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SINUMERIK One / MCU1720 / PU.5 / CMVM

Installation **05/2023**

SINUMERIK Integrate Create MyHMI /3GL (Installation)

Manufacturer Documentation

SIEMENS

SINUMERIK One / MCU1720 / PU.5 / CMVM

SINUMERIK Integrate Create MyHMI /3GL (Installation)

Installation

Valid for

Software release 6.22

05/2023

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SINUMERIK® documentation

Edition history

Brief details of this edition and previous editions are listed below.

The status of each edition is shown by the code in the ”Remarks" columns.

Status code in the ”Remarks" column:

A .... New documentation.
B .... Unrevised reprint with new order number.
C .... Revised edition with new revision level.

Edition	Order No.	Remark
05/2023	-----	**A**

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We have checked that the contents of this document correspond to the hardware and software described. Nonetheless, differences might exist and therefore we cannot guarantee that they are completely identical. Nevertheless, the information contained in this document is reviewed regularly and any necessary changes will be included in subsequent editions.

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Order No. -----

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1

1 Installation SINUMERIK Integrate Create MyHMI /3GL

1.1 Procedure

Precondition

A PC with Windows 10 with at least 12 GB available hard disk storage and 1024 MB main memory is required for installation. In addition, Microsoft Visual Studio 2022 (Professional Edition) must be installed.

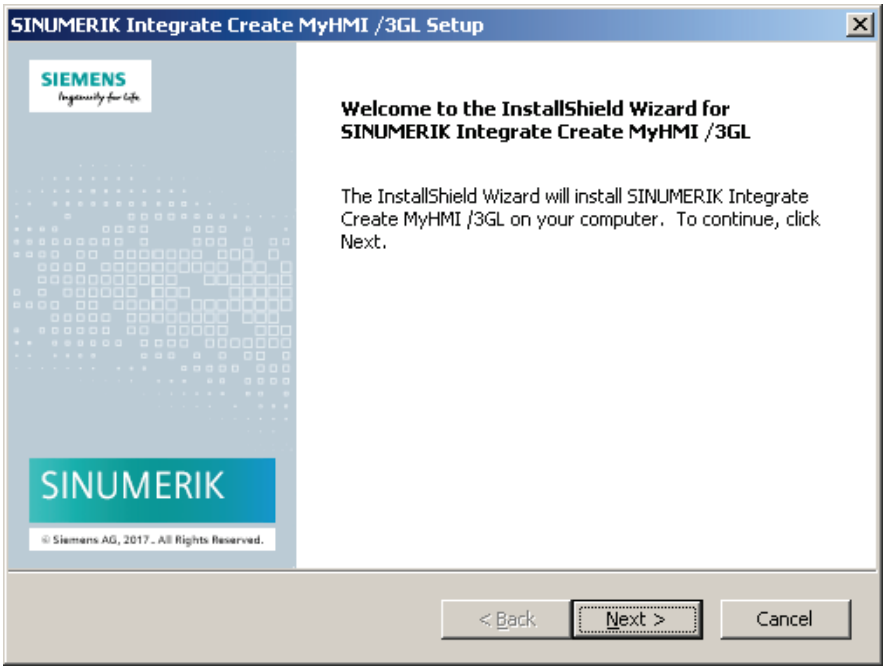
As a minimum, Oracle Virtual Box software version 5.2.2 is required for the generation for the target system Linux Embedded.

"Microsoft .NET 6.0 SDK" software is required to use .Net Api

Local administrator rights are required for the installation.

Welcome dialog

When the setup is started, a welcome dialog appears.

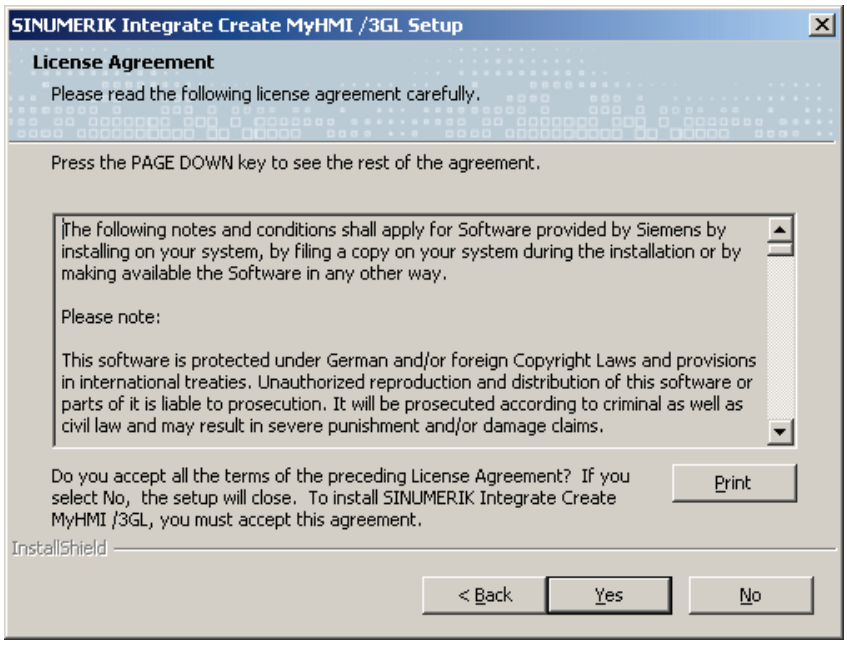


Click 'Next' to proceed to the next dialog or 'Cancel' to cancel the setup.

