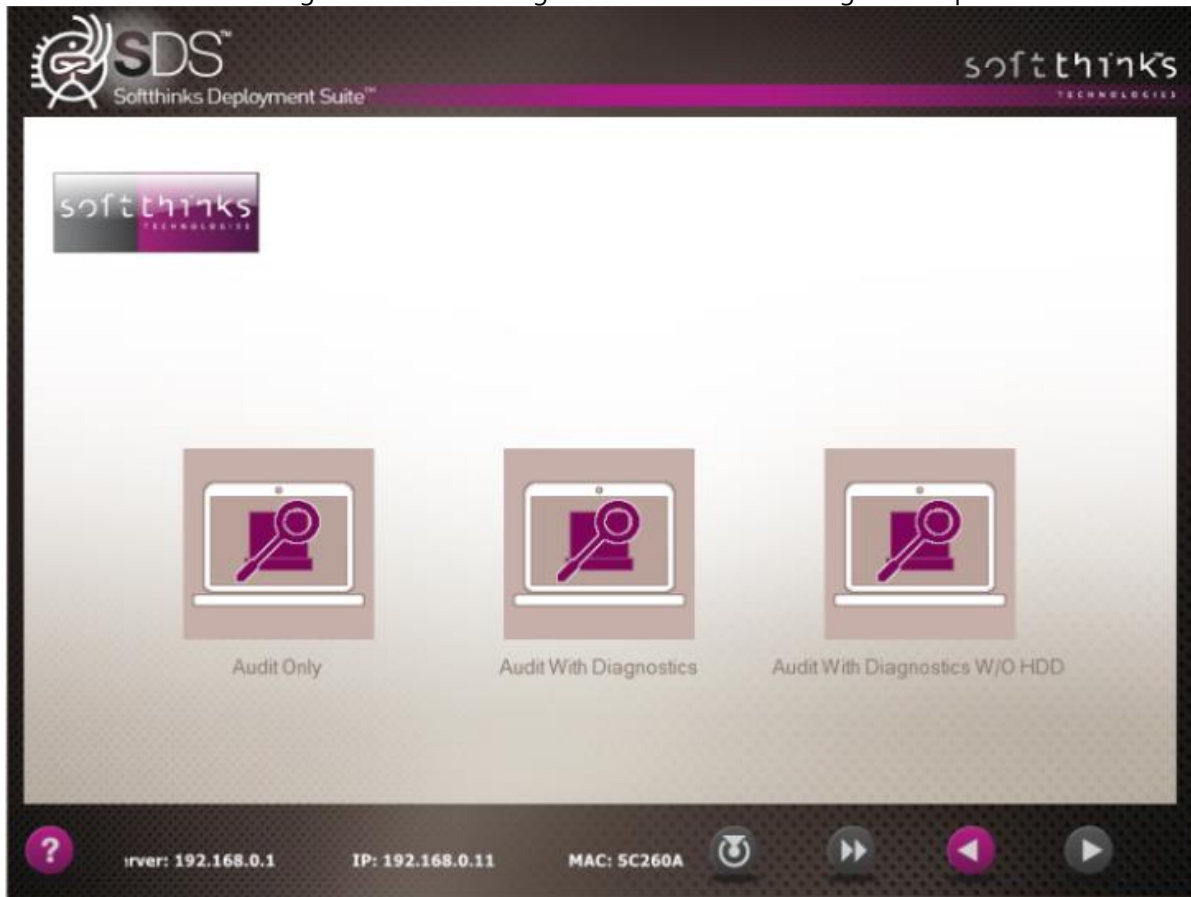
2. From there you will see the following menu:



- Clicking on the Audit Only button will take you to the Deployment Finished screen as the Audit is actually completed when the computer PXE boots to the Server and the information is sent automatically to the database:



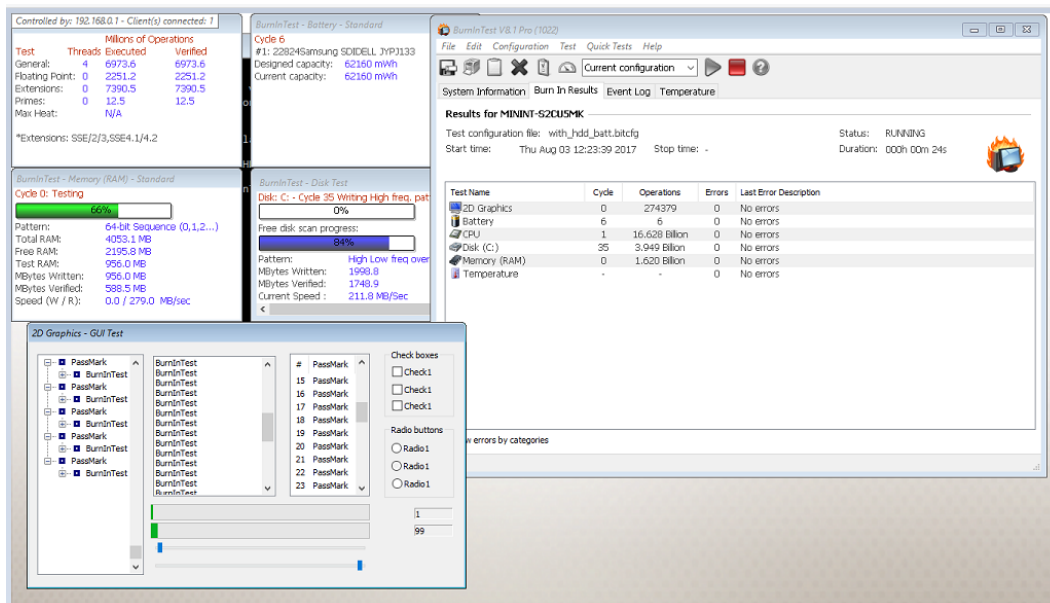
- You do not need a Hard Drive in the computer to run the SDS software on it. You can diagnose a computer with or without a Hard Drive. Clicking on Audit With Diagnostics will run the testing for computers with a Hard Drive.



- The first test will be a SMART test for the Hard Drive if the SMART Technology is present in the Hard Drive. If SMART Technology is not available on the Hard Drive, it will perform a random 5% Read/Write sampling of the Drive.



- Once the SMART testing is completed, then the BurnInTest will start. These tests will run simultaneously and independently from the technician. This can be modified to test any component that is not driver related (CPU, RAM, Hard Drive, Battery, Temp, 2D Graphics, Keyboard, etc.), and will run for as long as you want with as much stress as you want to put on it.

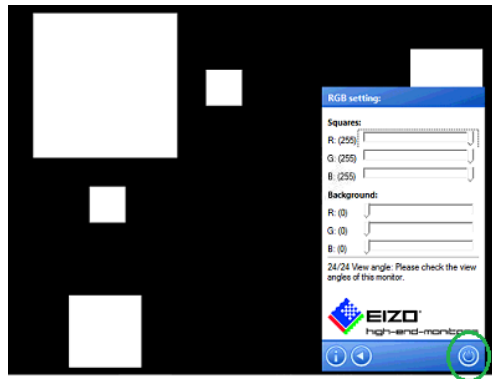


7. Tests not shown above that can be run before the simultaneous testing begins include the Eizo Monitor test :



To perform this test, select the play arrow in the lower right corner. This will start a series of display tests such as color display and dead pixel identification, and etc.

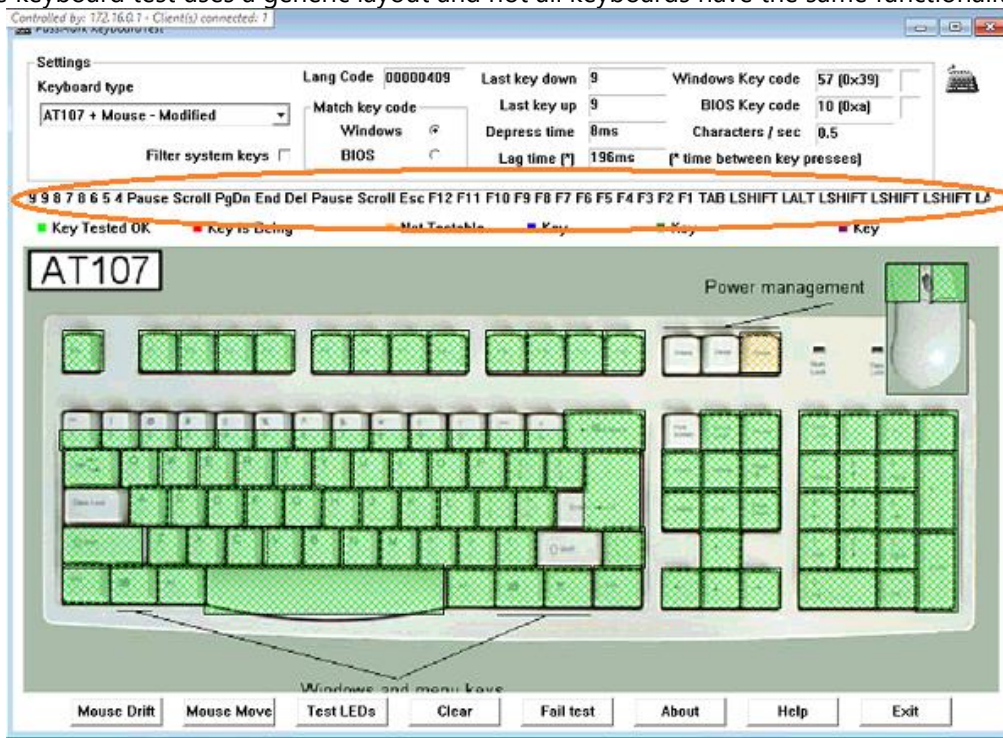
On the final screen below you will select the "close" button highlighted below to move to the next set of testing.



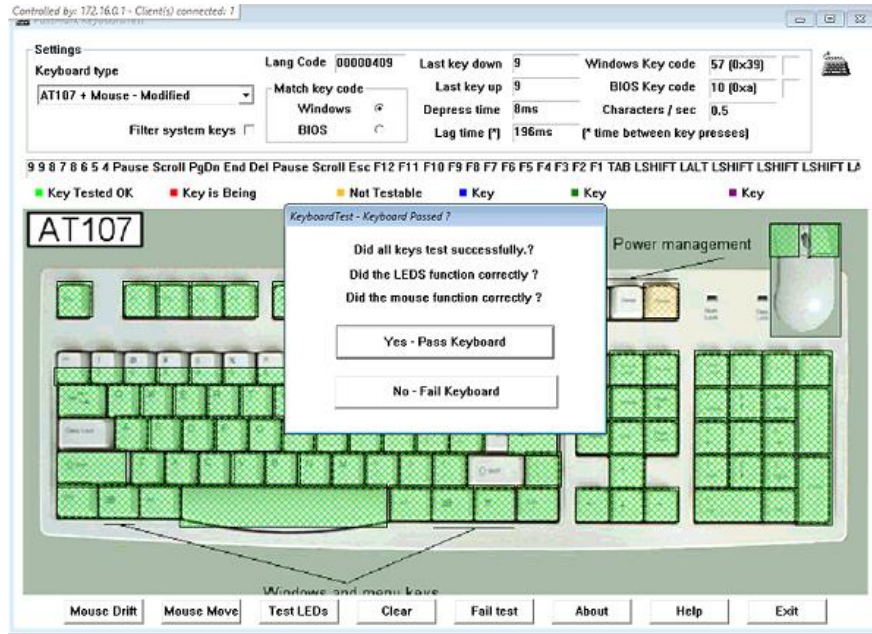
8. And the Keyboard Test. This test verifies the functionality of the unit's keyboard and will appear as the image below:



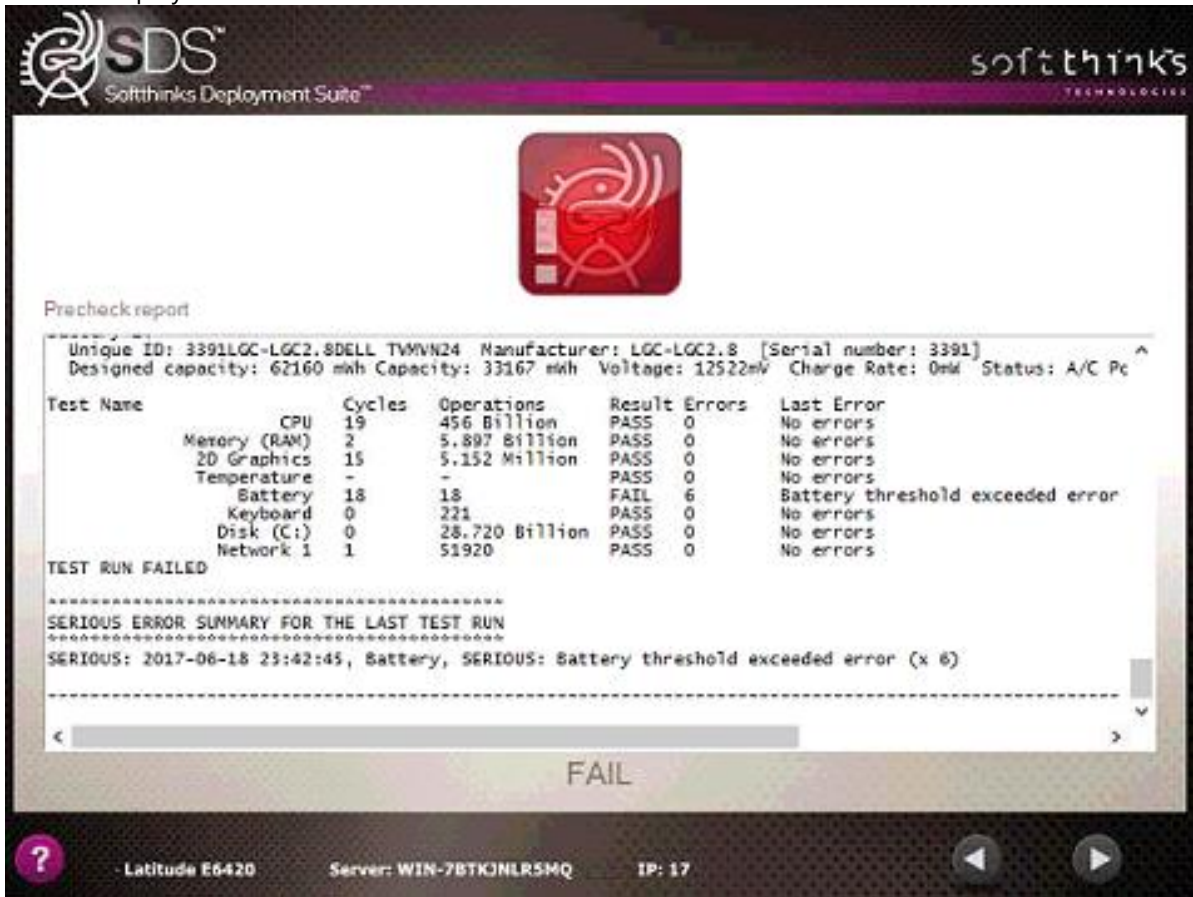
For this test you will click the touchpad buttons and press all keyboard keys and watch the screen for a response to the corresponding keystroke. You will also be able to see the keystroke in the area of the test circled in the next image. This image is an example of a passed keyboard. Notice that not all keys are highlighted in Green. This is because the keyboard test uses a generic layout and not all keyboards have the same functionality.



Once the Keyboard test has been completed select EXIT in the lower right corner on the screen. This will bring up the following: Select Yes-Pass Keyboard or No-Fail Keyboard to continue.



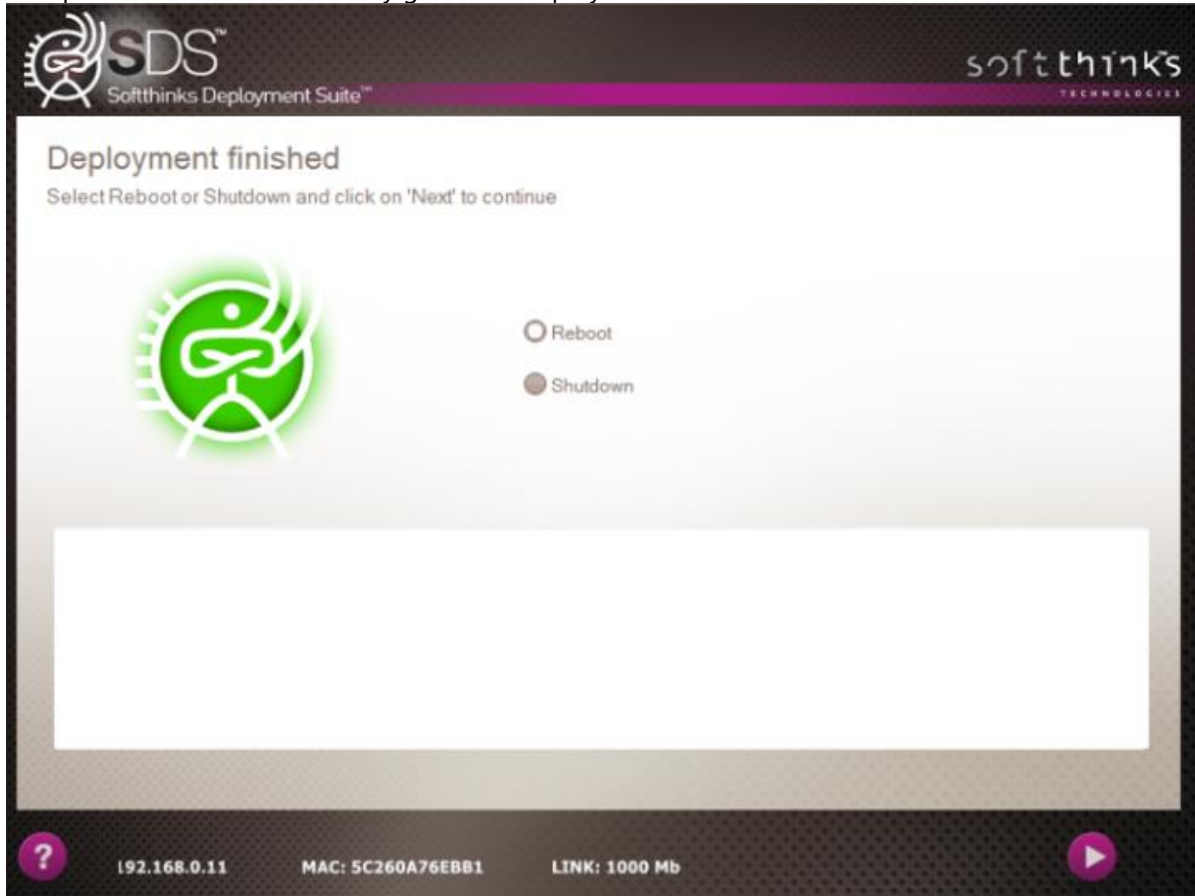
- After the testing is completed, if a test fails you will see a screen similar to the one below: The one below is for a Battery that failed for not being able to charge past 75% of its battery threshold. At this point the system will not continue. You will have to shut down the unit manually after you review the information displayed.



10. If the unit passes all tests the following screen will be displayed:



11. The computer will then automatically go to the Deployment Finished Screen:



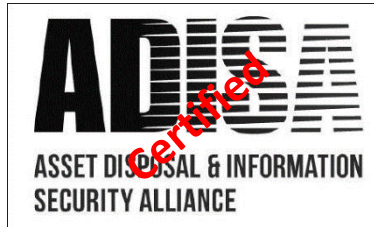
You can then choose to Reboot or Shutdown the computer at this point.

Wiping a device

SDS can wipe any HDD and SSD (or removable drives as memory cards if needed), even with MS Bitlocker, and HPA/DCO technologies* (if your target disk already has an HPA / DCO installed, we can deactivate / remove HPA and remove DCO before a wipe operation).

All cards compatible with CSMI protocol (*Common Storage Management Interface*) are supported. LSI HBA SAS/SATA cards flashed to IT firmware are also supported through LSI utility SASxIRCU.exe, which is working under WINPE 10.240. Some cards not compatible with CSMI could work if a dump tool exist as third party to list disk SAS address.

SDS wiping process is certified by ADISA:



SDS supports the 19 most popular wiping protocols:

- 0 - Basic 0
- 1 - Basic random character
- 2 - U.S. Standard, DoD 5220.22-M
- 3 - U.S. Standard, DoD 5220.22-M (e)
- 4 - U.S. Standard, DoD 5220.22-M (ECE)
- 5 - US Army AR380-19
- 6 - Peter Gutmann
- 7 - Bruce Schneier
- 8 - German VSITR
- 9 - Russian GOST P50739-95
- 10 - NAVSO P-5239-26 (RLL)
- 11 - NAVSO P-5239-26 (MFM)
- 12 - Canadian RCMP TSSIT OPS-II
- 13 - US Air Force 5020
- 14 - U.S. Standard, DoE M205.1-2
- 15 - Delete Partitions
- 16 - Normal Secure Erase (NIST 800-88)
- 17 - Enhanced Secure Erase (NIST 800-88)
- 18 - Sanitize (NIST 800-88)

* HPA (Host Protected Area) and DCO (Device configuration overlay) designate a hidden area on many of today's hard disk drives.

Some Standard Basic wipe algorithms like DOD include verification during the wipe process.

You could also install thumbprint after wipe operation, install legacy boot loader reflecting wipe result or simply create a data partition on the disk to get it ready to use.



SDS 18.0 added the ability to have thumbprint string loaded from a file rather than specified in the script. This allows for different thumbprints to be used. This file size is limited to 512 bytes (since a disk sector is 512 bytes).

Rack Mode

SDS Wipe solution supports CSMI compliant racks (without limitation on the number of ports).

24-Port Wipe Arrays

- Port mapping allows for quick drive identification and hot-swapping.
- Hard drive smart testing.
- 6Gb/s Data rate to the drives (based on the controller).



The Wipe Arrays can be purchased from SoftThinks or we can tell you the components needed to build them yourself.

Please refer to [How to setup wipe rack view](#) to enable the Rack view mode.

Note: In rack mode, you can wipe full disks, not volumes. All other options from the classic mode are available, as fullscreen or window mode, or starting automatically the wipe process.

Note: For the moment SDS Wipe rack mode does not support enclosure or expander.

SSD wiping though Secure Erase and Sanitize hardware-based protocols

Secure Erase and Sanitize protocols are more dedicated to SSDs since they are quicker (5min for a SSD wiped with Secure Erase / Sanitize vs 120min to wipe a mechanical HDD of the same size) and prevent decreasing their lifetime, but they can be used with mechanical HDDs.

Those protocols are managed directly by the disk firmware itself and so they are usable only on disks supporting them (some NVMe don't support those protocols).

Both can be used through ATA / SATA / SAS card (CSMI protocol compliant), but not through USB.

The target disk has to be configured as AHCI in the BIOS.

Secure erase protocol does not provide progression or status of the operation whereas for Sanitize protocol a progression is available with a time remaining but it depends on the disk firmware capabilities.

In addition, the abort operation is not possible (not supported by protocol)

Once a disk started to wipe itself you could not interrupting it is like secure erase command

If Secure Erase or Sanitize protocol are not possible, we will switch back to a default wipe algorithm which can be customized or raise an error.

Secure Erase

- Normal: write 0 or 1, depending of disk manufacturer
- Enhanced: write a predefined pattern

Sanitize

The sanitize protocol supports 3 modes:

- Block Erase Ext:
The BLOCK ERASE EXT command starts a block erase sanitize operation (i.e., a sanitize operation (see 4.17.4) that uses the block erase method on the user data areas, including user data areas that are not currently allocated (e.g., previously allocated areas and physical sectors that have become inaccessible)) to cause the user data to become irretrievable.
- Crypto Scramble Ext
The CRYPTO SCRAMBLE EXT command starts a crypto scramble sanitize operation (i.e., a sanitize operation (see 4.17.4) that changes the internal encryption keys that are used for user data) causing the user data to become irretrievable.
- Overwrite Ext
The OVERWRITE EXT command starts an overwrite sanitize operation (i.e., a sanitize operation to overwrite the internal media with a constant value) that fills physical sectors within the Sanitize operation scope with a four-byte pattern specified by the OVERWRITE PATTERN field of the command. The host also specifies a count for multiple overwrites and whether to invert the four-byte pattern between consecutive overwrite passes.

SDS will choose the first available mode in order to get the best performance and compatibility.

