

SIEMENS

Ingenuity for life

Industry Online Support

Home

Backing up and restoring SIMATIC IPCs

SIMATIC IPC Image & Partition Creator V3.6

<https://support.industry.siemens.com/cs/ww/en/view/109756568>

Siemens
Industry
Online
Support



Legal information

Use of application examples

Application examples illustrate the solution of automation tasks through an interaction of several components in the form of text, graphics and/or software modules. The application examples are a free service by Siemens AG and/or a subsidiary of Siemens AG ("Siemens"). They are non-binding and make no claim to completeness or functionality regarding configuration and equipment. The application examples merely offer help with typical tasks; they do not constitute customer-specific solutions. You yourself are responsible for the proper and safe operation of the products in accordance with applicable regulations and must also check the function of the respective application example and customize it for your system.

Siemens grants you the non-exclusive, non-sublicensable and non-transferable right to have the application examples used by technically trained personnel. Any change to the application examples is your responsibility. Sharing the application examples with third parties or copying the application examples or excerpts thereof is permitted only in combination with your own products. The application examples are not required to undergo the customary tests and quality inspections of a chargeable product; they may have functional and performance defects as well as errors. It is your responsibility to use them in such a manner that any malfunctions that may occur do not result in property damage or injury to persons.

Disclaimer of liability

Siemens shall not assume any liability, for any legal reason whatsoever, including, without limitation, liability for the usability, availability, completeness and freedom from defects of the application examples as well as for related information, configuration and performance data and any damage caused thereby. This shall not apply in cases of mandatory liability, for example under the German Product Liability Act, or in cases of intent, gross negligence, or culpable loss of life, bodily injury or damage to health, non-compliance with a guarantee, fraudulent non-disclosure of a defect, or culpable breach of material contractual obligations. Claims for damages arising from a breach of material contractual obligations shall however be limited to the foreseeable damage typical of the type of agreement, unless liability arises from intent or gross negligence or is based on loss of life, bodily injury or damage to health. The foregoing provisions do not imply any change in the burden of proof to your detriment. You shall indemnify Siemens against existing or future claims of third parties in this connection except where Siemens is mandatorily liable.

By using the application examples you acknowledge that Siemens cannot be held liable for any damage beyond the liability provisions described.

Other information

Siemens reserves the right to make changes to the application examples at any time without notice. In case of discrepancies between the suggestions in the application examples and other Siemens publications such as catalogs, the content of the other documentation shall have precedence.

The Siemens terms of use (<https://support.industry.siemens.com>) shall also apply.

Security information

Siemens provides products and solutions with Industrial Security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the Internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit

<https://www.siemens.com/industrialsecurity>.

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed at:

<https://www.siemens.com/industrialsecurity>.

Table of contents

Legal information	2
1 Introduction	4
1.1 Overview	4
1.2 Overview and functionality of the backup variants	5
1.3 Components used.....	8
2 Engineering	9
2.1 Booting a storage medium when starting a SIMATIC IPC	9
2.2 Backing up and restoring hard disks and drives.....	11
2.2.1 Create a backup archive.....	11
2.2.2 Restore a backup.....	15
2.3 Using an old backup archive	21
2.3.1 New storage format ".pVHD"	21
2.3.2 Restore an old backup archive in *.pbf format	21
2.4 Using the technician's USB storage drive	24
2.4.1 Create a technician's USB storage drive.....	24
2.4.2 Create and restore a backup with the technician's USB storage drive	28
Explanation of the configuration screen	32
2.5 Using the end customer drive.....	34
2.5.1 Creating an end customer drive	34
2.5.2 Restore a device-specific backup with the end customer drive	40
2.6 Creating and configuring a 1ClickImage backup	43
2.6.1 Install the Paragon Hard Disk Manager 17 Suite	43
2.6.2 Install 1ClickImage.....	45
2.6.3 Configure and generate 1ClickImage	46
2.6.4 Restore a backup created with 1ClickImage	49
3 Appendix.....	51
3.1 Service and support.....	51
3.2 Links and literature	52
3.3 Change documentation	52

1 Introduction

1.1 Overview

Motivation

The SIMATIC IPC Image & Partition Creator is a backup and hard disk management tool.

With this software you can:

- modify systems,
- back up systems, and
- restore systems.

With this tool you can back up complete systems or individual partitions of systems. In this way you can prevent the loss of important data.

More information on SIMATIC IPC Image & Partition Creator can be obtained at the link <https://support.industry.siemens.com/cs/ww/en/view/109781271>.

Task

The aim of this application example is to demonstrate the various options for backing up systems using SIMATIC IPC Image & Partition Creator.

This document shows you the different types of backup. This allows you to choose the appropriate backup type for your system.

Applicative implementation

This document provides you with instructions that describe various backup variants. The focus of this manual is the backup of data on a SIMATIC IPC.

Note

SIMATIC IPC Image & Partition Creator is only permitted for use with Siemens hardware.

Screenshots and instructions will guide you step by step through creating and restoring the backup archives.

1.2 Overview and functionality of the backup variants

This section shows you the special features of the different backup variants and backup media that you can create with SIMATIC IPC Image & Partition Creator. In this you can get an overview of the topic and choose the right backup type for your use case.

SIMATIC IPC Image & Partition Creator software on USB storage drive

The SIMATIC IPC Image & Partition Creator V3.6 software is delivered on a bootable USB flash drive or via OSD (Online Software Delivery) as a download.

In the downloadable version, the user creates a bootable USB storage drive. Information on this topic can be found in the download or at the following link:

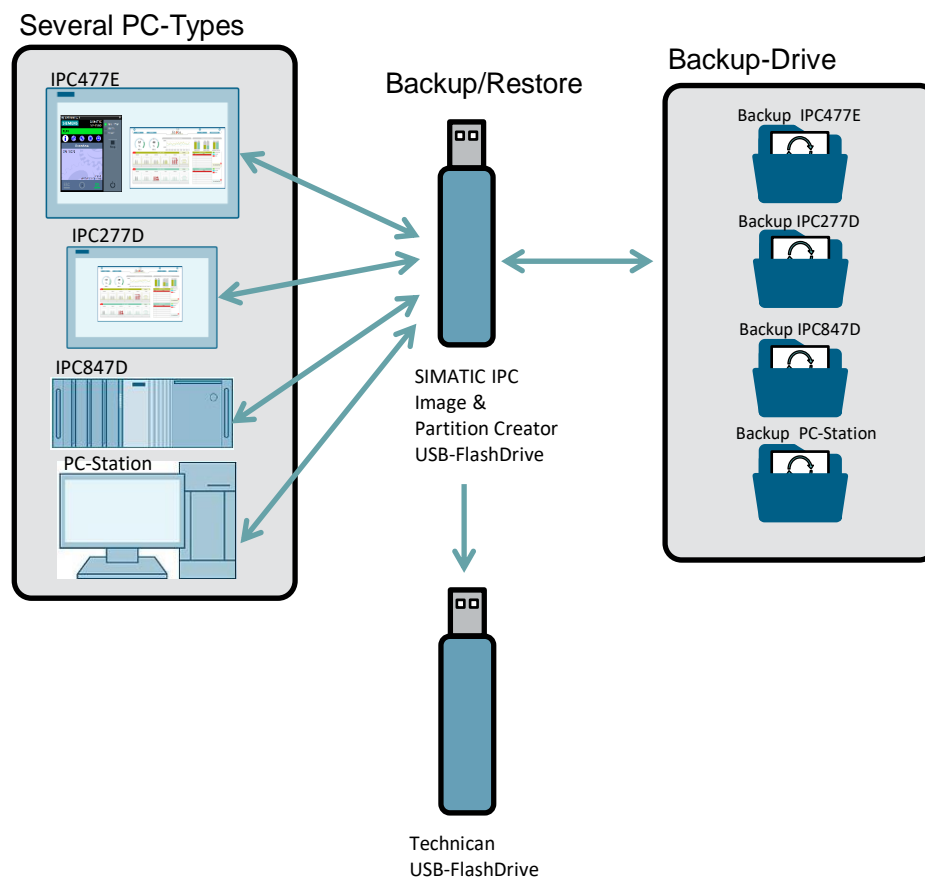
<https://support.industry.siemens.com/cs/ww/en/view/109807263>.

An advantage of the bootable USB storage drive is that no software has to be installed on the respective SIMATIC IPC to back up or restore data. In addition, the operating system of the SIMATIC IPC is not started up if this is the case. This allows you to back up data that may not be accessible to a running operating system.

The SIMATIC IPC Image & Partition Creator V3.6 software allows you to

- back up and restore individual partitions and drives,
- create a password-protected "technician's" USB storage drive,
- and create an end-customer restore USB drive (end customer drive).

Figure 1-1

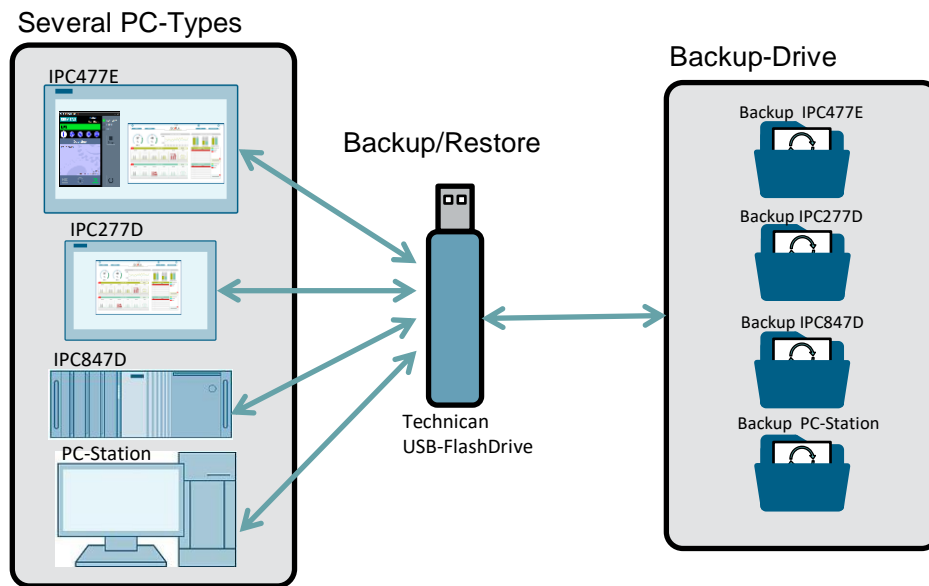


The technician's USB storage drive

The technician's USB storage drive offers the same backup and restore feature set as the SIMATIC IPC Image & Partition Creator USB storage drive. You also have the option of securing the USB storage drive with a password before it can be used. In this way, only authorized employees can work with it.

Using the technician's USB storage drive, backups can be configured, generated and restored in an intuitive user interface. It also offers the ability to create an end customer drive from a backup archive.

Figure 1-2

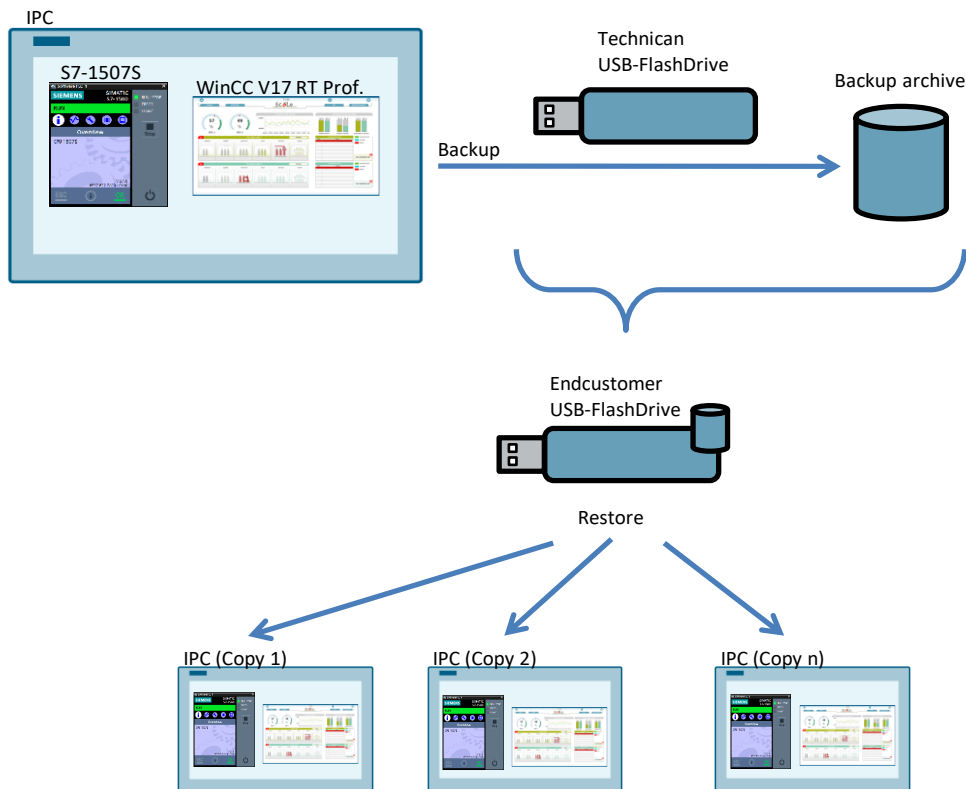


End customer USB storage drive

The end customer USB storage drive is an IPC-specific USB storage drive for restoring the system. It contains a configurable and customized backup archive. Restoring a backup archive for a device can be locked with the item number and/or the serial number of the device. In this way you can ensure that the backup archive can only be restored on IPCs of a specific device type (item number) or on a specific device (serial number).

With the end customer drive, you can restore the system of a SIMATIC IPC directly from the USB storage drive. You can find additional information on this in chapter [2.5.2](#).

Figure 1-3



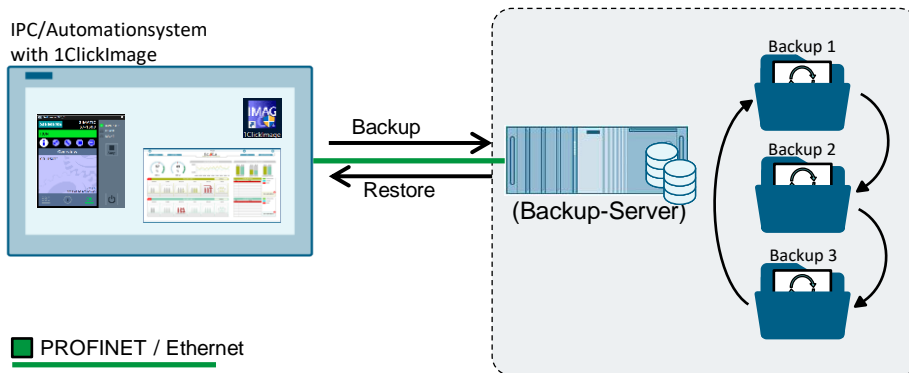
1ClickImage backup

Using this backup procedure for Microsoft Windows operating systems, you can create a backup of your system while the system is in operation. This procedure configures the settings of the backup beforehand. The backup can be:

- triggered with a click,
- performed cyclically with the Windows Task Scheduler,
- and performed with limited technical knowledge.

To use 1ClickImage backup, install SIMATIC IPC Image & Partition Creator and the Paragon Hard Disk Manager Suite 17 on the SIMATIC IPC in question.

Figure 1-4



© Siemens AG 2022. All rights reserved

1.3 Components used

The following hardware and software components were used to create this application example:

Software and hardware used:

Table 1-1

Components	Quantity	Item number	Note
SIMATIC IPC Image & Partition Creator	1	6ES7648-6AA13-6YA0	V3.6
SIMATIC IPC 477E	1	6AV7241-7LH44-0FA0	
SIMATIC IPC 277E	1	6AV7882-0CB30-0CA0	
USB flash drive	1	-	1 GB, technician's USB flash drive
USB flash drive	1	6AV6881-0AS42-0AA0	32 GB, end customer USB flash drive

Note

A version/license of SIMATIC IPC Image & Partition Creator will be needed for each IPC.

Example: Using the technician's USB storage drive on 10 IPCs

If working with a technician's USB storage drive on 10 IPCs, a version/license of SIMATIC IPC Image & Partition Creator is required for each of the 10 IPCs.

2 Engineering

2.1 Booting a storage medium when starting a SIMATIC IPC

This section explains how to start up a SIMATIC IPC from a bootable medium (USB storage drive). This knowledge is a fundamental requirement for backing up and restoring systems.

Note

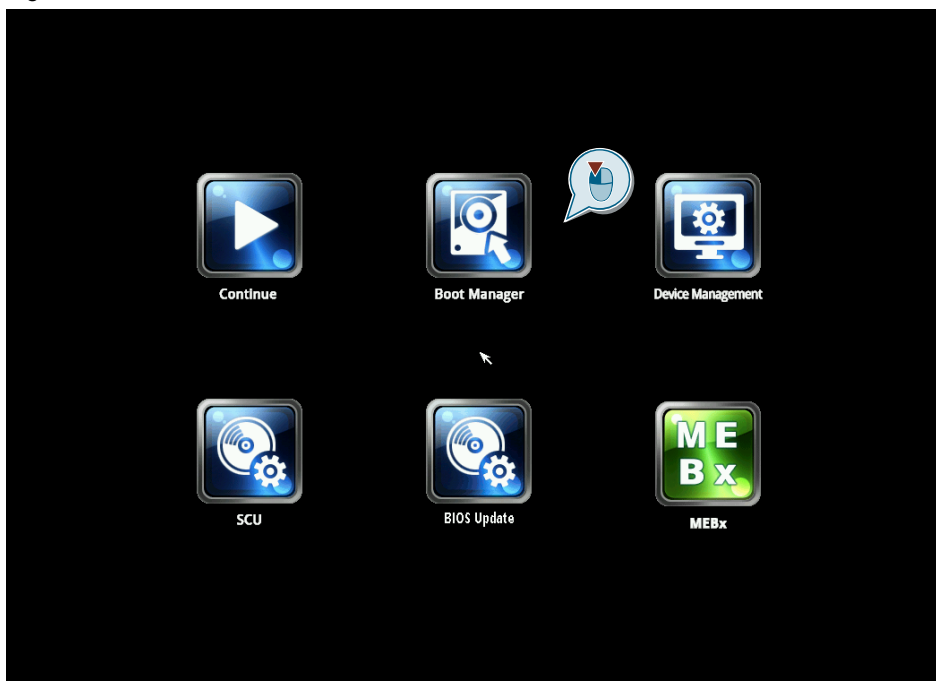
To open the BIOS settings, a key on the keyboard (e.g. ESC) must be pressed during the boot process.

