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Restore Open Controller 2 with Restore Image

Open Controller 2

https://support.industry.siemens.com/cs/ww/en/view/Entry_ID

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1 Introduction

1.1 Overview

This application example shows how to restore an Open Controller 2 by using a Restore Image V20.8. Therefore, a bootable USB flash drive gets created and the restore Image gets stored on it. Afterwards the Open Controller 2 gets booted from this USB flash drive. In addition, the example shows how to update CPU 1505 SP (F) from V20.8 to V21.8 and how to update the real time clock module.

1.2 Components used

This application example has been created with the following hardware and software components:

Table 1-1

Component	Number	Article number	Note
Open Controller 2	1	6ES7677-2...	
SIMATIC CFAST memory card 128 GB	1	6ES7648-2BF10- 0XM1	

This application example consists of the following components:

Table 1-2

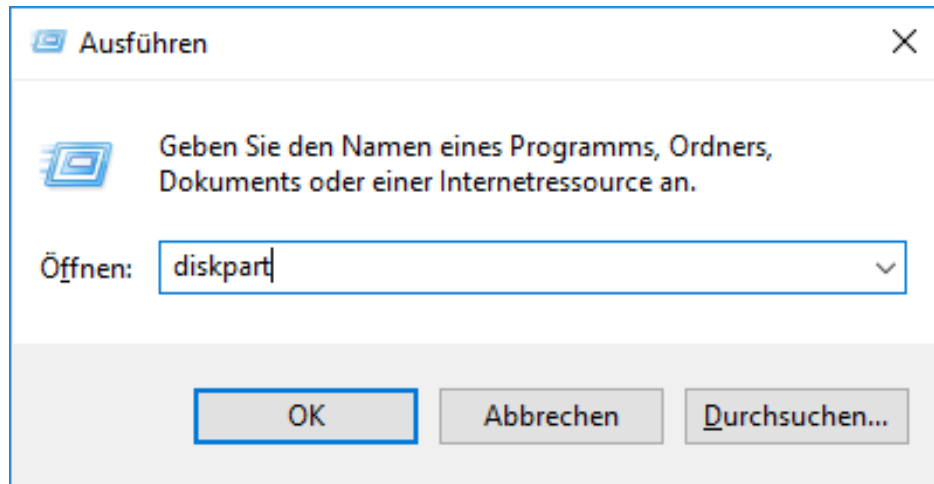
Component	File name
Documentation	Restore_OC2_V20-8_EN.docx
Open Controller 2 V20.8 Restore Image	

2 Engineering

2.1 Create bootable USB flash drive

1. Connect USB flash drive to your computer
2. Start Program "**diskpart.exe**" from the run command

Figure 2-1 start of diskpart.exe



3. Enter the command "**list disk**"

Figure 2-2 execution of command "list disk"

```
C:\WINDOWS\system32\diskpart.exe

Microsoft DiskPart-Version 10.0.15063.0

Copyright (C) Microsoft Corporation.
Auf Computer: IPC547G-PC

DISKPART> list disk

  Datenträger ###  Status      Größe   Frei     Dyn  GPT
  -----
  Datenträger 0    Online      223 GB   0 B
  Datenträger 1    Online      931 GB   0 B
  Datenträger 2    Online     1863 GB 1024 KB
  Datenträger 3    Online       29 GB   0 B

DISKPART>
```

4. Select the USB flash drive which you have connected to your computer with the command "**select disk #**"

NOTE

The number on your PC can be different from the screenshot. Make sure to select the correct USB media!

Figure 2-3 execution of command "select disk #"

```
DISKPART> select disk 3  
  
Datenträger 3 ist jetzt der gewählte Datenträger.  
  
DISKPART>
```

5. Delete all data on the USB media with the command "**clean**"

NOTICE

This step will delete all data on the USB media.