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License dialog

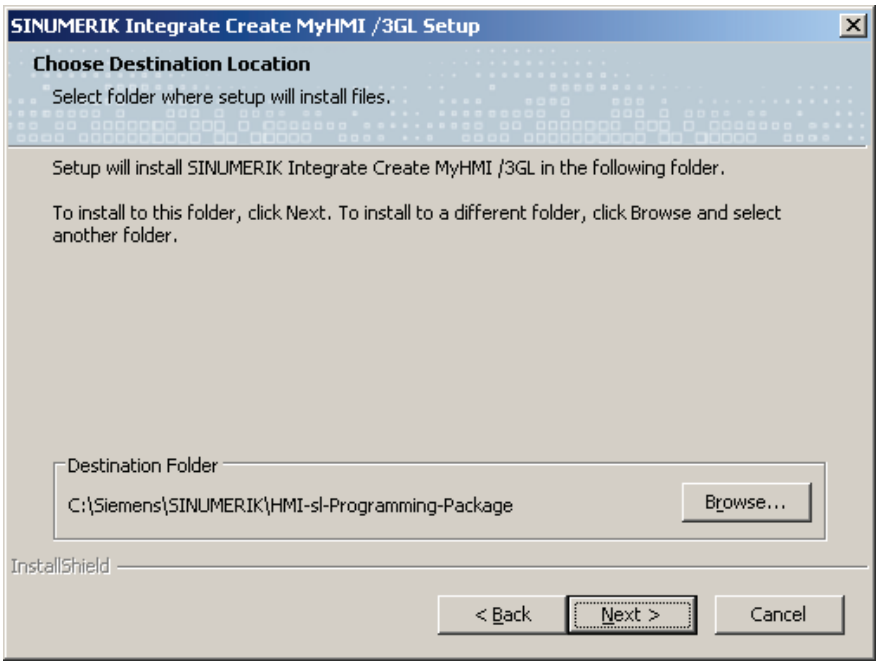
The license conditions are presented in the next dialog.



To install the SINUMERIK Integrate Create MyHMI /3GL, you must click 'Yes' to accept the license conditions.

Installation directory

The installation directory is specified in the next dialog.

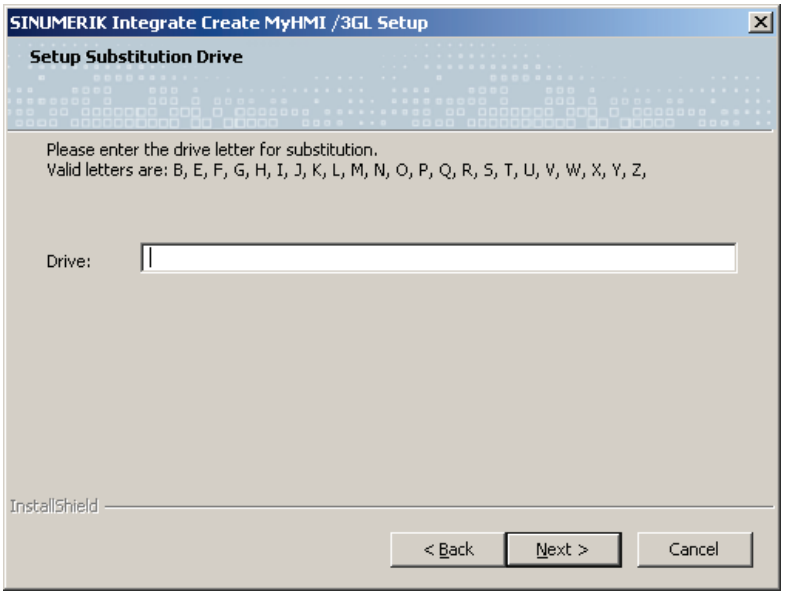


The default path is 'C:\Siemens\Sinumerik\HMI-sl-Programming-Package'.

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Substitution drive

In this dialog, you specify the drive letter on which the SINUMERIK Integrate Create MyHMI /3GL is to be substituted.

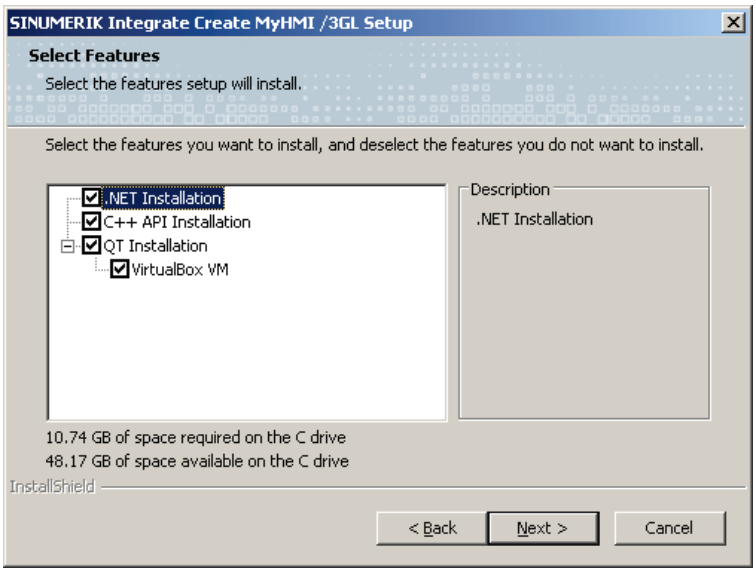


This is done so that multiple versions can be installed and operated in parallel. If a version is already installed, this dialog does not appear. Instead, the drive letter specified during the initial installation is used.

Future file paths usually refer to the substituted drive.

Selection of the features

The features to be installed are selected in the following dialog.