Depending on the SIMATIC IPC, this requires the connection of a USB keyboard.

Further information on how to access the BIOS settings of a SIMATIC IPC can be found in the device manual of the respective SIMATIC IPC.

1. Make sure that the boot option of the IPC for USB storage drives is set to "Enabled".
2. Connect a bootable medium with your SIMATIC IPC.
3. Restart your computer.
4. When the SIMATIC IPC starts up, a screen with the Siemens logo appears. While this screen is visible, press the <Esc> key. You will be directed to the [BIOS selection menu](#).
5. Use the keyboard to select the Boot Manager. Press the <Enter> key to launch the Boot Manager. Depending on the SIMATIC IPC, you can also use a mouse instead of the keyboard.

Figure 2-1



6. In the Boot Manager you will see an overview of the bootable media. Use the keyboard to select the medium you wish to boot from. Confirm your selection with the <Enter> key.

Note

The SIMATIC IPC will immediately boot from the selected medium once the Enter key is pressed.

If your SIMATIC IPC has both "EFI Boot Devices" and "Legacy USB", select the option "EFI Boot Device".

Figure 2-2



Result

You have successfully booted from the desired medium. The software stored on the boot medium is then executed.

2.2 Backing up and restoring hard disks and drives

SIMATIC IPC Image & Partition Creator allows you to

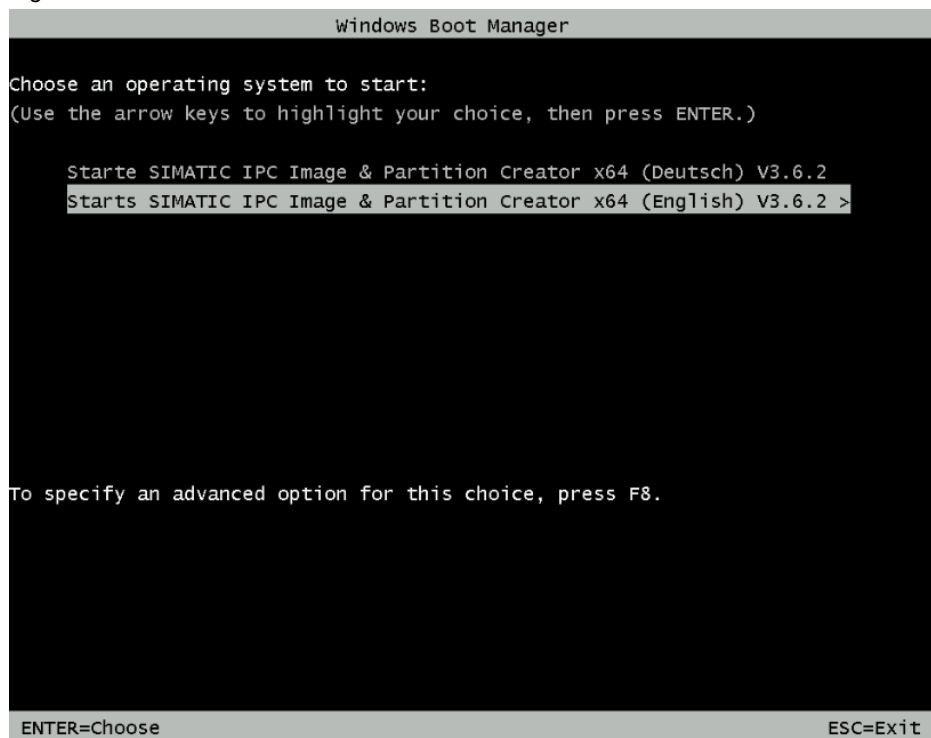
- back up individual partitions or whole drives in a backup archive and
- restore individual partitions or whole drives from a backup archive.

2.2.1 Create a backup archive

The following describes how to create a backup archive.

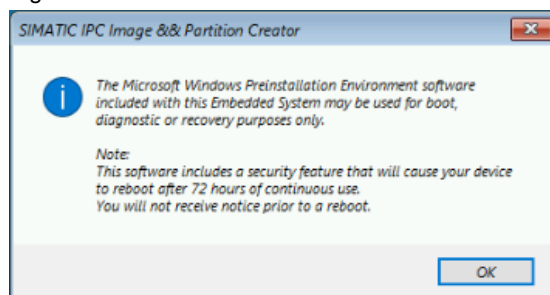
1. As described in section [2.1](#), boot SIMATIC Image & Partition Creator from your USB storage drive.
Use the arrow keys to select "Starts SIMATIC IPC Image & Partition Creator x64 (English) V3.6.2" ("Starte SIMATIC IPC Image & Partition Creator x64 (Deutsch) V3.6.2").
Confirm your selection with the Enter key.

Figure 2-3



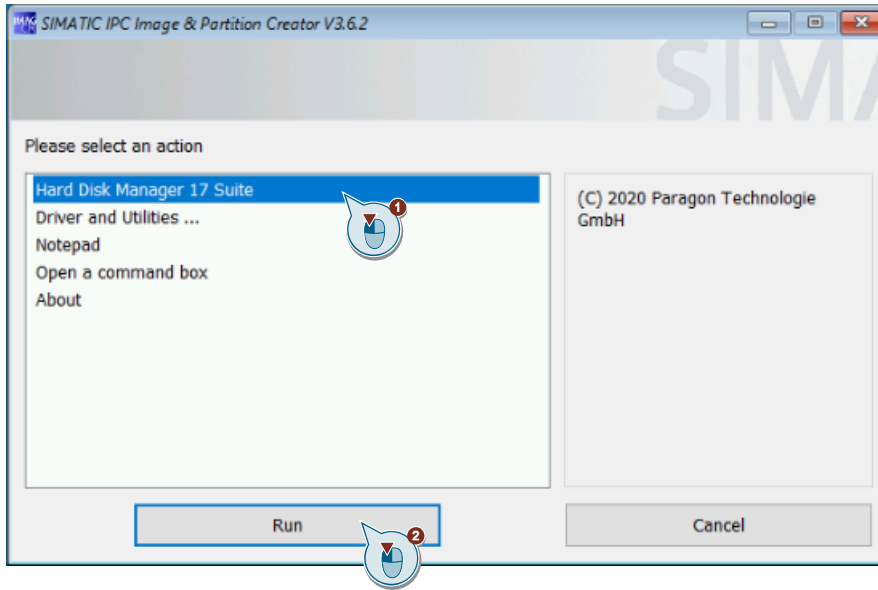
2. Click "OK" to confirm the notification about the Microsoft Windows Preinstallation Environment.

Figure 2-4



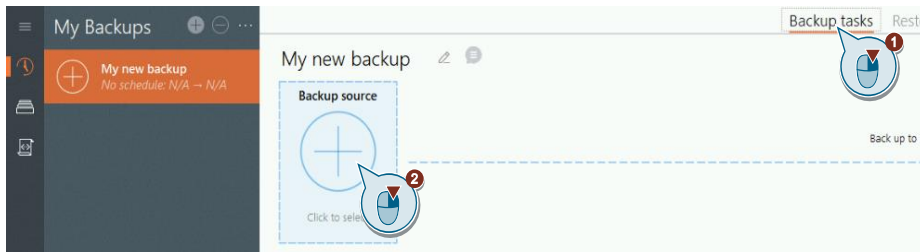
3. Select the action "Hard Disk Manager 17 Suite" (1).
Launch the selected action with the "Run" button (2).

Figure 2-5



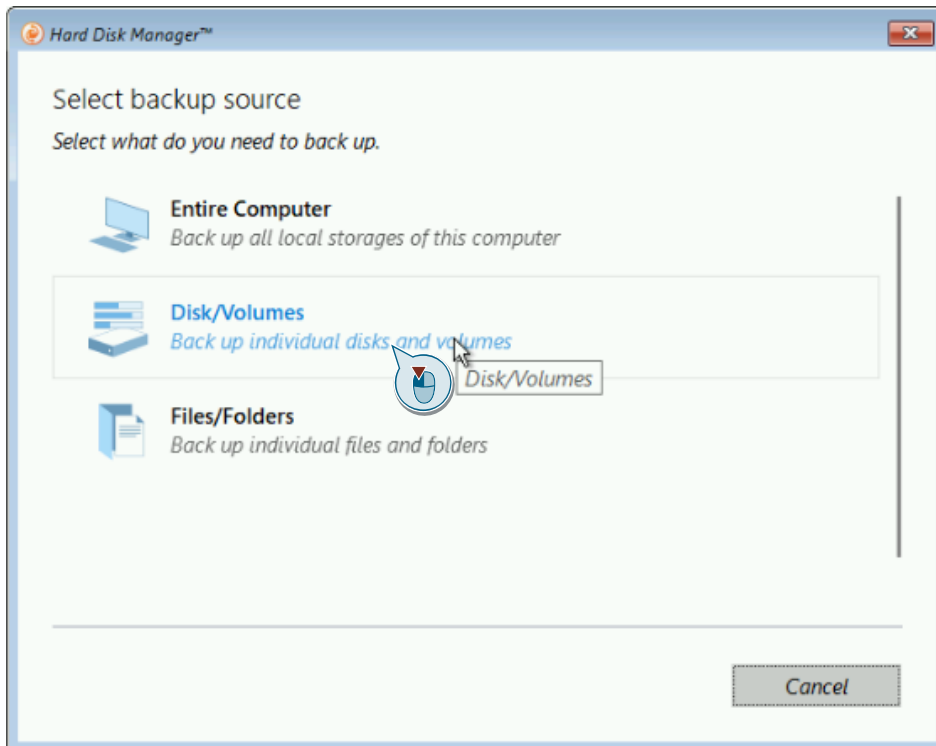
4. In the "Hard Disk Manager", select the "Backup tasks" view (1).
Press the "Backup source" button (2) to open the dialog for selecting the source of the backup archive that you will create.

Figure 2-6



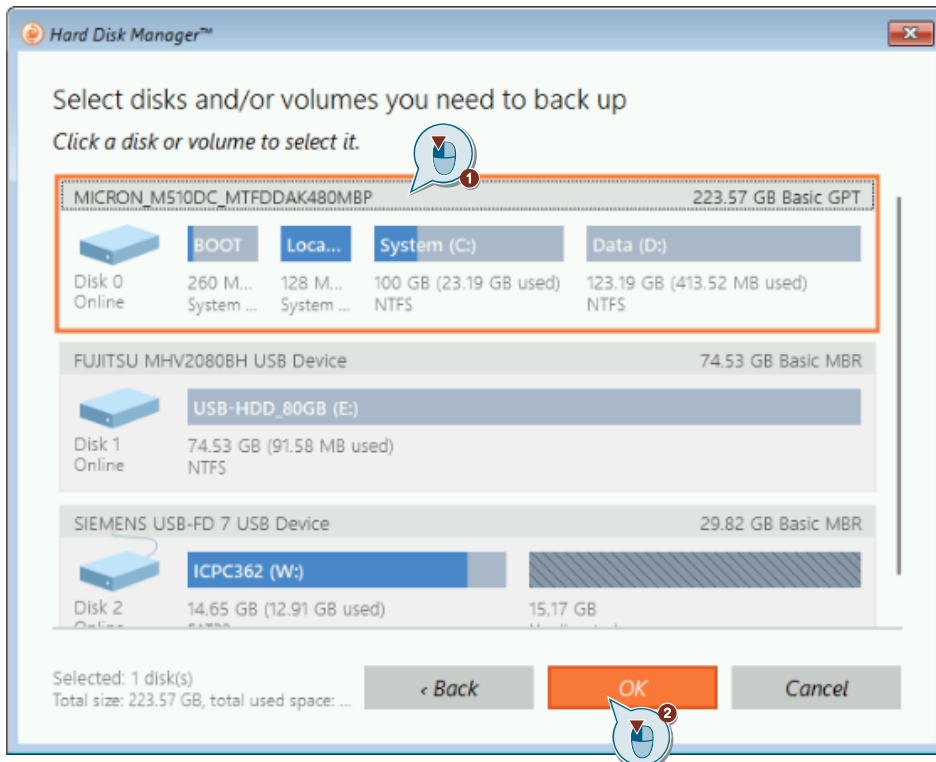
5. To back up individual hard disks and drives, select the option "Disk/Volumes".

Figure 2-7



6. Select the hard disk or volume to be backed up (1).
Confirm your selection with the "OK" button (2).

Figure 2-8



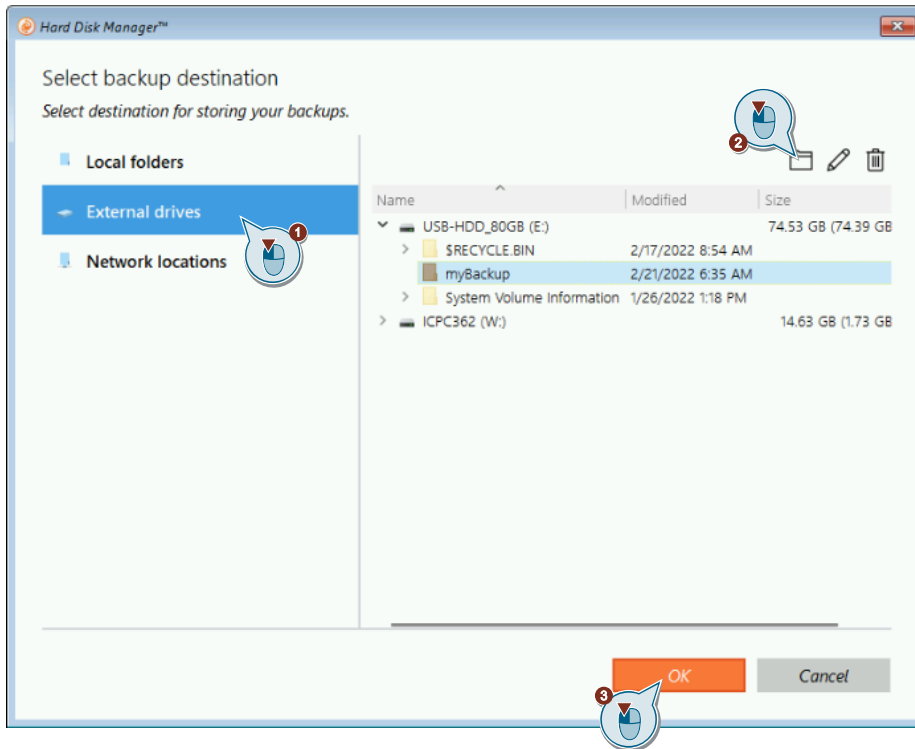
7. Click "Destination" to open the dialog for selecting the target save location of the backup archive you wish to create.

Figure 2-9



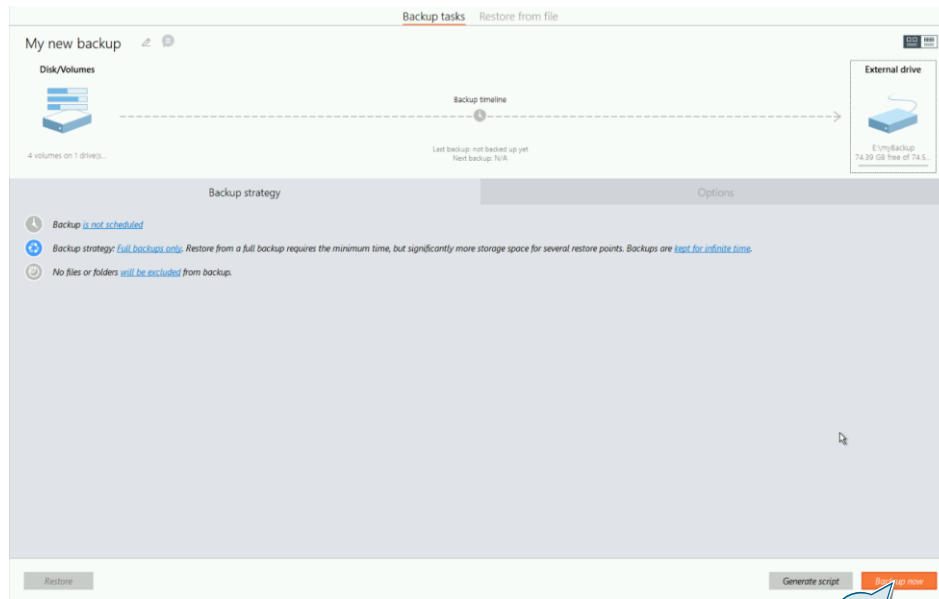
8. In the dialog window, define the save location of the backup archive. In this example, the backup archive must be stored on an external USB drive with the name "USB-HDD_80GB" (1).
 If needed, create a folder on the target medium where you will store the backup archive (2).
 Confirm your selection with the "OK" button (3).