Example of wipe user interface

1. Select the Wipe Only Button from the Welcome Screen:

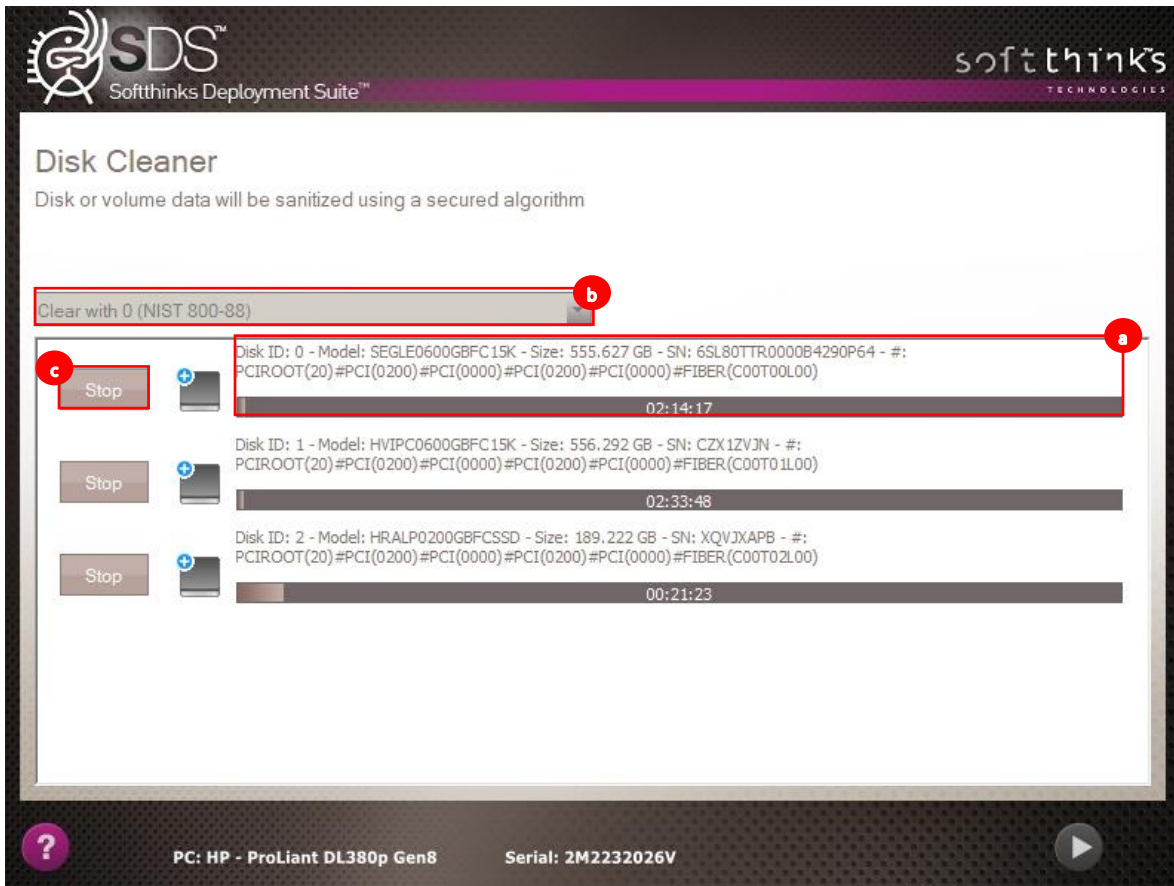


- In the next screen below, you will be asked to choose the wipe algorithm: SoftThinks ADISA Certified Single-Pass Basic 0 wipe, or the 3-Pass U.S. Standard, DoD 5220.22-M wipe. You will also have the choice to do the wiping with or without hardware testing of the computer or Array that the Hard Drives are in:

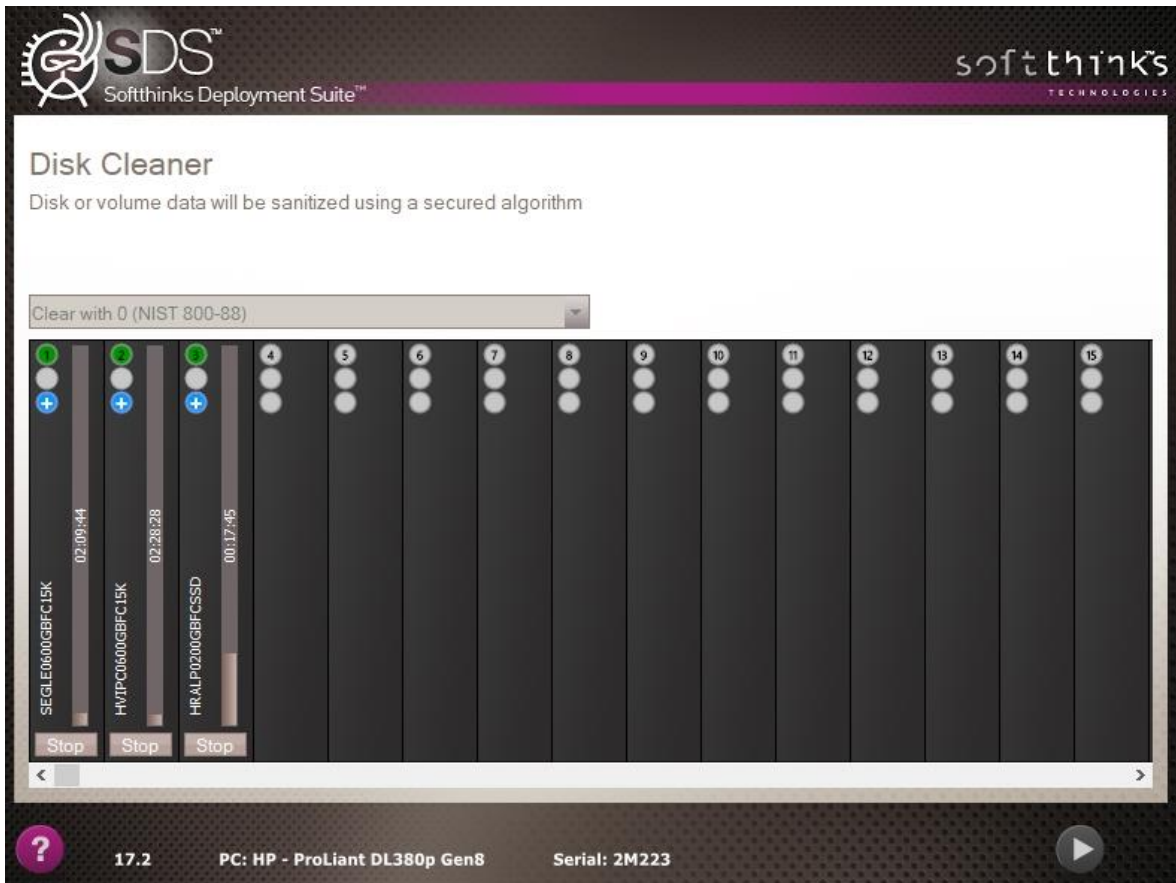
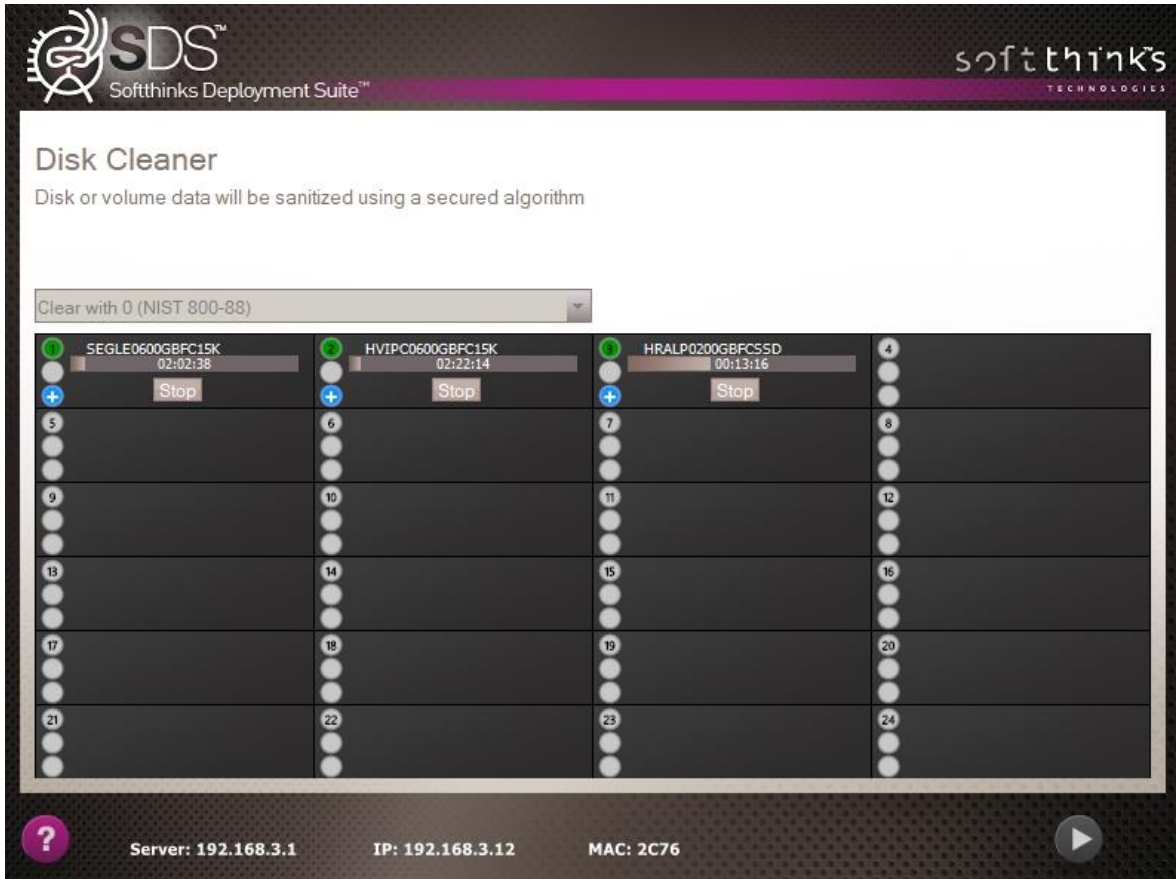


In addition, you could also be informed about SMART disk status (OK/Bad/Warning/Unknown colored cross) before wiping a disk. It will save your time and will avoid you refurbishing crappy disk.

3. a) This screen displays the Hard Drive information and progress of the wipe ^a. Any Hard Drive that is found in the computer will be wiped with the same protocol and listed below. The STOP button will cancel the wipe in progress. If successful, a screen will pop up with a “green” pass symbol. If the wipe fails for any reason the “red” fail symbol will display.



- b) In the rack mode, the screen looks like one of the screenshots below (the number of lines and columns can be customized as explained in [How to setup wipe rack view](#)):



The 1st LED indicates if a device is plugged at this location in the rack:

- No device
- Device present

The 2nd LED shows if the wipe process completed successfully or not:

- No wipe in progress, or wipe not completed
- Wipe completed successfully
- Wipe failed

The 3rd LED corresponds to the SMART status:

- Unknown
- Good
- Caution
- Bad

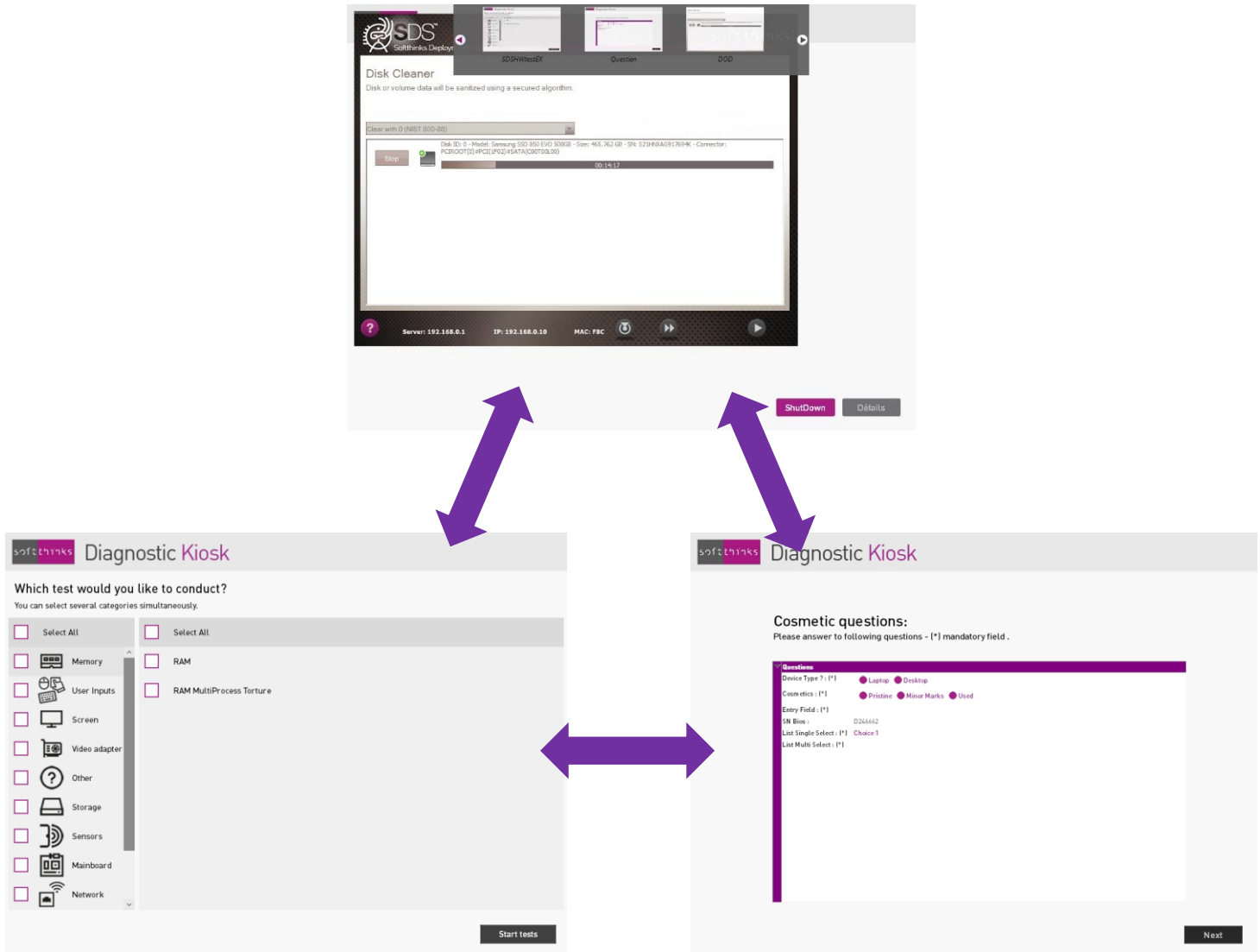
Note: *If the SMART status is unknown you cannot use secure erase or Sanitize methods.*

Multitasking during wipe operations (SDS 20.0)

Wipe process can take time and so it can be useful to perform other actions during this operation, as running hardware diagnostics and/or answering some cosmetic or other customized questions on device.

SDS 20.0 added the possibility to run several operations in parallel and to switch between them, allowing you to save time.

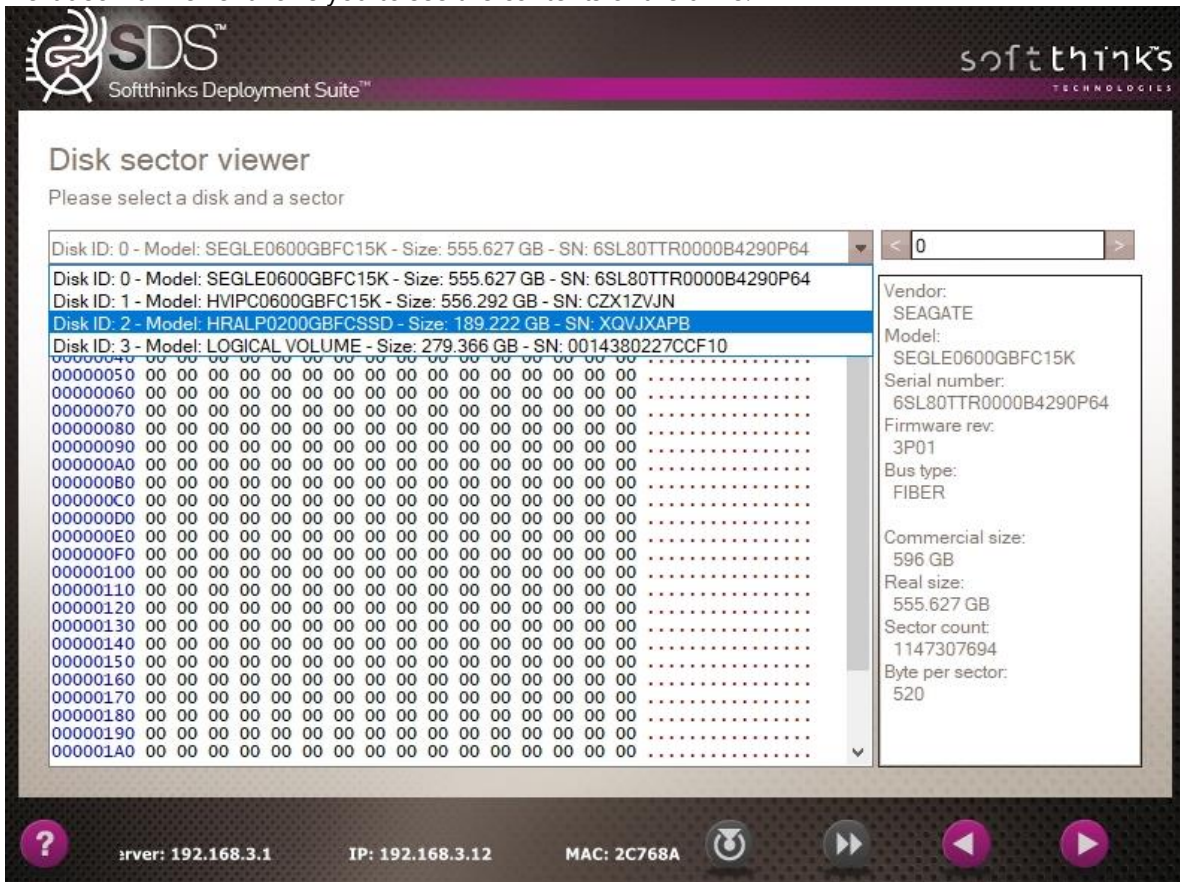
You can just press ALT+M to switch between the operations or press SHIFT+ALT+M to display the modules running in the navigation panel which appears on the top to select specifically the operation you want to see:



For the moment, only those operations can run simultaneously but let us know if you would like to run other ones in parallel.

Hexadecimal viewer


Optionally, a hexadecimal viewer allows you to see the contents of the drive:



Wipe Report

You can generate a wipe report in XLS and PDF formats as shown below:

<TODO: Update with latest template and tests results and cosmetic questions>



SDS Report

REPORT INFORMATION

Technician ID: _____ Date: 01/01/2018
 ASSET TAG: _____ SW Version: 1.0.0.11

SYSTEM INFORMATION

System Serial Number: FQXW762
 System Make: Dell Inc.
 System Model: Inspiron 3847 (0622)
 CPU Model: Intel(R) Core(TM) i3-4170 CPU @ 3.70GHz
 Memory Total: 8GB

BANK 0(4096/DDR3/1600)

BANK 1(4096/DDR3/1600)

Video Adapter: (1) - 4th Generation Core Processor Family Integrated Graphics Controller
 Network Adapter (1): 1000 Mbps - Realtek Ethernet Controller, V=9.1
 CD/DVD/Blu-ray Device (1): PLDS ,DVD+-RW DH-16AES,DD12

SDS PROCESS RESULTS

Hardware test result: Not available
 Applied image: None
 Overall process result: Success

FIXED DRIVE(S) ERASURE INFORMATION

Entry	Drive Model	Drive Serial Number	Size (GB)	Erase Method	Result	Completion
0	CT1000BX100SSD1	1517F0064970	931.513 Go		Failed	00:00:16

1	TOSHIBA DT01ACA100	75JE6SYMS	931.513 Go	Failed	00:00:00
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You can totally customize the template by editing the file in SDKDB\Selector\Reports\WipeReport\template.xls:



template.xls

And the PDF and XLS wipe reports are generated SDKDB\Selector\Reports\WipeReport\Output:

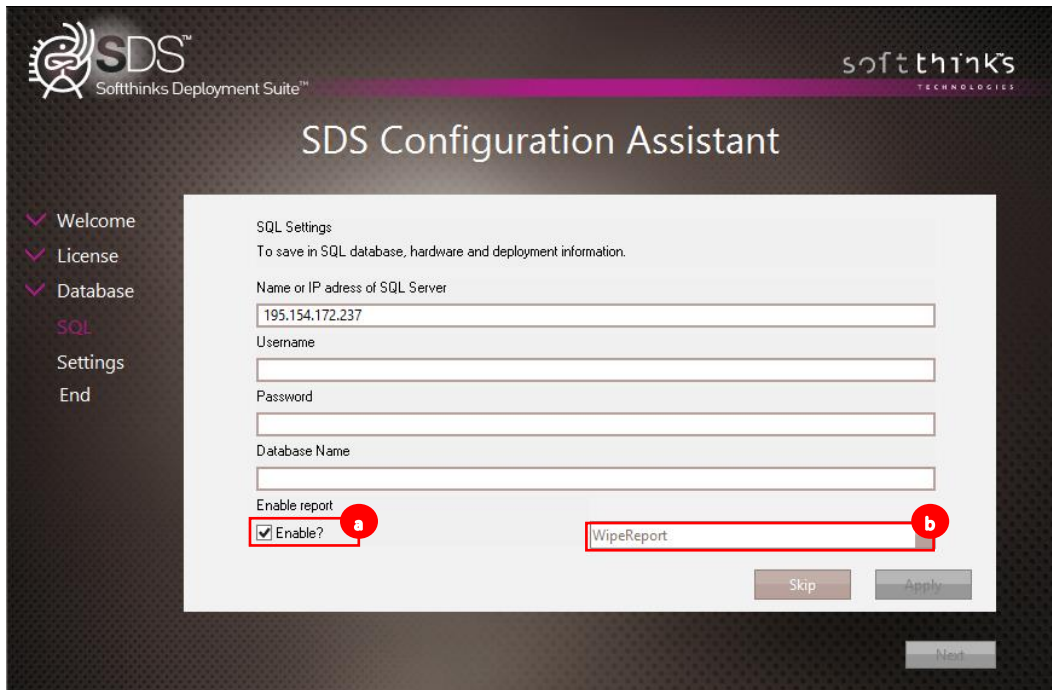


_FQXW762_3293.xls



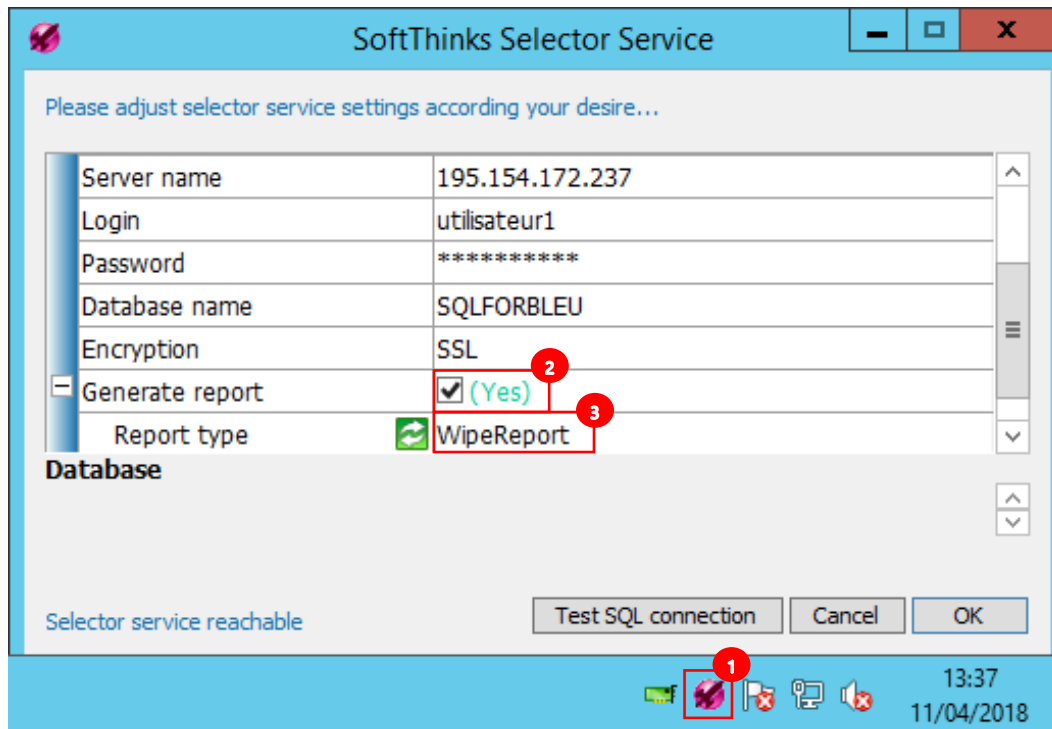
_FQXW762_3293.xls.pdf


In order to generate wipe reports, you need to have enabled this feature during the installation in the SDS Configuration Assistant by checking the “Enable?” check box **a** in the bottom left and select “WipeReport” in the combo box **b** on its right:



If you didn't enable it during the configuration, you can do it at any moment from the SoftThinks Selector Service user interface:

1. Double-click on the SoftThinks Selector Service  icon **1** in the system tray of the Windows taskbar, or click on it and select "Selector Settings" item in the pop-up menu displayed:



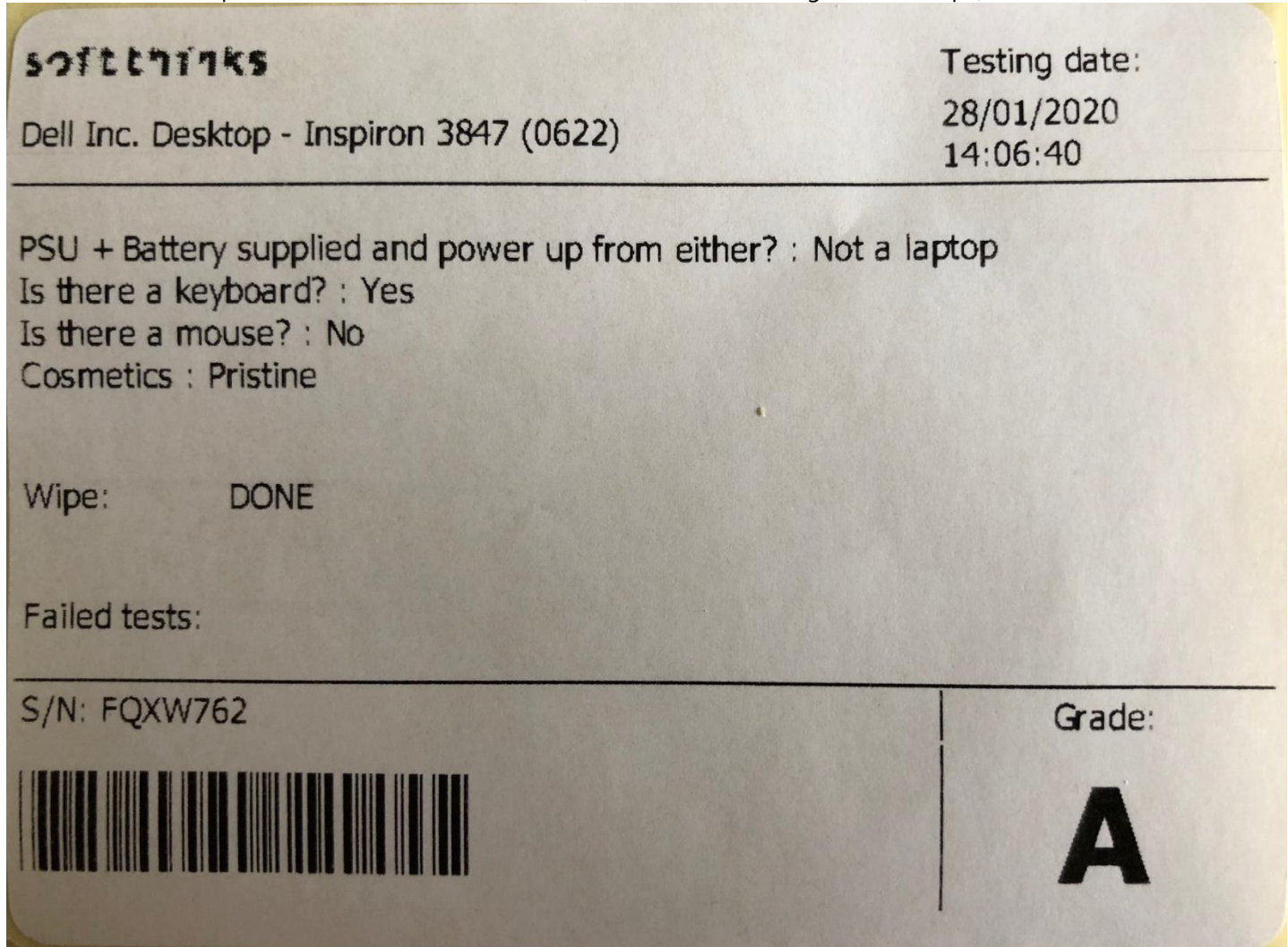
If the  icon is not present, double-click on SelectorSRVG.exe executable located in D:\remotelInstall\SDKDB\selector and wait for the icon to appear before clicking on it.