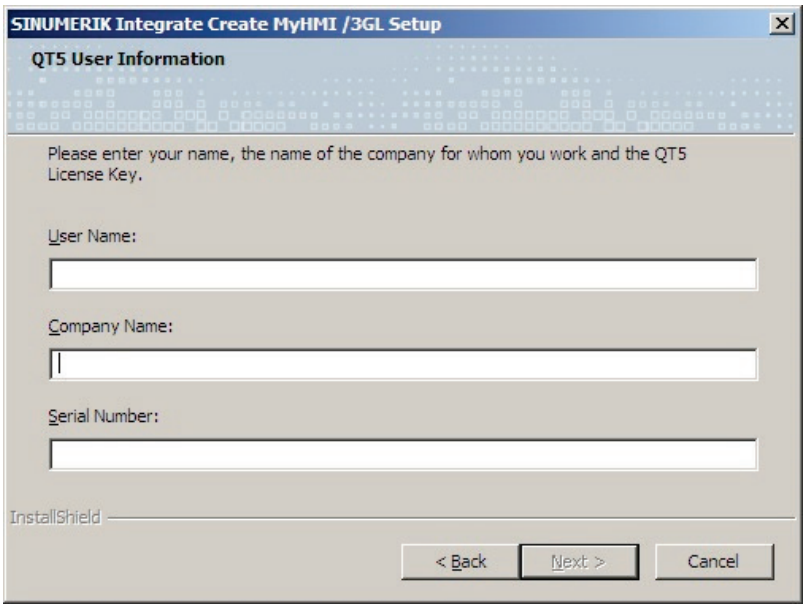


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License number

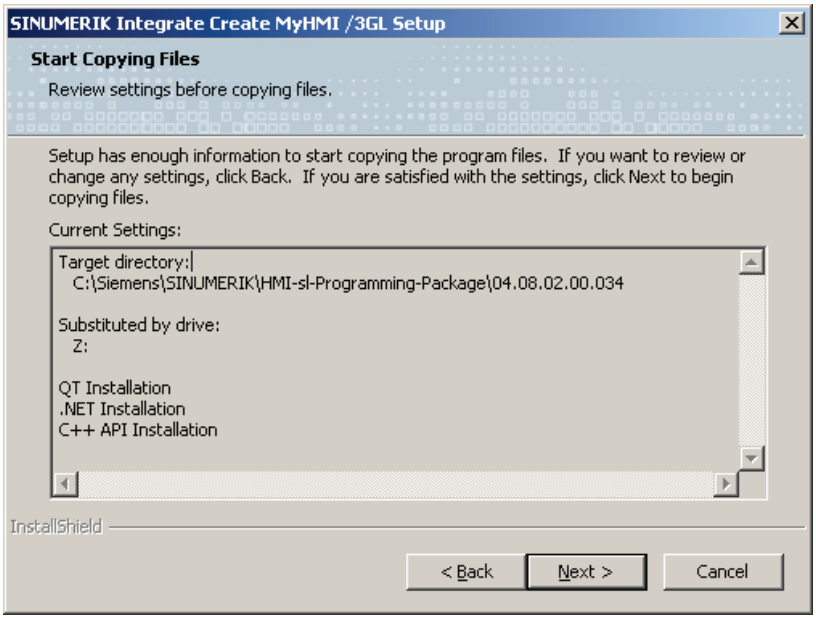
The QT5 license key must be entered along with your name and company in the next dialog.

This dialog is only displayed if the "QT Installation" feature was set.



Summary

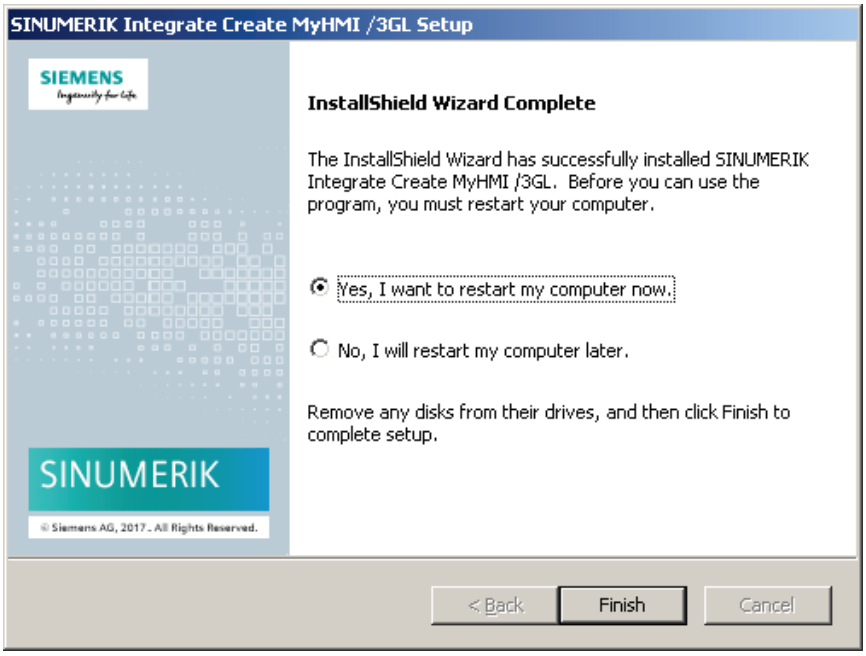
This dialog displays a summary prior to starting the actual setup.



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End

You now receive a message indicating that SINUMERIK Integrate Create MyHMI /3GL has been successfully installed.



The functions of the SINUMERIK Integrate Create MyHMI /3GL are available after the computer has restarted.

Overview of the generated directories

After installation, the following files/directories are present in the substituted drive.

Table 2-1: Files and directories

\characteristic	Includes the configuration and connection to the control being used
\documentation	Includes the documentation for SINUMERIK Integrate Create MyHMI /3GL
\hmisl	Contains the binaries from HMI
\hmisl\oem\sinumerik\hmi	Extensions are saved here (own HMI dialogs, extensions of configuration files)
\examples	Contains the Qt examples of SINUMERIK Integrate Create MyHMI /3GL
\examples.CPP	Contains the CPP examples of SINUMERIK Integrate Create MyHMI /3GL
\examples.NET	Contains the .NET examples of SINUMERIK Integrate Create MyHMI /3GL
\gui	Header files of the GUI components
\include	Other header files
\virtualbox	Contains all of the necessary files for Linux Embedded to generate
\work	Working directory for the VirtualBox. (see also Chapter 3)

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Overview of the generated start menu entries

The following start menu entries are available after the installation. Start with:

```
Start → Siemens Automation
```