Figure 2-10



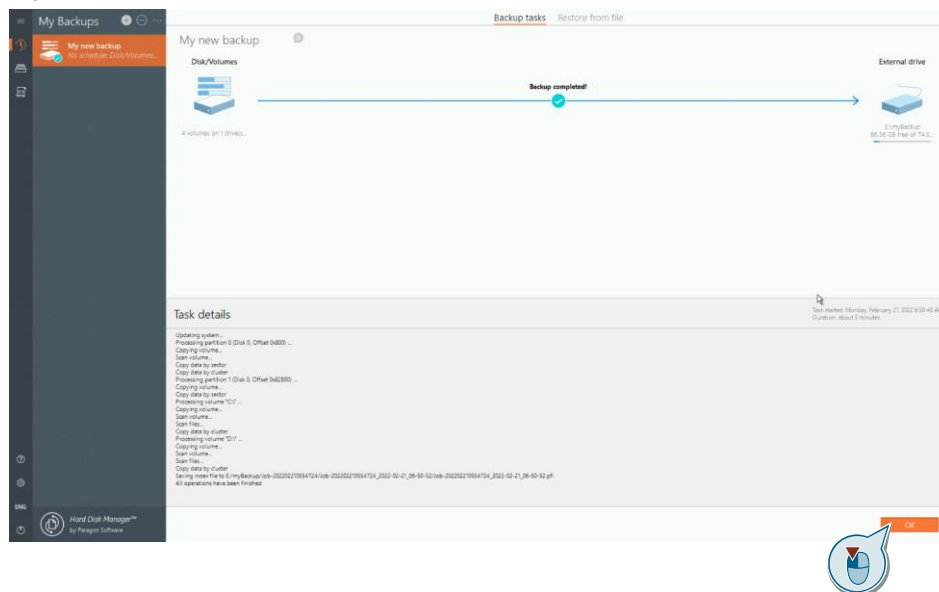
9. Start creating the backup archive with the "Back up now" button.

Figure 2-11



10. You will see a summary once the backup archive has been completed. Close the view with the "OK" button.

Figure 2-12



Result

You have finished backing up your SIMATIC IPC. The backup archive is located in the target path you selected.

2.2.2 Restore a backup

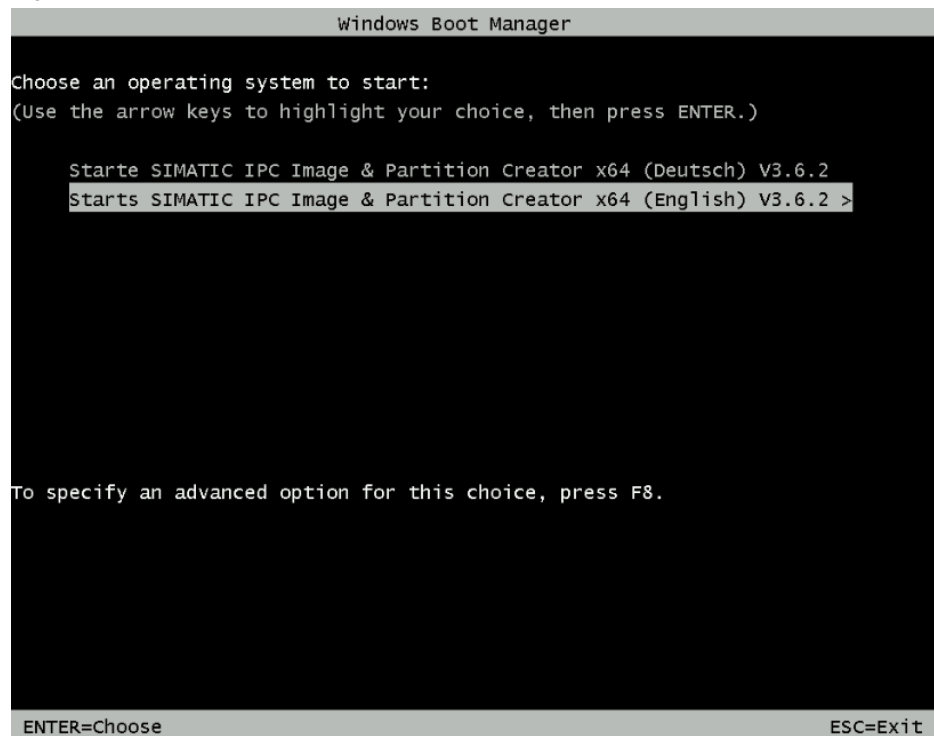
Note

The procedure described below assumes that a backup archive has been created with SIMATIC IPC Image & Partition Creator V3.6, see chapter [2.2.1](#).
To restore a backup archive that was created with SIMATIC IPC Image & Partition Creator version < 3.6, continue reading in chapter [2.3](#).

Restoring a hard disk or volume from an existing backup, for example after replacing a defective data carrier, is described below.

1. As described in section [2.1](#), boot SIMATIC Image & Partition Creator from your USB storage drive.
Use the arrow keys to select "Starts SIMATIC IPC Image & Partition Creator x64 (English) V3.6.2" ("Starte SIMATIC IPC Image & Partition Creator x64 (Deutsch) V3.6.2").
Confirm your selection with the Enter key.

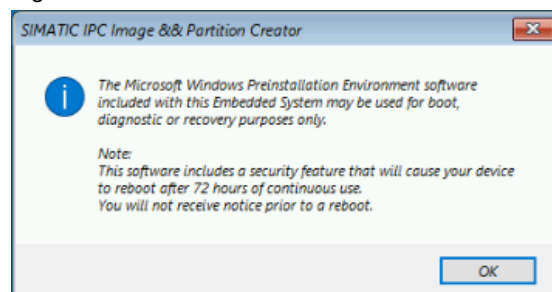
Figure 2-13



© Siemens AG 2022. All rights reserved

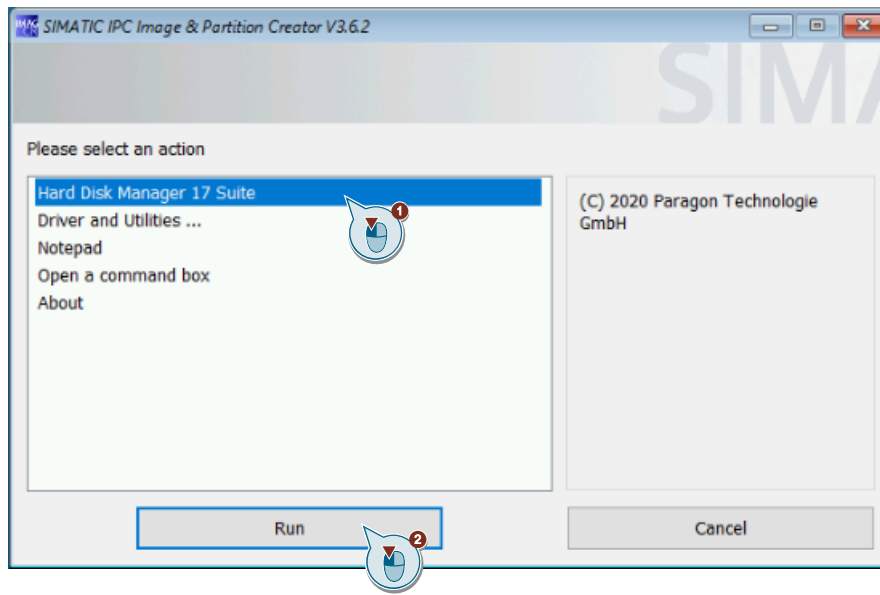
2. Click "OK" to confirm the notification about the Microsoft Windows Preinstallation Environment.

Figure 2-14



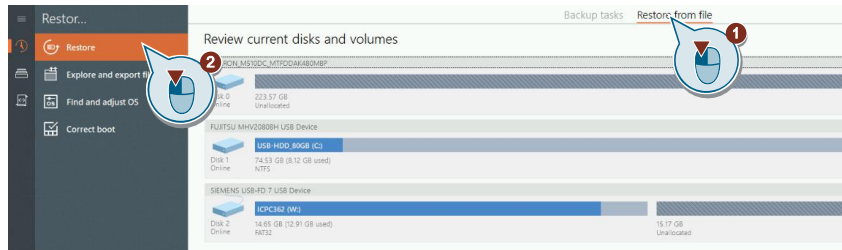
3. Select the action "Hard Disk Manager 17 Suite" (1).
Launch the selected action with the "Run" button (2).

Figure 2-15



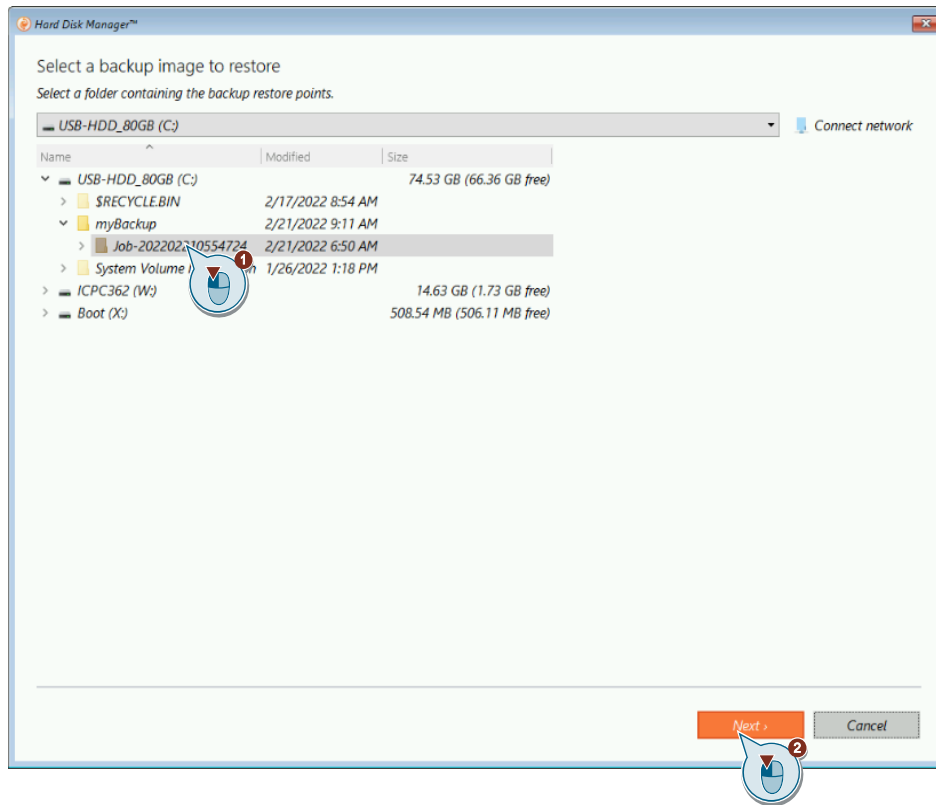
4. In the "Hard Disk Manager", select the "Restore from file" view (1).
Click "Restore" (2) to open the dialog where you can select the source of the backup archive.

Figure 2-16



5. In the dialog window, select the file path of the backup archive to be restored (1).
Confirm your selection with the "Next >" button (2).

Figure 2-17



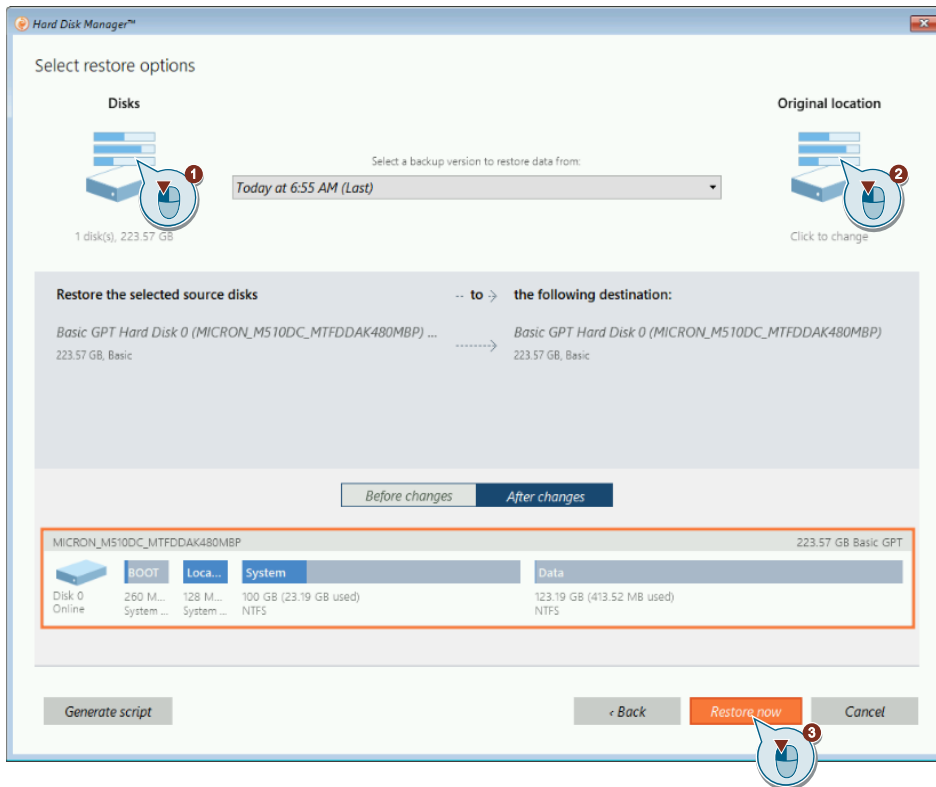
- In the dialog window, adjust the restore options to suit your requirements or accept the default settings.

For a complete restore of the data carrier including the partition table (MBR / GPT), make sure that the "Select disks" option under "Select restore options" is selected. (1)

With the "Before changes" and "After changes" buttons, you can see the status of the target drive before and after the restore (2).

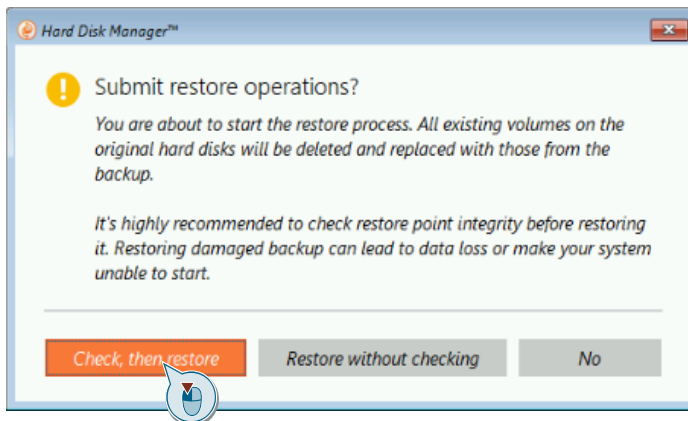
Begin restoring the backup archive with the "Restore now" button (3).

Figure 2-18



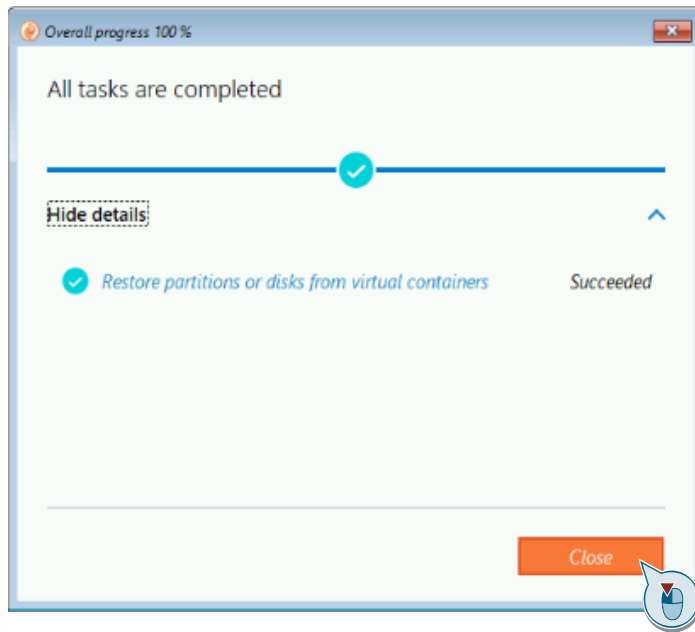
7. In the dialog window, select the option "Check, then restore" to verify the integrity of the backup point before restoring the backup archive.

Figure 2-19



8. Press "Close" to close the dialog window at the end of the restore process.

Figure 2-20



Result

You have successfully restored your SIMATIC IPC.

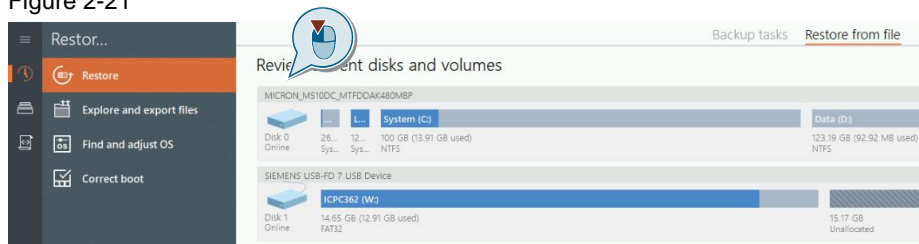
2.3 Using an old backup archive

2.3.1 New storage format ".pVHD"

As of version 3.6, the Image & Partition Creator software uses a new storage format for saving the image files. The new storage format is a virtual container (virtual hard disk) with the file ending ".pVHD".