2. Check the option "Generate report" **2**
3. Select "WipeReport" as Report type **3**

Label Printing (SDS 20.0)

SDS can automatically print a label to a printer plugged and configured on SDS server at the end of a process. The graphical layout (HTML template) and contents are totally customizable.

Here below an example of a label after a trade-in flow (Autit + Hardware diagnostics + Wipe):



Instead of printing the label we can just generate the PDF file as below on the server.




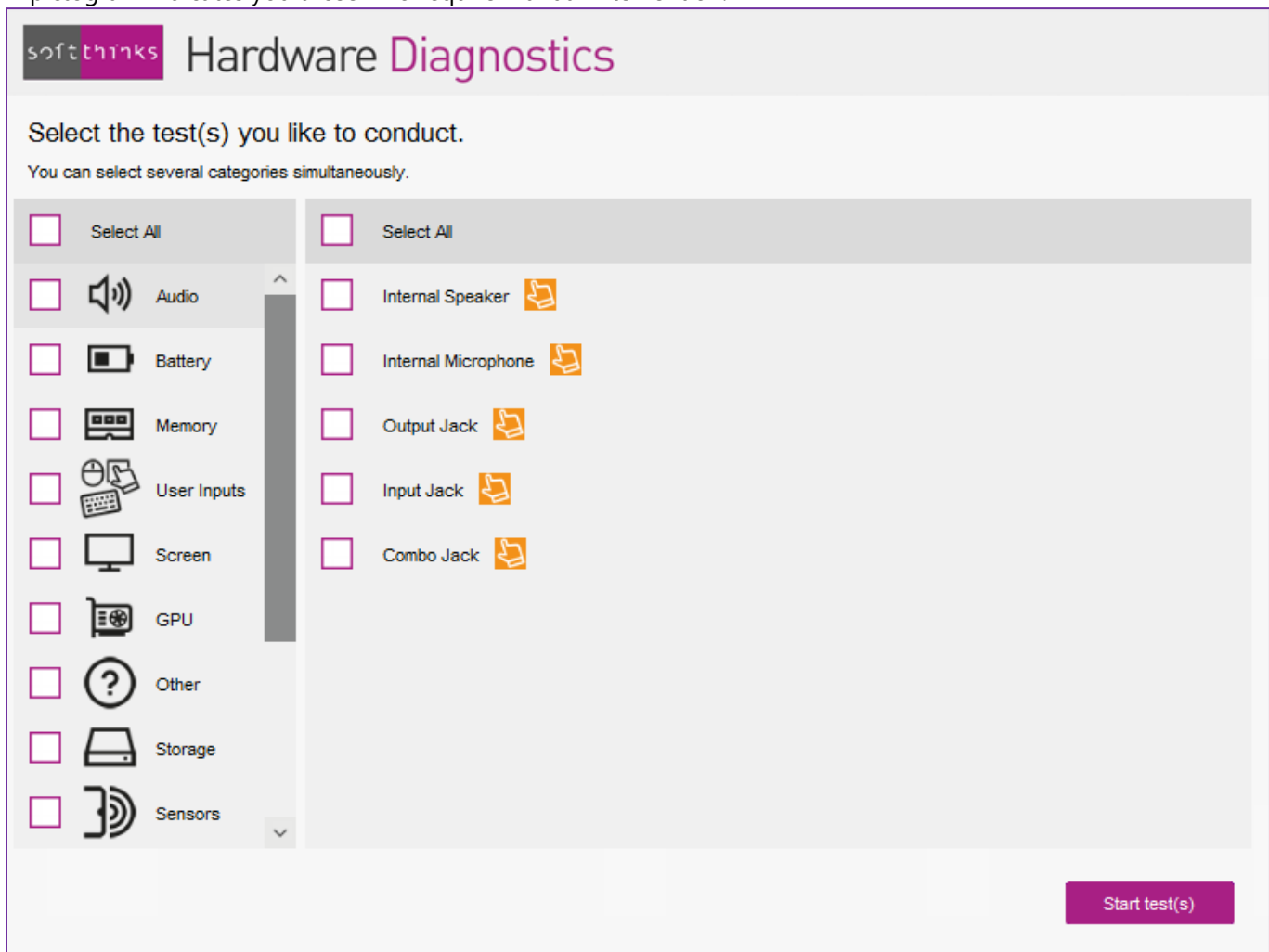
Label.pdf

Diagnosing a device

SDS can diagnose hardware issues on any device which can boot through PXE or from a bootable USB key, as Windows, macOS, Linux desktop PCs, laptops or tablets.

Tests selection

You can run up to 56 tests grouped by categories. When possible, the tests are fully automated and can be run in parallel, else the  pictogram indicates you those who require manual intervention:



This list is totally customizable (you can decide to remove some of them). You can also edit or totally redefine the categories, as well as the labels and bitmaps.

You have also the possibility to dynamically hide tests which are not relevant, either because we automatically detect that the element to test is not present (device without optical drive reader, screen without touch capability) or based on responses made in audit module (for example the keyboard was not supplied with a desktop PC and you don't want to test the operator's keyboard he plugged to use our solution).

You can bypass this selection screen and launch direction different tests profiles that you can customize depending on your needs (quick tests, full tests, quality control tests, stress tests...).

List of available tests

	Test	Test Environment			Automated Test ⁽⁸⁾	Test Duration
		Customer OS Audit mode	Windows To Go	WinPE		
CPU	General purpose instructions Test	✓	✓	✓	✓	1min (customizable)
	Floating Point Unit Instructions Test	✓	✓	✓	✓	1min (customizable)
	Prime Number Test	✓	✓	✓	✓	1min (customizable)
	MMX Test	✓	✓	✓	✓	1min (customizable)
	SSE Test	✓	✓	✓	✓	1min (customizable)
	SSE2 Test	✓	✓	✓	✓	1min (customizable)
	SSE3 Test	✓	✓	✓	✓	1min (customizable)
	AES Test	✓	✓	✓	✓	1min (customizable)
	Maximum heat Test	✓	✓	✓	✓	10min
	CPU Voltage Monitoring	✓	✓	✓	✓	0s (continuous monitoring) ⁽⁵⁾
	CPU Temperatures Monitoring	✓	✓	✓	✓	0s (continuous monitoring) ⁽⁵⁾
	CPU Powers Monitoring	✓	✓	✓	✓	0s (continuous monitoring) ⁽⁵⁾
	CPU Clocks Monitoring	✓	✓	✓	✓	0s (continuous monitoring) ⁽⁵⁾
	CPU Utilization Monitoring	✓	✓	✓	✓	0s (continuous monitoring) ⁽⁵⁾
MAINBOARD	Mainboard Voltages	✓	✓	✓ ⁽⁹⁾	✓	0s (continuous monitoring) ⁽⁵⁾
	Mainboard Temperatures	✓	✓	✓ ⁽⁹⁾	✓	0s (continuous monitoring) ⁽⁵⁾
	Mainboard Fans	✓	✓	✓ ⁽⁹⁾	✓	0s (continuous monitoring) ⁽⁵⁾
	USB ports	✓	✓	✓		time to plug the USB key to each port and detect it
ME	Standard Test	✓	✓	✓	✓	1min (customizable)

	Multi-Process Torture Test	✓	✓	✓	✓	1 min (customizable)
GRAPHIC CARD	GPU Clock Monitoring	✓	✓	✓	✓	0s (continuous monitoring) ⁽⁵⁾
	GPU Voltage Monitoring	✓	✓	✓ ⁽⁹⁾	✓	0s (continuous monitoring) ⁽⁵⁾
	GPU Temperature Monitoring	✓	✓	✓ ⁽⁹⁾	✓	0s (continuous monitoring) ⁽⁵⁾
	2D Local Video memory Test	✓	✓	✗	✓	1 min
	2D all available memory Test	✓	✓	✗	✓	1 min
	2D Lines and bitmaps test	✓	✓	✓	✓	1 min
	2D EMC scrolling characters test	✓	✓	✓	✓	1 min
	2D EMC reference test pattern test	✓	✓	✗	✓	1 min
	3D Test	✓	✓	✓ ⁽³⁾	✓	1 min
	STORAGE	HDD SMART Status	✓	✓	✓	✓
HDD Short SMART Test		✓	✓	✓	✓	Some minutes ⁽⁶⁾
HDD Long SMART Test		✓	✓	✓	✓	10 min to several hours ⁽⁶⁾
HDD Random Read Test		✓	✓	✓	✓	some seconds to several minutes ^{(6) (7)}
HDD Linear Read Test		✓	✓	✓	✓	some seconds to several minutes ^{(6) (7)}
Optical Drive Read Test		✓	✓	✓		time to insert the media and get it readable
NETWORK	Wired (LAN)	✓	✓	✓		<5s
	Wi-Fi (WAN)	✓	✓	✓		<5s
	Bluetooth	soon	soon	soon		
AUDI	Internal speaker	✓	✓	✓		~1s delay to hear sound played and validate test ⁽¹⁾

	Internal microphone	✓	✓	✓ If driver present		~6s delay to record & play sound ⁽¹⁾⁽²⁾
	Output Jack	✓	✓	✓		~1s once device plugged ⁽¹⁾
	Input jack	✓	✓	✓ If driver present		~6s once device plugged ⁽¹⁾⁽²⁾
	Combo Jack	✓	✓	✓ If driver present		~6s once device plugged ⁽¹⁾⁽²⁾
SCREEN	Dead pixel	✓	✓	✓		3s delay customizable
	Touchscreen	✓	✓	✓		<2s
	Display ports ⁽¹⁰⁾	✓	✓	✓		delay to plug a monitor to each port and detect it
USER INPUTS	Keyboard	✓	✓	✓		~5s depending on keyboard layout
	Keyboard Status LED	✓	✓	✓		<5s
	Mouse	✓	✓	✓		<5s
	Touchpad	✓	✓	✓		<5s
BATTERY	Battery Wear Level	✓	✓	✓	✓	<10s
	Battery Charging Test	✓	✓	✓		<15s
	Battery Drain Test	✓	✓	✓		depends on battery charge
SENSORS	Accelerometer	✓	✓	Under investigation		<2s
	Lid Sensor	✓	✓	✓		~5s (customizable)
OTHER	Card Reader	✓	✓	✓		time to insert the media and get it readable
	Webcam	✓	✓	✓ If driver present		<10s

-
- (1) A question is asked once the playback ends but you have the possibility to validate the test as soon as the operator hears the sound. In the next release we will have the option to play instead a random number of bips and ask the operator how many he heard for better confirmation the test was successful.
 - (2) We currently record during 5s but we will make this delay customizable in the next release.
 - (3) This test is a functional test and cannot be used for benchmark purpose in WinPE environment since it might not include optimized manufacturer drivers but default graphic drivers.
 - (4) We can automatically query SMART status, or display all SMART information and let the operator decide if those are acceptable or not.
 - (5) Those values are monitored in real time during the whole test session and minimum, average and maximum values are saved. You can use them in conjunction with a stress test like the maximum heat test
 - (6) The test duration differs depending if you test a SSD or a mechanical HDD, and depends on the disk size.
 - (7) The number of passes, the number of blocks and the size of the blocks are customizable
 - (8) Automatic tests are executed in parallel when possible (2 tests accessing the same device cannot be run simultaneously) either at the beginning or at the end of the test session
 - (9) Monitoring depends on driver available in WinPE
 - (10) HDMI, DVI, DP, VGA

Tests execution

When the tests are launched, you will see the interface below with the 3 areas:

- the left panel **A** is a scrollable list of the tests to execute with their current status in front of each one (pending/running/passed/failed/skipped)
- the middle area **B** contains the instructions for the manual test which is currently running and the action buttons
- the right panel **C** is dedicated to real time monitoring: temperature, voltage, fan speed of CPU, GPU, mainboard, HDD/SSD

Hardware Diagnostics

A

- Internal Speaker
- Internal Microphone
- Output Jack
- Input Jack
- Combo Jack
- Mouse
- Touchpad
- Touchscreen
- Webcam
- Dead Pixels Test

B

Dead Pixels Test

We will display sequentially the 3 primary colors patterns. Please inspect the screen to identify missing/dead pixels.

C

AMD A4-5300

Temp.
Package
Min 49.88°C
Max 80.75°C

Fan
Min 1265.82 tr/min
Max 1294.22 tr/min
Min 1045.30 tr/min
Max 1061.57 tr/min

AMD Radeon HD 7480D

Temp.
Min 0.00°C
Max 18.00°C

Fan
Min N/A tr/min
Max N/A tr/min

Start Test Skip Abort Tests

Automatic Tests Execution

Automatic tests are run simultaneously as far as far possible in order to decrease the diagnostic session delay. As a consequence, they will not have a common UI, or even no UI at all while manual tests are running.

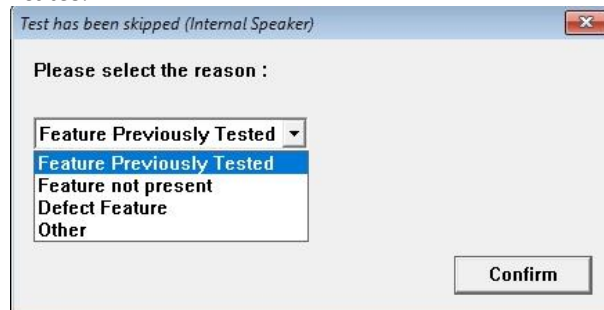
Anyway, you can follow their progression through the animation in front of each one on the left panel.

Manual Test Execution

For each manual test, you will be guided through detailed step by step instructions and explicit animations.

In order to decrease the test duration, buttons and keystrokes are available to set a test as succeeded / failed, skip it, abort it or bypass timeouts when applicable. For example, for the dead pixel test, you will be able to stop and failed the dead pixel test as soon as you see one, display the next pattern by pressing a key without waiting for the customizable delay. For the other full screen test which is the touchscreen one, if the touchscreen is not responding the user will also be able to fail it without waiting for the customizable timeout delay.

Optionally, you can ask the operator to indicate the reason why he skips a test for trackability purpose. If so, he will have to choose one of the reasons you will have predefined and this reason will be saved in the logs and in the database so that you can show it on reports and wipe certificates:



Retrieving delete files

SDS includes a module allowing you to retrieve files which have been deleted on Windows internal disk, or stored on an external media (UBS flash drive, USB disk, any memory card which can be plugged through an USB adapter) which has been damaged or corrupted.

Our solution will scan the media and provide a list of the files which can be recovered. The target of the files recovered should be another media in order to maximize the amount of data which can be recovered.

Quality Check with Windows Test Manager

Windows Test Manager will allow you to conduct tests on the computers. It replaces devlog.exe and dev.ini. You can check if the devices drivers are installed and signed. Test your network, multimedia... and you can also add custom tests.

WinTEST can be automated and perform the tests automatically if they don't require user interaction.

Windows check

This window will check your device manager if all the devices drivers are signed and if there are no error:



In case you have an error, the device manager will open:

- To check if the drivers are signed. To get more details click on "Display logs"
- To check if there are no error in the event viewer. To get more details click on "Display the event viewer"

Multimedia

In this window, you will check the multimedia test.

- Sound : wave, midi, mp3
- Mic : record and listen to it
- Webcam: record and watch it.



In manual mode, you need to test EVERYTHING to go to the next step

Network Settings

In this window, you will check the networks.

- The available wireless networks
- All other networks

You can also click on « **Edit** » if you need to enter the security key



BurnInTest (as OEM tests for example)

You can launch BurnInTest directly and automatically from WTM. See [BurnInTest](#) for more details.

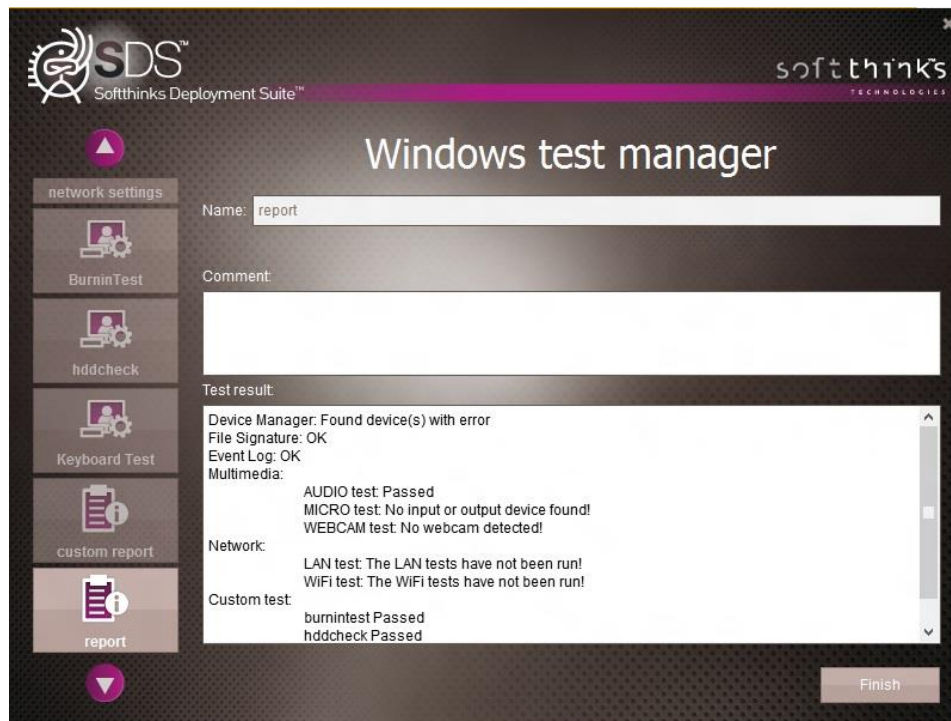
The screenshot displays a Windows 8.1 desktop environment with several windows and dialogs open:

- BurnInTest - CPU:** A window showing test results for CPU performance. It includes a table with columns for Test, Threads, Executed, and Verified. A 'Stop BIT' button is visible.
- BurnInTest - 3D Test:** A window showing 3D test results, including '49.68 fps (294x171x32) (4x Multisample)' and 'HAL (hw vp): NVIDIA GeForce GT 640'. It features a 3D landscape image.
- Windows test manager:** A central window with the title 'Windows test manager' and the SDS logo. It contains a 'Test log' section with a large white area for logging.
- OEM Reset Reminder:** A dialog box with the title 'OEM Reset Reminder' and instructions: 'When you have finished testing, or installing applications on the computer, click on Shutdown button below.' It includes buttons for 'Shutdown', 'Audit Boot', and 'Create RIS Deployment Image'.
- Taskbar and Start Menu:** The Windows 8.1 taskbar is visible at the bottom, and the Start menu is open on the left side, showing icons for 'BurninTest' and 'hddcheck'.
- System Tray:** The system tray at the bottom right shows the date and time as '1:17 PM 2/13/2015'.

At the end of the test, the process generates a log file.



Reports



In this window you have to name the report that was created. You can also add a comment.

If you click on "finish", a report (**WindowsTestManager log.xml**) will be created and sent to the server.

In auto mode all windows are switched automatically and this windows is automaticall y filled and logs are uploaded on server .

Please consult [How to manually edit WTM configuration files](#) in order to customize your tests manually.

Auditing hardware

SDS 18.0 introduced a new module for capturing audit question answers about the hardware.

This is a dynamic setup where there would be series of questions presented to the user with potential additional questions that would be presented based on an answer to one of the first questions.

Ex: First question would ask "Any Cosmetic Damage", if the answer is yes then additional question would be display to ask about the damage. If no, then the additional question would not be displayed. the questions to display would be controlled by the config file.

Prior to use this module, you will have to define the questions and expected results (text field, yes/no radio button...). Please refer to [How to setup the auditing module](#).

The screenshot shows the 'Diagnostic Kiosk' interface with a purple header. Below the header, the title 'Cosmetic questions:' is displayed, followed by the instruction 'Please answer to following questions - (*) mandatory field .'. The main content area contains a list of questions with radio button options:

- Device Type ? : (*) Laptop Desktop
- Battery Supplied ? Yes No
- PSU Supplied ? Yes No
- Cosmetics : (*) Pristine Minor Marks Used
- Entry Field : (*)
- SN Bios : D246662
- List Single Select : (*) Choice 1
- List Multi Select : (*)

The 'List Multi Select' dropdown is open, showing five choices with checkboxes:


- Choice 1
- Choice 2
- Choice 3
- Choice 4
- Choice 5

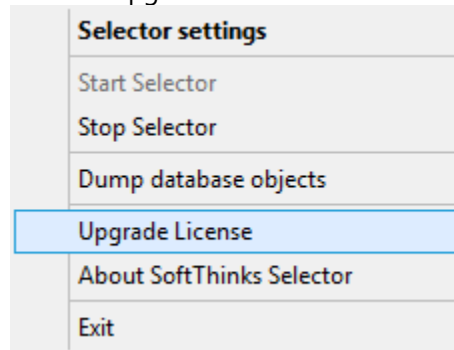
A 'Next' button is located at the bottom right of the interface.

The questions and responses are saved in the Database and can be used in reports, labels and also to generate a grade / trade-in code based on the rules you will define. They can also be linked to some hardware tests to discard some which would not be relevant (for example if it's a desktop PC without keyboard supplied, we should not test the keyboard that the operator will plug to the PC).

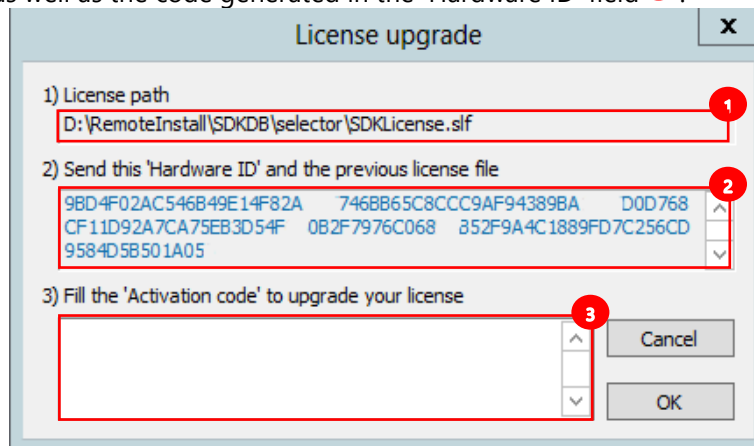
License reactivation

Once your license has expired, you can reactivate it by following the instructions below:

4. Click on the  icon in the system tray of the Windows taskbar. If this icon is not present, double-click on SelectorSRVG.exe executable located in D:\remoteInstall\SDKDB\selector and wait for the icon to appear before clicking on it.
5. In the contextual menu appearing, click on "Upgrade license":



6. Send an email to your account manager with the SDKLicense.slf file located in the 'License path' ¹ indicated in the dialog screen below, as well as the code generated in the 'Hardware ID' field ²:



7. Enter the code which will be sent to you in the 'Activation code' field ³.

Troubleshoot guide

Symptom	Potential root cause	Solution
Network error during the deployment to a device	Network driver missing in the boot image	<ol style="list-style-type: none"> 1. Ensure that the driver for the network card you are using is in SDS Database. If not, please add it (See Adding a driver ("Add driver" operation)). 2. Then, please inject it in your boot image (See Injecting a driver ("Inject Driver(s)" operation))
Error connecting to WDS server share while booting on a device	Server credentials might have changed	<ol style="list-style-type: none"> 1. Review and update if needed the server credentials as described in Configure the Deployment launcher
Nomad Disk not recognized		<ol style="list-style-type: none"> 1. Open the SDS Console 2. Click on the « Utilities » tab 3. Click on « USB stick report » 4. Scan the disks

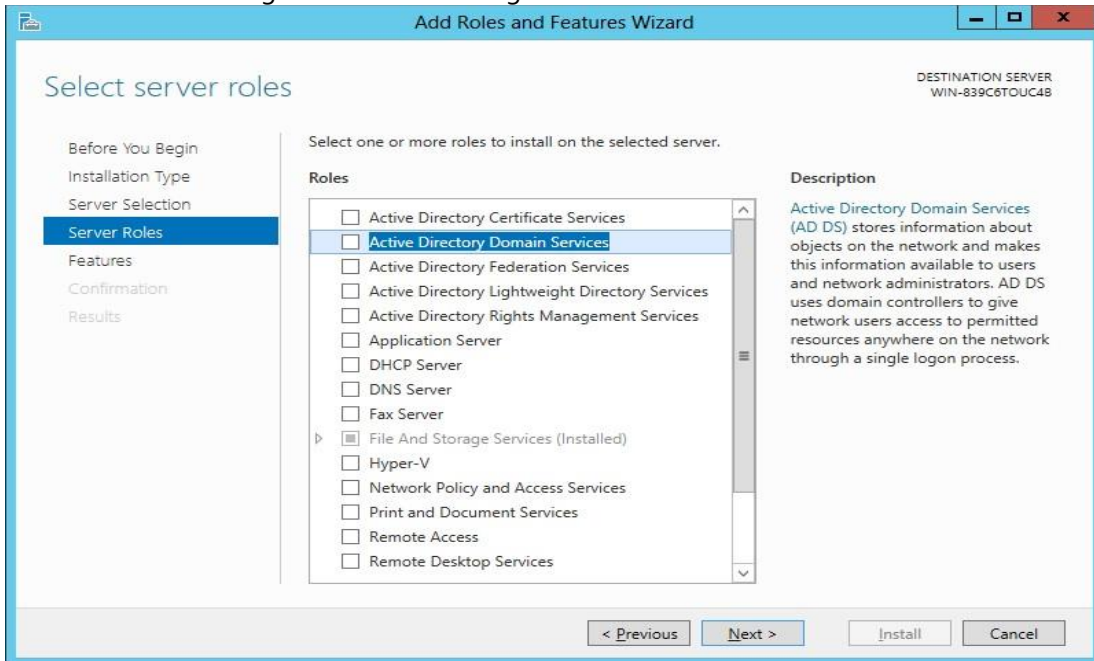
Appendix

How to configure Windows Server

The screenshots below might change depending on the Windows Server version used.