Table 2-2: Available start menu entries

Start menu entry	Description
Wizard	Tool for displaying the Qt documentation.
Designer	Tool for creating Qt user interfaces.
Linguist	Tool for providing support for the translation of language-dependent texts.
Change resolution	Switches the screen resolution for testing various OPs, including: OP010 → **640**x480 OP012 → **800**x600 OP015 → **1024**x768 OP019 → **1280**x1024 Using this tool, it is possible to dynamically switch over the resolution while SINUMERIK Operate is running.
slCapTest (-colocated) cp_840Di *OR* slCapTest	Interactive test program for data accesses (read, write and monitor variables) Version 1) Starts the two programs "cp_840Di" and "slCapTest (-colocated)" successively. It is now possible to simulate data accesses WITHOUT starting the HMI. Version 2) For running HMI, start only the "slCapTest" program. It is now possible to simulate data access operations WHILE the HMI is running (see also SinumerikOperate_QT.pdf, Chapter 5.2 "Interactive test interface")
errorLookup	Tool for obtaining the plain language explanation for error numbers that occur.
FindWindow	Tool for including OEMFrame applications (see also FindWindow.pdf).
slHmiConverterGui	Tool for manually converting files between the appropriate binary formats (e.g. TS language source to QM language file).
slTrcSvc	Tool for preparing trace outputs (see also SinumerikOperate_QT.pdf, Chapter 4.21.2 "Creating a trace")
Version switch	Tool for switching between various SINUMERIK Integrate Create MyHMI /3GL so they can be installed in parallel on a single development computer. Further, it is possible to toggle between the various control types.
Visual Studio Professional 2022	Starts Visual Studio 2022 with the required environment variables. (If Visual Studio is started in the usual manner, not all described functions operate correctly).

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build Linux	Generates specific sources for the Linux-Embedded target system (see also SinumerikOperate_QT.pdf, Chapter 3.1 "Generating for the Linux-Embedded target system")
HMI	Starts SINUMERIK Operate.
HMI (no timeout)	Starts SINUMERIK Operate without timeout (required for debugging).

Version switch – managing different SINUMERIK Integrate Create MyHMI /3GL

Using this tool, a user can switch between the different SINUMERIK Integrate Create MyHMI /3GL in two different ways:

1) by means of an interface (by starting the start menu entry)
2) by mean of a command line

The syntax for the command line call is as follows:

```
slppversionswitch.exe -setversion xx.xx.xx.xx.xxx -characteristic xx
```

(The "slppversionswitch.exe" is located under "[Install-Dir]\common\bin\")

Table 2-3: Parameter "slppversionswitch.exe"

Parameter	Description
-setversion	Version of the SINUMERIK Integrate Create MyHMI /3GL to be selected. The installed versions can be determined by specifying an invalid version: `slppversionswitch.exe -setversion ff`
-characteristic	Corresponds to selecting the connection (characteristic): SINUMERIK ONE SINUMERIK MCU1720 SINUMERIK PU.5 SINUMERIK CMVM

The following example requires Version V4.94 HF1 with a connection to SINUMERIK One.

```
slppversionswitch.exe -setversion 04.94.00.01.003
                      -characteristic "SINUMERIK ONE"
```

Version Switch – managing the connection (characteristic)

The SINUMERIK Integrate Create MyHMI /3GL can connect with four different control types.

- SINUMERIK ONE
- SINUMERIK MCU1720
- SINUMERIK PU.5
- SINUMERIK CMVM

You can toggle between these four control types using the Version Switch.

In order that the HMI can communicate with the corresponding NC, before (!) using the Version Switch, the IP address of the NCU must be entered in the relevant mmc.ini:

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SINUMERIK <control type>:
…\characteristic\SINUMERIK <Steuerungstyp>\siemens\sinumerik\hmi\cfg\mmc.ini

The Tool Version Switch can then be used to switch between these control types. After the start, the corresponding actual "characteristic" is displayed.

Notes

In the SINUMERIK Integrate Create MyHMI /3GL, i.e. on the development computer, mmc.ini may only be changed in these directories. Otherwise, changes that were possibly made are overwritten again by the Version Switch.

The original procedure, to change the mmc.ini directly in directories
'\hmisl\siemens\sinumerik\hmi\cfg\mmc.ini'
'\hmisl\oem\sinumerik\hmi\cfg\mmc.ini'
'\hmisl\user\sinumerik\hmi\cfg\mmc.ini'
…should no longer to be applied.

Each time that mmc.ini is changed, a "Set" should again be called, even if no other change was made.

The precondition for establishing a connection is that the appropriate network connection is entered for the "S7ONLINE" access point under "System control/Communication settings".

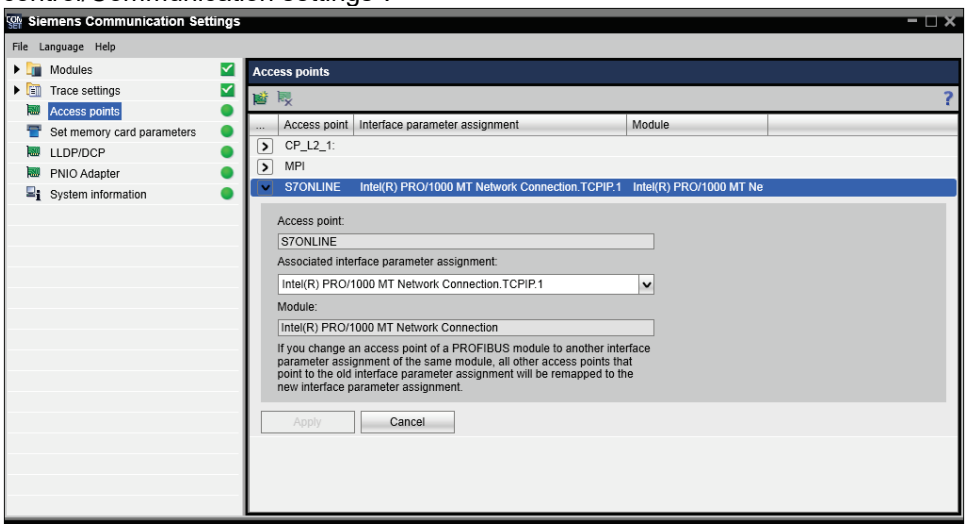


Fig. 1-1: Communication settings

Installing an older version of SINUMERIK Integrate Create MyHMI /3GL

If an older SINUMERIK Integrate Create MyHMI /3GL is installed **after** the installation of a newer version, you must then reinstall the newer version as an update so that the "VersionSwitch" tool and the "Visual Studio Wizard" function properly.