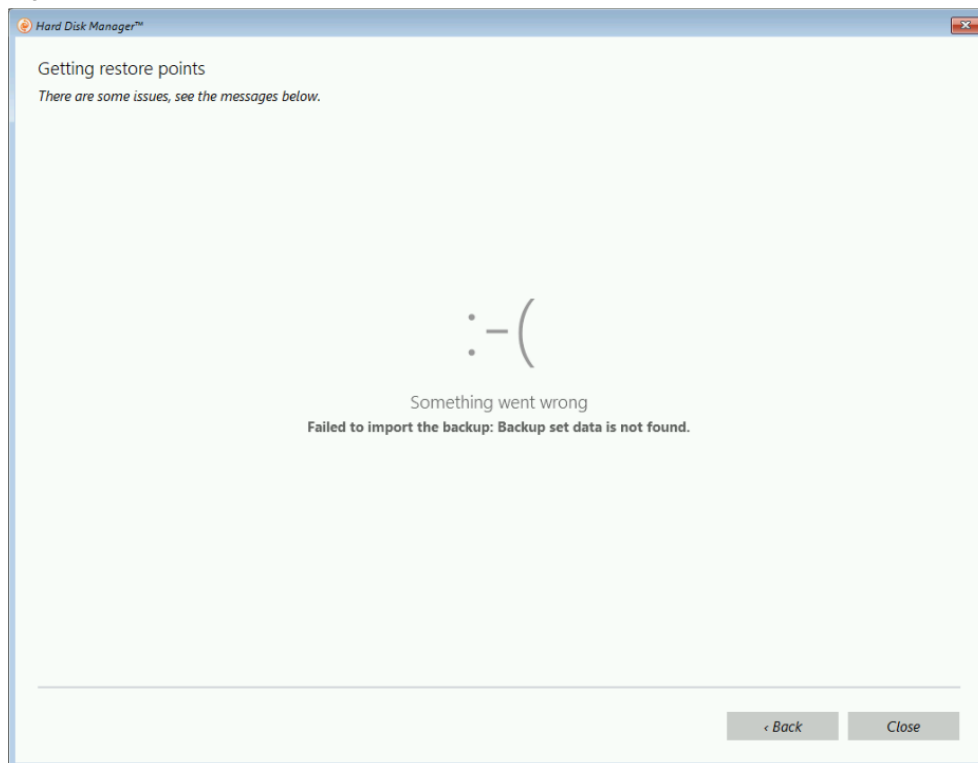
To restore a backup archive with the "Restore" menu option, a backup archive in the new *.pVHD format is required.

Figure 2-21



It is not possible to restore old backup archives in *.pbf format with this menu option. Attempting to do so will result in an error message:

Figure 2-22



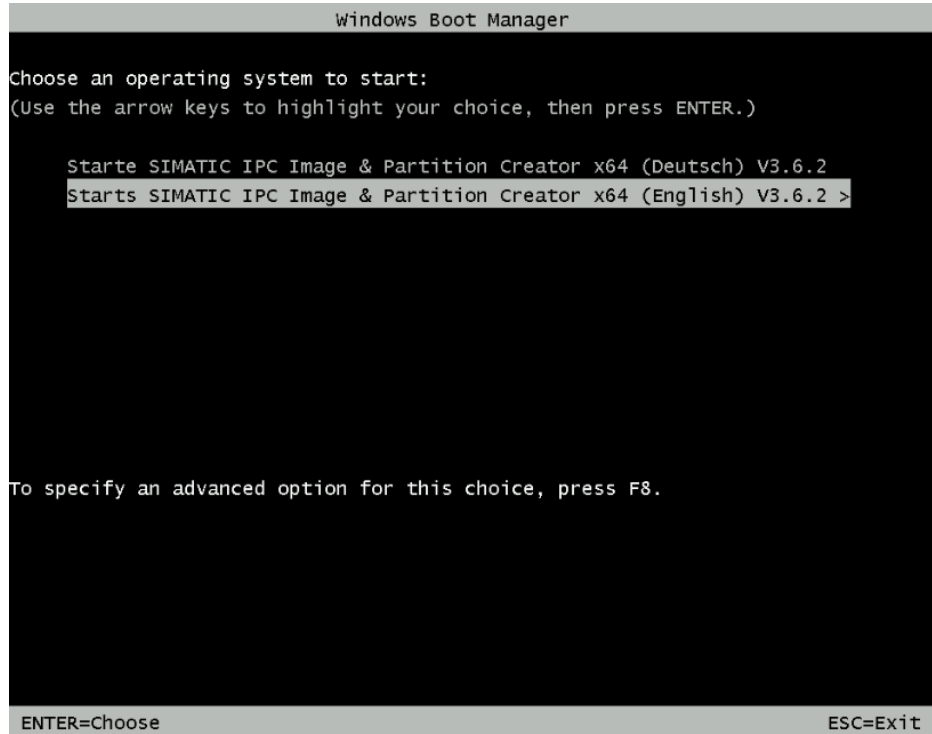
2.3.2 Restore an old backup archive in *.pbf format

Restoring a *.pbf backup archive is still possible. The procedure is described below:

1. As described in section [2.1](#), boot SIMATIC Image & Partition Creator from your USB storage drive.

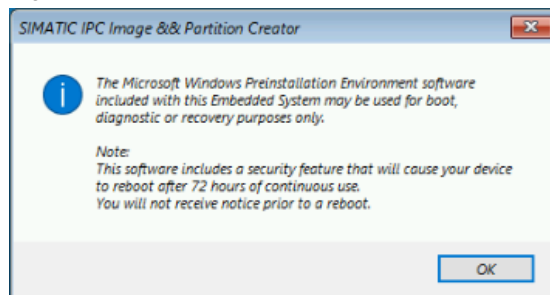
Use the arrow keys to select "Starts SIMATIC IPC Image & Partition Creator x64 (English) V3.6.2" ("Starte SIMATIC IPC Image & Partition Creator x64 (Deutsch) V3.6.2"). Confirm your selection with the Enter key.

Figure 2-23



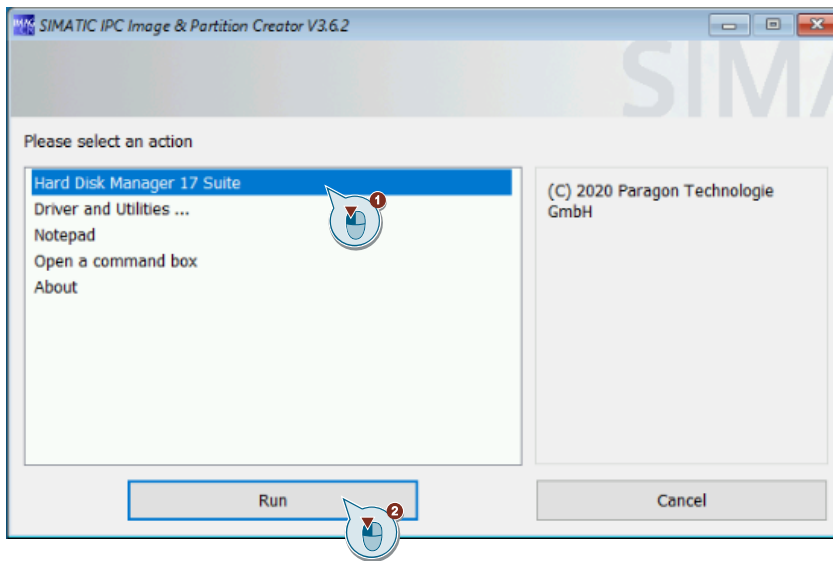
2. Click "OK" to confirm the notification about the Microsoft Windows Preinstallation Environment.

Figure 2-24



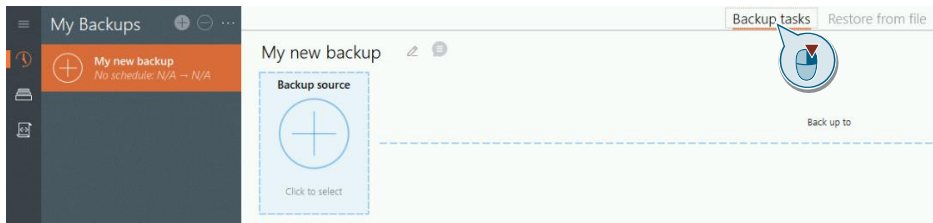
3. Select the action "Hard Disk Manager 17 Suite" (1). Launch the selected action with the "Run" button (2).

Figure 2-25



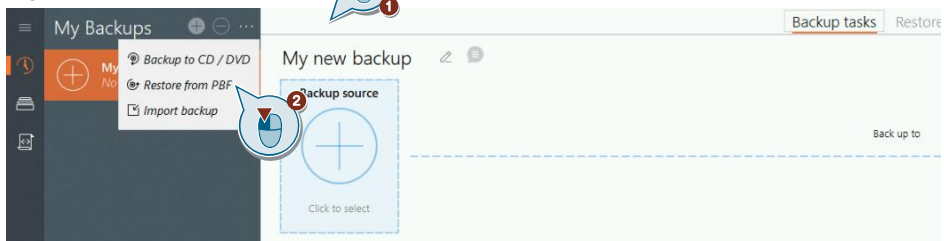
4. In the "Hard Disk Manager", select the "Backup tasks" view.

Figure 2-26



5. In the "Backup tasks" view, click on "More actions" (1). In the menu that opens, select "Restore from PBF" (2).

Figure 2-27



6. In the dialog window that opens, select the backup archive to be restored and then confirm your selection with "Next".
7. Continue by following the same procedure described in chapter [2.2.2](#), Steps 5-8.

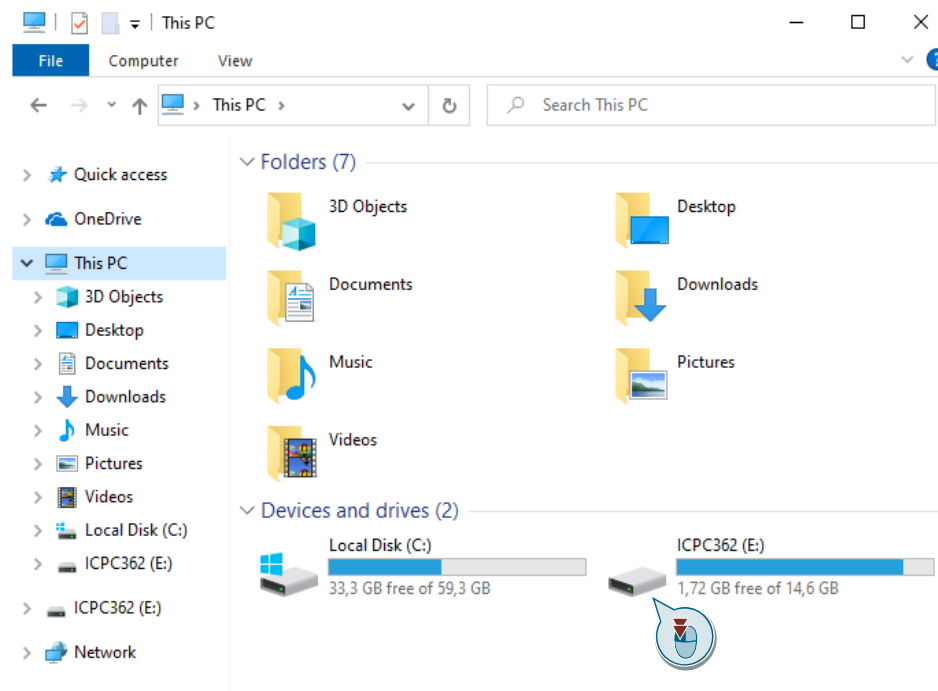
2.4 Using the technician's USB storage drive

2.4.1 Create a technician's USB storage drive

The following describes how to create and use the technician's USB storage drive.

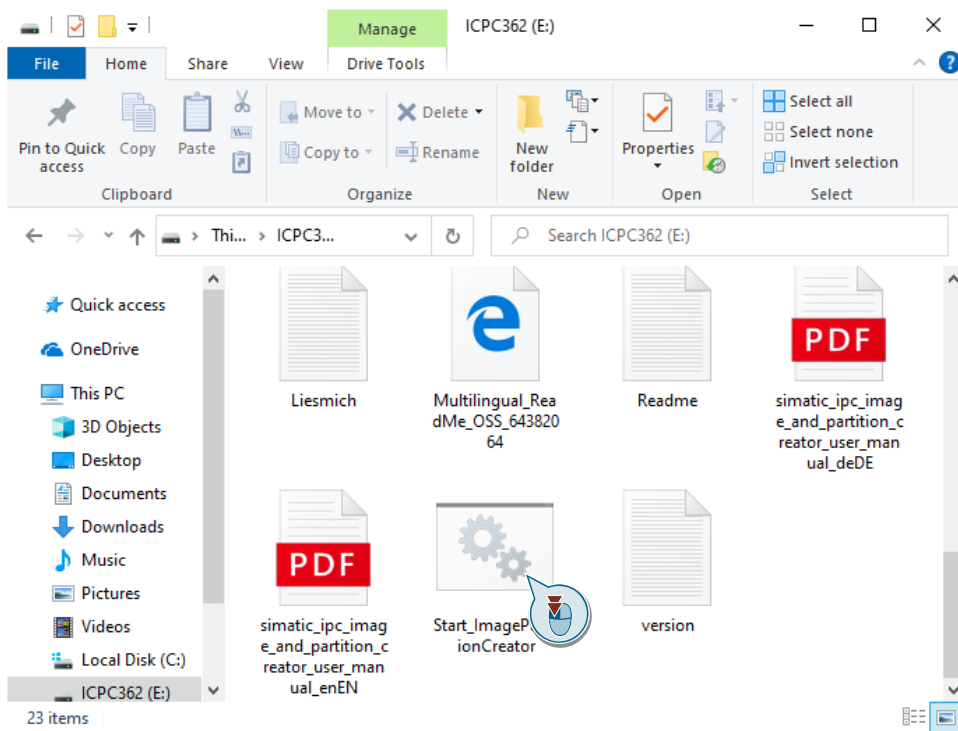
1. In a Windows operating system, open the contents of the inserted SIMATIC IPC Image & Partition Creator V3.6 data carrier by double-clicking the volume.

Figure 2-28



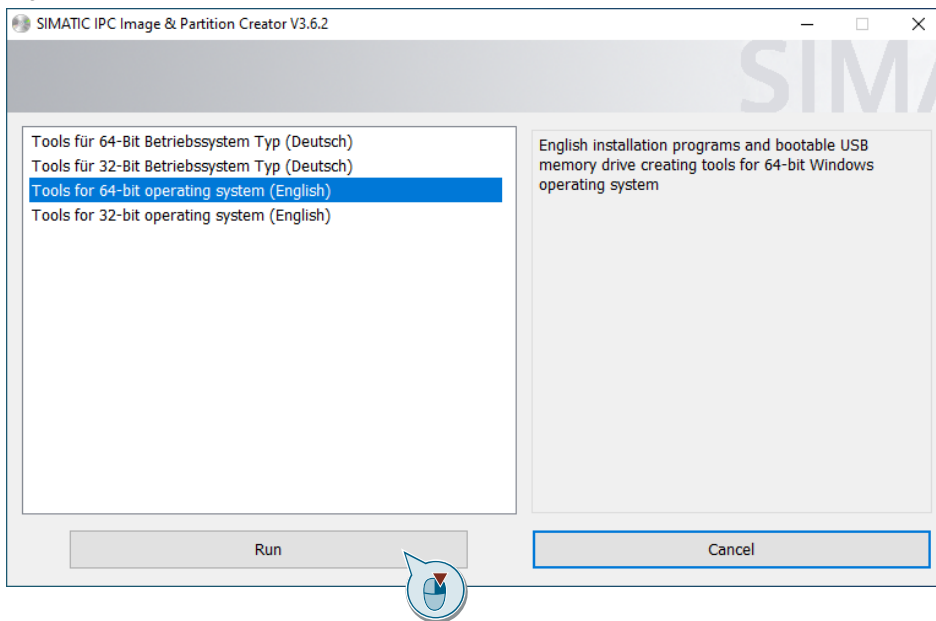
2. Launch the "Image & Partition Creator" program from the inserted storage device by double-clicking on "Start_ImagePartitionCreator".

Figure 2-29



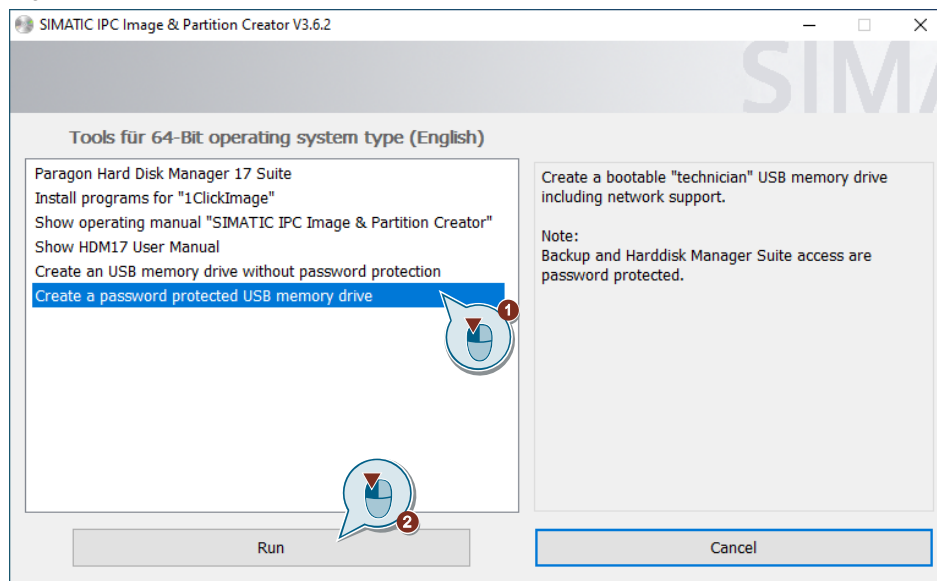
3. Select a language option from the installation programs and bootable drive creation tools, then click "Run".