Active Directory domain services

1. Open the Server Manager Dashboard, install « AD DS Services » or « Active Directory domain services » by clicking on « Add Roles and Features » or through the menu « Manage » and then « Add Roles »:

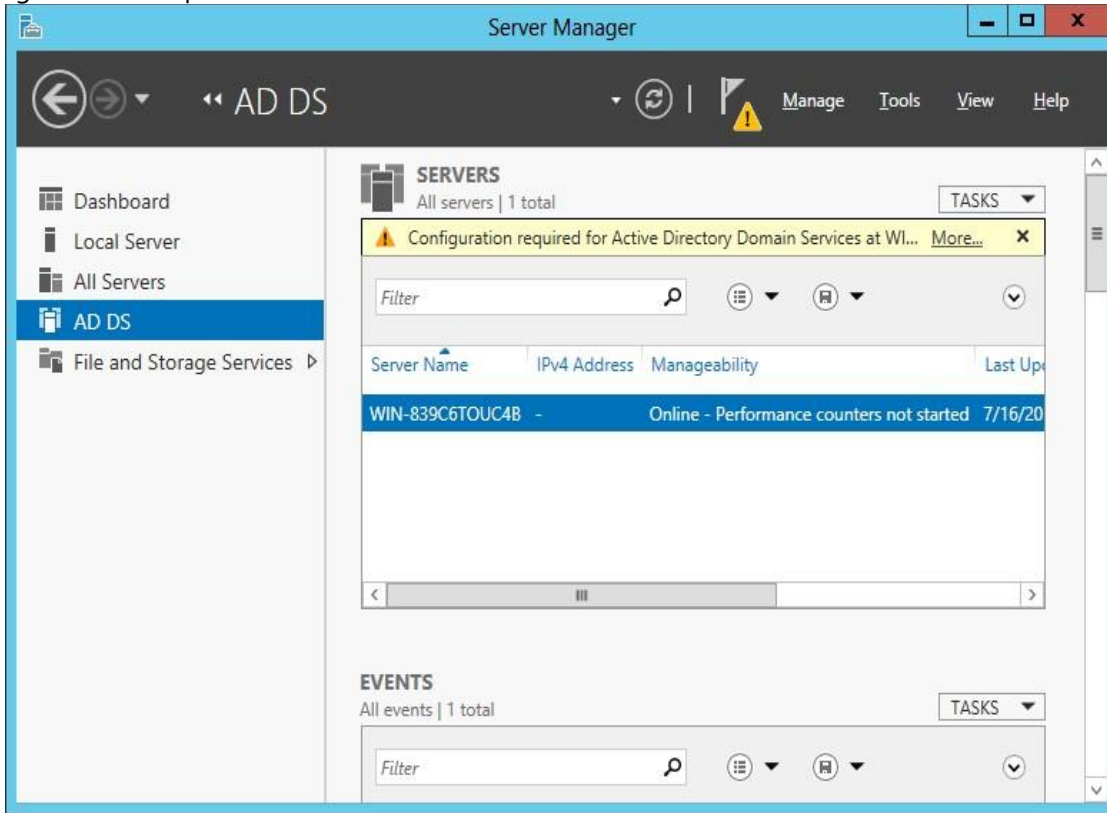


2. Click on Next until reaching the Confirmation screen and put a Check in the box which says "Restart the Destination Server Automatically if required.":

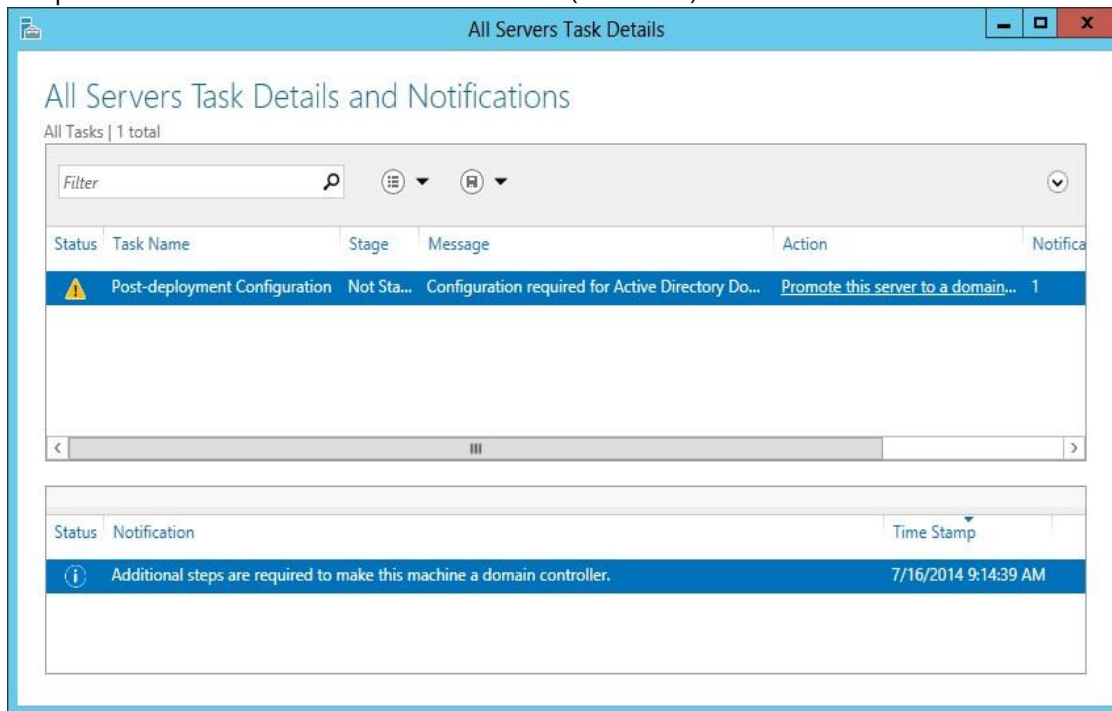


3. Select Yes on the confirmation box, then click Install on the main screen. Click close when it has completed installing.

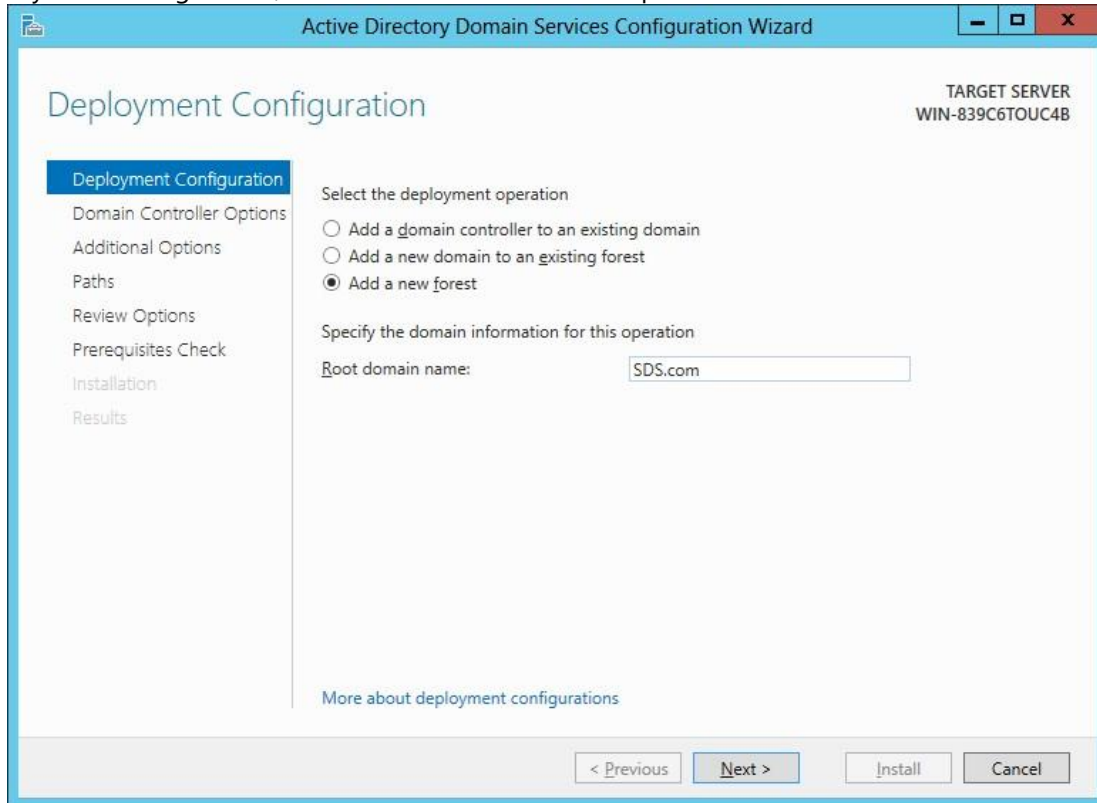
- In Roles and Server Groups on the Server Manager Dashboard Click on the AD/DS box and Click *More* on the yellow warning bar at the top:



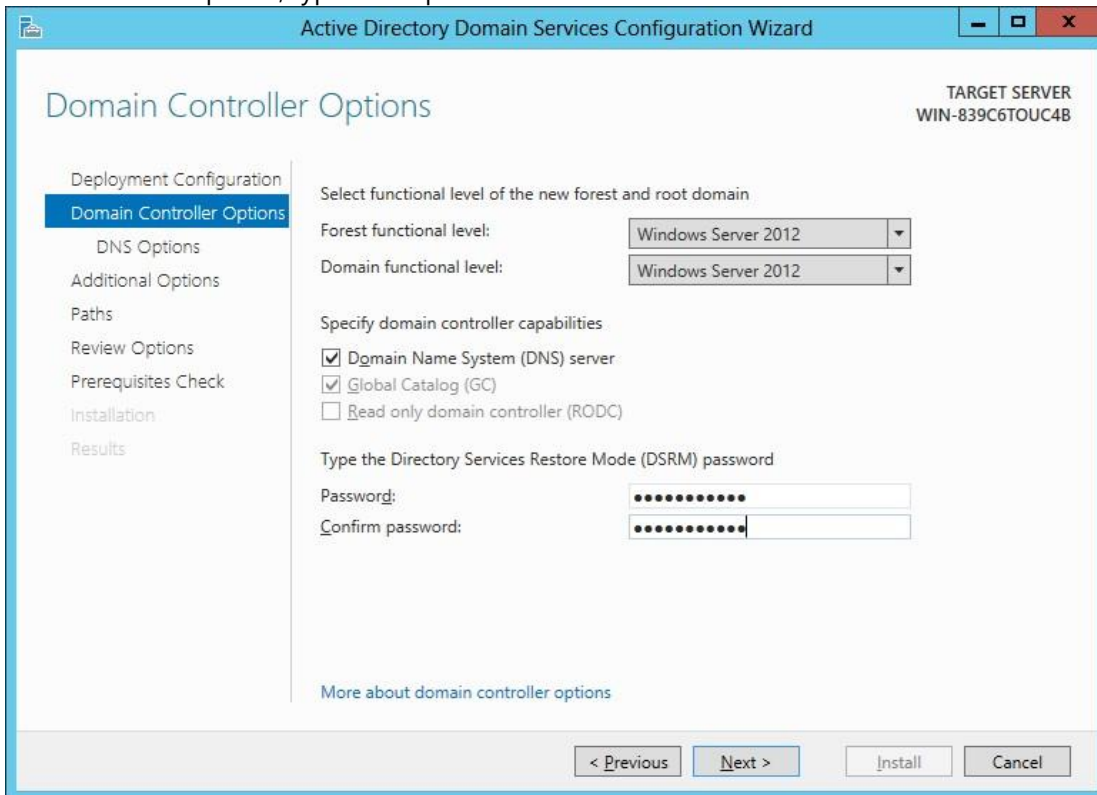
- On the top bar select *Promote this server to a domain...(controller)*:



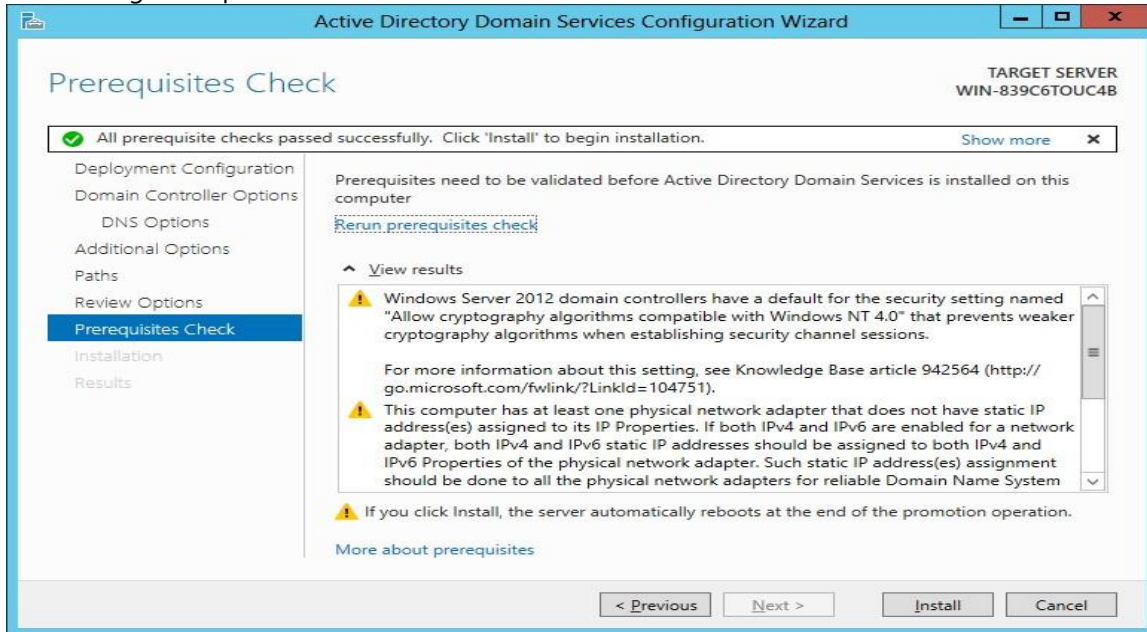
6. In Deployment Configuration, select "Add a new forest" and put SDS.com in the Root domain name box:



7. In Domain Controller Options, type in the password Softthinks1 and then confirm it:



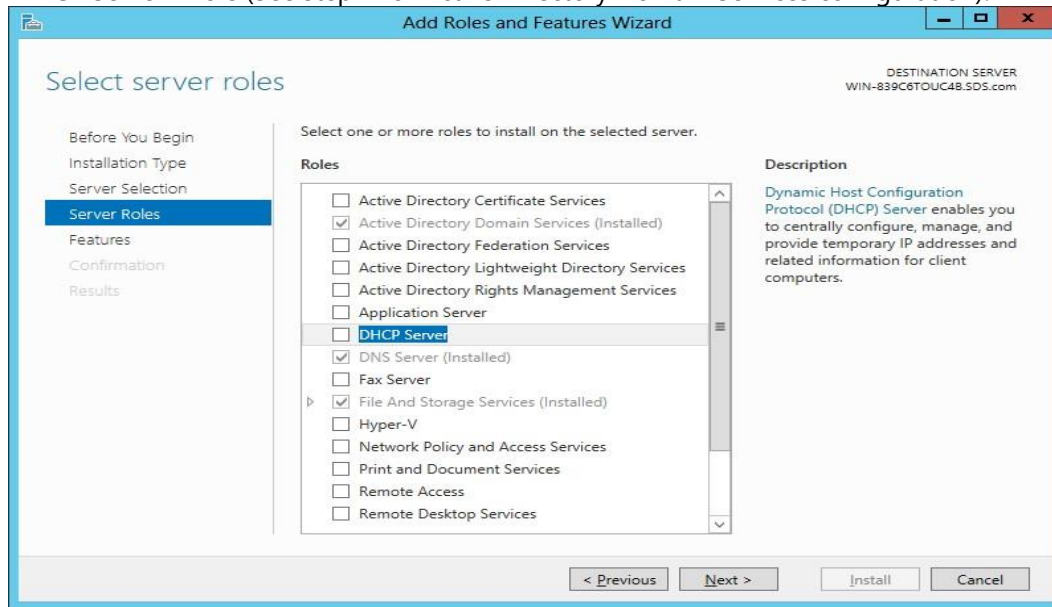
8. Click Next until reaching Prerequisites Check screen:



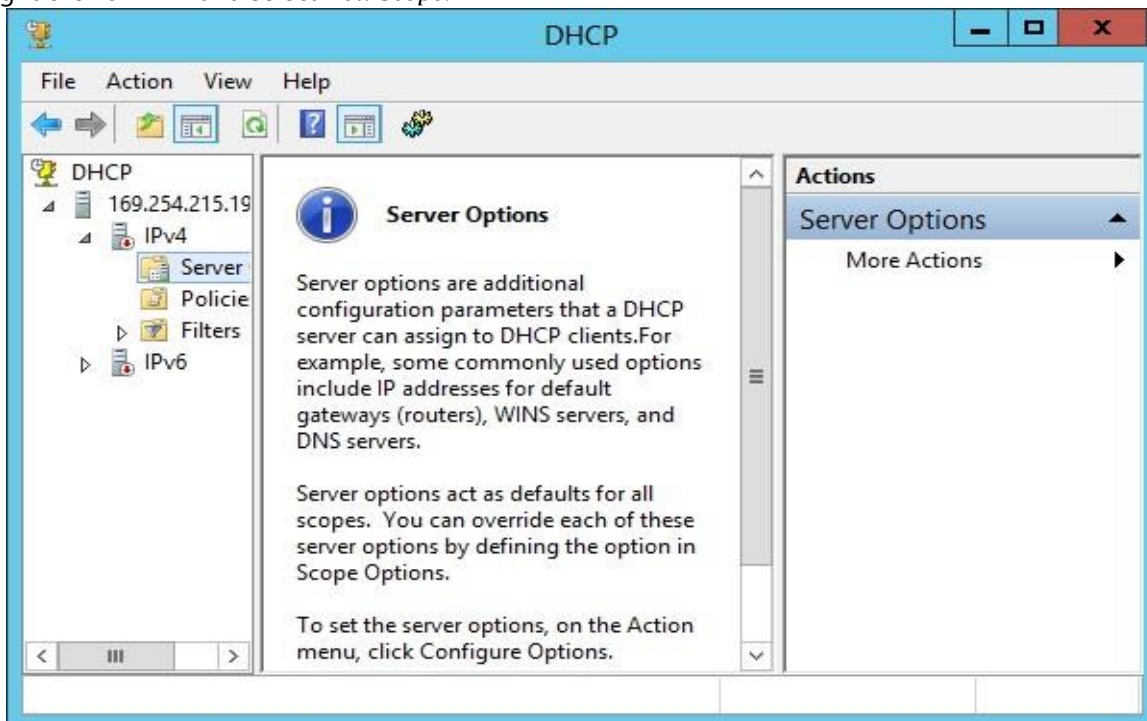
9. If all Prerequisite checks passed successfully then click Install. Note: You must have the NIC plugged into a switch or the TCP/IP check will fail.

DHCP Server

1. Ensure that the Ethernet connection is working
2. Add the « DHCP Server » role (See step 1 for Active Directory Domain Services configuration):



3. Follow the configuration wizard (let default values) and click on Install in the last screen after having checked the option "Restart the Destination Server Automatically if required."
4. From the Server Manager Dashboard Select Tools then *DHCP*, expand out the arrows for 169.254.xxx.xxx and then for IPv4. Right click on IPv4 and select *New Scope*:



- Type SDS in as the Name and click Next.

- Type in Start IP address 192.168.1.10 and in End IP address 192.168.1.100:

7. Click Next and Next Again and then set the Lease Duration to 4 hours

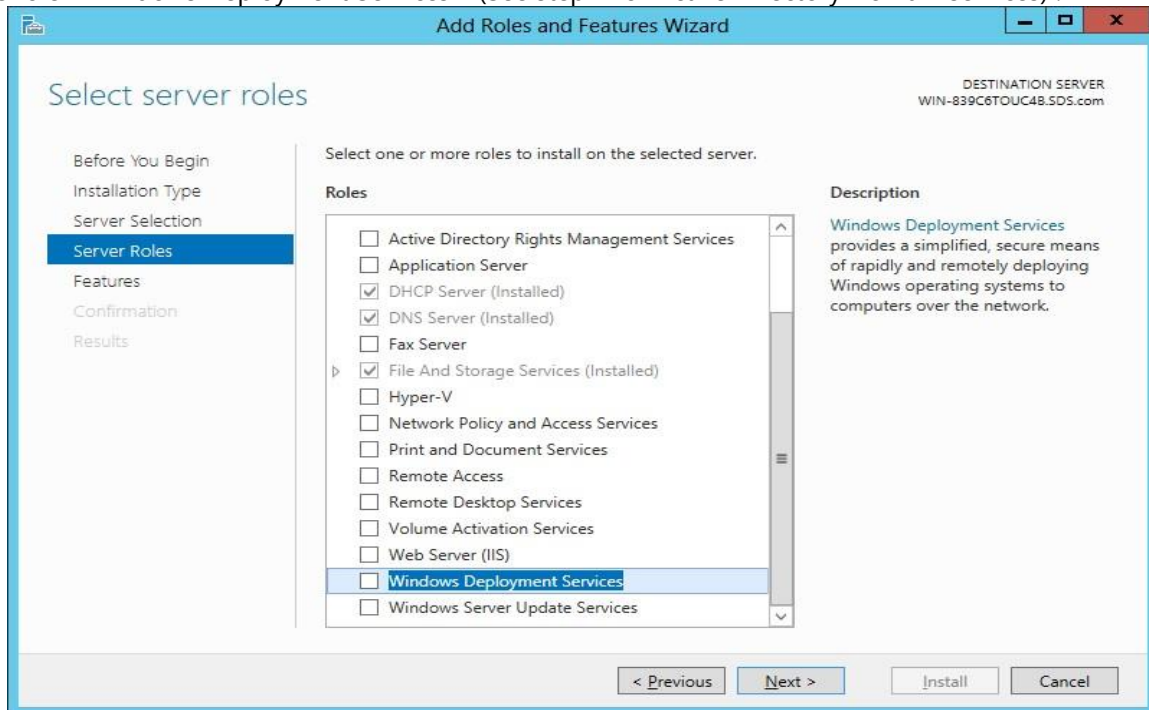


The screenshot shows the 'New Scope Wizard' dialog box with the 'Lease Duration' step selected. The title bar reads 'New Scope Wizard'. The main content area has a blue header with the text 'Lease Duration' and a sub-header 'The lease duration specifies how long a client can use an IP address from this scope.' followed by a folder icon. Below this, there is explanatory text: 'Lease durations should typically be equal to the average time the computer is connected to the same physical network. For mobile networks that consist mainly of portable computers or dial-up clients, shorter lease durations can be useful. Likewise, for a stable network that consists mainly of desktop computers at fixed locations, longer lease durations are more appropriate.' This is followed by the instruction 'Set the duration for scope leases when distributed by this server.' and the label 'Limited to:'. There are three spinners for 'Days', 'Hours', and 'Minutes'. The 'Hours' spinner is set to 4, while 'Days' and 'Minutes' are set to 0. At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

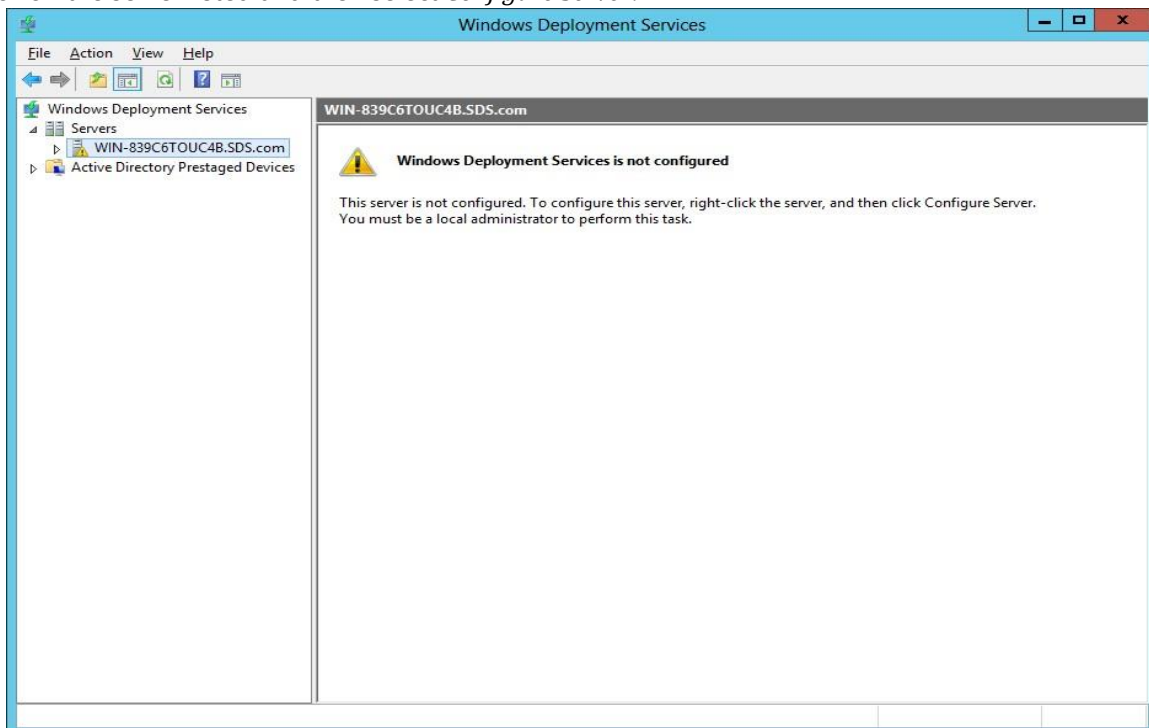
8. Click Next, Next, Next, Next, Next, Next, and then Finish. Close out of the DHCP Window.