Figure 2-4 execution of command "clean"

```
DISKPART> clean  
  
Der Datenträger wurde bereinigt.  
  
DISKPART>
```

6. Convert the USB media to MBR format with the command "**convert mbr**"

Figure 2-5 execution of command "convert mbr"

```
DISKPART> convert mbr  
  
Der gewählte Datenträger wurde erfolgreich in MBR-Format konvertiert.  
  
DISKPART>
```

7. Create a partition with the command "**create partition primary**"

Figure 2-6 execution of command "create partition primary"

```
DISKPART> create partition primary  
  
Die angegebene Partition wurde erfolgreich erstellt.  
  
DISKPART>
```

- Format the USB media to NTFS format with the command "**format fs=ntfs quick label=USBStick**"

Figure 2-7 execution of command "format fs=ntfs quick label="USB-Restore""

```
DISKPART> format fs=ntfs quick label="USB-Restore"

100 Prozent bearbeitet

DiskPart hat das Volume erfolgreich formatiert.

DISKPART>
```

- Mark the partition as active with the command "**active**"

Figure 2-8 execution of command "active"

```
DISKPART> active

Die aktuelle Partition wurde als aktiv markiert.

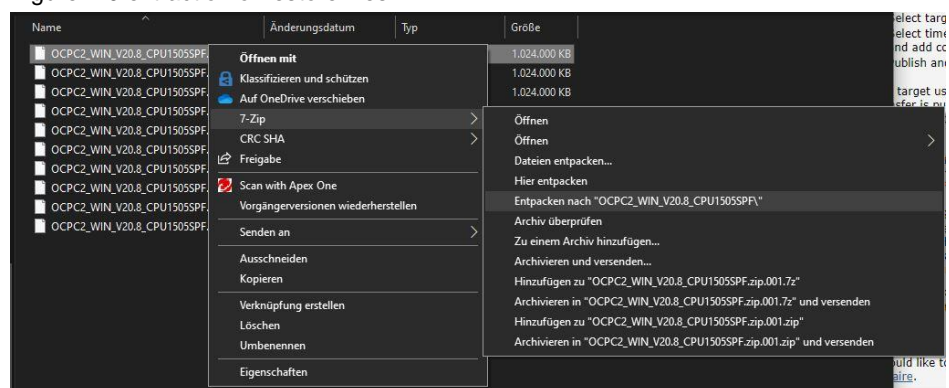
DISKPART>
```

- Exit the program with the command "**exit**"

2.2 Extract Restore Image and copy it to USB flash drive

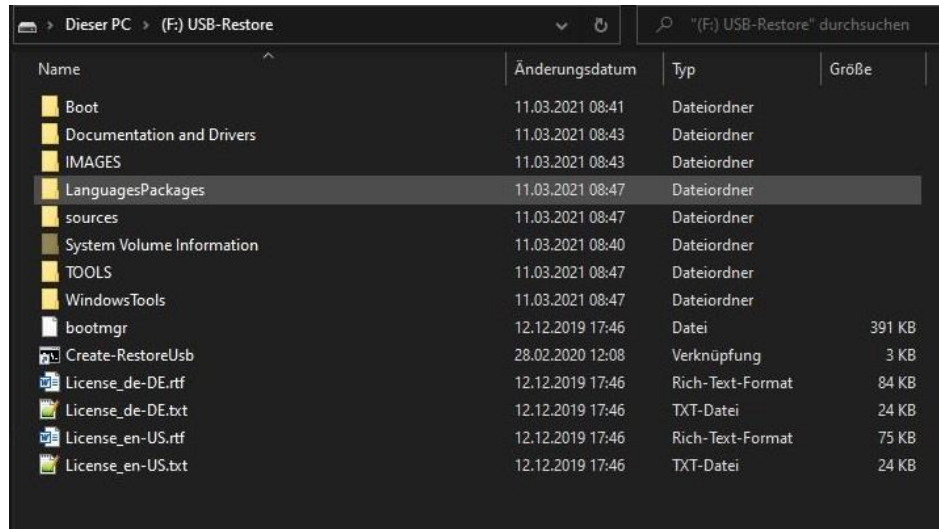
- Extract restore files with 7-zip with a right-click to the first file -> 7-zip -> Extract to "folder"