Figure 2-30



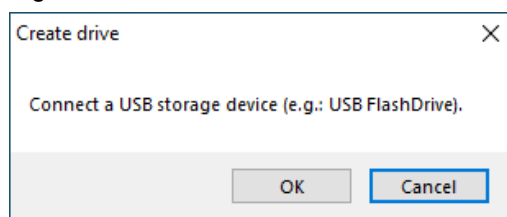
4. In the selection dialog, select the option "Create a password protected USB memory drive" (1). Confirm your selection with the "Run" button (2).

Figure 2-31



5. The next screen will prompt you to connect a USB storage drive with the device.

Figure 2-32



Connect a USB storage drive with at least 1 GB storage space to the computer.
Make sure that there are no important data on the drive. Confirm with the "OK" button.

Note

A backup archive can contain multiple gigabytes of data. Accordingly, you need free storage space to save a backup archive.

If the backup archive will be stored on the technician's USB storage drive, then make sure there is enough storage capacity when selecting the drive.

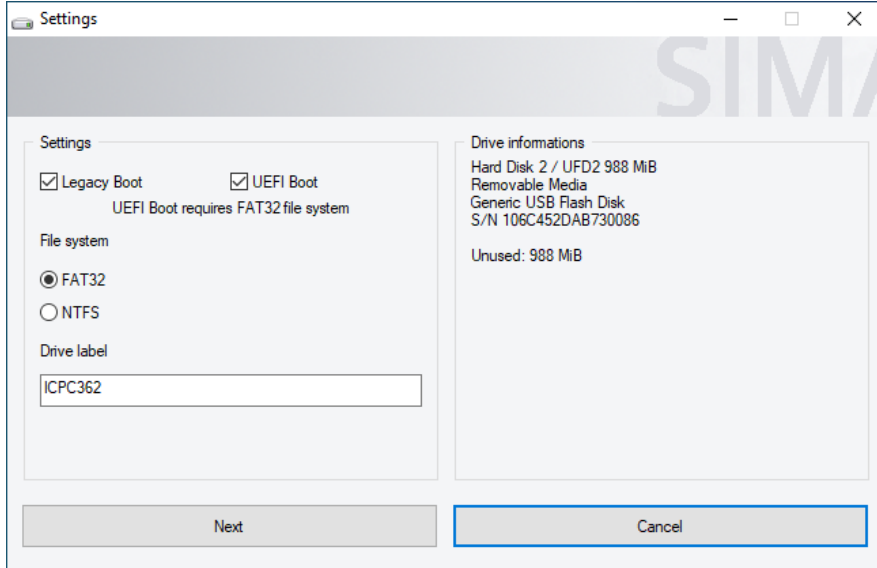
When creating the technician's USB storage drive, SIMATIC IPC Image & Partition Creator can create a data partition in NTFS format, "ICPC362_DATA", where you can save the backup archive, provided that your USB storage drive is large enough.

You will need a USB hard disk or a USB SSD drive for this.

6. The software will automatically detect the USB storage drive. The dialog that opens will provide you information on:
 - the installation source
 - the name and the data size

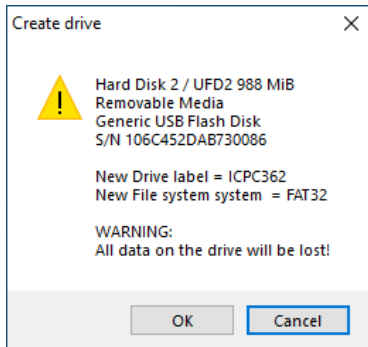
- the target drive and instructions for formatting
 - the partitioning of the new technician's USB storage drive
- Click "Next" to confirm the settings.

Figure 2-33



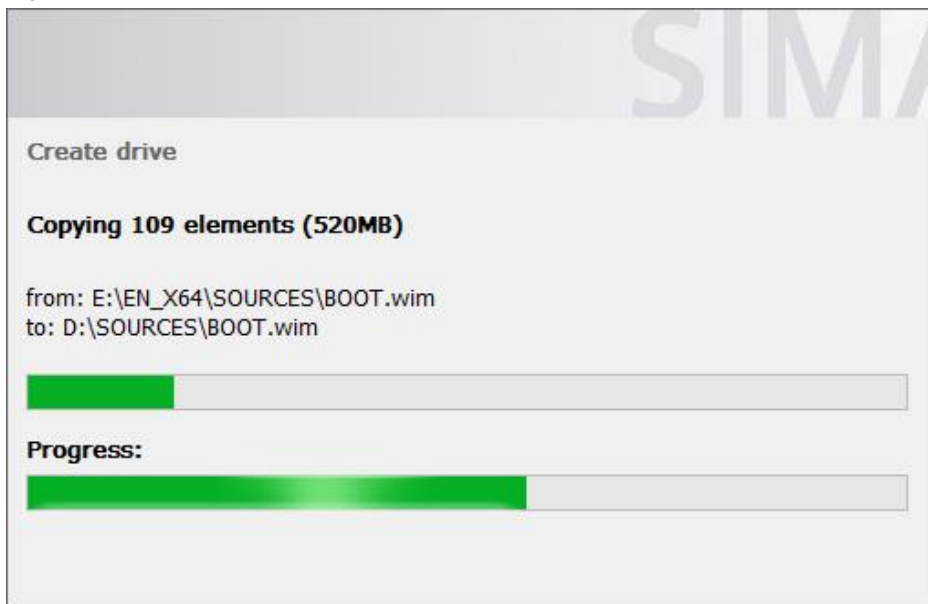
7. Check whether the target volume matches the desired target drive. All data on the USB storage drive you are using will be lost when the drive is formatted. Confirm with the "OK" button.

Figure 2-34



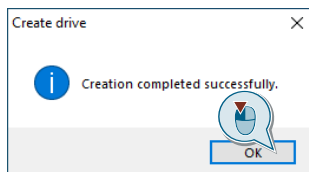
8. Then the technician's USB storage drive will be created. Progress will be displayed in an installation window.

Figure 2-35



- After successfully creating the technician's USB storage drive, a confirmation window will appear. Acknowledge it with the "OK" button.

Figure 2-36



Result

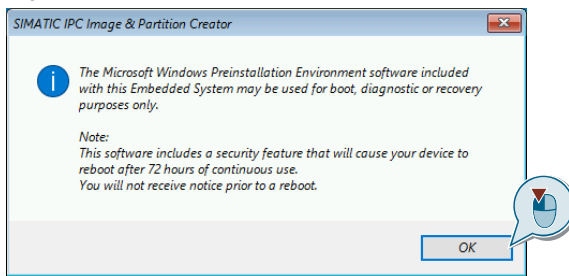
You have successfully created a bootable technician's USB storage drive and can perform your backups with it.

2.4.2 Create and restore a backup with the technician's USB storage drive

This tutorial will show you how to create a backup of a SIMATIC IPC477E with a technician's USB storage drive.

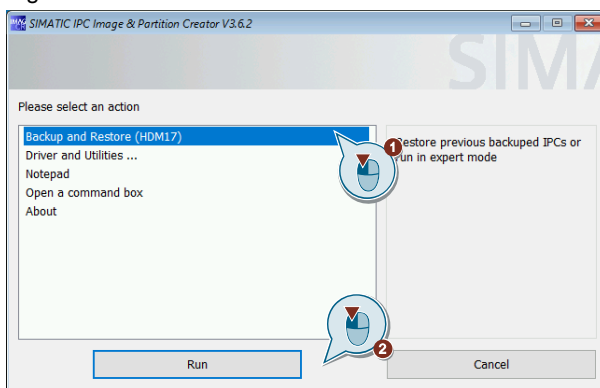
- Connect the technician's USB storage drive with the SIMATIC IPC that you wish to back up.
- Boot from the technician's USB storage drive as described in section [2.1](#).
- The SIMATIC IPC Image & Partition Creator software starts. Read the notes in the following window and confirm the information with the "OK" button.

Figure 2-37



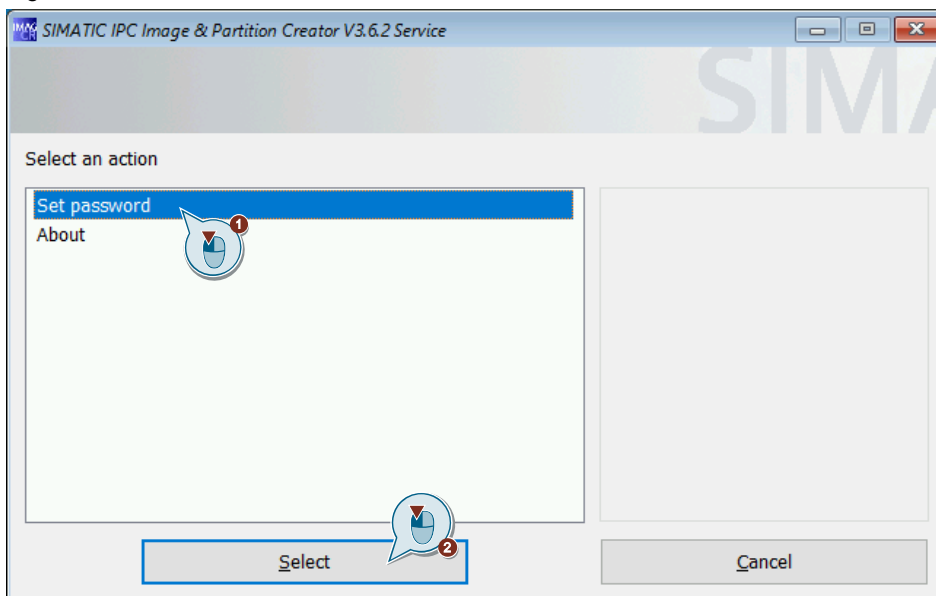
- 4. You will be directed to a selection screen. Select the action "Backup and Restore" (1). Confirm your selection with the "Run" button (2).

Figure 2-38



- 5. The first time you use the technician's USB storage drive, you will be automatically prompted to assign a password. To do this, select the action "Set password" (1). Confirm your selection with the "Select" button (2).

Figure 2-39

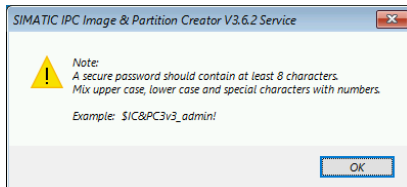


Note A
d
i
a
l

Steps 6-10 are relevant only for the first time you use the USB flash drive. If it is used repeatedly, you will be prompted to enter your password after step 5. Confirm this with the "OK" button. After that, you will automatically be taken to the selection screen described in Step 11.

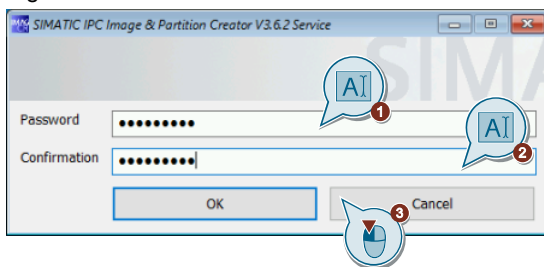
log gives you hints for generating a secure password. Acknowledge it with the "OK" button.

Figure 2-40



- Assign a password. Confirm it by entering it in the "Password" (1) and "Confirmation" (2) fields. Confirm the entry with the "OK" button (3).

Figure 2-41

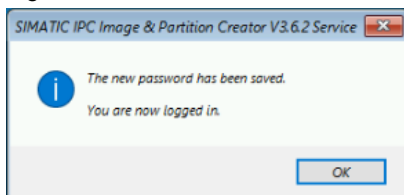


Note

You can change the password in the selection menu from Step 10 under the action "Set new password" at any time. For this you need the current password.

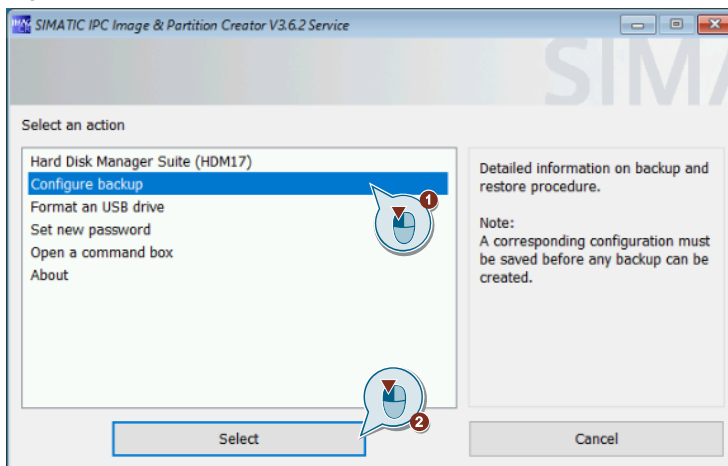
- The new password is confirmed in the following window. Confirm with the "OK" button.

Figure 2-42



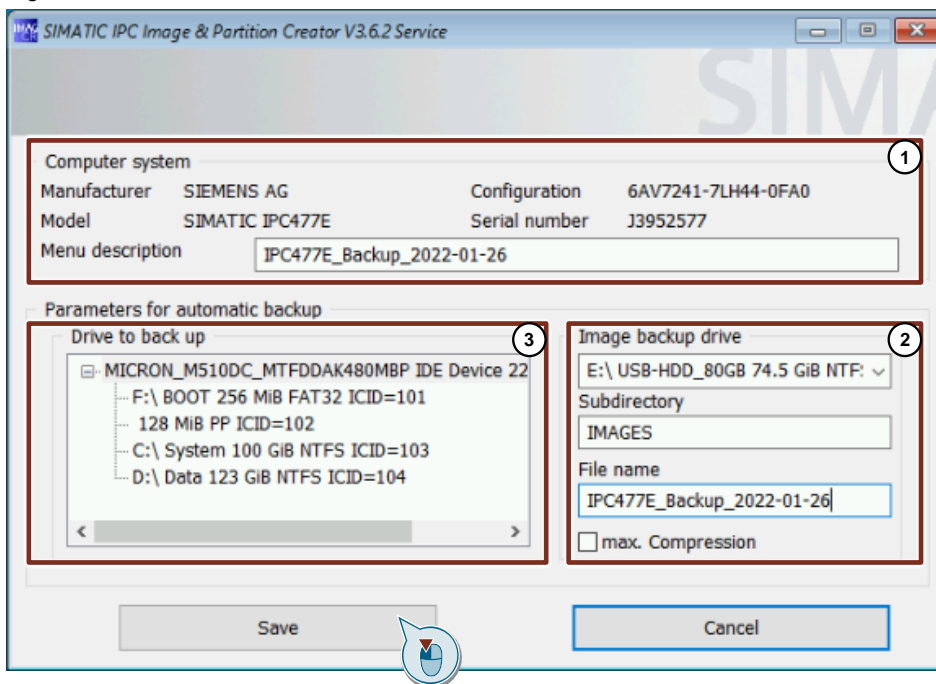
- Connect a USB storage drive for the backup archive with the SIMATIC IPC or use the technician's USB storage drive if there is enough free storage space on it.
- In the following selection screen, select the action "Configure Backup" (1). Confirm your selection with the "Select" button (2).

Figure 2-43



11. You will be redirected to the device-specific backup configuration screen. Set all options to suit your requirements. There is a more detailed explanation of the various configuration fields in [Figure 2-44](#). Confirm your configuration by clicking on "Save".

Figure 2-44



Explanation of the configuration screen

- "Computer system" area (1)

This section provides information about the SIMATIC IPC that you wish to create a backup of. The information displayed are:

 - the manufacturer
 - the model name
 - the configuration number
 - and the serial number of the device.
 - "Image backup drive" area (2)

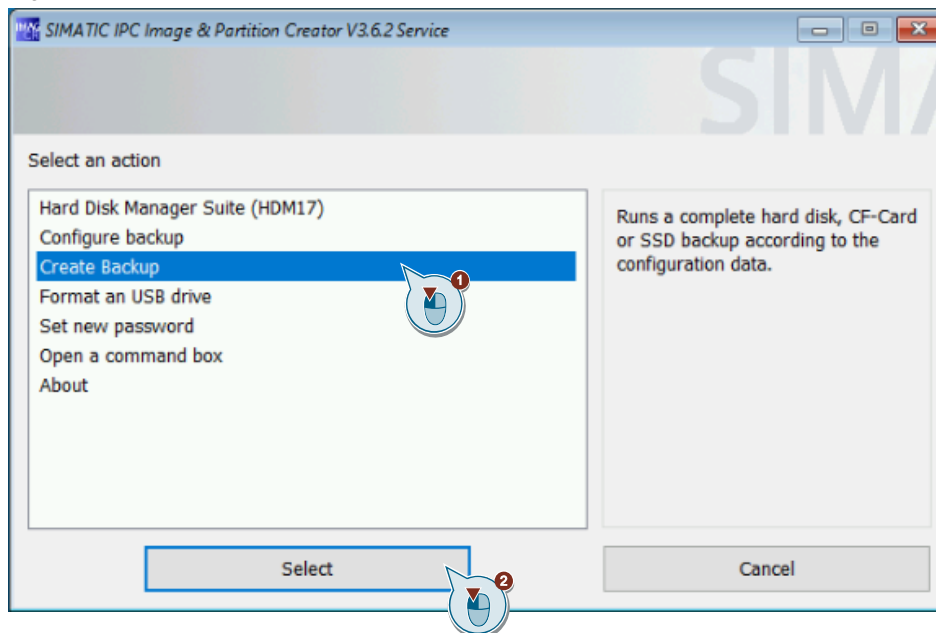
In this area you can define the following:

 - the volume where the backup archive should be stored
 - the name of the folder in which the backup archive should be stored
 - the file name of the backup.