Windows Deployment Services

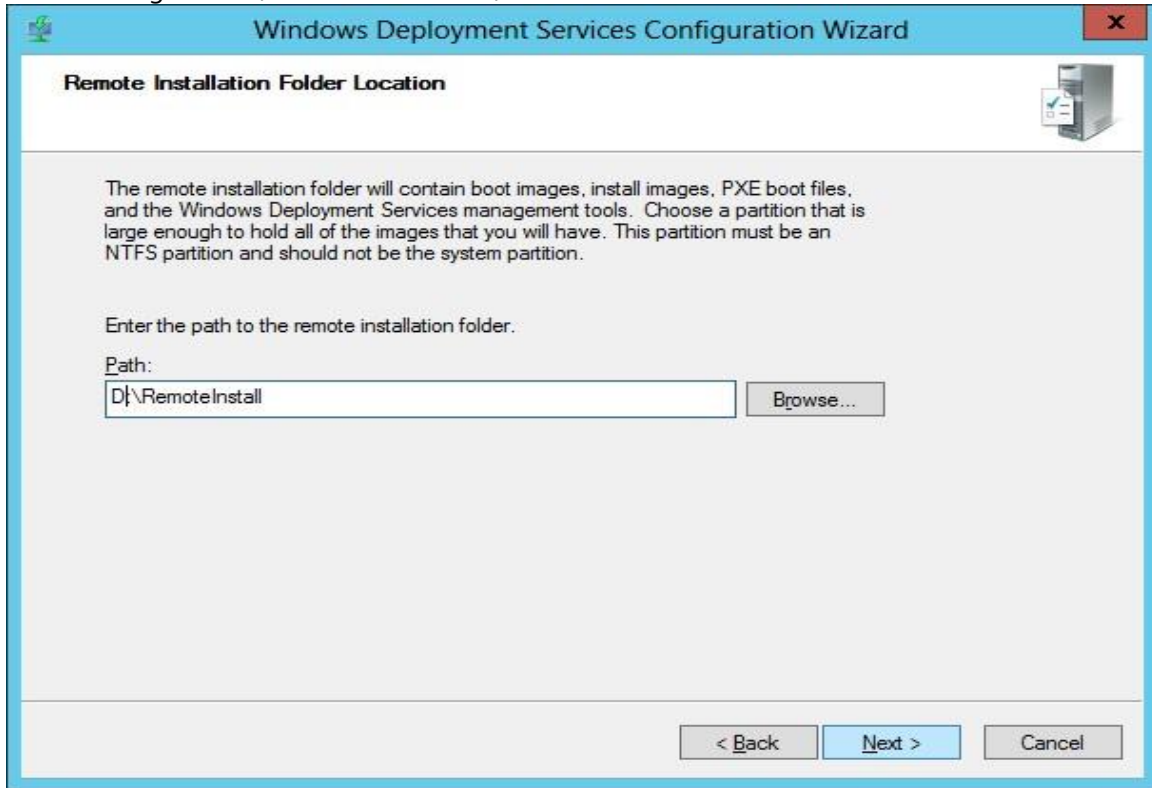
1. Add the role « Windows Deployment Services » (See step 1 for Active Directory Domain services) :



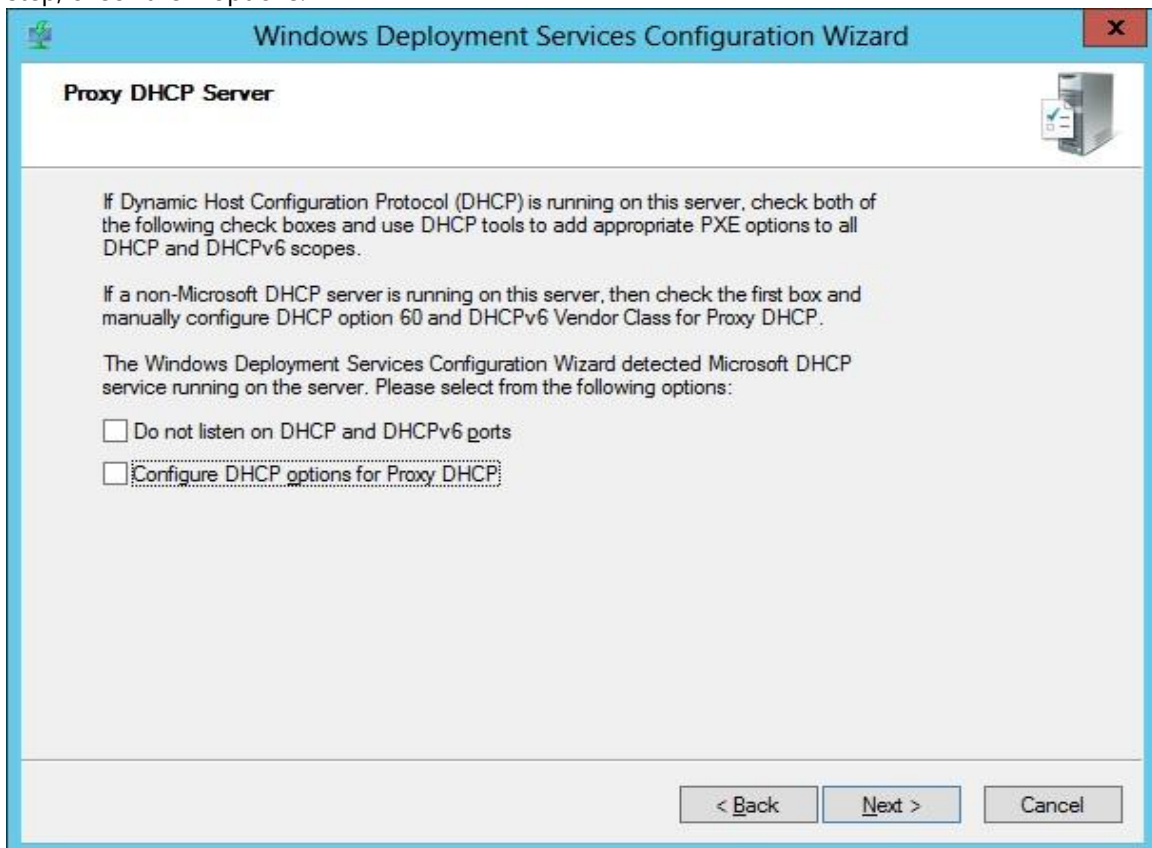
2. Follow the configuration wizard (let default values) and click on Install in the last screen after having checked the option "Restart the Destination Server Automatically if required."
3. From the Server Manager Dashboard Select Tools then *Windows Deployment Services*. Expand the arrow by Servers, right click on the server listed and then select *Configure Server*:



- In the Path box change the C:\RemoteInstall to D:\Remote Install:



- On next step, check the 2 options:



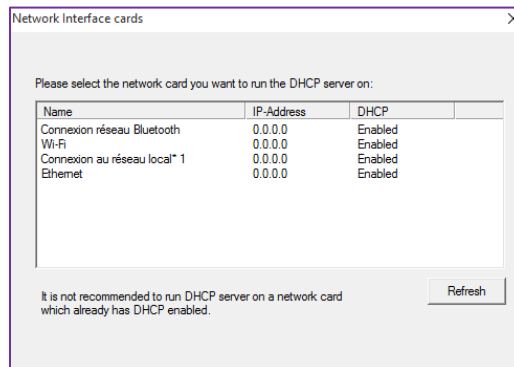
6. Select Respond to all client computers (known and unknown):



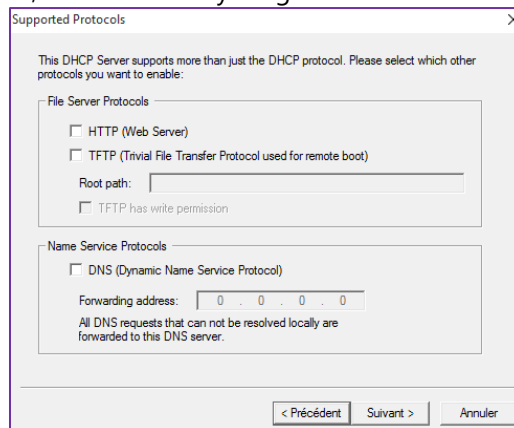
7. Close out of the Windows Deployment Services Window when it completes.
8. Ensure that the remote installation folder set in step 4 is shared as « reminst » with Full Control to « Everyone »
9. Verify that PXE is working with a test PC. If so, execute SDS installer (launch setup.exe in installer folder).

How to configure DHCP on a non-server edition of Windows

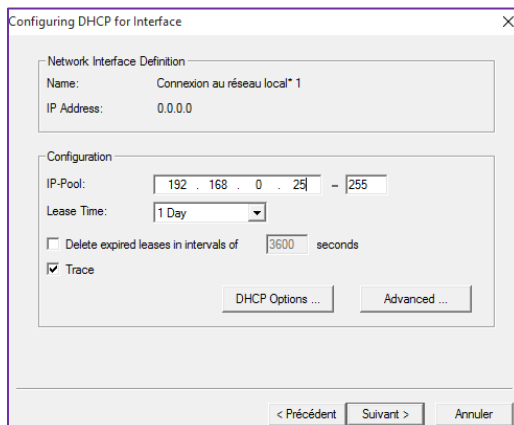
1. Download DHCP Server from <http://www.dhcpserver.de/cms/>
2. Copy the folder dhcprv2.5.2 to remoteinstall folder
3. Launch dhcprwiz.exe
4. Click on "Next >" button
5. Select your LAN card, and click on "Next >" button:



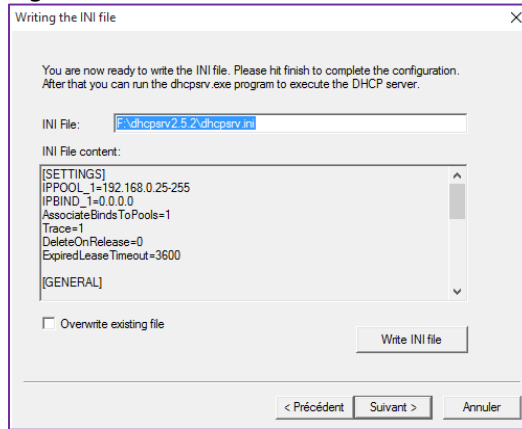
6. In the "Supported Protocols" screen, don't select anything and click on "Next >" button:



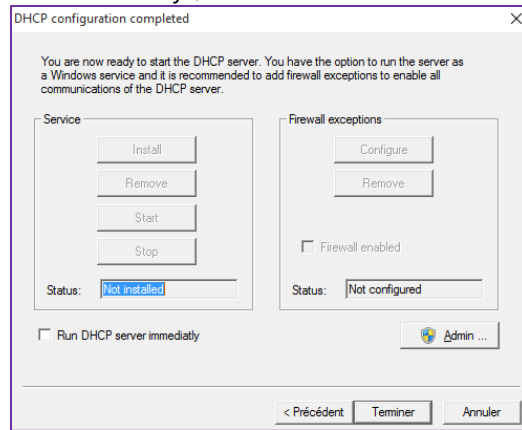
7. Select you IP range and click on "Next" button:



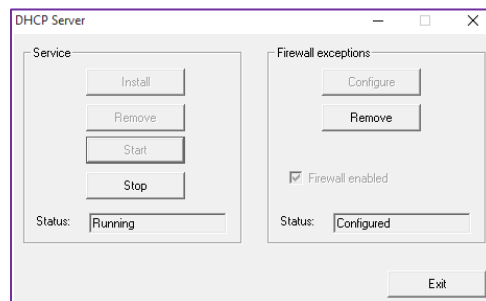
8. Check the option "Overwrite existing file", click on "Write INI file" and then click on "Next >" button:



9. Check the option "Run DHCP server immediately", click on "Admin..." button and then on "Finish" button:



10. The DHCP service is now running:



How to customize the welcome menu

Script.xml

Initially we need to declare the module SDSWelcome in the « Components list »:

```
<Components_List>
<!-- Modules loaded at startup...-->
    <component Name="Welcome" Path="MODULES\SDSwelcome.dll" Id="101">
    </component>
```

Then, we have to call the module:

```
<Item Name="Example" ... >
    <!-- SDSWelcome -->
    <Module Id="101" ConfigFile="Xxxx.ini" Param1="0" Param2="0" FullScrn="0">
</Module>
```

There is no parameter for SDSWelcome module but we need to declare it for the module call.

Since **SDS 18.0**, script variables are now fully using 'unsigned long' range from 0 to 0xFFFFFFFF.

SDSWelcome.ini

In the section « General » you define the main settings:

Mode is the user interface you want (radio buttons, check box, combo box)

Nb_Btn_Top = Number of buttons on top of the screen.

Nb_Btn_Down = Number of buttons in the main part.

Btn_Top_1 = first button on top.

We can define the buttons type (on top) we want, text field (Edit control -> 0) or combo box (Combo control -> 1).

In this example, we define a specific rule.

The « button » is a **text field** that accepts only numeric characters and having a max length of 9.

To validate you need **9 characters**. The digit is **divided in 2** parts. The first part is only one **numeric character and has to be 0**. The second part contains **8 numeric characters** (no other rules).

```
Type_Btn=0                -> text field
; 0 -> Edit control
; 1 -> Combo control
```

```
Btn_Text=IDS_TEXT_1
```

```
Nb_Part=2                 -> divided in 2 parts
```

```
Nb_Digit_Part_1=1        -> The digit part 1 length is 1
; x > 0 Length part = x; x = -1 No limit
```

```
Type_Digit_Part_1=0|0    -> the first character has to be numeric and equal to 0
```

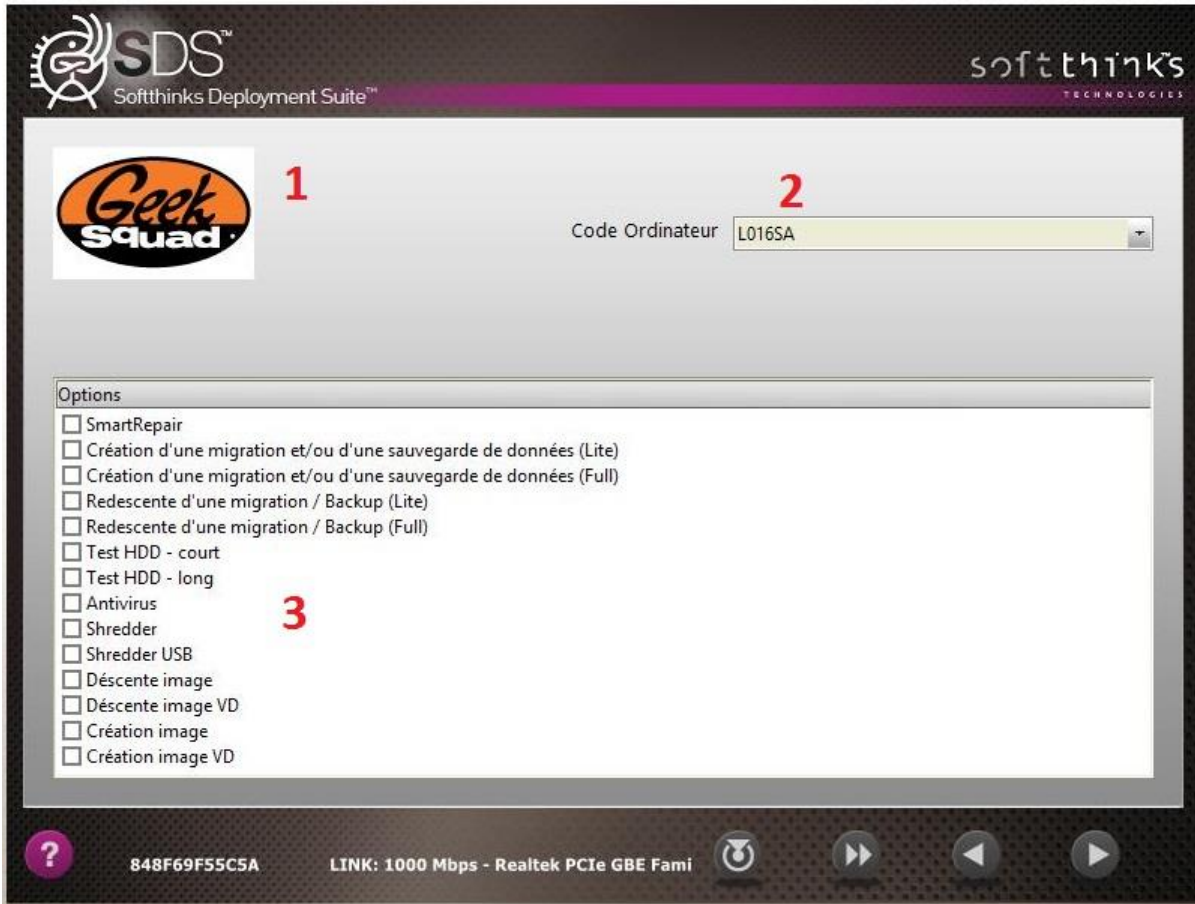
; 0 -> Numeric
; 1 -> Alpha
; 2 -> AlphaNumeric
; | char (digit must be char)

Nb_Digit_Part_2=8
Type_Digit_Part_2=0 **-> 8 numeric characters**

Min_Length=9
; x > 0 string length must be sup or equal to x; x = -1 no min

Max_Length=9 **->the string length is equal to 9**
; x > 0 string length must be inf or equal to x; x = -1 no max

Example



Please note that “;” in the beginning of the line means that you are commenting.

In this example, we have the following settings:

[General]

; 0 -> radio button

; 1 -> CheckBox

; 2 -> Button

Mode=2 -> The main menu will be a buttons menu

Nb_CustomAction=0

; 0 -> No logo

; 1 -> show logo

; logo file has to be named logo.png and put in Windows\System32

Logo=1

; max 4

Nb_Btn_Top=2 ; 2 buttons

; mode = 0 -> 5 max | mode = 1 -> 12 max | mode = 2 -> 10 max

Nb_Btn_Down=4

;HardwareCheck=x -> 0 no check, 1 check and display dialog, 2 check and exit
;No more used. Kept for compatibility
HardwareCheck=0

DODCheck=0 ; To know if wipe ran correctly. In case of refurbishing it can be useful. SDSWelcome if DOD flag is present you will have a button to continue

BatteryCheck=0 ; Check the battery level defined in section BattLevelcheck. If battery level is too low you will get a pop up warning. If 0 we check if the device is plugged to AC power

[BattLevelcheck]

Platform= ; names separated by ;'
BatteryLevel= ; Percentage

[Logo]

JPG=Logo.jpg

[Btn_Top_1]

; 0 -> Edit control

; 1 -> Combo control

Type_Btn=0 ; Edit control

Btn_Text=IDS_TEXT_1 ; Text in front of the control ("ID" in our example)

Nb_Part=1 ; Useful to split the contents of the control (for example an field with ...). Here we have 1 part which is the default value

; TO DEFINE Edit field mask

; x > 0 Length part = x; x = -1 No limit

Nb_Digit_Part_1=-1

; 0 -> Numeric

; 1 -> Alpha

; 2 -> AlphaNumeric

; | char (digit must be char)

Type_Digit_Part_1=2 ; 1st block contains only letters, no numbers

Nb_Digit_Part_2=6 ; 2nd block contains 6 letters or numbers

Type_Digit_Part_2=2

; x > 0 string length must be sup or equal to x; x = -1 no min

Min_Length=1

; x > 0 string length must be inf or equal to x; x = -1 no max

Max_Length=-1

[Btn_Top_2]

; 0 -> Edit control

; 1 -> Combo control

Type_Btn=1 ; Dropdown combo box

Btn_Text=IDS_TEXT_2

Nb_Entries=2

Entry_1=IDS_COMBO_1_DEMO

Entry_2=IDS_COMBO_2_DEMO

[Btn_Down_1]

Result_Code=1

Btn_JPG=Repair_auto.png

Btn_Text=IDS_BTN_1

[Btn_Down_2]

Result_Code=2

Btn_JPG=Repair.png

Btn_Text=IDS_BTN_2

[Btn_Down_3]

Result_Code=3

Btn_JPG=Refurb.png

Btn_Text=IDS_BTN_3

[Btn_Down_4]

Result_Code=4

Btn_JPG=OEM.png

SDSWelcome.xml

For each button defined previously in the .ini file, we need to write the corresponding text and translation.

```
<string ID= « IDS_MON_BOUTON_1 »>  
  <en-US> My translation </en-US>  
  <fr-FR> My bouton 1 </fr-FR>
```

How to customize the repair screen

We are still in the SDSWelcome module. In SDSWelcome.ini we have Result_code=2 and in script.xml if we have result_code=2 we relaunch SDSWelcome module.

SmartRepair

User data and settings backup

Apply user data and settings backup

SDS image or SmartImage creation

SDS image deployment

Updates and Report

Hardware Check

Windows Diagnostics

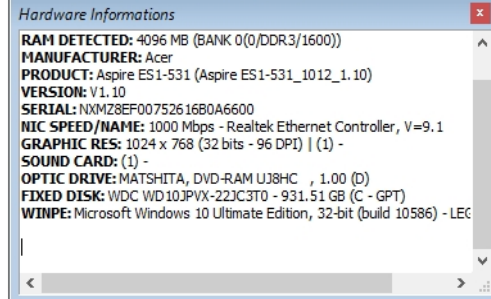
Repair.ini

You can preselect some options by default (the user cannot uncheck them).

You can also link some options to others, meaning that if the user selects an option the wizard will automatically select another option that we will have linked (MultiLink section).

How to get hardware information from SDS UI

You can get hardware information at any moment from the SDS UI by pressing Ctrl+I:



How to get logs required for support purpose

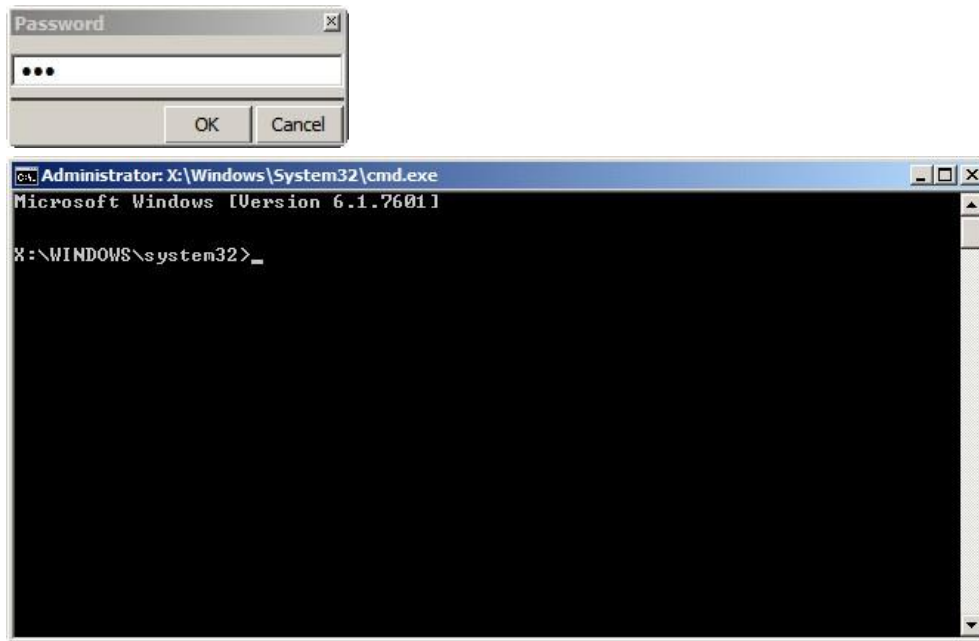
When an error occurs during any process, it is important to grab the logs which will be very helpful in order to diagnose the issue and solve it.

On client side, the logs from the RAMDrive R: are temporary and used to diagnostic a deployment in case of troubles. They are duplicated on the server in `reminst\sdkdb\temp`. It means that the temp folder will have a folder with all deployment log for each computer booting in WinPE environment

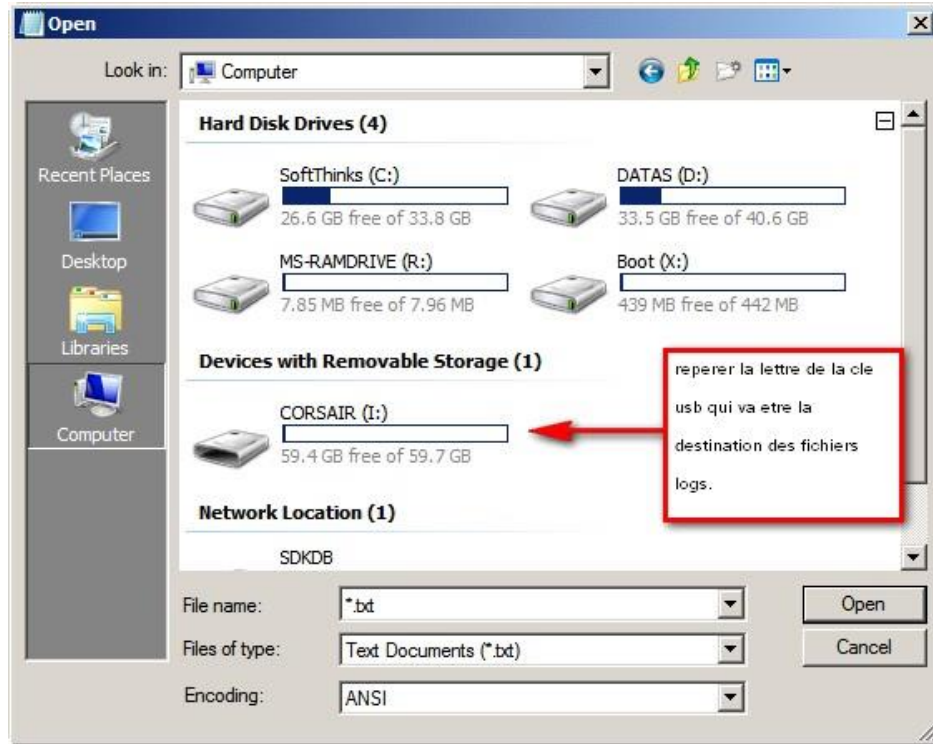
Some logs are generated by SDS product and others from the Microsoft WinPE boot process.

The XML

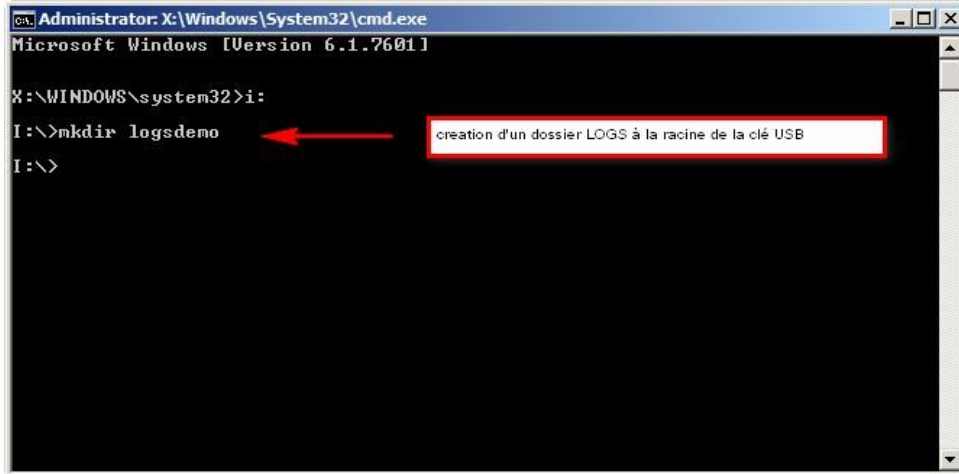
1. Press Ctrl + Alt + D to open a command prompt (press Ctrl + Alt + D). If a dialog box appears to ask you a password, type "sds" and click on "OK" button:



2. Plug a USB key and make note of the letter which is assigned to it. You can launch `notepad.exe` and select "Open" command to see all the drive letters:



3. Create a folder on your USB key:



4. Go to the RAM Drive R:

```

Administrator: X:\Windows\System32\cmd.exe
Microsoft Windows [Version 6.1.7601]

X:\WINDOWS\system32>notepad
X:\WINDOWS\system32>r:_
  
```

Envoyer R: pour entrer dans le RAMDrive qui contient l'ensemble des fichiers logs en fin de deploiment.