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2 Installation of SINUMERIK Operate Base

2.1 Procedure

Precondition

A PC with Windows 10 with at least 12 GB available hard disk storage and 1024 MB main memory is required for installation.

Start

A base installation of Operate (previously called HMI Base) is available in the"setup-baseonly" directory. This only includes the communication interfaces of the SINUMERIK Operate. Examples, Visual Studio Wizard, Linux for compilation, tools and also GUI components are not installed.

The appropriate setup is executed depending on the control type that is connected:
SINUMERIK One
SINUMERIK MCU1720 ➔ setup-baseonly\one

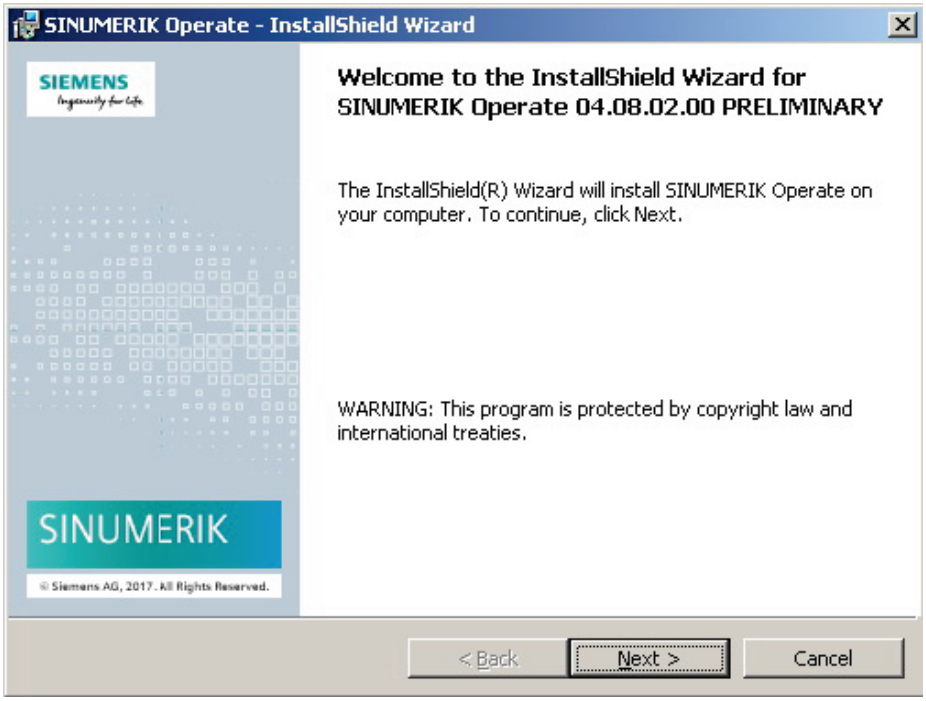
"Sinumerik_Operate_BaseOnly.exe" is run to install the software.

For the functionality of SINUMERIK Integrate Create MyHMI /3GL package, it is not necessary to install a SINUMERIK Operate Base. It is used for installation on a Sinumerik IPC as runtime environment (e.g. SINUMERIK MCU1720).

Welcome dialog

When the setup is started, a welcome dialog appears.

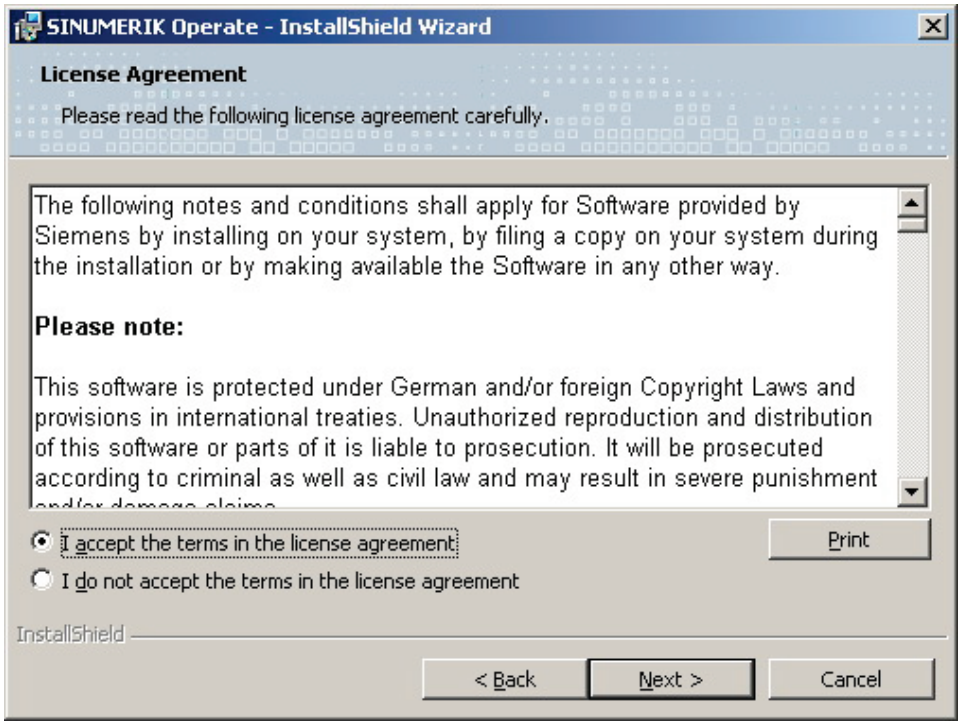
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Click 'Next' to proceed to the next dialog or 'Cancel' to cancel the setup.

License dialog

The license conditions are presented in the next dialog.