Checking the checkbox "max. Compression" will attempt to compress the data of the backup archive. This can increase the time required to create the backup.
 - "Drive to Backup" area

In this area you can select the partitions to be backed up.
12. After completing the configuration of the backup, you are returned to the previous action selection screen. After the first configuration of the backup there is another action "Create backup" to choose from. Select the action "Create backup" (1) and confirm with the "Select" button (2).

Figure 2-45

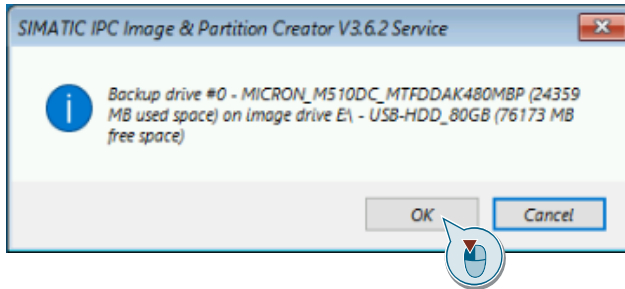


13. You will be taken to a confirmation screen that shows you the expected (estimated) size of the backup and the free space from the destination path of the backup. If the necessary space is available in the target directory, initiate the backup process with the "OK" button.

Note

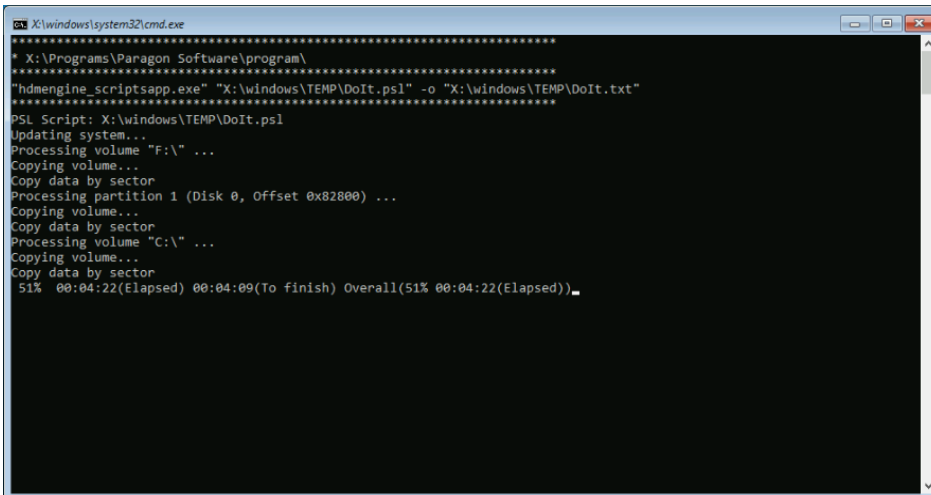
If the estimated size of the backup is greater than the free space in the destination path, you can still start the backup. But there is a risk that the backup cannot be completed then. The actual size needed depends on how well the data can be compressed. If a higher compression is possible than previously estimated, a backup can still be successful (despite the notification that there is not enough space).

Figure 2-46



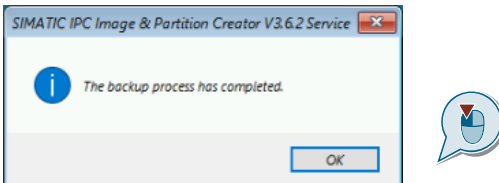
14. You have configured and initiated a backup of your SIMATIC IPC. Use the following backup screen to view backup and history information.

Figure 2-47



15. After successful creation of the backup, a confirmation window opens. Acknowledge it with the "OK" button.

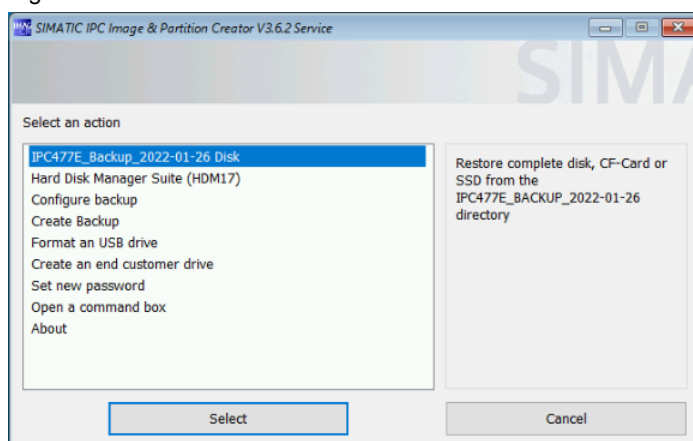
Figure 2-48



Result

You have finished backing up your SIMATIC IPC. The backup is located in the destination path you chose. You can then see the backup with the name you selected in the action screen. You can also select the backup to restore the system of your SIMATIC IPC.

Figure 2-49



2.5 Using the end customer drive

2.5.1 Creating an end customer drive

Requirements

Ensure that the following requirements for creating an end customer drive are met:

- A technician's USB storage drive has been created according to chapter [2.4.1](#).
- The backup archive you will use is located on a data storage device that is connected to the computer (USB hard disk, USB flash drive, D drive or internal hard disk, etc.).
- The end customer drive is formatted in the FAT32 file system.
- The end customer drive has enough storage capacity to store both the start files of SIMATIC IPC Image & Partition Creator as well as the data of the backup archive.

Note

Depending on the backup archive you select, the minimum required storage capacity will be shown to you before creating the end customer USB flash drive.

Note that, due to the specification for USB flash storage with FAT32 partitions, some USB storage drives based on flash memory are limited to a size of 32 GB even though the volume theoretically supports a higher storage capacity.

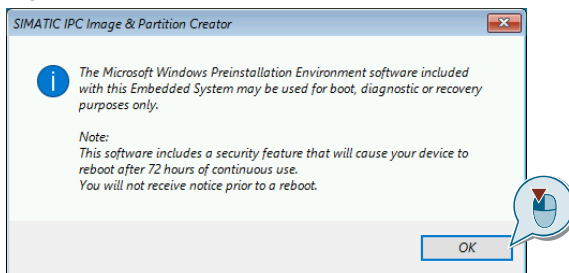
If this is the case, use alternative data storage devices, such as USB hard disks or USB SSDs supported by the UASP protocol to create the end customer drive.

Creation

If all requirements for the creation of an end customer drive are met, then create it as follows:

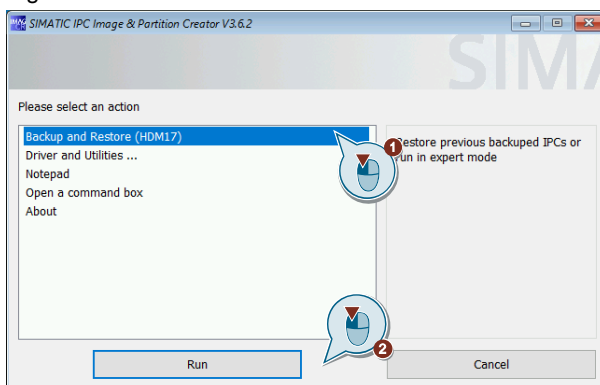
1. Boot from the technician's USB storage drive as described in section [2.1](#).
2. The SIMATIC IPC Image & Partition Creator software starts. Read the notes in the following window and confirm the information with the "OK" button.

Figure 2-50



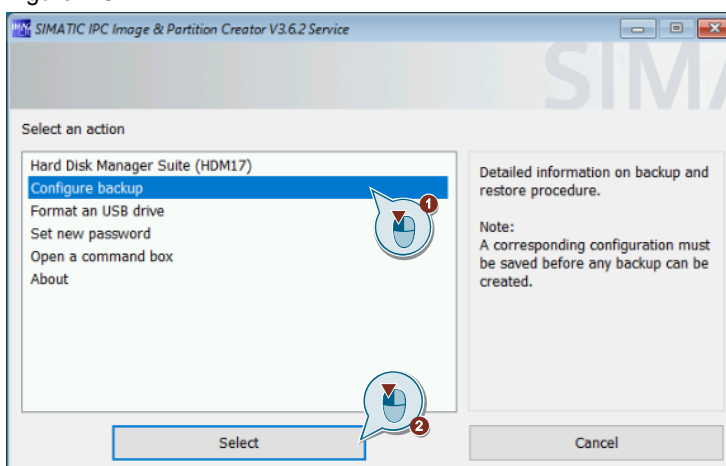
3. You will be directed to a selection screen. Select the action "Backup and Restore" (1). Confirm your selection with the "Run" button (2).

Figure 2-51



4. If you have assigned a supervisor password, log on as a supervisor with the corresponding password.
5. Select the source of the backup archive with the "Configure backup" option. Confirm your selection with the "Select" button (2).

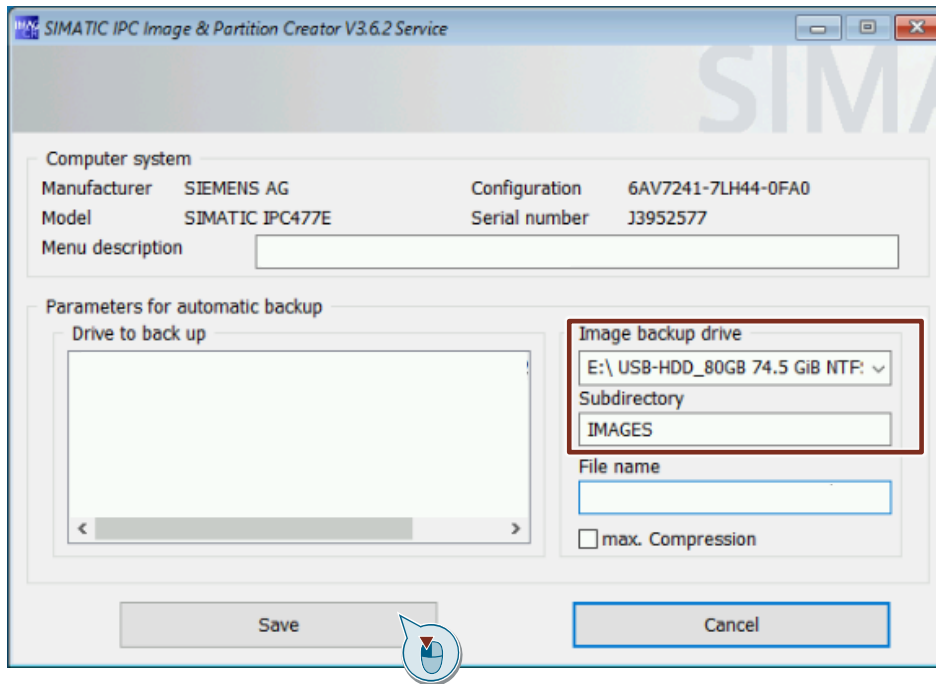
Figure 2-52



6. You will be redirected to the device-specific backup configuration screen. Specify the "Image backup drive" and the "Subdirectory" containing the backup archive you will use for the end customer drive.

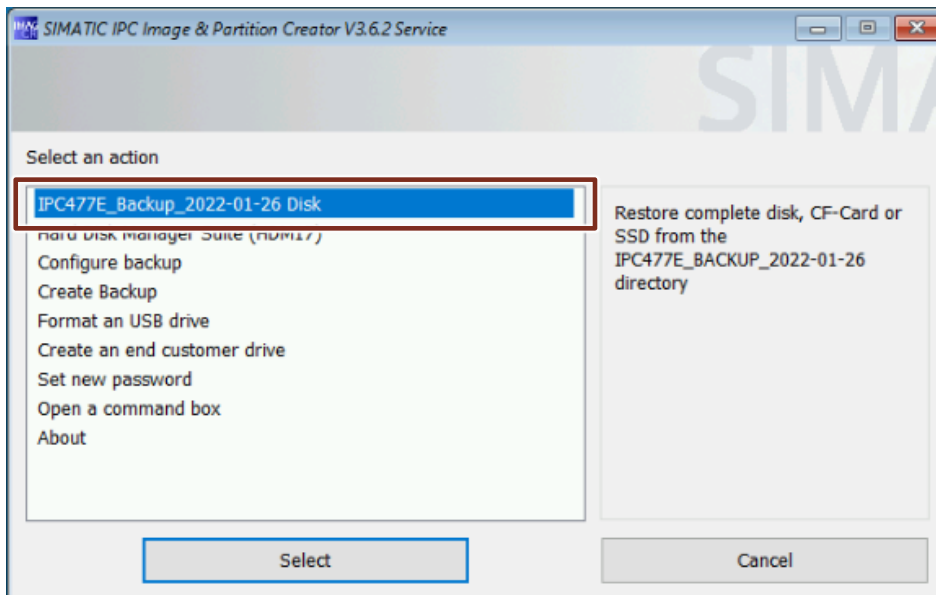
Confirm your configuration by clicking on "Save".

Figure 2-53



- All backup archives found in the specified path on the selected volume will be listed in the action selection screen.

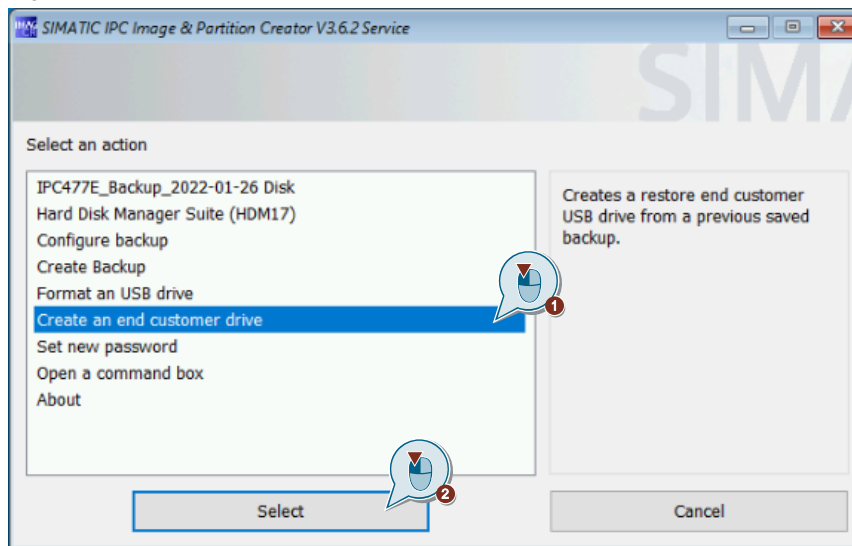
Figure 2-54



If no backup archive is listed, then create a backup archive as described in chapter [2.4.2](#).

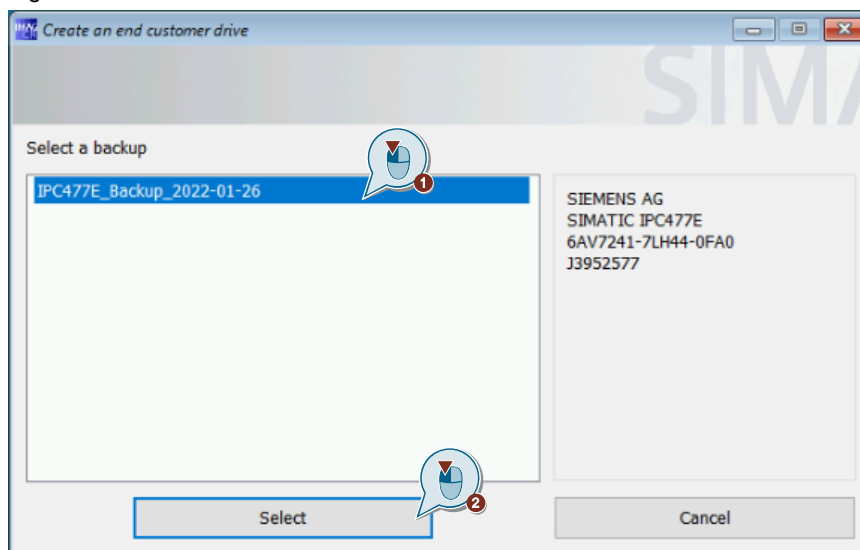
- In the action selection screen, select the action "Create an end customer drive" (1). Confirm your selection with the "Select" button (2).

Figure 2-55



9. The available backups are displayed. In the right part of the window you can see the device information of the backup file. In the following selection screen, select the backup you want to use (1).
Confirm your selection with the "Select" button (2).

Figure 2-56

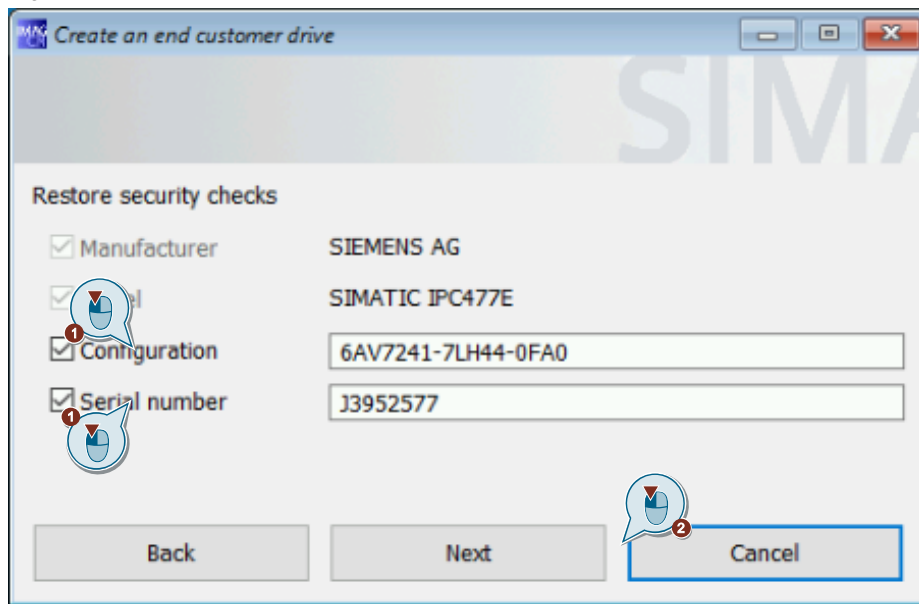


Note

You will only see backups that are located in the target path you selected in the "Configure Backup" menu. You can change the target path at any time as described in section [2.4.2, Step 11](#).