Figure 2-9 extraction of restore files



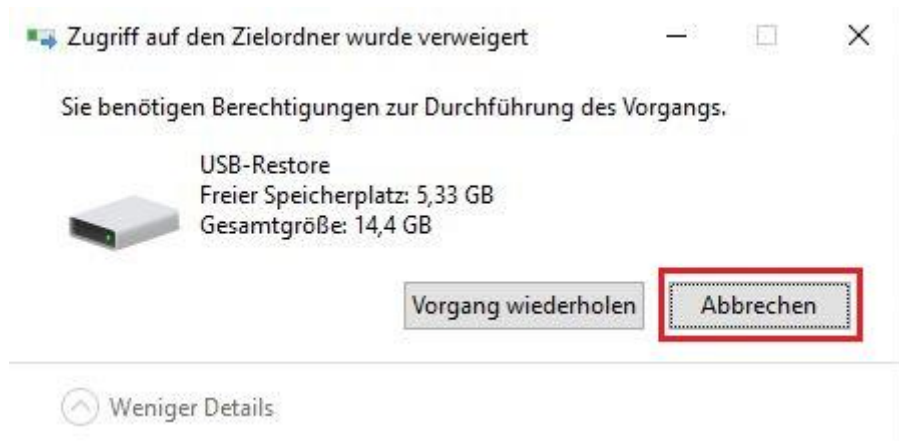
2. Copy extracted files to the USB flash drive

Figure 2-10 copied files on USB flash drive



3. When the copying is finished a pop-up window appears that you need to have administrative rights. Click on "Cancel"

Figure 2-11 pop-up window shown after copying



2.3 Boot Open Controller from this USB flash drive

1. Connect the USB flash drive to the Open Controller
2. Connect a monitor, a keyboard, and a mouse to the Open Controller
3. Power On the device
4. Press “ESC” to change boot device
5. Select the USB drive by pressing the number it is assigned to. It is “2” in this case

Figure 2-12 Overview of boot devices

```
SeaBIOS (version rel-1.12.0-36-g9ccace9)
Select boot device:

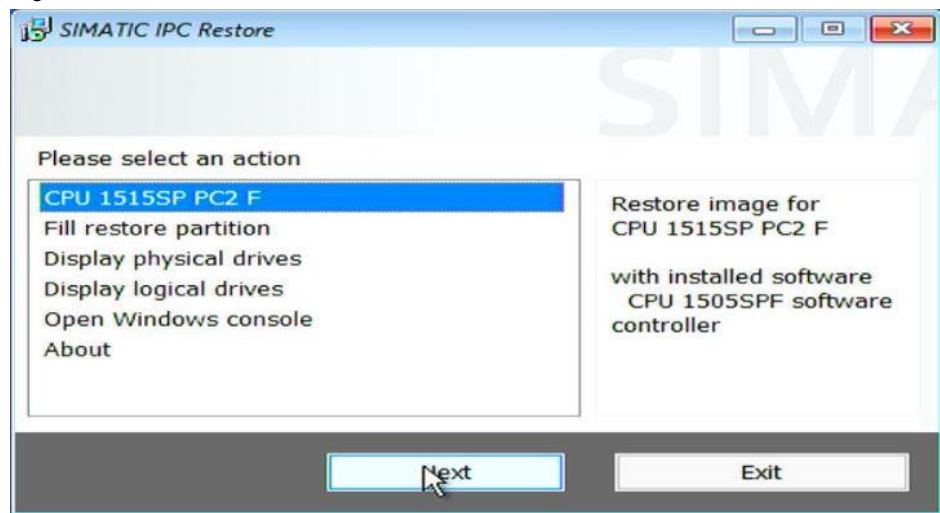
1. AHCI/0: SIMATIC IPC CFast 30 GByte ATA-9 Hard-Disk (28626 MiBytes)
2. USB MSC Drive ADATA USB Flash Drive 1100
3. IBA GE Slot 0400 v1570

PRESS F1 - To change bootorder.
```

NOTE This is just an Example. The USB Drive can have another name or number. Choose your USB drive.