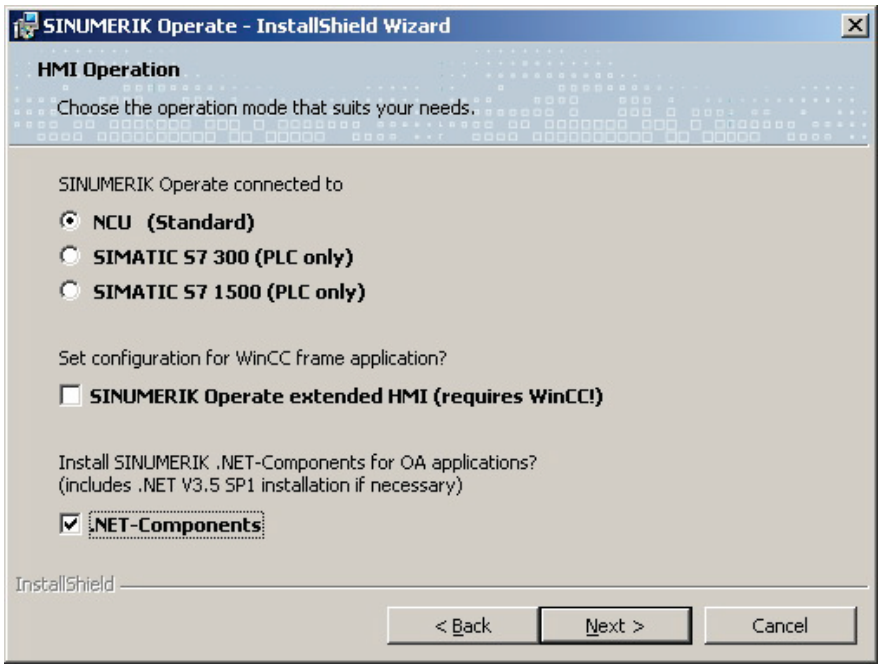


To install the SINUMERIK Operate Base, you must accept the license conditions.

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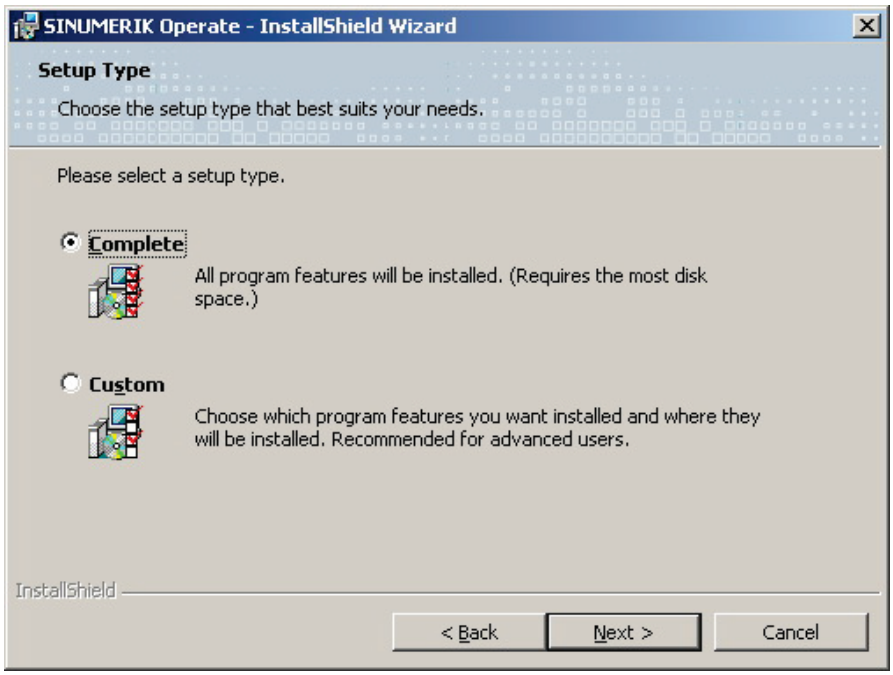
Connection

The following dialog specifies what is to be connected to SINUMERIK Operate. If you wish to use SINUMERIK Operate Base with a .NET application, then the checkmark must be set for '.NET-Components'.



Setup type

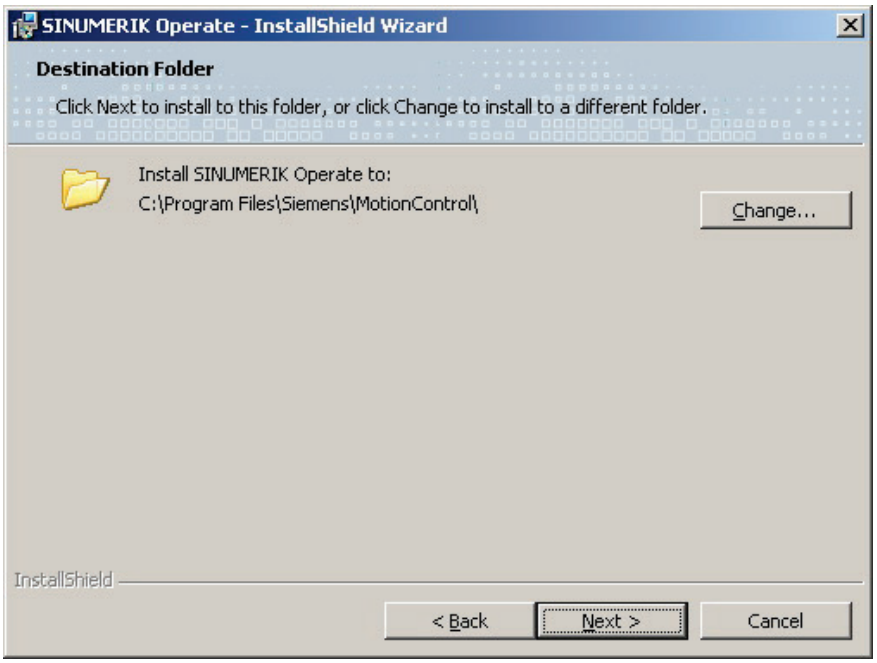
In the following dialog, select 'Complete'.