10. In the next screen you can configure which SIMATIC IPC or IPC type the end customer drive should be restricted to. The manufacturer and model information is static. However, it is possible to lock the backup to an item number and serial number. Tick the boxes for parameters you wish to use (1). Continue with the "Next" button (2).

Figure 2-57

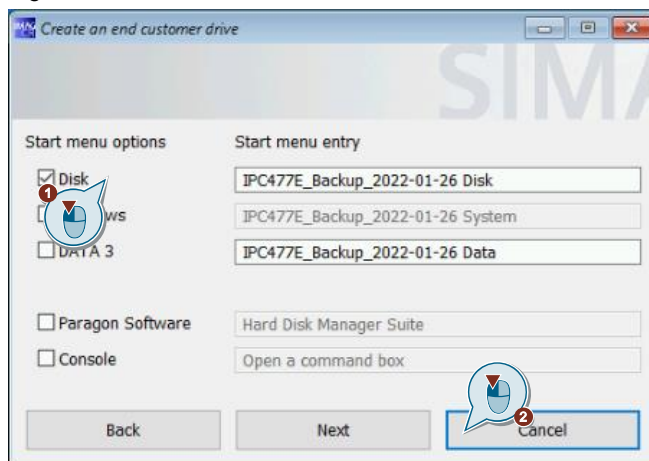


Note

If you have multiple SIMATIC IPCs with the same item number and you wish to duplicate or restore the system to them, then only enable the "Configuration" parameter.

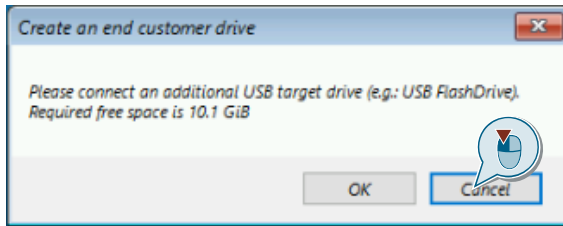
11. In the following window, you can define the Start menu items for the end customer drive. Only the selected items will later be available on the end customer drive when it starts up. In this way, you can restrict its functionality or enable it to be used only in certain scenarios. Select the desired Start menu items. (1)
Confirm your entry with "Next". (2)

Figure 2-58



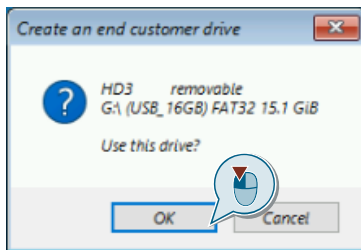
12. The next window shown will prompt you to connect another USB drive with the device. This USB drive must have at least the specified size.
Connect a USB drive in FAT32 format with the SIMATIC IPC. This is the drive that you wish to use as the end customer drive. Confirm with the "OK" button.

Figure 2-59



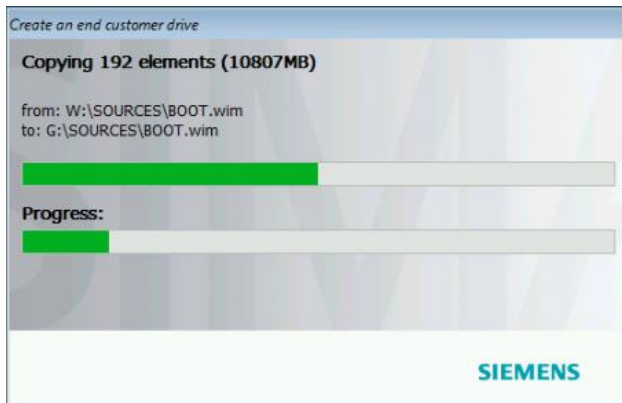
13. After selecting the drive, you will see the storage device name, the file system it contains, and the currently assigned drive letter. You will be asked whether you wish to use this drive as the end customer drive. Confirm with the "OK" button.

Figure 2-60



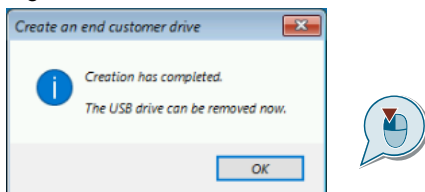
14. Your end customer drive will then be created. You can see the progress in the installation window.

Figure 2-61



15. On the following screen, confirm the information with the "OK" button.

Figure 2-62



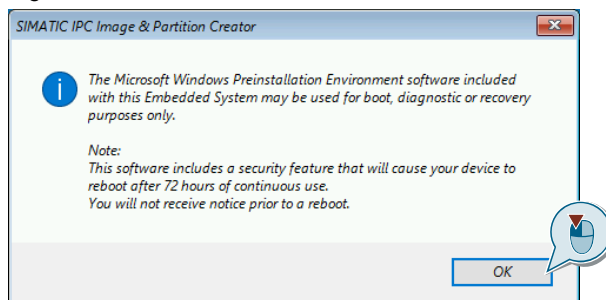
This completes the creation of your end customer drive.

2.5.2 Restore a device-specific backup with the end customer drive

This tutorial explains how to restore a SIMATIC IPC from an end customer drive.

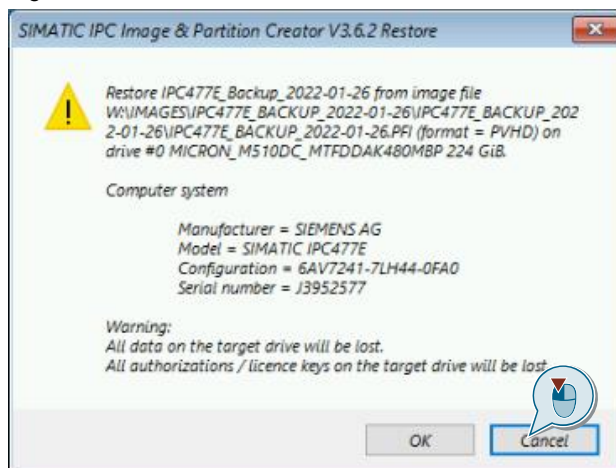
1. To do this, perform the steps to boot the SIMATIC IPC from an external storage medium according to the instructions in chapter [2.1](#).
In this case, the medium that the IPC boots from is the end customer drive from chapter [2.5.1](#).
2. After successfully booting from the end customer drive, SIMATIC IPC Image & Partition Creator will show you an information window regarding the Windows PE. Acknowledge it with "OK".

Figure 2-63



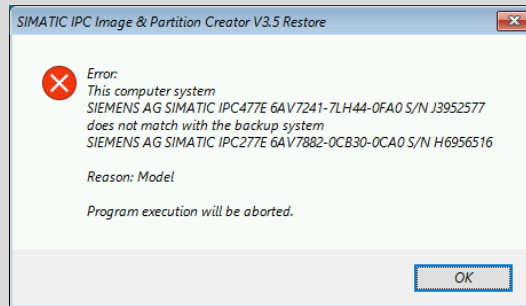
3. The subsequent notification window will show information about the restore process you have initiated. The text it displays contain information about:
 - the backup being restored,
 - the computer system on which the restore is being performed, and
 - the fact that all data, authorizations and licenses on the target system will be lost.
 Continue with the "OK" button.

Figure 2-64



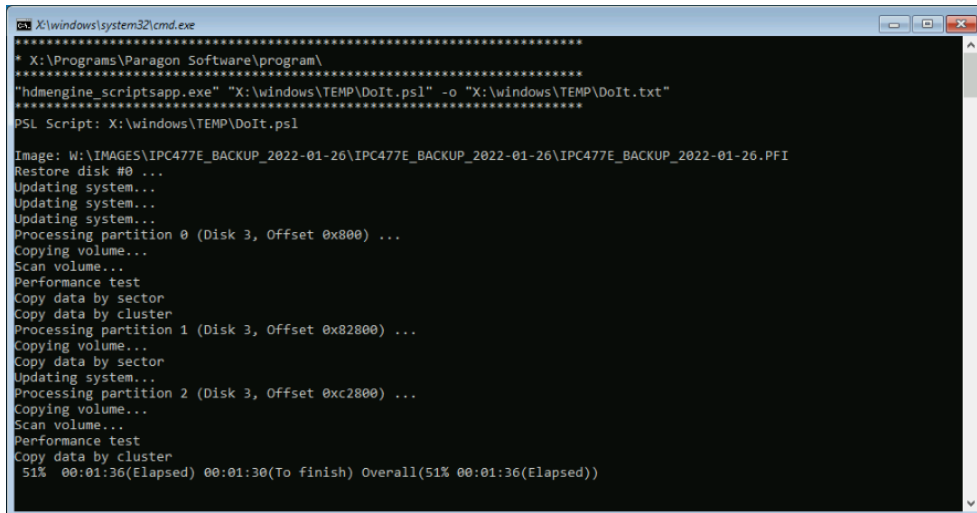
Note

If the data of the SIMATIC IPC (item number and/or serial number) do not match the parameters of the backup, an error message will be displayed. Then it continues with point 6 of this guide.



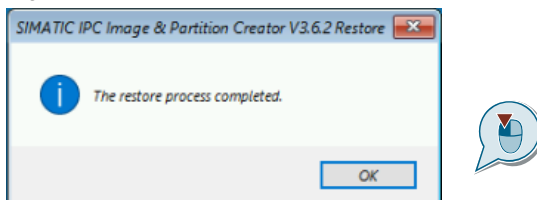
- The restoration is performed. This is followed by an output window where you can view information about the current restoration process. Wait until the restore is completed.

Figure 2-65



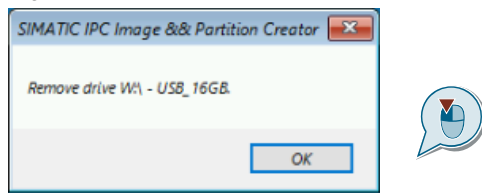
- When the recovery process has been completed successfully, an information window appears. Acknowledge with "OK".

Figure 2-66



- Finally there will be a notification window that prompts you to remove the end customer drive from the SIMATIC IPC. Remove the end customer drive from the SIMATIC IPC and close the restore by clicking "OK".

Figure 2-67



Result

You have successfully restored your SIMATIC IPC.

2.6 Creating and configuring a 1ClickImage backup

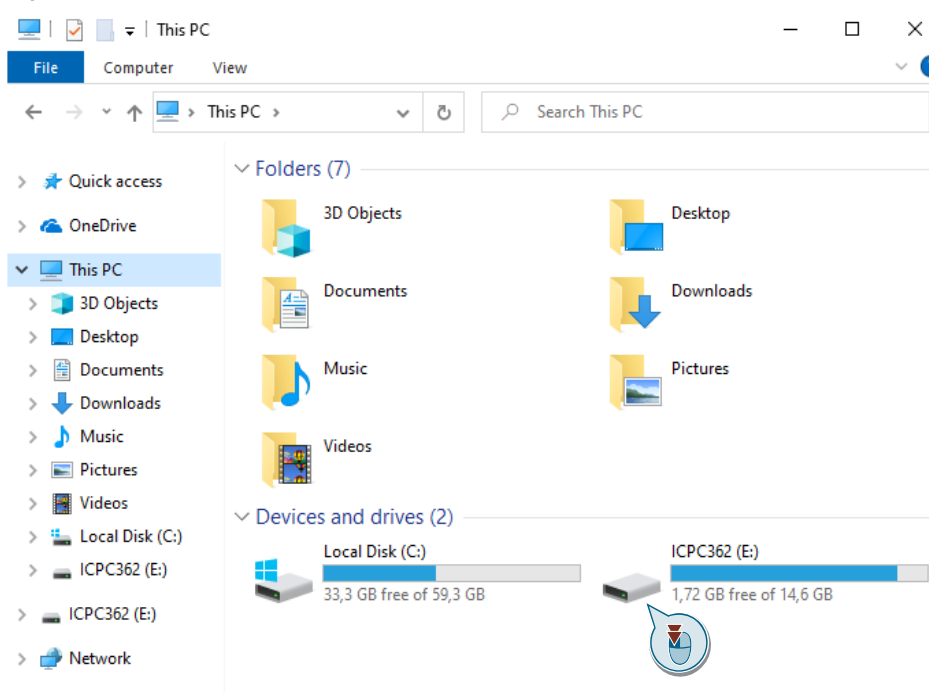
To install the 1ClickImage application, the Paragon Hard Disk Manager 17 Suite must be installed. Install the software on your SIMATIC IPC before proceeding with chapter [2.6.2](#).

Note The 1ClickImage and Paragon Hard Disk Manager 17 Suite applications can only be installed on Windows operating systems.

2.6.1 Install the Paragon Hard Disk Manager 17 Suite

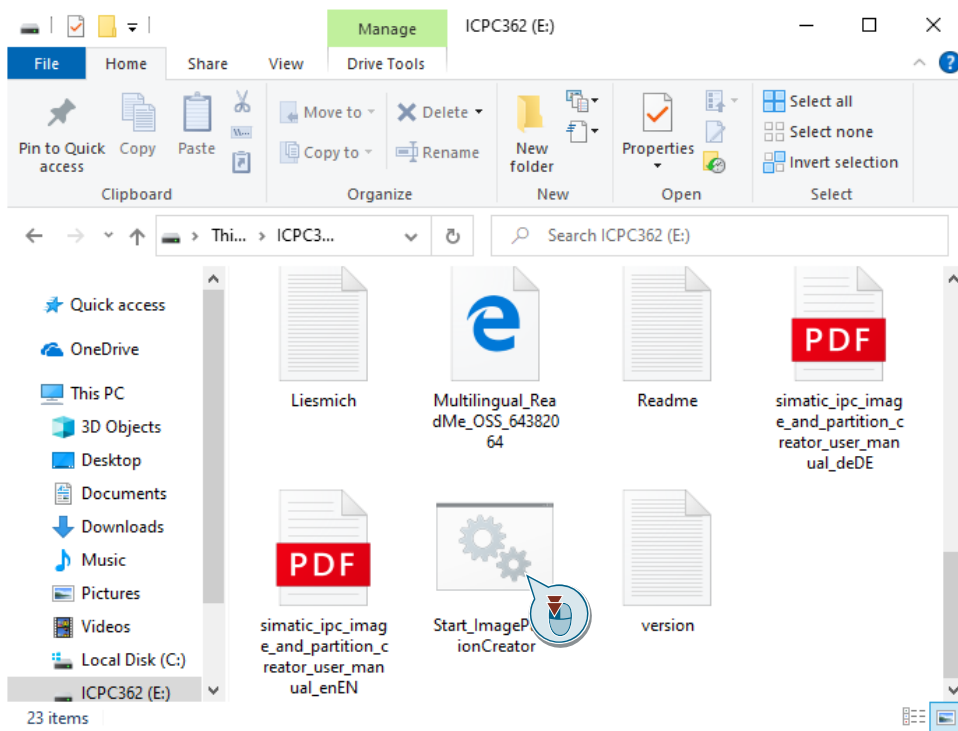
1. Open the contents of the inserted SIMATIC IPC Image & Partition Creator V3.6 data carrier by double-clicking the volume.

Figure 2-68



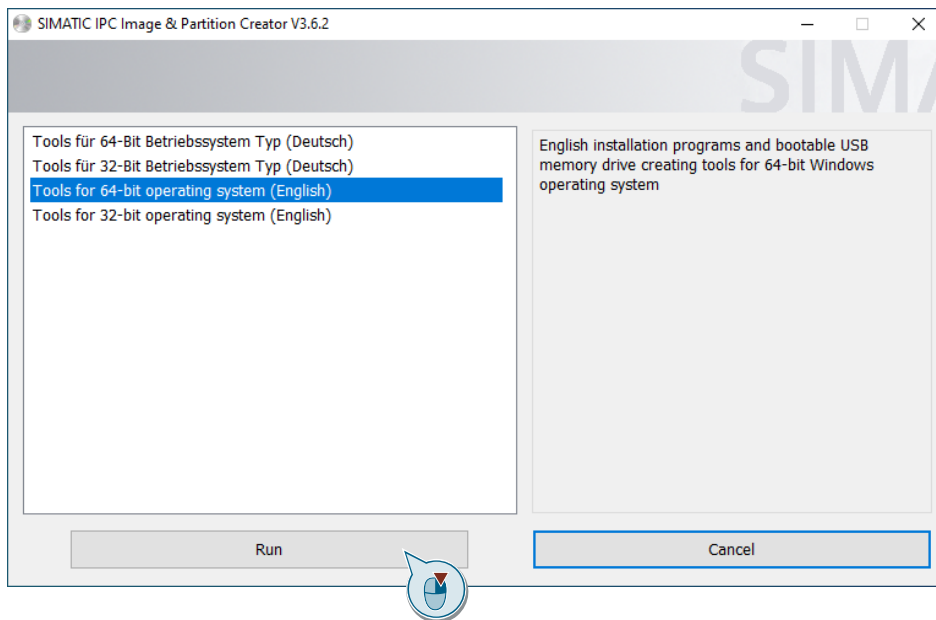
2. Launch the "Image & Partition Creator" program from the inserted storage device by double-clicking on "Start_ImagePartitionCreator".