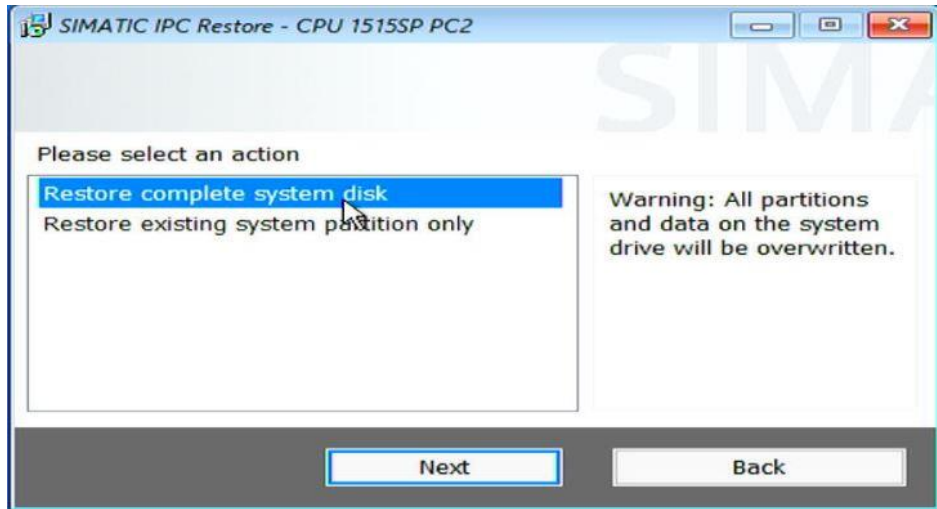
6. Follow the instructions and choose a language
7. In the next step choose “CPU 1515SP PC2 (F)” and click on “Next”

Figure 2-13 SIMATIC IPC Restore



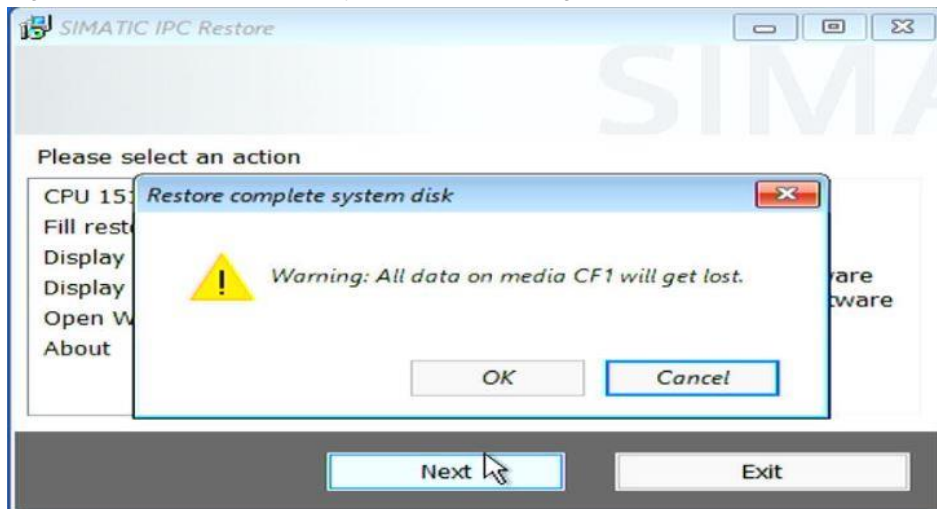
8. Choose "Restore complete system disk" and click on Next

Figure 2-14 SIMATIC IPC Restore CPU 1515SP PC2



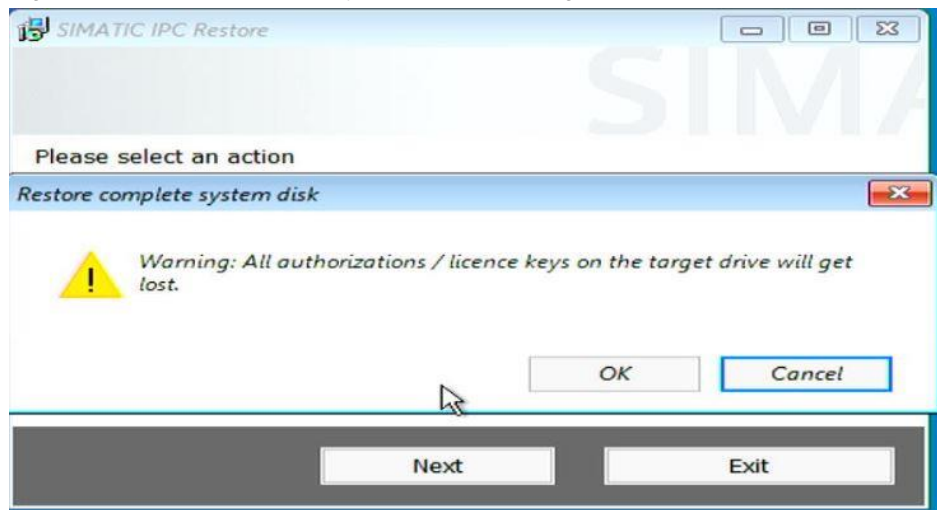
9. Confirm that all data will be erased by clicking "OK"