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Installation directory

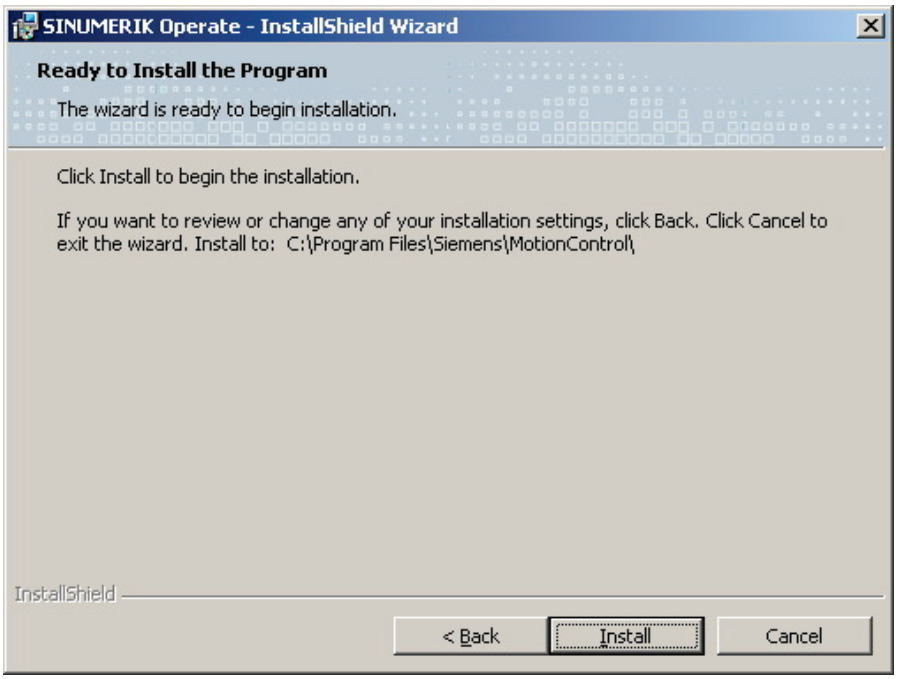
The installation directory is specified in the next dialog.



The standard path is 'C:\Program Files\Siemens\Sinumerik\HMIsl\'.

Summary

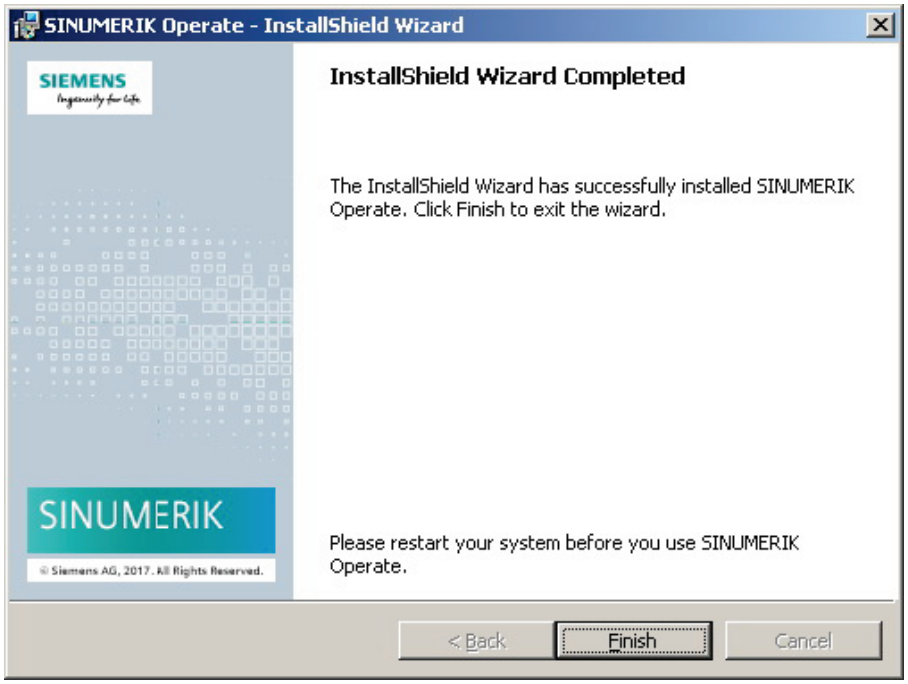
This dialog displays a summary prior to starting the actual setup.



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End

You now receive a message indicating that SINUMERIK Operate Base has been successfully installed.



Establishing a connection to the NC

In order for the HMI to communicate with an NC, the IP address of the NCU must now be entered in the mmc.ini. To do this, copy the '\hmisl\siemens\sinumerik\hmi\cfg\mmc.ini' file to '\hmisl\oem\sinumerik\hmi\cfg' and appropriately change.

Starting SINUMERIK Operate Base

To start SINUMERIK Operate Base, use the following Start menu entry:

Start → Siemens Automation → SINUMERIK Operate

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3

3 Connection Create MyVirtual Machine

3.1 Integrating into SINUMERIK Operate

Precondition

OEM applications can be integrated into a virtual machine. To do this, as a minimum the following software is required:
- SINUMERIK Create MyVirtual Machine V1.3 SP2
- SINUMERIK Run MyVirtual Machine V1.3 SP2

Currently, the following OEM applications are supported on a virtual machine:
- HMI-OA dialogs (with Qt interfaces)

Notes

Currently, OEMFrame applications and OEM applications, which use the .NET interface or CPP interface, cannot be integrated into a virtual machine.

Step 1 – start the virtual machine

Start the virtual machine using SINUMERIK Create/Run MyVirtual Machine.