Figure 2-69



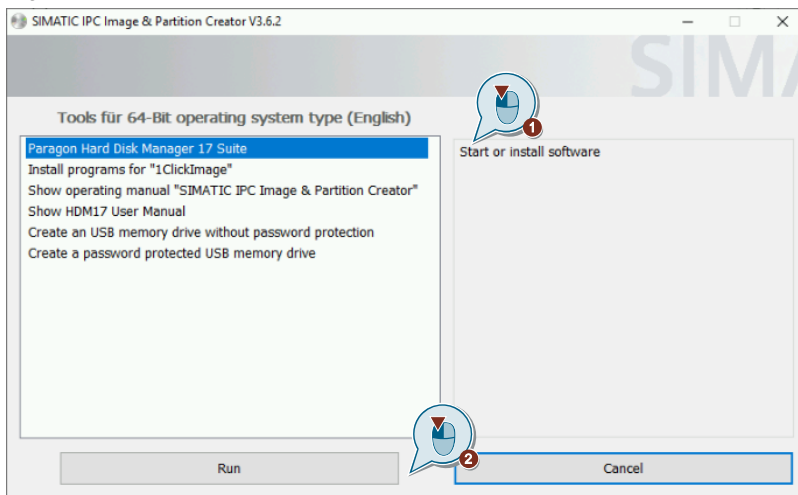
3. Select a language option from the installation programs and bootable drive creation tools, then click "Run".

Figure 2-70



4. Select the "Paragon Hard Disk Manager 17 Suite" in the selection screen (1). Confirm your selection with the "Run" button (2).

Figure 2-71



5. Then the Paragon Hard Disk Manager window will open. Click the "Installation" button and follow the installation instructions.

Figure 2-72

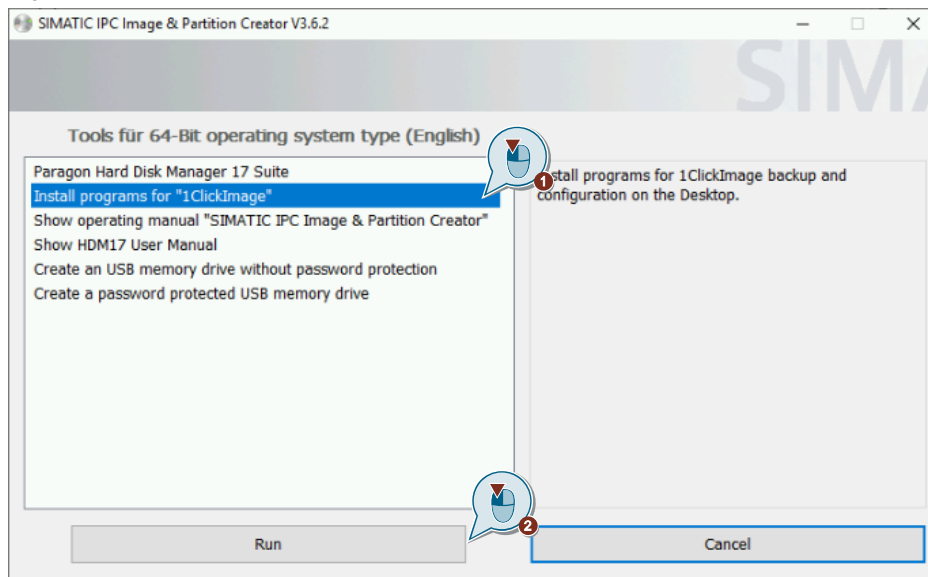


© Siemens AG 2022. All rights reserved

2.6.2 Install 1ClickImage

Install 1ClickImage on your SIMATIC IPC so that you can configure and run it. Launch SIMATIC Image & Partition Creator from your USB storage drive as described in chapter [2.6.1](#), Steps 1-3. In the selection screen, select 'Install programs for "1ClickImage"' (1). Confirm your selection with the "Run" button (2). Follow the installation instructions.

Figure 2-73



2.6.3 Configure and generate 1ClickImage

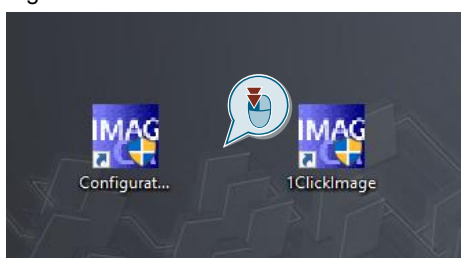
1ClickImage requires a series of parameters in order to create an image at the press of a button.

The tutorial below describes an example of how you can set up this configuration and create a backup.

The system partition of a SIMATIC IPC477E is selected for the backup. The storage location is an external hard disk connected to the SIMATIC IPC via a USB port.

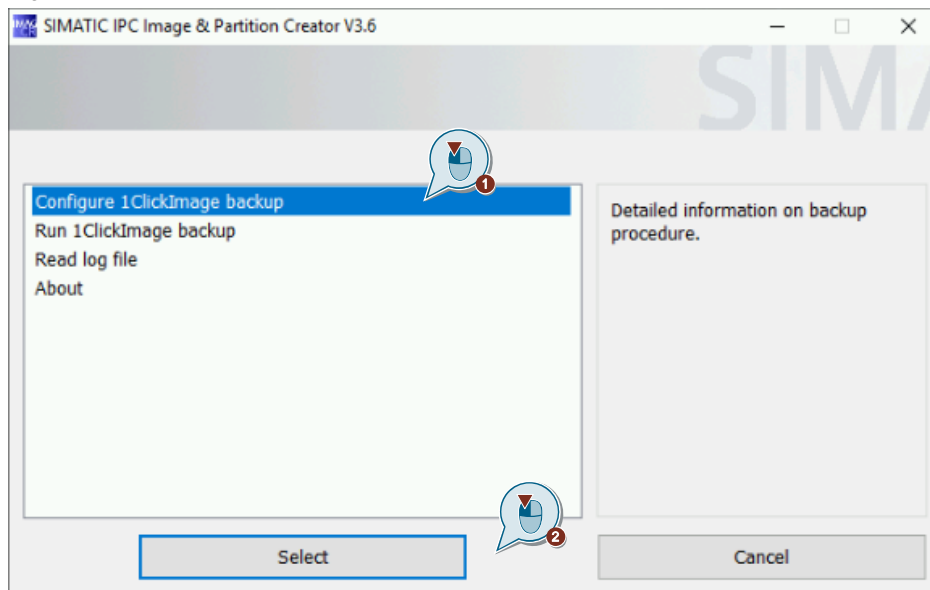
6. Double-click on the desktop icon "Configuration". If no desktop icons were created, you will find the links to the applications in the Windows Start menu.

Figure 2-74



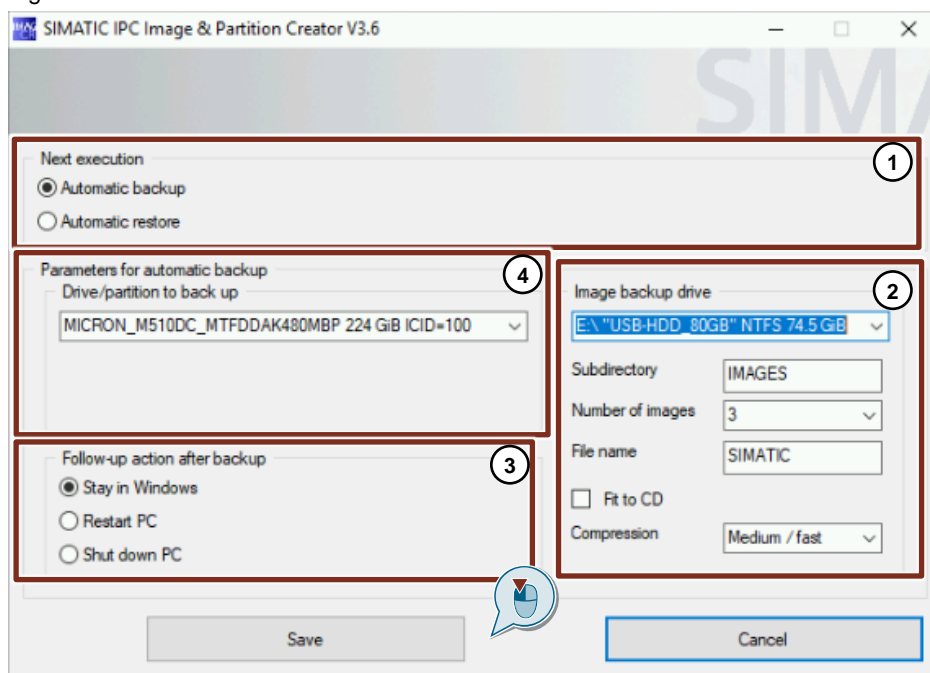
7. In the SIMATIC IPC Image & Partition Creator V3.6 window that opens, select the option "Configure 1ClickImage backup" (1). Confirm the selection with the "Select" button (2).

Figure 2-75



8. Set the backup parameters you want. The four configuration areas are explained in more detail below.

Figure 2-76



Configuration areas

1. Next execution

In this area you can decide whether to create or restore a backup.

2. Image backup drive

The storage location for the image is specified in this area. The name of the subdirectory and the name of the backup file are also set.

3. Follow-up action after backup

This area defines what action the computer should take after the backup is completed.

4. Parameters for automatic backup

This area is used to set which drive to back up. It is also possible to select external media.

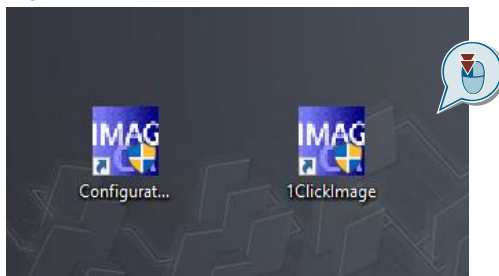
"Number of images" describes how many images can be saved at the same time. They are numbered in the subdirectory. When the maximum number of backups is reached, the oldest backup is overwritten.

The "Fit to CD" checkbox splits the backup into files that are each the size of a CD.

The compression setting adjusts how much the backup should be compressed in size. High compression prolongs the duration of image creation.

9. After you have set all the configurations to your liking, confirm them with the "Save" button. This will close the configuration window.
10. Double-click the "1ClickImage" desktop icon to create a backup based on the parameters you configured.

Figure 2-77



11. You have started the creation of a 1ClickImage based on your requirements. The Windows Command Prompt window opens where you can view the details and progress of the backup. After completion of the backup process, this window closes automatically.

Figure 2-78

 A screenshot of a Windows Command Prompt window titled 'C:\windows\system32\cmd.exe'. The window displays the following text:


```
Windows Boot Loader
-----
identifier                {current}
device                    partition=C:
path                      \windows\system32\winload.efi
description                Windows 10
locale                    en-US
inherit                   {bootloadersettings}
recoverysequence          {a8a2fcbe-8041-11ec-a977-d6a17d36d485}
displaymessageoverride    Recovery
recoveryenabled           Yes
isolatedcontext           Yes
allowedinmemorysettings  0x15000075
osdevice                  partition=C:
systemroot                \windows
resumeobject              {a8a2fcbe-8041-11ec-a977-d6a17d36d485}
nx                        OptIn
bootmenupolicy            Standard
Updating system...
Processing partition 0 (Disk 0, Offset 0x800) ...
Copying volume...
Scan volume...
Calc files hash...
Copy data by sector
Copy data by cluster
Processing partition 1 (Disk 0, Offset 0x82800) ...
Copying volume...
Copy data by sector
50% 00:00:58(Elapsed) 00:00:58(To finish) Overall(50% 00:00:58(Elapsed))
```


Result

You have successfully created a 1ClickImage according to your requirements. The backup is located in the destination path that you chose earlier.

2.6.4 Restore a backup created with 1ClickImage

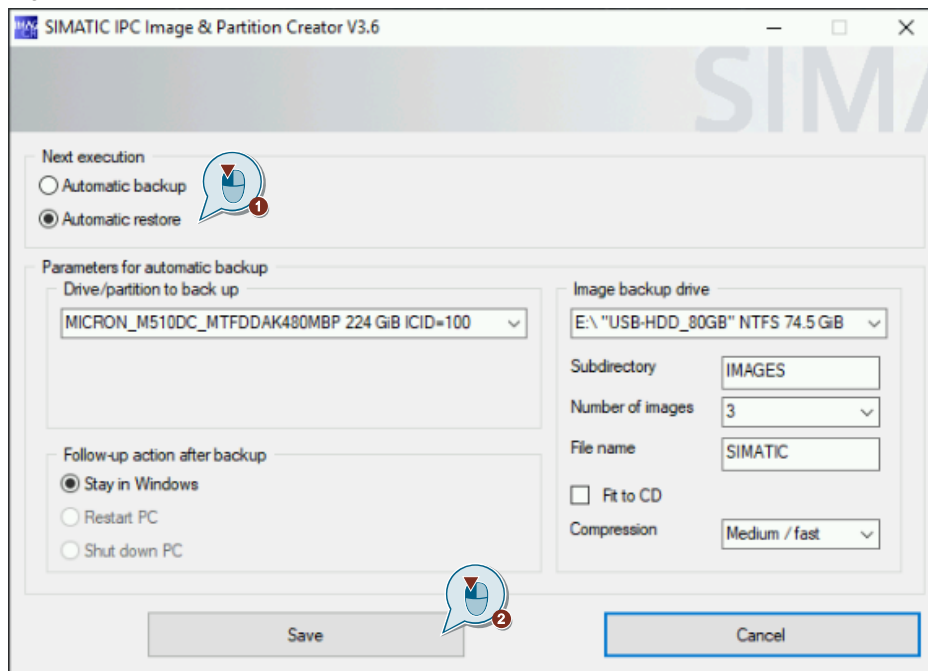
This tutorial describes how to restore your SIMATIC IPC using 1ClickImage.

1. Open the configuration screen of 1ClickImage as described in chapter [2.6.3](#).
2. In the "Next execution" configuration area, change the settings to "Automatic restore" (1). Save the settings (2).

Note

Make sure that the correct backup source path has been set in the "Image backup drive" configuration area.

Figure 2-79



Note

The option in the "Next execution" configuration field will automatically revert to "Automatic backup" during the restore process.

3. Start the restore by double-clicking the "1ClickImage" icon on the desktop.

Figure 2-80



Note

If there is no current backup in the set path, the error number -1 is output in a window.

4. This is followed by various output screens; your computer will be restarted during the recovery process.

Figure 2-81

```
Loading Paragon Engine
Copyright 1994-2021 Paragon Software GmbH. All rights reserved.
Please wait ...

Flushing system buffers, please wait.....

Image: E:\IMAGES\001\SIMATIC\SIMATIC.PFI
Restore disk #0 ...
Processing partition 0 (Disk 3, Offset 0x800) ...
Copying volume...
Scan volume...
Performance test
Copy data by sector
Copy data by cluster
Searching for Microsoft Windows on Hard Disk 0 ...
Processing partition 1 (Disk 3, Offset 0x82800) ...
Copying volume...
Copy data by sector
Searching for Microsoft Windows on Hard Disk 0 ...
Processing partition 2 (Disk 3, Offset 0xc2800) ...
Copying volume...
Scan volume...
Performance test
Copy data by cluster
Elapsed: 00:02:14 To finish: 00:01:51 [*****] 54%
```

Result

The last created 1ClickImage backup will be automatically restored from the preconfigured path.

3 Appendix

3.1 Service and support

Industry Online Support

Do you have any questions or need assistance?

Siemens Industry Online Support offers round the clock access to our entire service and support know-how and portfolio.

The Industry Online Support is the central address for information about our products, solutions and services.

Product information, manuals, downloads, FAQs, application examples and videos – all information is accessible with just a few mouse clicks: support.industry.siemens.com

Technical Support

The Technical Support of Siemens Industry provides you fast and competent support regarding all technical queries with numerous tailor-made offers

– ranging from basic support to individual support contracts. Please send queries to Technical Support via Web form:

www.siemens.com/industry/supportrequest

SITRAIN – Digital Industry Academy

We support you with our globally available training courses for industry with practical experience, innovative learning methods and a concept that's tailored to the customer's specific needs.

For more information on our offered trainings and courses, as well as their locations and dates, refer to our web page:

www.siemens.com/sitrain

Service offer

Our range of services includes the following:

- Plant data services
- Spare parts services
- Repair services
- On-site and maintenance services
- Retrofitting and modernization services
- Service programs and contracts

You can find detailed information on our range of services in the service catalog web page:

support.industry.siemens.com/cs/sc

Industry Online Support app

You will receive optimum support wherever you are with the "Siemens Industry Online Support" app. The app is available for iOS and Android:

support.industry.siemens.com/cs/ww/en/sc/2067

3.2 Links and literature

Table 3-1

No.	Topic
\1\	Siemens Industry Online Support https://support.industry.siemens.com
\2\	Link to the article page of this application example https://support.industry.siemens.com/cs/ww/en/view/109756568
\3\	SIMATIC IPC477E manual, "Opening the BIOS selection menu" https://support.industry.siemens.com/cs/ww/en/view/109749206/90926754187
\4\	Delivery release of SIMATIC IPC Image & Partition Creator V3.6 https://support.industry.siemens.com/cs/ww/en/view/109781271

3.3 Change documentation

Table 3-2

Version	Date	Modifications
V1.0	06/2018	First version
V1.1	03/2022	Revision for software version V3.6 Added chapter 2.2 Added chapter 2.3