5. Copy all the files from the RAM Drive to your USB Key:

```

Administrator: X:\Windows\System32\cmd.exe
Microsoft Windows [Version 6.1.7601]

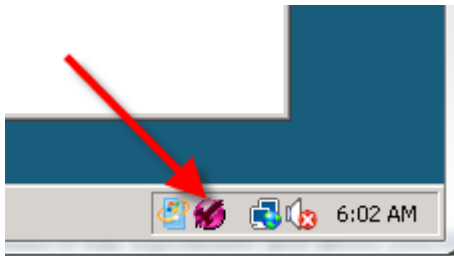
X:\WINDOWS\system32>i:
I:\>mkdir logsdemo
I:\>cd logsdemo
I:\logsdemo>r:
R:\>xcopy *.* i:
R:deploylauncher.ini
R:001321BE33C3_Flow.log
R:001321BE33C3_Flow.xml
R:Selector.ini
R:RSSelect.ini
R:mbr.ini
R:CSP.DAT
R:dsk_S062.hex
R:deploy_jukebox.exe.sds.log
9 File(s) copied
R:\>
  
```

copier l'ensemble des fichiers vers la clé USB.

How to update the license

Please do the following steps to send us the licensing code for the server and we can send you back an activation code.

1. Go to the desktop of the server.
2. Look for a small icon will by your clock that is purple/pinkish and says SoftThinks Selector Service when you do a mouse over.
 - a. If that Icon is not there, Navigate to the Remoteinstall\SDKDB\Selector Directory and run SelectorSRVG.exe and the Icon will appear.
 - b. You may have to click the arrow next to the clock to show all the running icons.



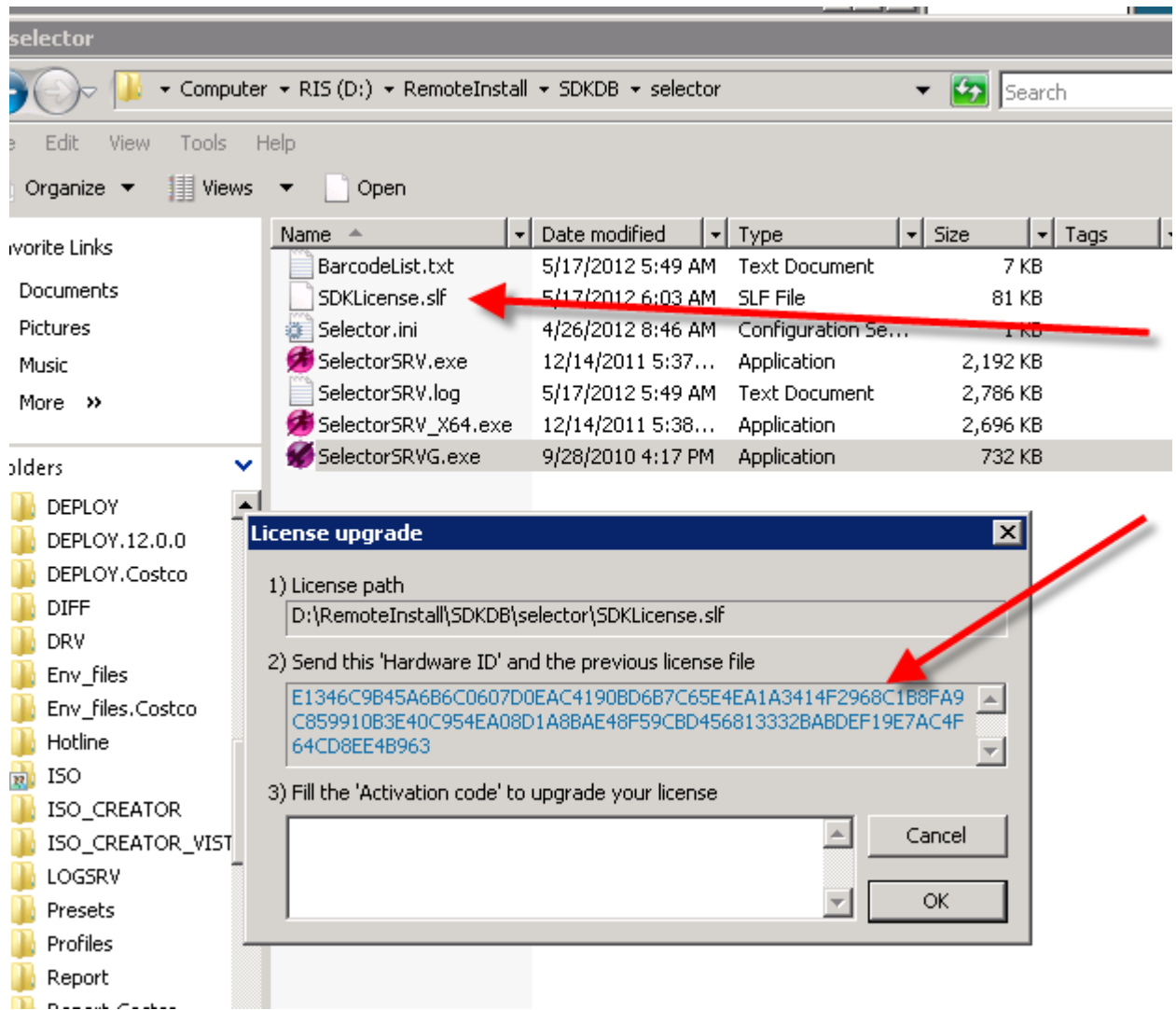
3. Right Click on this icon and select Upgrade License :



4. The License Upgrade Dialog box will open :



5. Send us the text from Step 2 in the License Upgrade Screen, and the SDKLicense.slf file from the RemoteInstall\SDKDB\Selector directory.



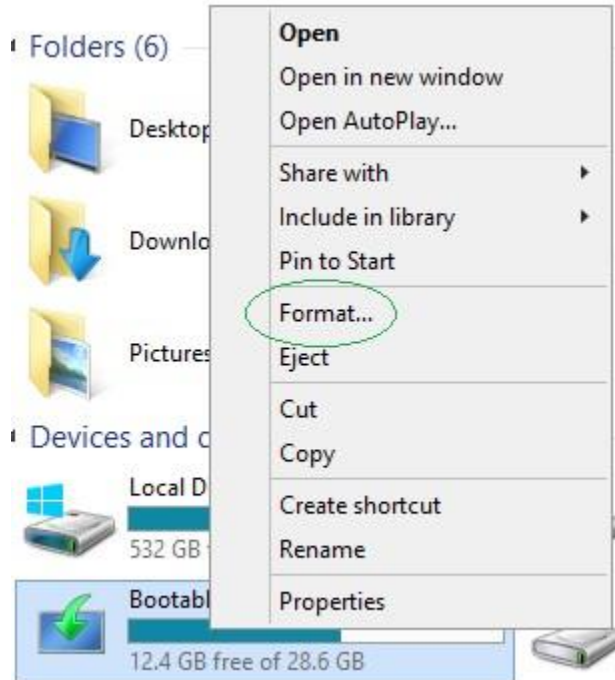
- Once we have that we can send you back the upgrade key that you will paste into the "Fill the 'Activation code' to upgrade your license field, then click OK to renew the license.

NOTE: Do not close the License Upgrade window until you get the Activation code from us.

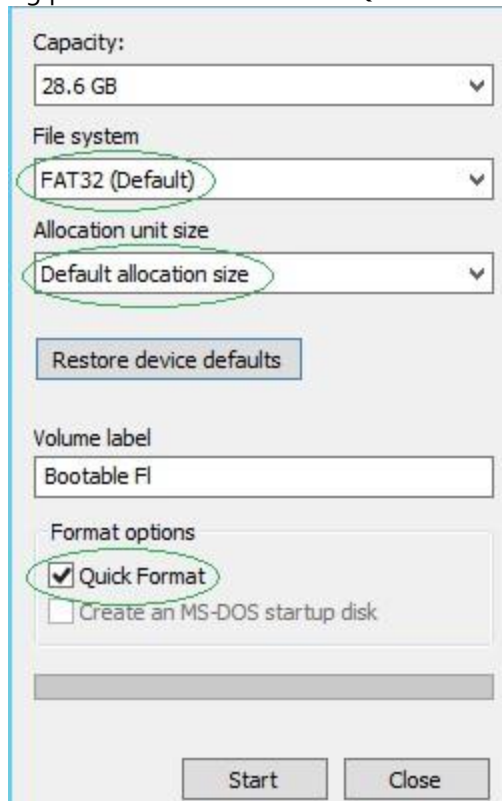
How to format a USB Flash Drive before converting it to a SDS USB Flash Drive

Formatting USB Flash Drive

1. Plug flash drive of at least 8GB into USB port on server.
2. Open File Explorer and locate the flash drive
3. Right click on the flash drive and select "Format".



4. Select Restore Device default. In most cases this will set the format to "FAT32" and "Default Allocation Size". If it does not, select these options from the corresponding pull down menus. Select "Quick Format" check box.



The screenshot shows a disk formatting dialog box with the following elements:

- Capacity:** A dropdown menu showing "28.6 GB".
- File system:** A dropdown menu showing "FAT32 (Default)".
- Allocation unit size:** A dropdown menu showing "Default allocation size".
- Restore device defaults:** A button highlighted with a blue border.
- Volume label:** A text input field containing "Bootable FI".
- Format options:** A section containing two checkboxes:
 - Quick Format (highlighted with a green circle)
 - Create an MS-DOS startup disk
- Start** and **Close** buttons at the bottom.

6. Click Start.

How to boot from Bootable USB Flash Drive with USB Ethernet adapter

The Bootable USB Flash Drive will allow a unit that does not have an Ethernet port onboard to connect to the SDS Server using a USB Ethernet Adapter.

1. Ensure the device, laptop, desktop or tablet PC is able to boot to USB in the units BIOS.
2. Plug Bootable USB Flash Drive into an available USB port.
3. Plug USB Ethernet adapter into USB port and connect to network via Ethernet cable.
4. Power on the device and it should boot to the USB drive as default.

Note: Most brands of USB Ethernet Adapters are supported by the Bootwim on the USB Flash Drive or have drivers built into the adapter. On rare occasions the Bootwim will not have the driver needed for the USB Ethernet Adapter. These can be added to the Bootwim through the SDS (See [Injecting drivers \("Inject Driver\(s\)" operation\)](#)).

How to prepare the database for the “Update database components” feature

1. Define the baseline (the deploy folder, and deploy64 selector) with all files updated.
2. Open the console by selecting the master.log from the reference database
3. Export into xml and rename it to update.xml (this file will be required on the FTP to accelerate the comparison between the base used and the baseline).
4. Prepare an sdkdb_update folder containing the deploy64, deploy, and selector folders from the baseline + update.xml. It is mandatory that the update.xml file corresponds to the deploy, deploy54 and selection contents in terms of files (version & CRC) and if there is any difference the update.xml file must be regenerated.

How to edit SPL Files

SPL File Naming Convention

The existing sales order system and manufacturing process should be considered when deciding the naming convention to allow for a seamless integration.

The SPL file name must begin with "S" and not exceed 11 characters including "S".

Example: S1234567890.SPL or SModelx.SPL.

Do NOT use any characters other than Alphanumeric ones (NO spaces, dashes, punctuation, etc.).

Dynamic SPL Naming Convention

Here are some examples that can be used to create a dynamic SPL per system:

- S%SerialNumber%.SPL
- S%SalesOrderNumber%.SPL

Static SPL Naming Convention

Here is an example that can be used to create a static SPL for multiple systems:

- S%ProductName%.SPL

System DMI Requirements

Here are the pre-defined System DMI field requirements for deployment using an SPL file. The chosen DMI field must match the name of the SPL file naming convention.

System DMI Serial Number Field

An Original Equipment Manufacturer (OEM) or an Original Design Manufacturer (ODM) may choose to use the system DMI serial number field (Type1 or Record1):

- Serial Number (SS): %SerialNumber%
- Serial Number (SS): %SalesOrderNumber%

System DMI Product Name Field

An OEM or ODM may choose to use the system DMI product name field (Type1 or Record1):

- Product Name (SP): %ProductName%

The DMI field name must not begin with (S) and not exceed 10 characters.

Ex: 1234567890 or Modelx. Do NOT use any characters other than Alpha/Numeric (NO spaces, dashes, etc.).

Note: The OEM or ODM is responsible for creating the SPL file. This will require development efforts to setup and maintain a translation program. The translation program will need to convert the existing part numbers to the SDK part number format and generate the SPL file.

SDK Part Number Format

The format used for part number scheme and revision control is the following:

- XXXXXX-XXX-XXX

Here are the pre-defined part number format requirements for deployment.

- A = Applications
Ex: A00001-001-001
Applications using silent installs, MSI, Installshield, etc.
- D = Drivers (Required if PnP is not used)
Ex: D00001-001-001
Device drivers using a PnP enumeration via .inf files.
- Q = QFE
Ex: Q00001-001-001
Security patches and updates.
- B = Bundle
Ex: B00001-001-001
Applications tied to hardware (link to PnP device ID).
- S = OS
Ex: S00001-001-001
Operating System.
- I = Smart Image
Ex: I00001-001-001
Smart Image may contain combination of hardware and software.
- P = Partition Scheme (hard coded)
Ex: P00001-001-001
Partition scheme based on hard coded numbers.
- T = Tools
Ex: T00001-001-001
Tools used for enabling/disabling SDK features (See SDK switches section).
- Z = Tests
Ex: Z00001-001-001
Optional deployment tests as specified by the OEM/ODM (See SDK switches section).

Definable Partition Number (Recommended)

- P0111D-p01-100-1 ; User partition, Windows primary, NTFS format, drive letter assigned, use 100% of total hard disk space.
- P 0111D-p01-050-1 ; User partition, Windows primary, NTFS format, drive letter assigned, use 50% of total hard disk space.
- P0112D-p01-100-1 ; User partition, Windows primary, FAT32 format, drive letter assigned, use 100% of total hard disk space.
- P0112D-p01-050-1 ; User partition, Windows primary, FAT32 format, drive letter assigned, use 50% of total hard disk space.
- P0211E-p01-050-1 ; Partition 2, Windows primary, NTFS format, drive letter assigned, use 50% of total hard disk space.
- P0212E-p01-050-1 ; Partition 2, Windows primary, FAT32 format, drive letter assigned, use 50% of total hard disk space.
- P0212E-p01-025-1 ; Partition 2, Windows primary, FAT32 format, drive letter assigned, use 25% of total hard disk space.
- P0311E-p01-025-1 ; Partition 3, Windows primary, NTFS format, drive letter assigned, use 25% if total hard disk space.
- P0312E-p01-025-1 ; Partition 3, Windows primary, FAT32 format, drive letter assigned, use 25% of total hard disk space.

Hard Coded Partition Number

- P00001-000-000 ; No recovery solution.
- P00001-510-000 ; Create system recovery folder, hidden and protected.
- P00001-534-950 ; Create recovery partition at start of disk, hide recovery partition, hide F10 boot key, swap partition table, auto-sizing + 500 MB reserved.
- P00001-536-950 ; Create recovery partition at start of disk, hide recovery partition, show F10 boot key, swap partition table, auto-sizing + 500 MB reserved.
- P00001-537-900 ; Create recovery partition at start of disk, show recovery partition, show F10 boot key, swap partition table, auto-sizing + 1000 MB reserved.
- P00001-537-950 ; Create recovery partition at start of disk, show recovery partition, show F10 boot key, swap partition table, auto-sizing + 500 MB reserved.
- P00001-537-400 ; Create recovery partition at start of disk, show recovery partition, show F10 boot key, swap partition table, 4000 MB Absolute RP size.
- P00001-538-950 ; Create recovery partition at end of disk, hide recovery partition, hide F10 boot key, swap partition table, auto-sizing + 500 MB reserved.
- P00001-541-950 ; Create recovery partition at end of disk, hide recovery partition, show F10 boot key, swap partition table, auto-sizing + 500 MB reserved.
- P00001-540-950 ; Create recovery partition at end of disk, show recovery partition, hide F10 boot key, swap partition table, auto-sizing + 500 MB reserved.
- P00001-539-900 ; Create recovery partition at end of disk, show recovery partition, show F10 boot key, swap partition table, auto-sizing + 1000 MB reserved.
- P00001-539-950 ; Create recovery partition at end of disk, show recovery partition, show F10 boot key, swap partition table, auto-sizing + 500 MB reserved.
- P00001-539-400 ; Create recovery partition at end of disk, show recovery partition, show F10 boot key, swap partition table, 4000 MB absolute recovery partition size.

SDK Switches

- T00003-700-001 ; Do no production management.
- P00001-000-000 : No recovery solution.
- Z00001-600-001 ; Run no tests.
- T00012-001-001 ; Disable PnP over SPL selection.

SPL files example

- P0111D-p01-100-1 ; User partition, Windows primary, NTFS format, drive letter assigned, 100% use of remaining hard disk space
- A00061-001-001 ; Branding in Windows (wallpaper)
- T00001-001-001 ; Branding in recovery UI
- S00029-001-001 ; XP Home SP2 English v.1, Windows XP (English)
- A00219-001-001 ; Roxio
- A00226-001-001 ; Application
- A00224-001-001 ; .net Framework
- D00003-002-001 ; Intel 845 G Chipset System 5.0.2.1003
- D00006-001-001 ; Intel 865 Integrated Video Driver
- D00026-001-001 ; RealTek LAN driver 5.606.811.2003

How to edit Data Backup configuration file

You can customize the Data Backup behavior by manually editing the SDSBackupMigration.ini file located in \SDSDB\Deploy\Windows\System32\modules\SDSFileBackup.

There are 3 types of Data Backup which can be set through this configuration file:

- **Backup** : Users files backup
- **Light Migration** : Users files & Settings and OS settings backup
- **Full Migration** : Users files & Settings, Applications settings and OS settings backup

[SDSFileBackup]

; AutomaticBackup : 0 for Automatic / 1 for Manual

AutomaticBackup=0

CountDown=500

; ArchiveName: Backup name that will appear in Data Backup UI if UserNameType is set to 0

ArchiveName=My Backup

; Backup destination (combination of <NAME> <S/N> and <MAC>)

ArchiveDestination=W:\<NAME>\<NAME>_<S/N>_Backup

; UserNameType: 0 to use the Backup name / 1 to use the MAC Address / 2 to use the Serial Number / 3 to use the result of a module (requires to specify the module ID and the value to read in NameType3)

; In the example below, we will use the Account Number value set by module SDS Welcome (121)

UserNameType=3

Nametype3=<121>< Account number: >

ArchivePassword=

CapturePhoto=1

CaptureAudio=1

CaptureVideo=1

CaptureDoc=1

CaptureEmail=1

CaptureFinancial=1

CaptureOthers=0

; Map: 1 if you wish to store data backups in a folder outside of SDKDB structure or another device

Map=1

; If Map is set to 1 you need to specify the following information for the data backup target location:

MapDrive=W

Login=

Password=

Domain=

; UncPath=\\<Server IP address>\<shared folder >

UncPath=\\192.168.x.x\x

UncPath2=\\192.168.x.x\x

UncPath3=\\192.168.x.x\Migration

How to manually edit WTM configuration files

The SDSconsole for WTM settings use the following files in SDKDB\ENV_FILES\WINVISTA_10_64 or winvista_10:

- WindowsTestManager.xml
- WindowsTestManager_Btn.xml

WindowsTestManager.xml

WindowsTestManager.xml lets you configure all the settings (and also the custom tests) with the SDSconsole Test part

```
<root>
  <Settings>
    <mode>auto</mode>      //manual or auto
    <sigverif>on</sigverif> //Check if drivers are signed or not
    <devmanager_on_error>on</devmanager_on_error> //Device manager
    <eventviewer_error_report>warning</eventviewer_error_report>
    <Start_in_Audit>off</Start_in_Audit>
    <Start_If_Conflict>on</Start_If_Conflict>
    <ShowSysPrepBTN>off</ShowSysPrepBTN>
    <Rapport_If_Success>on</Rapport_If_Success>
    <Rapport_If_Failed>on</Rapport_If_Failed>
    <ShowEvent>off</ShowEvent>
  </Settings>
  <Multimedia>
    <Test_WAVE>on</Test_WAVE> //Define all the multimedia tests you want
    <Test_MIDI>on</Test_MIDI>
    <Test_MP3>on</Test_MP3>
    <Test_MIC>on</Test_MIC>
    <Webcam_chk>on</Webcam_chk>
    <Test_HeadPhone>off</Test_HeadPhone>
  </Multimedia>
  <Network>
    <LAN> //Define all LAN tests you want
      <TestLan>on</TestLan>
      <AutoDHCP>on</AutoDHCP>
      <AutoDNS>on</AutoDNS>
      <IP>192.168.X.X</IP>
      <MASK>255.255.255.0</MASK>
      <GATEWAY>192.168.X.X</GATEWAY>
      <DNS1>X.X.X.X</DNS1>
      <DNS2>X.X.X.X</DNS2>
    </LAN>
    <WLAN> //If you want to test a specific WLAN
      <TestWlan>on</TestWlan>
      <SSID>TEST</SSID>
      <AUTH>open</AUTH> > // Open, shared, wpa, wpa2, wpapsk, wpa2psk
      <ENC>WEP</ENC // none,wep, tkip, aes
      <KEY>XXXXXXXX</KEY>
    </WLAN>
    ← cf. end document for Wifi Configuration→
  </Network>
  <Oemreset>
    AutoReseal=on
    Time=15
  </Oemreset>
  <Custom_test>
    <name>hddcheck</name> //add HDD Check
    <FilePath>C:\WinTEST\HDcheck\hddcheck.cmd</FilePath> //Path of hddcheck.cmd
    <Args></Args>
    <Auto_remove>on</Auto_remove> //Removed automatically after being used
    <Show>on</Show>
  </Custom_test>
</root>
```



```

    <Succes_Code>0</Succes_Code>
    <Stop_on_fail>off</Stop_on_fail>
    <LogFile>C:\WinTEST\HDcheck\diagerror.log</LogFile> //change with the real path
</Custom_test>
<Custom_test_1>
  <name>BurninTest</name>
  <FilePath>C:\WinTEST\BurnInTest8\bit.exe</FilePath> //Path of bit.exe
  <Args>-L 0,0,0,0 -D 1 -R -X -C CPU+RAM+3D.bitcfg</Args> //Arguments (see doc Console_-
_BurningTest Integration Audit Mode for Generic Image)
  <Auto_remove>on</Auto_remove> //Removed automatically after being used
  <Succes_Code>666</Succes_Code>
  <Show>on</Show>
  <LogFile>C:\WinTEST\BurnInTest8\burnsdiag.log</LogFile> //same path defined in your .bitcfg
</Custom_test_1>
    ← cf. end document to send burnin test logs to the server →

<Custom_test_2>
  <name>Smart_Info</name>
  <FilePath>C:\WinTEST\InfoSmart\Info_Smart.exe</FilePath> //Path of Info_Smart.exe
  <Args>%DEPLOY_LOG%</Args>
  <Auto_remove>on</Auto_remove> //Removed automatically after being used
  <Show>on</Show>
  <Succes_Code>0</Succes_Code>
  <Stop_on_fail>off</Stop_on_fail>
  <LogFile> </LogFile>
</Custom_test_2>
<Custom_test_3>
  <name>Keyboard Test</name>
  <FilePath>C:\WinTEST\KeyboardTest\KeyboardTest.exe</FilePath> //Path of KeyboardTest.exe
  <Args></Args>
  <Auto_remove>on</Auto_remove> //Removed automatically after being used
  <Show>on</Show>
  <Succes_Code>0</Succes_Code>
  <Error_Code>1</Error_Code>
  <Stop_on_fail>off</Stop_on_fail>
  <LogFile></LogFile>
</Custom_test_3>
<Custom_Report>
  <Status>on</Status>
  <Check_nb>10</Check_nb> //Number of buton you define in WindowsTestManager_CustomReport.xml
</Custom_Report>
<Network_Log> //Setup this part to send the logs back to the server
  <Letter>N</Letter>
  <Domain>XX.com</Domain> //Your domain
  <Login>XXXXXX</Login> //You login
  <Pass>XXXX</Pass> //Your password
  <Path>\\xxx.xxx.x.x\reminst\sdkdb</Path> //Your IP or your Server name
  <SendLog>on</SendLog> // Send logs to the server when exists
</Network_Log>
</root>

```

WindowsTestManager_Btn.xml

The **WindowsTestManager_Btn.xml** file that you can find in the WinTEST root, allows you to modify your main menu (add, remove items)

Enter the same as you did previously in WindowsTestManager.xml.

```
<root>
  <Btn>
    <Custom_test>
      <name>windows_check</name>
    </Custom_test>

    <Custom_test>
      <name>multimedia</name>
    </Custom_test>

    <Custom_test>
      <name>network_settings</name>
    </Custom_test>

    <Custom_test>
      <name>BurninTest</name>
    </Custom_test>

    <Custom_test>
      <name>hddcheck</name>
    </Custom_test>

    <Custom_test>
      <name>Keyboard Test</name>
    </Custom_test>

    <Custom_test>
      <name>custom_report</name>
    </Custom_test>

    <Custom_test>
      <name>report</name>
    </Custom_test>

  </Btn>
</root>
```

Examples

WiFi configuration:

AUTH	ENC
WPA WPAPSK	TKIP
WPA2 WPA2PSK	AES
OPEN	NONE WEP
SHARED	WEP

Examples for the Wi-Fi

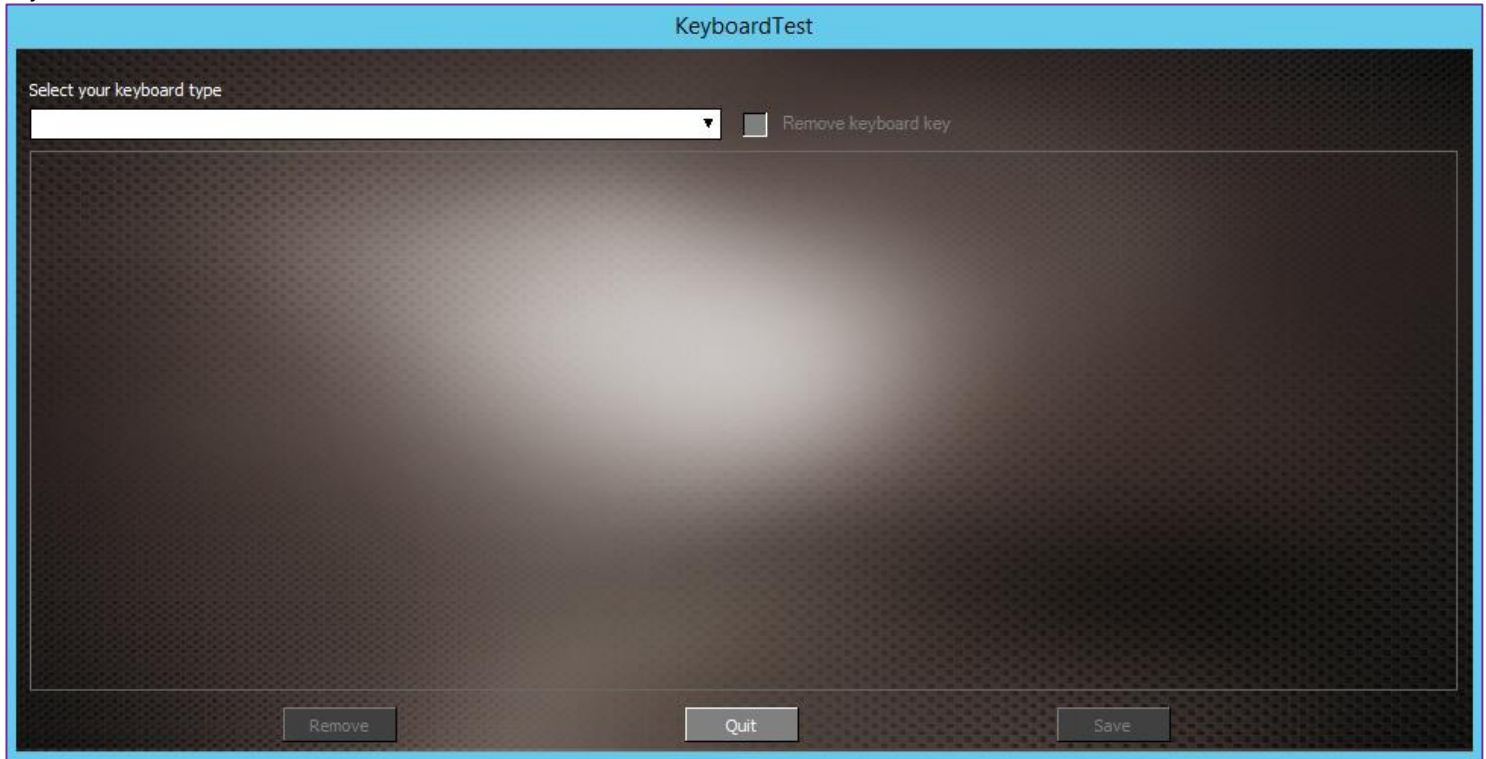
```
<WLAN>
  <TestWlan>on</TestWlan>
  <SSID>TEST</SSID>
</WLAN>
```

```
<WLAN>
  <TestWlan>on</TestWlan>
  <SSID>TEST</SSID>
  <AUTH> WPA2</AUTH>
  <ENC>AES</ENC>
  <KEY>XXXXXXXX</KEY>
</WLAN>
```

```
<WLAN>
  <TestWlan>on</TestWlan>
  <SSID>TEST</SSID>
  <AUTH>open</AUTH>
  <ENC>WEP</ENC>
  <KEY>XXXXXXXX</KEY>
</WLAN>
```

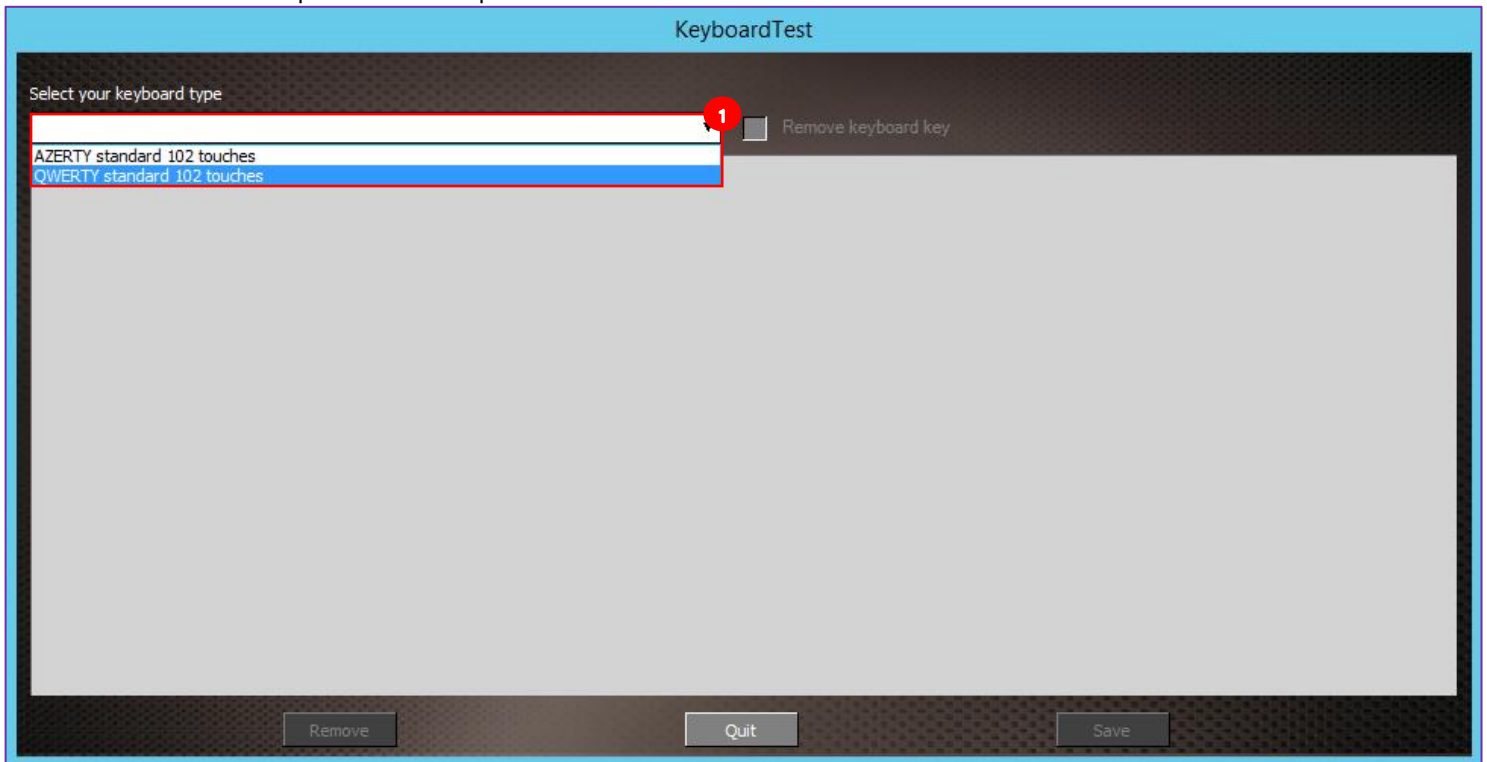
How to manage keyboard layouts for keyboard test

Launch "**KeyboardTest.exe /edition**" to manage the keyboard layouts that are offered when you test the keyboard:

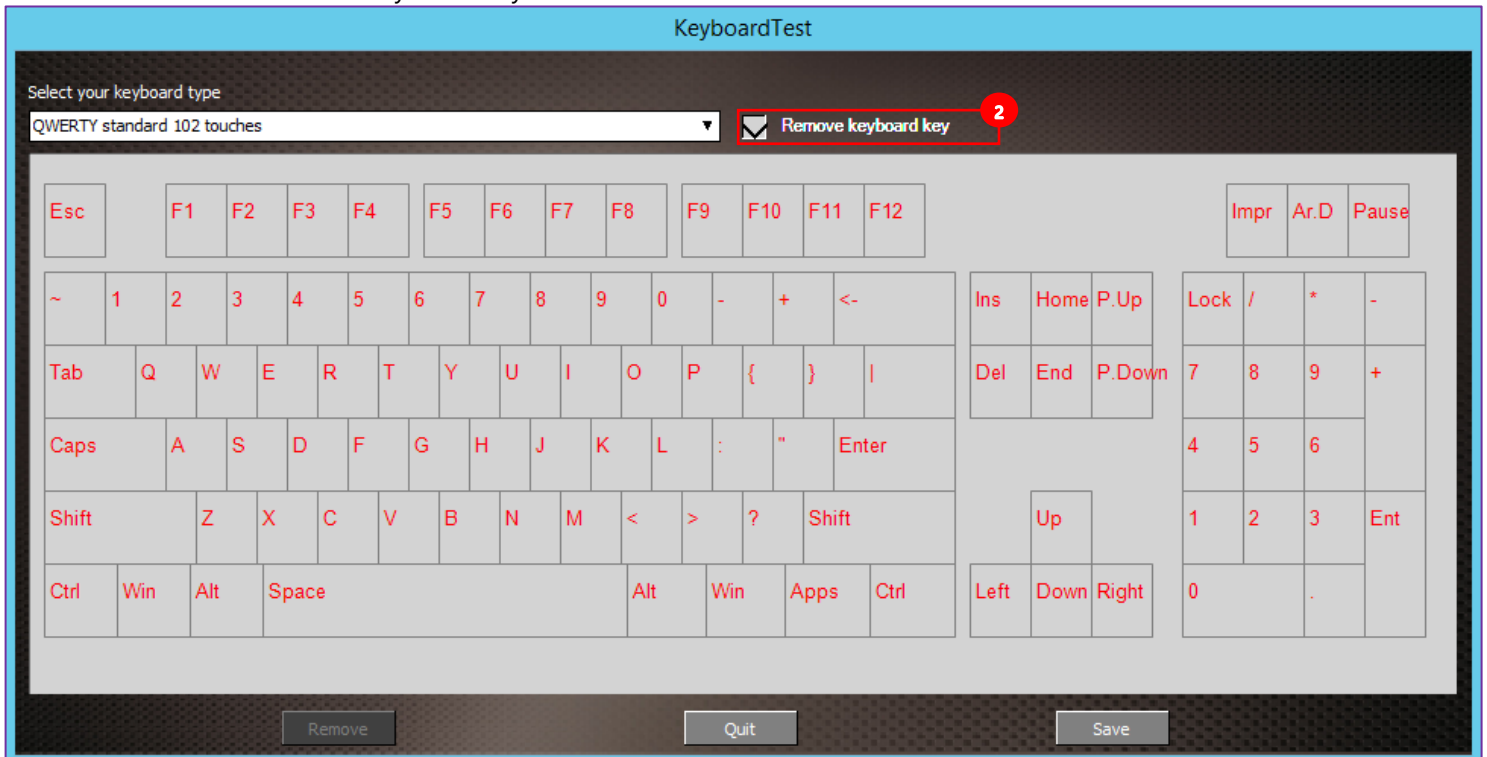


Adding a new keyboard layout

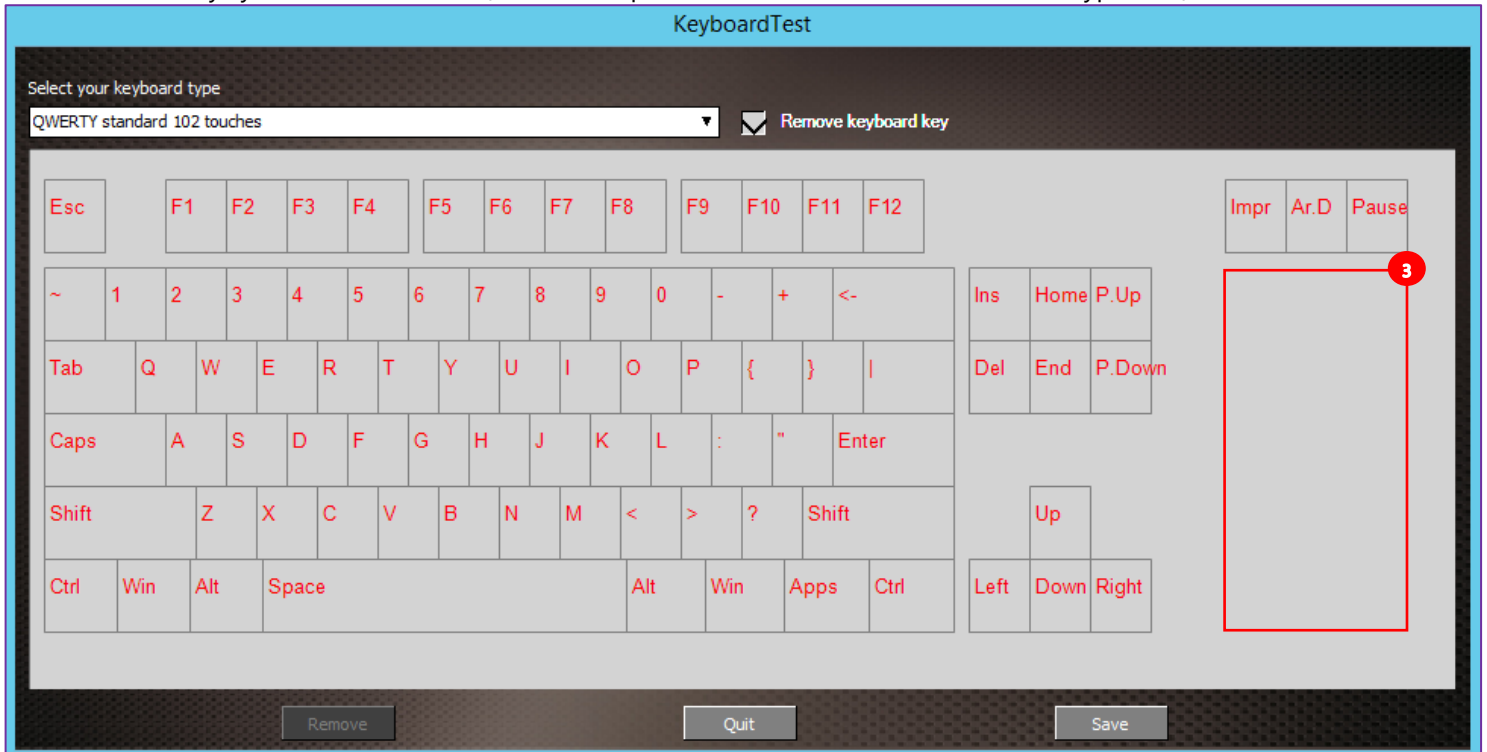
1. Select a pre-defined keyboard layout ("AZERTY standard 102 touches" / "QWERTY standard 102 touches") which will be used as a template in the dropdown list **1**:



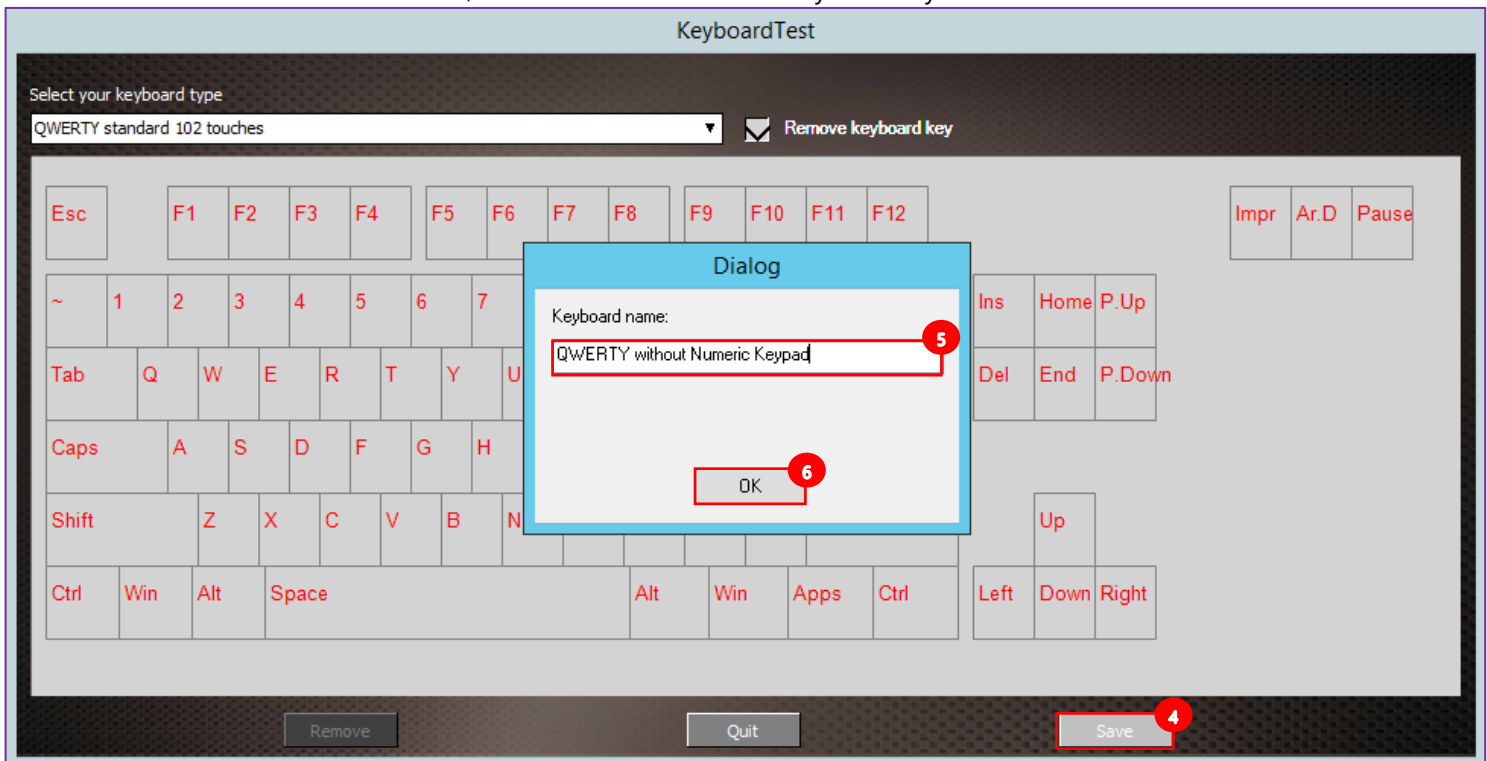
2. Click on the « Remove keyboard key » checkbox **2**:



- Since the pre-defined keyboard layouts contain the maximum number of keys, you will have to click with your mouse on the keys you want to remove (in our example below we removed the Numeric keypad **3**):



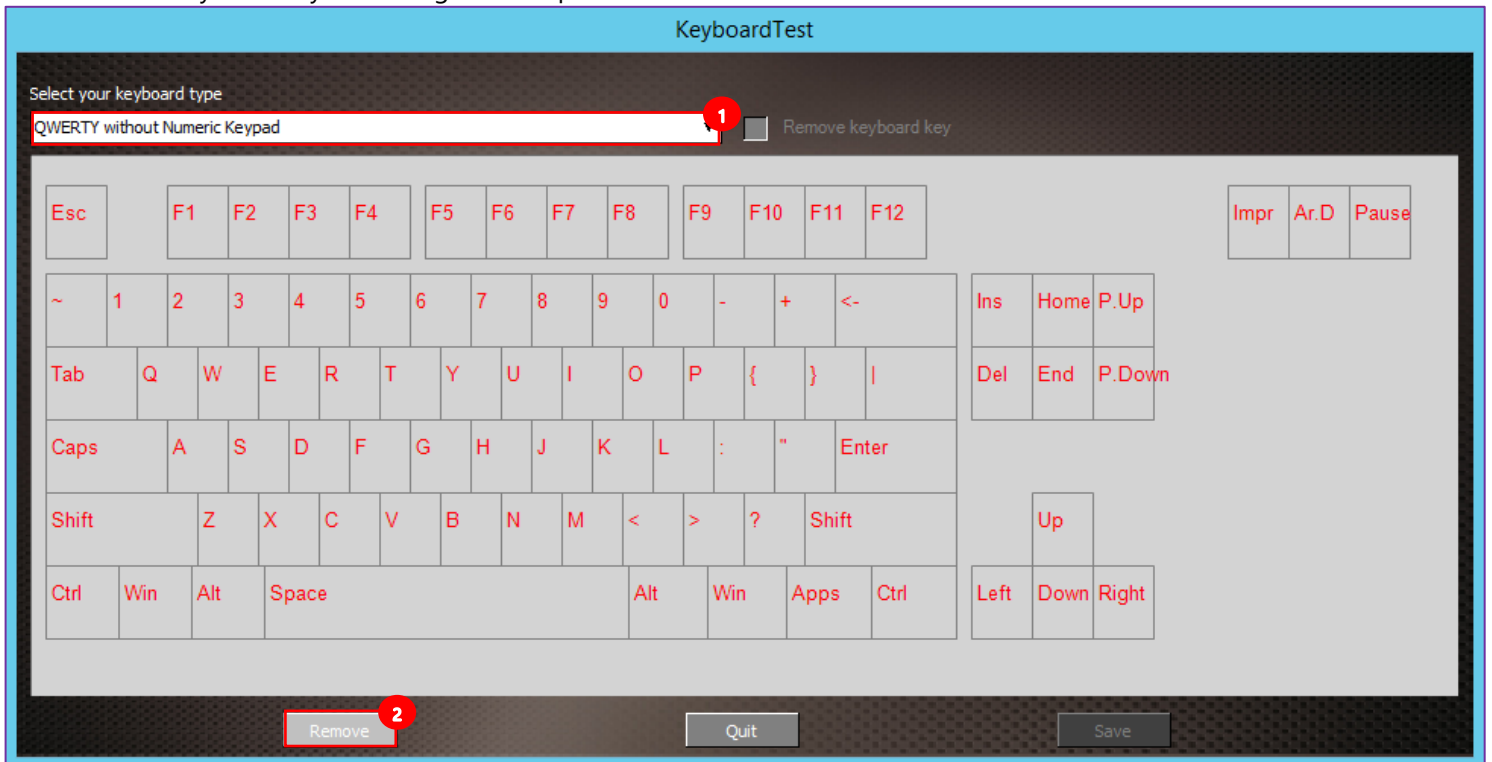
- Click on the « Save » button **4**, enter a name for this new keyboard layout **5** and click on the OK button **6**:



Removing a keyboard layout

You can remove only a keyboard you added (not the predefined ones).

1. Select the keyboard layout through the dropdown list **1**:



2. Click on the "Remove" button **2** at the bottom

Editing a keyboard layout

You cannot edit directly a keyboard layout you added. You have to remove it and then recreate it as described above.

How to setup wipe rack view

You need to adjust the script and configuration files in the following way to activate rack mode view:

1. Adjust SDSShredder module param1 in the script.xml:

```
<Module Id="96" ConfigFile="<NASMAP:.\array_config.ini>" Param1="0x00000422"  
Param2="0x00000000" FullScrn="0"></Module>
```

- a) Add 0x400 to the param1 to activate the rack view
- b) Specify the algorithm to use in param2 as for the standard view

2. Adapt the configuration file array_config.ini (located next to deploy_jukebox.exe) to the rack layout:

```
[Config]
; Default configuration file for a 24 ports bay rack to adapt to the rack layout

; Number of rows
Row=4

; Number of columns
Column=6

; Display bay index number in upper left corner
Show_Bay_Index=1

; Method to retrieve SAS address when a disk is connected through a SAS port
; 0 - Diskpart connector path (Connector index X / path PCIR00T(X)#PCI(Y)#SATA(Z))
; 1 - SCSI path (PortNumber:PathID:TargetID:LUN) - LSI SAS2 HBA (92XX)
; 2 - SCSI path (PortNumber:PathID:TargetID:LUN) - LSI SAS3 HBA (93XX)
; 3 - Full level connector PCI address
HBA_Type=0

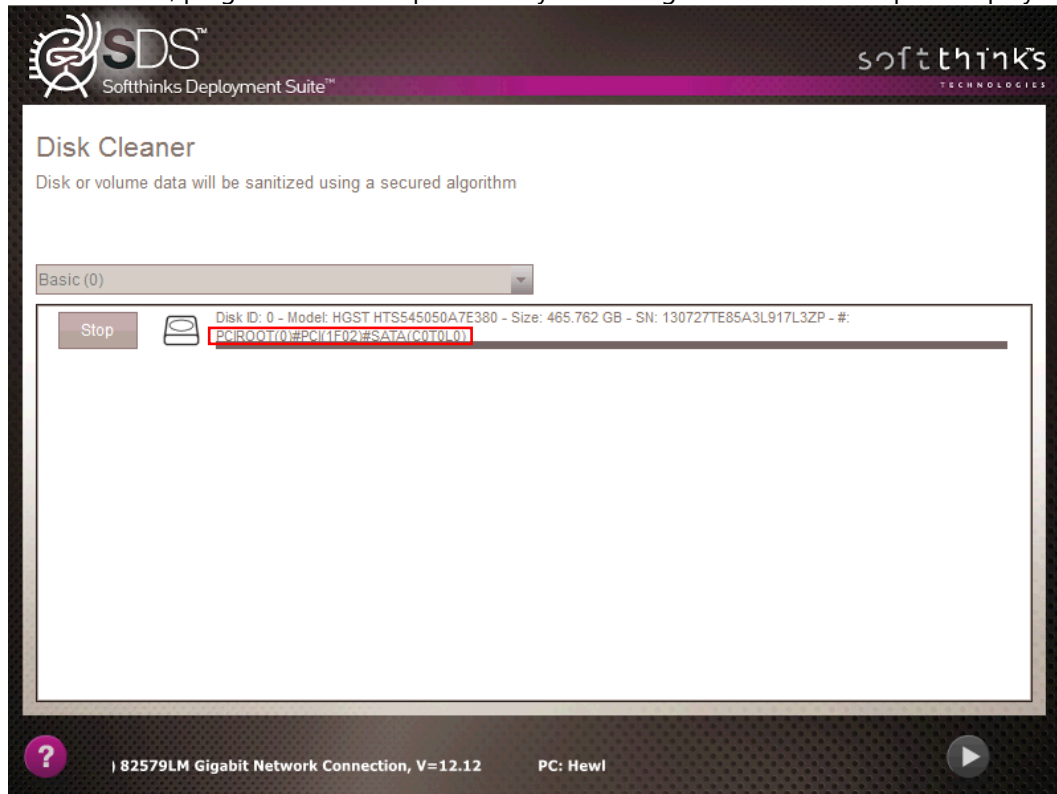
; File use as background bitmap for each disk bay
BackGround=.\bay_background.bmp

; Connectors path: replace each index value by the real connector / sas disk address
Connectors=1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24
; if HBAR_Type=1 or 2: Connectors=1:0:100:0,1:0:101:0,....,
; To use several connector entries, specify the serial number returned by the command
wmic "SELECT SerialNumber FROM Win32_BIOS"
Connectors_<SerialNumber>= 1,2,3,PCIR00T(0)#PCI(1F02)#SATA(C04T00L00),5,6,7,...
```