Figure 2-15 Restore complete system disk – Warning of data loss



10. Confirm that all licenses will be lost

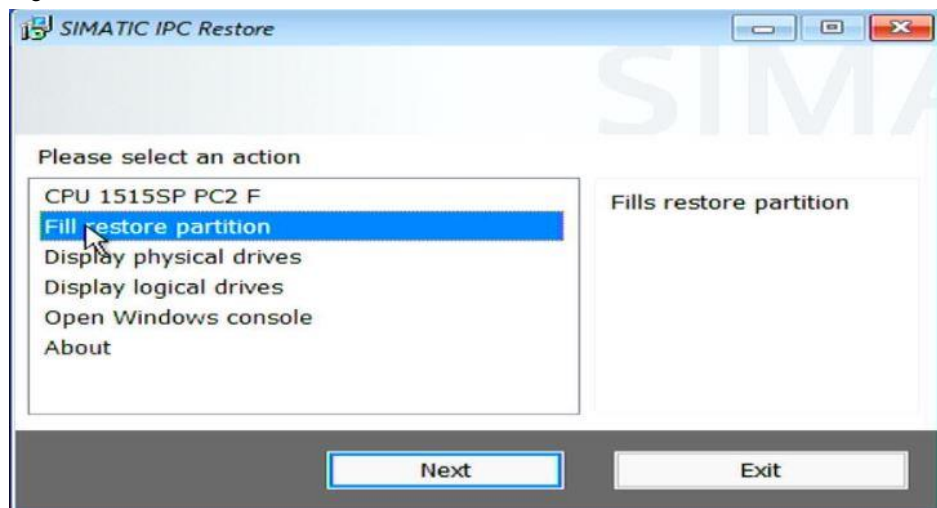
Figure 2-16 Restore complete system disk – Warning of license lose



NOTE Make sure to have all license recovered on the device if there are any

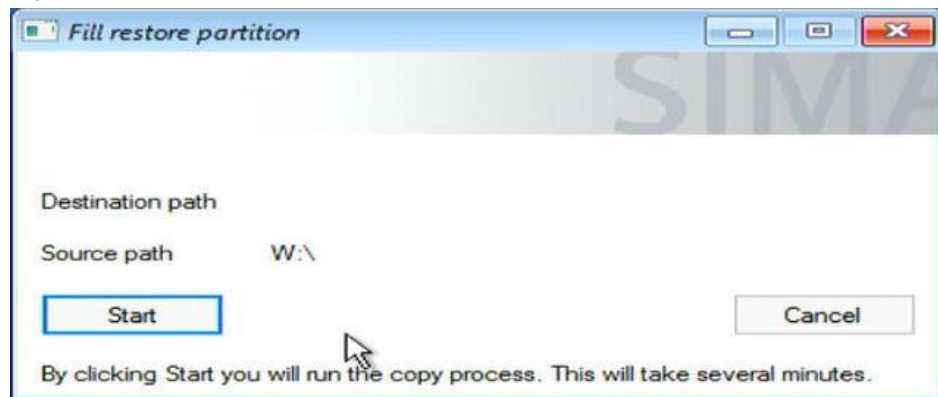
11. The Restore process is being executed
12. When the process is finished the start menu appears again
13. Choose "Fill Restore" partition and click on "Next"

Figure 2-17 SIMATIC IPC Restore start menu



14. Click on "Start" and the partition E:/ will be filled with the Restore Image

Figure 2-18 Fill restore partition window



15. Once this process is done the start menu appears again. Click on "Exit" to reboot the device
16. Now the Open Controller is at delivery state and you can configure the Windows