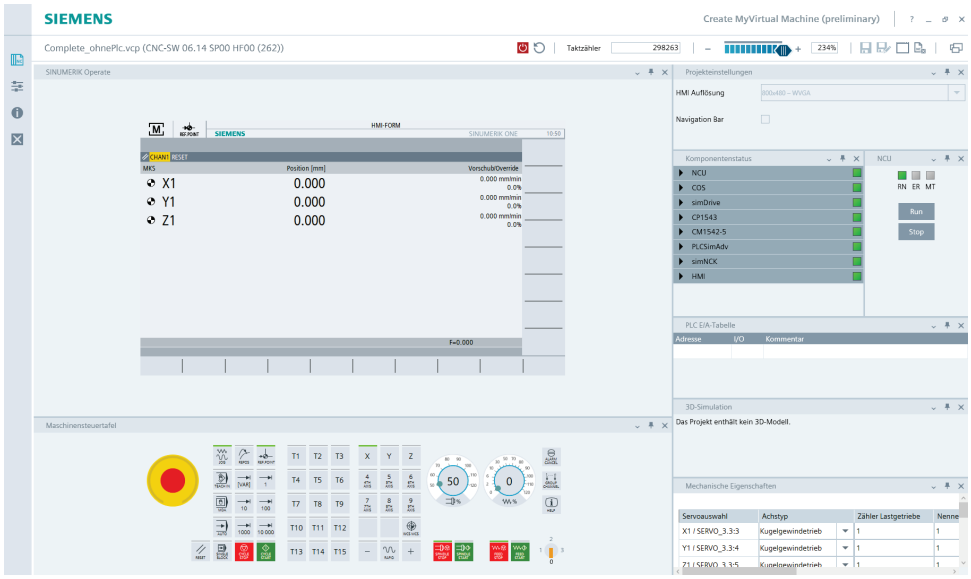


Fig. 4-1: Create MyVirtual Machine (without OEM application)

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Step 2 – integrate the OEM application

Open the memory card of the virtual machine in the file explorer.

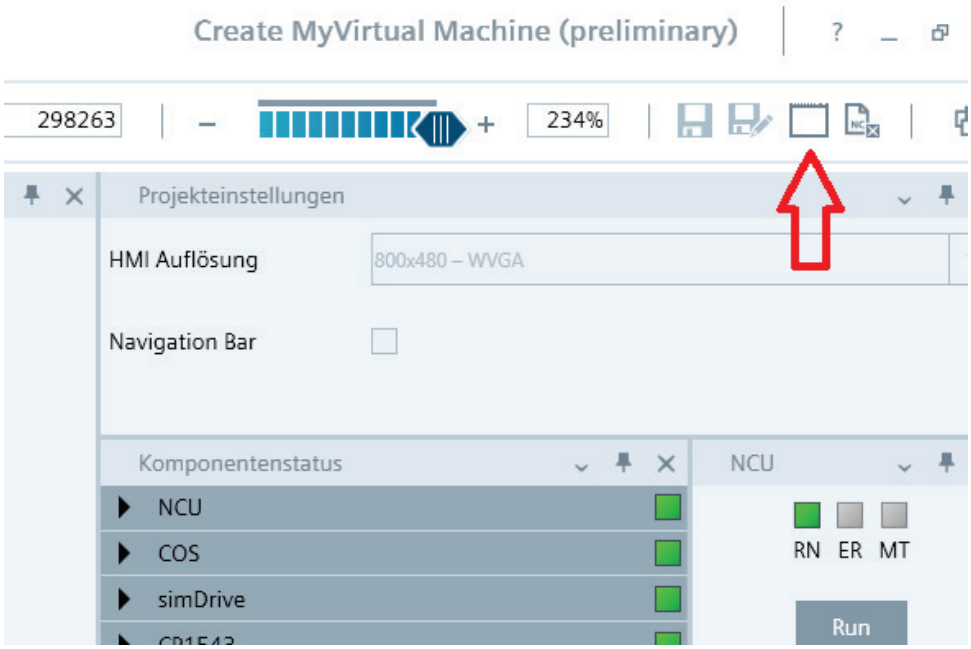


Fig. 4-2: Open the memory card

With the file Explorer open, navigate to:
…\oem\sinumerik\hmi

Save the OEM application here analogous to the other target systems:
⇨ "SinumerikOperate_QT.pdf", Chapter 4.17 Integrating the HMI dialog into SINUMERIK Operate

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Step 3 – restart the virtual machine

Now exit the virtual machine and restart.

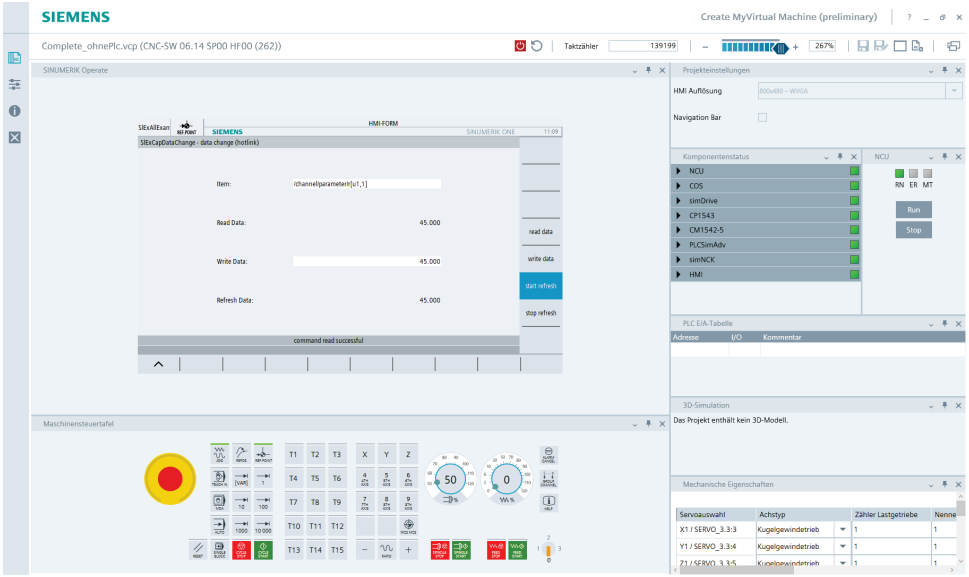


Fig. 4-3: Create MyVirtual Machine (with OEM application)

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4

4 Disclaimer

Security information

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

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Customers are solely 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.

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