- a) Set the number of rows and columns (4 and 6 respectively for a 24 bays rack as below):

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24

- b) Configure the connectors: All connector addresses must be filled manually regarding the hardware or the way you plug connectors. So basically you have to find the real connector path or SAS address manually.
- 1) For non SAS cards, you can grab the connector path from SDSShredder classic view or from Diskpart:
 - a. In classic view, plug a disk to each port one by one and grab the connector path displayed:



- b. With DISKPART DETAIL DISK command, grab the Location Path:

```
X:\WINDOWS\SYSTEM32>DISKPART.EXE

Microsoft Diskpart version x.y.zzzz

Copyright (C) 1992-2018 Microsoft Corporation
On computer: <computer name>

DISKPART> SELECT DISK <DISK NUMBER>>

Disk <DISK NUMBER> is now the selected disk.

DISKPART> DETAIL DISK

HGST HTS54505017E380
Disk ID :
Type : SATA
Status : Online
Path : 1
Target : 0
LUN ID : 0
Location Path : PCIR00T(0)#PCI(1F02)#SATA(C0T0L0)
```

Note: USB disk could not be identified by diskpart or third party tool so you need to start shredder module in classic view mode to retrieve connector path

- 2) For SAS cards, you can use a third party tool to dump SAS address. For LSI cards, you can use SAS2 / SAS3 IR Configuration Utility (SAS2IRCU/SAS3IRCU):

```

LSI Corporation SAS2 IR Configuration Utility.
Version 20.00.00.00 (2014.09.18)
Copyright (c) 2008-2014 LSI Corporation. All rights reserved.

  Adapter      Vendor  Device      SubSys  SubSys
  Index      Type      ID      ID      Pci Address      Ven ID  Dev ID
  -----
  0      SAS2008      1000h      72h      00h:03h:00h:00h      1000h  3020h
SAS2IRCU: Utility Completed Successfully.

LSI Corporation SAS2 IR Configuration Utility.
Version 20.00.00.00 (2014.09.18)
Copyright (c) 2008-2014 LSI Corporation. All rights reserved.

Read configuration has been initiated for controller 0
-----
Controller information
-----
Controller type           : SAS2008
BIOS version              : 7.39.02.00
Firmware version         : 20.00.07.00
Channel description      : 1 Serial Attached SCSI
Initiator ID             : 255
Maximum physical devices : 255
Concurrent commands supported : 3432
Slot                     : 32
Segment                  : 0
Bus                       : 3
Device                   : 0
Function                  : 0
RAID Support              : No
-----
IR Volume information
-----
-----
Physical device information
-----
Initiator at ID #255

Device is a Hard disk
Enclosure #               : 1
Slot #                    : 1
SAS Address                : 4433221-1-0200-0000
State                      : Ready (RDY)
Size (in MB)/(in sectors) : 238475/488397167
Manufacturer               : ATA
Model Number               : WDC WD2500JD-22H
Firmware Revision         : 2D08
Serial No                  : WDWMAL71031724
GUID                       : N/A
Protocol                   : SATA
Drive Type                 : SATA_HDD
  
```

```
Device is a Hard disk
Enclosure #           : 1
Slot #               : 4
SAS Address          : 4433221-1-0700-0000
State                : Ready (RDY)
Size (in MB)/(in sectors) : 1907728/3907027054
Manufacturer         : ATA
Model Number        : WDC WD20EFRX-68A
Firmware Revision   : 0A80
Serial No           : WDWC300243776
GUID                : 50014ee058c98893
Protocol            : SATA
Drive Type          : SATA_HDD

Device is a Hard disk
Enclosure #           : 1
Slot #               : 6
SAS Address          : 4433221-1-0500-0000
State                : Ready (RDY)
Size (in MB)/(in sectors) : 476940/976773167
Manufacturer         : ATA
Model Number        : TOSHIBA MK5056GS
Firmware Revision   : 3D
Serial No           : 21LBTk3HT
GUID                : 5000039311505d92
Protocol            : SATA
Drive Type          : SATA_HDD

-----
Enclosure information
-----
Enclosure#           : 1
Logical ID           : 500605b0:01bd1520
Numslots             : 8
StartSlot            : 0
-----
SAS2IRCU: Command DISPLAY Completed Successfully.
SAS2IRCU: Utility Completed Successfully.
```

Note: For each SAS disk, DISKPART is not accurate in reporting valid connector path because they were reused once disk is removed or added. We need for this to talk to HBA SAS card to find real SAS address behind HBA chipset

Here is an example view with mixed disk SATA+USB, you could setup what you need according your hardware. The config file looks like this since there is no HBA SAS card plugged here.

```
Connectors=PCIR00T(0)#PCI(1F02)#SATA(C00T00L00), PCIR00T(0)#PCI(1D00)#USBROOT(0)#USB(1)#USB(3),
3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24
```

With HBA card installed, you need to add the proper SAS address (without dash '-') for each disk bay index separated by comma:

```
Connectors=4433221102000000,4433221107000000,4433221105000000,4,5,6,7,8,9,10,11,12,13,14,15
,16,17,18,19,20,21,22,23,24
```

How to setup the auditing module

You need to create a question file and fill properly IDS strings according to the question specified. The syntax is pretty simple and described below.

Script.xml usage:

```
<Module Id="xxxx" ConfigFile=".\\QuestionDefinition.txt" Param1="0x0" Param2="0x0" FullScrn="0"></Module>
```

param1: 0x1 - Automatically adjusting column size regarding question

param2: N/A

Return Result Code

1 = error

0 = OK

QuestionDefinition.txt syntax:

```
; A question is displayed only if they are not part of conditional choice.
; All questions are displayed in their index order IDS_QUESTION1, then IDS_QUESTION2...
; Question prefixed by ';' in front of the line are commented, and so not displayed
; Questions can contain special characters through XML syntax ('< 5' would become <en-US>&lt;5</en-US>)
; By default, the first answer is selected except if you are forcing it by inserting the index (0 based) of the answer to preselect right after the question (IDS_QUESTION<x>,<preselected index>:...)
; If a question has only one value, it's an edit control. You can make it read-only by prefixing the value by the character 'R' (IDS_QUESTION<x>:R,<IDS_EDIT_CONTROL_VALUE>)
; If a question has several values, it's a combo box. You can make it read-only and specify is this case which is the selected response (IDS_QUESTION<x>:R<y>,<IDS_VALUE_<y>,<IDS_VALUE_<z>)
; %CPU% is a special keyword to replace answer on the fly could be one of the followings:
; Generic: CPU, RAM
; SMBIOS Area 0: BIOS_VENDOR, BIOS_DATE, BIOS_SIZE, BIOS_VERSION
; SMBIOS Area 1: SYSTEM_MANUFACTURER, SYSTEM_PRODUCT, SYSTEM_VERSION, SYSTEM_SERIAL, SYSTEM_UUID, SYSTEM_SKU
; SMBIOS Area 2: BOARD_MANUFACTURER, BOARD_PRODUCT, BOARD_VERSION, BOARD_SERIAL

; Question 1 below is a simple question with 3 choices (3rd one preselected) which doesn't raise any other question:
IDS_QUESTION1,2:IDS_VAL1,IDS_VAL2,IDS_VAL3

; Question 2 below is a 3 choices question (3rd one preselected) which raises 2 other questions (Question3 and Question4) if the 2nd choice (IDS_VAL1) is selected:
IDS_QUESTION2,2:IDS_VAL2,IDS_VAL1=IDS_QUESTION3+IDS_QUESTION4,IDS_VAL3

; Question 3 and 4 below are a 2 choices question (1st one selected) which are displayed only if 2nd choice has been selected for Question 2. Question 4 is a read-only combo box with 2nd choice selected
IDS_QUESTION3,0:IDS_VAL4 ,IDS_VAL5
IDS_QUESTION4:R1,IDS_VAL6, IDS_VAL7

; Question 5 below is a 2 choices question (2nd one preselected) which raises question 4 under question 5 when the 1st choice (IDC_VAL1) is selected
IDS_QUESTION5,1:IDS_VAL1=IDS_QUESTION4,IDS_VAL2

; Questions 6 and 7 are edit controls. Question 7 is read-only
IDS_QUESTION6:%CPU%
IDS_QUESTION7:R,%RAM%
```

How to disable automatic deployment when a profile/preset is matching the system

You can either skip the profile dialog by setting the value `ShowProfileDialog` to 0 in the section `[General1]` of `Deployjb.ini` (See [DeployJB.ini](#)) or you can prevent to search for profiles in a specific folder by modifying the value `SEARCH_MODE` in the section `[General1]` of `SDSProfiles.ini` (See [SDSProfiles.ini](#)).

BurnInTest

BurnInTest Disk Test Suite

This suite contains a number of tests that exercise the mass storage units (hard disk or otherwise) connected to the computer.

These tests can be on the File System (e.g. NTFS disk volume C:) or directly to the physical disk (e.g. physical disk 1, not using a file system like NTFS).

The physical disk test is available on unformatted disks and formatted disks that do not contain Windows installations or paging files.

On WinPE environment, only unformatted disks are supported for the physical disk test.

By default drive C: is used for the hard disk but this can be changed from the Preferences Dialog and up to 50 drives can be selected for simultaneous testing. From this 50 it is possible to select combinations of available floppy disks, hard disks and flash drives.

Drives can be connected via the IDE bus, SATA, eSATA, SCSI, USB, Firewire or any other method supported by Windows.

You can select one of the following test modes or choose to automatically cycle between the patterns. This selection is done in the preferences window. Possible test modes are:

- Default (Cyclic)
- Sequential data pattern (0,1,2...255)
- Random data with random seeking
- High Low frequency data overwrite (10101 then 00001)
- Butterfly seeking
- Binary data pattern 1 (10101010)
- Binary data pattern 2 (01010101)
- Zeros data pattern (00000000)
- Ones data pattern (11111111)
- Random data pattern
- User defined test pattern
- Quick physical drive test
- Physical drive read test

During each test cycle (except Butterfly seeking and Quick physical drive test) a file is created and verified on the disk.

For the physical disk test there is no file system (e.g. NTFS) to write 'visible' files. As such BurnInTest will create 'virtual' files directly to the disk. This will destroy any data on the disk. The physical drive test in general will be much faster than the formatted drive test and provide better results.

The only exception is the Physical drive read test which will only read directly from the physical disk, and hence will not overwrite any data on the disk.

The size of the file is equal to a certain percentage of the disks capacity and all files are created in the root directory of the drives selected. The default file size is 1.0% of the disk size. For small capacity drives, like floppy disks, there is a minimum file size of 32KB. It is possible to change the default file size percentage from the preferences window.

Each test file is filled with a coded number sequence (a Pattern) that is used to verify the correct operation of the disk when the file is verified (read). Files are created in the free space on the disk until the disk is at least 94%* full (we'll refer to this as the 'full' level). When the disk has reached this limit, all the test files are deleted and the test starts again.

(*) 94% is used on disks that have a swap file or a Windows directory. A limit of 94% is used to ensure that some space is kept for use by other applications (including the windows swap file). On disks that do not have a swap file or a Windows directory, between 99.5% and 100% of the disk will be used.

A number of test modes perform additional testing to that described above. These are described below:

Random data with Random seeking consists of 2 repeating steps, (1) Writing, reading and verifying a test file with random data and (2) Seeking two random locations in the test files and reading or writing data blocks at this location.

(1) BurnInTest generates 7 unique blocks of random data for each disk under test (the block size is determined by the User preferences settings e.g. 16KB). BurnInTest sequentially writes a file using the first block of random data, followed by the second, third, fourth, fifth, sixth and seventh and then the first etc, until the file size specified is reached (e.g. 0.1% of the disk size). After writing this test file with the random test data, the data is read sequentially and verified against the test data written.

(2) Following the writing and verifying of each file, the random seek part of the test starts. BurnInTest will select a test file at random (1..n, where n is the number of the test file that has already been written to disk). It will then select a random block within that test file (i.e. an offset into the file of, block number x block size, eg. 10 * 16KB = 160KB). BurnInTest will seek to this position in the test file and take an action. BurnInTest, at random, will either (i) read and verify a block at this position in the file or (ii) write a block at this position in the file. This process is repeated the number of times specified by the user in the disk preferences "seek count" field.

Steps (1) and (2) are repeated until the disk full level is reached. At this point, all the test files written to disk will be deleted and the process will be repeated.

The Random seeking mode is not supported when the Raw disk test mode is selected.

High Low frequency data overwrite works by first writing a file with a high frequency pattern with each byte set to 0xAA (1010 1010 1010 1010...), then overwriting this with a low frequency pattern 0x08 0x42 0x10 0x84 0x21 (1000 0100 0010 0001 0000 1000 0100 0010 0001) and then verifying that the low frequency pattern has been fully and correctly written. Note: This test pattern will write more data than it reads/verifies, this is the reason the MB Written and MB verified shown on the disk test window may not be equal.

Butterfly seeking works by detecting the hard disk geometry (number of cylinders etc) and then seeking between cylinder 0 and cylinder X and back to cylinder 0. This is repeated the user specified 'seek count' times, before X is incremented by 1. This is repeated until the last cylinder on the Volume is reached. The number of operations reported refers to the number of combined Seek/Read operations.

Note: (1) that this test is only supported in Windows XP and above on non-Floppy, non-optical drives.

(2) Performing a seek in many cases does not move the disk driver head, to ensure the disk drive head is moved to the seek position, a small read (of the Sector size) is done at each seek position. Also, incremental offsets of the sector size are used for the 'X' seek and the return to '0' seek, to ensure that the disk drive cache is overflowed and physical disk seeks consistently occur (once the disk cache has overflowed).

- (3) Disk drive geometry may be faked or translated by hard disks/device drivers and may not be the actual drive geometry.
- (4) The Cylinders, track and sector size used are typically logical values provided by the hard disk.
- (5) Up to 8 different physical extents per Volume (or Drive letter) are supported in the butterfly seeking test.
- (6) As with other disk tests, if a physical disk is partitioned into multiple volumes (drives) and testing is simultaneously carried out on these volumes, the nature of the test will change. In the case of Butterfly seeking, the movement of the physical disk drive head will not reflect butterfly seeking, but something between butterfly seeking and random seeking, as the seeks for volume 1 go from its logical cylinder 0 to X and the seeks for volume 2 go from its logical cylinder 0 to Y are mixed in time.
- (7) Some disk drive device drivers do not support the supply of disk geometry information that is needed for this test.
- (8) The Raw disk test option does not support the Butterfly seeking test mode and will be skipped. Error reporting may be configured not to report "Butterfly seeking test not supported for this disk" errors. This can be achieved by editing the Error Classifications file (BITErrorClassifications.txt) for Error Number 160 to NONE. For example, changing the line from:
- ```
160,"Butterfly seeking test not supported for this disk", INFORMATION,
to
160,"Butterfly seeking test not supported for this disk", NONE,
```
- The default setting is to cycle between the patterns. In this case a new pattern will be selected each time the disk has reached the BurnInTest 'full' level. Where the disk drive is a floppy, CD, DVD, or the operating system is Vista (and later) and the user is not running BurnInTest with 'elevated' administrator privileges, then Butterfly seeking will be skipped in the Cyclic testing and a log message reported.

The Quick physical drive test works by writing, reading and verifying virtual test files to the start of the disk, the end of the disk and a random selection in between. This provides for much quicker disk testing.

The Physical disk read test, tests that all sectors on the physical disk can be read. This can be useful for a number of reasons including testing that a disk is the size that it reports it is (we have seen disks and USB Flash Drives that have this issue).

You can chose to log SMART (Self-Monitoring Analysis and Reporting Technology) errors.

Each of the following settings: Slow drive warning threshold, File size, Test pattern and the logging of SMART errors may be configured differently for each disk drive. The disk drive Duty Cycle setting will be used for all drives when the Duty Cycle Override entry is set blank (no value). If a different duty cycle is required for a particular disk drive, a value may be entered in the Duty Cycle Override entry.

The following settings can be configured differently for each drive: Slow drive warning threshold, File size, Test Pattern and Log SMART errors. To use the general disk drive Duty cycle for each disk just set the Duty Cycle override value to blank (no value), otherwise set the required value per disk. If an error is detected in the coded number sequence then the error count is incremented. The numbers of bytes written and read from the disk are displayed in the test window. The addition of these two values is displayed in the main window.



### BurnInTest Disk Self-Test

The Disk Self-Test (DST) is a set of built-in routines implemented by the vendor to perform failure diagnostics on the disk. The execution of the DST and the retrieval of the test results are defined by the ATA industry standard. Most drives that conform to this standard implements this set of built-in routines.

If the "SMART" option is selected for the disk test, then the DST is run before the standard BurnInTest disk test. If the "-f" command line parameter is also specified, then an extended disk self-test is also run. If the DST is not supported by the disk, a message will be logged and the DST skipped.

Disclaimer: It has been observed that some drives that claim to support the Disk Self-Test (DST) standard do not in fact fully support the specification. Some drives report the percentage progress incorrectly, and some drives report their status incorrectly.

## BurnInTest CPU test

The CPU test exercises and verifies a wide range of CPU instructions, at user specified loads. The user selectable sub-categories of the CPU test are:

General purpose instructions (x86) Floating Point Unit (FPU) instructions (x87) CPU extension instructions (x86 extensions).

The specific extension instructions may be selected:

MMX, 3DNow!, SSE, SSE2, SSE3, SSE4.1, SSE4.2 and SSE4a.

Prime number test

Maximum heat test

The numbers displayed in the test window for this test represent how many millions of CPU operations have been performed and verified. Each different CPU test is run for half a second. After all tests have been run the cycle count is incremented. The duty cycle and the CPU speed determine how many operations can be processed during the half second period. Note however that if only the Maximum heat test is selected, then the duty cycle is set to 100% and a single cycle is defined to be 1 trillion CPU operations.

By default, a CPU test is run on each CPU core. The number of CPU tests running a particular subcategory is shown in the test window in the "Threads" column.

The number of CPUs (Packages x cores x threads) that can be tested is up to 256 (where supported by the Operating System). That is, CPUs across multiple "processor groups" can be tested (see Note 2 below).

It is possible to raise an error on a user defined CPU temperature threshold being exceeded. It is also possible to automatically stop testing in this scenario.

The sub-categories of this test are described below:

- General purpose instructions: This test exercises and verifies correct operation of CPU instructions from the following groups: Integer mathematics (e.g. add, subtract, multiply and divide)
- Data transfer instructions (e.g. pushing/popping data to/from the stack)
- Bitwise logical instructions (e.g. bitwise and/or/xor) Shift and rotate instructions (e.g. shift data left x number of bits) Logical instructions (e.g. equals)
- Control transfer instructions (e.g. jump on x greater than y)
- String instructions (eg. copy a text string)

Known and random data sets are used to exercise and verify correct operation. On 32-bit systems, 32-bit data sets are used. On 64-bit systems, 64-bit data sets are used. The random numbers are generated regularly to provide a larger data set, as well as ensure that the CPU caches overflow and that this mechanism is tested.

Floating Point Unit (FPU) instructions:

This test exercises and verifies correct operation of CPU instructions from the following groups:

- Floating Point math (e.g. add, subtract, multiply and divide)
- Transcendentals (e.g. sine, cosine)
- Load constants (e.g. load Pi)

Known and random data sets are used to exercise and verify correct operation. On 32-bit systems, 32-bit floating point data sets are used. On 64-bit systems, 64-bit floating point data sets are used. The random numbers are generated regularly to provide a larger data set, as well as ensure that the CPU caches overflow and that this mechanism is tested.

#### Extension instructions (x86 extensions):

This test exercises extensions to the x86 CPU instruction set for a variety of applications, such as multimedia.

!: This test exercises and verifies correct operation of CPU 3DNow! instructions, including a sample of moving 3DNow! registers, adding, subtracting, and multiplying. Known and random data sets are used to exercise and verify correct operation. Data sets are pairs of 32-bit floats (eg. x,y), where x and y are 32-bit floats.

MMX: As above, but for MMX instructions. Instructions include moving MMX registers, adding, subtracting, and multiplying.

Data set: 64-bit data sets are used. SSE : As above, but for SSE instructions. Instructions include moving SSE registers, adding, subtracting, and multiplying.

Data set: groups of 4 x 32-bit floats (e.g. a,b,c,d) where a,b,c and d are 32-bit floats.

SSE2: As for the SSE test, but for SSE2 instructions. Data set: pairs of 64-bit floats (e.g. x,y) where x,y are 64-bit floats.

SSE3: As for the SSE2 test, but for SSE3 instructions. Data set: pairs of 64-bit floats.

SSE4.1: As for the SSE3 test, but for SSE4.1. Instructions include a sample of moving registers and multiplication. Data set: pairs of 64-bit integers.

SSE4.2: As for the SSE4.1 test, but for SSE4.2 instructions. Instructions include CRC helper functions. Data set: pairs of 32-bit integers.

SSE4a: As for the SSE4.1 test, but for SSE4.a instructions. Instructions include data extraction functions. Data set: pairs of 64-bit unsigned integers.

AES: A test using the AES instructions.

#### Notes:

1. MMX stand for "Multimedia Extensions".
2. SSE stand for "Streaming SIMD extensions".
3. SIMD stands for "Single Instruction Multiple Data."
4. Tests are only performed if the CPU supports that test. For example, SSE3 tests will only be performed if the CPU supports SSE3.
5. Known and random data sets are used to exercise and verify correct operation
6. The random test data is generated regularly to provide a larger data set, as well as ensure that the CPU caches overflow and that this mechanism is tested.
7. AES stands for Advanced Encryption Standard.

#### Prime number:

This test exercises and verifies correct operation of CPU through the use of a prime number generation algorithm.

#### Maximum heat:

Based on PassMark Software testing of a set of CPU algorithms for different systems, a test has been produced that aims to generate the highest CPU temperature possible by BurnInTest. This test is aimed at checking that the cooling system is capable of doing its job with the system CPU under extreme load, especially when the CPU has been overclocked.

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Notes:

(1) Some CPU operation tests are only supported in the 32-bit version of BurnInTest. These are: 3DNow!, MMX, Push/Pop stack operations, Transcendental's and Load constants.

(2) A normal software application only has access to a single "processor group". BurnInTest has been designed to test CPUs across multiple processor groups and hence test more than 64 logical processors. For more information on a "processor groups" see Microsoft's website, an extract is included below:

"The 64-bit versions of Windows 7 and Windows Server 2008 R2 support more than 64 logical processors on a single computer. This functionality is not available on 32-bit versions of Windows. Systems with more than one physical processor or systems with physical processors that have multiple cores provide the operating system with multiple logical processors. A logical processor is one logical computing engine from the perspective of the operating system, application or driver. A core is one processor unit, which can consist of one or more logical processors. A physical processor can consist of one or more cores. A physical processor is the same as a processor package, a socket, or a CPU.

Support for systems that have more than 64 logical processors is based on the concept of a processor group, which is a static set of up to 64 logical processors that is treated as a single scheduling entity. Processor groups are numbered starting with 0. Systems with fewer than 64 logical processors always have a single group, Group 0."

## BurnInTest Memory Test

The Memory test, tests the reliability of the RAM installed in the computer. As BurnInTest runs within windows some of the available RAM is being used by windows and any other applications running. Any memory that is not already in active use will be tested by the Memory test.

The Memory test works by writing a pattern numbers in the RAM, then verifying the numbers read from the RAM match this sequence. The pattern used can change automatically from one cycle to the next.

Possible test patterns are,

1. Sequence (0,1,2...)
2. Binary 1 (10101010...)
3. Binary 2 (01010101...)
4. Zeros (00000000...)
5. Ones (11111111...)
6. Cell adjacency test

The Test pattern may be selected to be one of the above test patterns. Alternatively, the default (Cyclic) setting will cycle through each of the test patterns.

The total amount of free RAM is displayed in the Memory Test Window. Some memory is always left available to avoid Out of Memory Errors, and disk thrashing caused by Windows swapping to disk. The MBs Written and MBs Verified fields on the Memory Test Window are cumulative since the start of the test and can be greater than the size of the installed RAM.

For the Memory test, a cycle is defined to be the number of times the above 3 step sequence is completed. The 'operations' count represents the number of bytes read or written.

It should be noted that not all RAM faults will be detected by this test. This is especially the case if Windows or the Windows cache is using a large proportion of the available RAM. RAM faults may show up as system crashes or disk errors however. RAM fault detection is improved by running a RAM pretest, available with the Standard memory test. See RAM test preferences.

How the tests work:

There are 3 steps that the Sequence, Binary 1, Binary 2, Zeros, and Ones (11111111...) tests goes through. These are:

- 1/ Memory allocation. The test will dynamically allocate and release memory depending on how much is currently available. The amount that has been allocated and is under test is displayed in the Test Ram field.
- 2/ Writing the test data from the low address to the high address.
- 3/ Verifying the test data from the low address to the high address.

The Cell adjacency test aims to find the RAM problem of adjacent memory cells being incorrectly changed when writes occur to a memory cell. A known 8-bit data pattern is written to memory from the high address range to the low address range. Then starting at the low address and testing towards the high address, each byte is checked that it was not altered by an adjacent write in the previous writing of memory and a new 8-bit data pattern is written. A final pass is then made starting at the high address and testing towards the low address, with each byte is checked that it was not altered by an adjacent write in the previous writing of memory.

- **Standard memory test**

The standard memory is the normal test for testing memory. See the description in the RAM test preferences window for more details.

- **Torture test (Memory over-allocation & disk swapping test) (BurnInTest Professional only)**

The torture test is a multi-process memory test. Multiple processes are started in their own virtual address space and each process allocates and tests a block of RAM. This avoids the problem of virtual memory fragmentation which the standard test can experience trying to allocate a single large block of RAM. Each process runs asynchronously, so writing and reading of various memory blocks will take place at the same time in different processes. The other advantage over the standard test is the possibility to over-allocate the RAM. (The standard test attempts to prevent this to avoid disk swapping). Over-allocation takes place when more RAM is used by the torture test than is currently available in the system. This then results in Windows disk swapping memory blocks into a paging file on the disk. This continual swapping to and from the disk places a very heavy load on the system. The I/O activity on the disk will increase dramatically but CPU load can actually decrease as more and

more time is spent waiting for the paging activity to complete. Depending on the level of over-allocation Windows may need to extend the paging file or may even fail as it runs out of available RAM.

- ***Addressing Windows Extension (AWE) memory test (32-bit BurnInTest Professional only)***

The Addressing Windows Extension (AWE) memory test allows a larger area of memory to be tested on 32-bit versions of Windows. It requires some additional administrator user rights. It will also only work in Window XP. See the description in the RAM test preferences window for more details. The advanced memory test is only available in the Professional version of the software.

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