2.4 Update CPU 1505SP (F) from V20.8 to V21.8

1. Download the update .exe for CPU 1505SP (F) V21.8 on <http://support.automation.siemens.com/WW/view/en/109759122>
2. Boot the Open Controller in "Windows only" mode
3. Copy the .exe of the CPU 1505SP V21.8 to the Open Controller
4. Execute the .exe and follow the setup
5. Once the update is done reboot the Open Controller in "Windows and CPU150xS" mode
6. Now the V21.8 is installed

2.5 Update Real Time Clock Module

Source: <https://support.industry.siemens.com/cs/de/en/view/109781446>

1. Switch on the power supply of the CPU 1515SP PC2 to start the boot manager GRUB2DOS
2. Select the Windows mode to start the CPU 1515SP PC2.
3. Change the user and log in with an account with administrator rights.

NOTE

You need administrator rights for the following steps

4. Stop the "etclksvc" process.
 - a. Press the key combination "[Windows] + [X]" and from the pop-up menu you select "Task Manager".
 - b. In the Task Manager you select the "Processes" tab.
 - c. Right-click the "etclksvc" process and in the pop-up menu you select the "End task" function.
5. In the Device Manager you uninstall the device "WDF Driver for SPI Clock".
 - a. To open the Device Manager, press the key combination "[Windows] + [X]" and select "Device Manager" from the displayed pop-up menu.
 - b. Click the "Embedded Devices" button to open the "Embedded Devices" dialog.
 - c. In the "Embedded Devices" dialog you right-click the driver of the device "WDF Driver for SPI Clock" and in the pop-up menu you select "Uninstall device".
 - d. In the "Uninstall device" dialog that opens you enable the option "Delete driver software for this device" and click OK.
6. In the Windows Explorer, delete the file "C:\Windows\system32\etclksvc.exe".
7. Delete the "etclksvc" service.
 - a. Press the key combination "[Windows] + [X]" and from the pop-up menu you select "Command Prompt (Admin)".
 - b. If necessary, confirm the "User Account Control" pop-up to start the input field.
 - c. In the "Command Prompt" dialog, enter the command "sc delete etclksvc" and confirm with "Return". The prompt displays "[SC] DeleteService SUCCESS" and the service is deleted.
8. Shut down the SIMATIC ET 200SP Open Controller PC2 completely and properly and then disconnect the power supply for a short moment.
9. Restart the Boot Manager GRUB2DOS and select the Windows mode for the Start of the CPU 1515SP PC2.
10. Change the user again and log in with an account with administrator rights.

11. Install the current driver.
 - a. Press the key combination "[Windows] + [X]" and from the pop-up menu you select "Command Prompt (Admin)".
 - b. If necessary, confirm the "User Account Control" pop-up to start the input field.
 - c. If you have a **CPU 1515SP PC2 F**, in the "Command prompt" dialog you switch to the directory "E:\Documentation and Drivers\DRIVERS\CPU 1515SP PC2 (F) CLOCK SYNCHRONIZATION SERVICE".
 - d. If you have a **CPU 1515SP PC2**, in the "Command prompt" dialog you switch to the directory "E:\Documentation and Drivers\DRIVERS\CPU 1515SP PC2 CLOCK SYNCHRONIZATION SERVICE".
 - e. In this directory you run the batch file "install_etclock_etclksvc.bat".
 - f. Confirm the message "Do you want to install this software?" by clicking the "Install" button.

NOTE The input window displays the message "Drivers installed successfully". [SC] CreateService SUCCESS. [SC] ChangeServiceConfig2 SUCCESS".

NOTE You can also run this file on the USB Restore stick

3 Appendix

3.1 Service and support

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3.3 Links and literature

Table 3-1

No.	Topic
\1\	Siemens Industry Online Support https://support.industry.siemens.com
\2\	Link to this entry page of this application example https://support.industry.siemens.com/cs/ww/en/view/Entry_ID
\3\	Link to the updates for SIMATIC ET 200 SP Open Controller http://support.automation.siemens.com/WW/view/en/109759122

3.4 Change documentation

Table 3-2

Version	Date	Modifications
V1.0	03/2021	First version