# Motion Control Information System MCIS DNC Cell/Plant

## Installation Manual

### Valid for

SINUMERIK 840D sl / 840DE sl

<table>
<thead>
<tr>
<th>Software</th>
<th>version</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCIS DNC Cell/Plant</td>
<td>2.4.1</td>
</tr>
<tr>
<td>as of SINUMERIK Operate for PCU</td>
<td>2.6 SP1 HF5</td>
</tr>
<tr>
<td>as of SINUMERIK Operate for NCU</td>
<td>2.6 SP1 HF6</td>
</tr>
</tbody>
</table>

09/2011
Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠️ DANGER
indicates that death or severe personal injury will result if proper precautions are not taken.

⚠️ WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.

⚠️ CAUTION
with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.

⚠️ CAUTION
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.

NOTICE
indicates that an unintended result or situation can occur if the relevant information is not taken into account.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by personnel qualified for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠️ WARNING
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.
# Table of contents

1. Introduction .......................................................................................................................... 5
2. Prerequisite .......................................................................................................................... 7
   2.1 Licensing ......................................................................................................................... 8
3. Installation ................................................................................................................................ 9
   3.1 Installing DNC ................................................................................................................ 9
   3.2 Installing PC as MCIS server ........................................................................................ 12
   3.3 Installing PC as operator control and data acquisition computer .................................. 18
4. Update of DNC ..................................................................................................................... 23
5. Uninstalling DNC ................................................................................................................ 29
6. Configuring Windows XP with Service Pack 2 .................................................................... 33
7. Code conversion table .......................................................................................................... 35
8. Automatic import of NC programs ...................................................................................... 37
9. Installation of the eight-port card in a PC .......................................................................... 39
10. NC data comparison and parameterization of FTP for SINUMERIK .................................... 41
11. Problem solutions, tips and tricks ................................................................................... 43
    11.1 Documentation on the CD-ROM .................................................................................. 43
    11.2 DNC Cell/Plant with MCIS DNC IFC ........................................................................ 43
    11.3 Changing the background colors for DNCAadmin ..................................................... 44
    11.4 "Machine comparison" function for SINUMERIK with PCU/MMC103 ......................... 44
    11.5 Passwords and user logins ......................................................................................... 44
Introduction

DNC Cell/Plant

The DNC host computer system is used to connect networked and serial machines. A PC can be connected to DNC Cell. The management functions can only be operated from this PC.

Several CNC machines can be connected to DNC Plant. The CNC data is managed on a central server.
Prerequisite

Installing MCIS DNC Cell/Plant

You need administrator rights to perform the installation.
You will also need knowledge for the installation of software under Windows and operation of the operating system.

PC operating system

The following operating systems are required for the PC:

- Windows XP Professional SP3
- Windows 2003 Server

Note

Error message under Windows XP Professional SP2

If installed under Windows XP Professional SP2, you receive the error message:

"MCIS DNC cannot be installed on this operating system."

Hardware

Up-to-date information about main memory, processor, disk space can be found in the following documentation:

"FB_DNC_V24.PDF" in the "Doc\English" directory on the CD-ROM
2.1 Licensing

MCIS DNC licensing

The General License Conditions of Siemens AG automation engineering can be found on the CD-ROM in the appropriate national language under <CD-ROM>:\License_xy-XY.txt (xy represents the language code, e.g. en = English).

Licensing DNC Plant

The supplied CD-ROM contains, in addition to the DNC Plant software, including documentation, also the software of the SQL Express 2005 database.

The supplied license certificate is proof that the DNC Plant and SQL Express software have been purchased correctly.

The Microsoft SQL Express database used in DNC Plant is subject to the license conditions of Microsoft Corporation.

The key required for the installation is printed on the license certificate.

Licensing DNC Cell

The supplied CD-ROM contains the DNC Cell software, including documentation, and authorizes the connection of one CNC controller.

The supplied license certificate is proof that the software has been purchased correctly.

Additional licenses are required when more than one controller needs to be connected. A maximum of 16 serial SINUMERIK, and also 16 SINUMERIK over the network, are possible.

The used Microsoft SQL Express database is subject to the license conditions of Microsoft Corporation.

The key required for the installation is printed on the license certificate.
3.1 Installing DNC

Procedure

1. Start "SetupDNC.exe" from the installation directory of the CD-ROM. The "Choose Setup Language" window opens.

2. Select a setup language. This language is binding only for the installation. The following languages are listed:
   - English
   - German

3. Click "OK" to confirm the selection.
3.1 Installing DNC

4. You will receive a welcome dialog. Click "Next >" to confirm the dialog. The installation will be prepared.

5. Click the "I would like to read the information" button to display the product information in the "Readme.rtf". After you have read the information, click the "Next >" button.
6. The "License Agreement" window opens. Agree to the license agreement and click the "Next >" button.

7. In the next window start with the following installation:
   - MCIS - Server Cell (single user installation), see Installing PC as MCIS server (Page 12)
   - Operator PC, see Installing PC as operator control and data acquisition computer (Page 18)
3.2 Installing PC as MCIS server

Procedure

1. The "Select Product Type" window opens.
   - Select the "MCIS server" installation type.
   - Place a check mark for "Cell (single user installation)"
   - If a controller is connected with SINUMERIK Operate, select the "Solution line support act." option.

Note

It is not possible to activate "Solution line support act." after the installation.
If you still want to set the option, you must first uninstall DNC Cell.
See Uninstalling DNC (Page 29)

- To select the option, before installation on the PC, you must have previously installed a "Microsoft Internet Information Service (IIS)". If "IIS" is not installed, you will receive a message that you must acknowledge with "OK".
Click "Next >" to continue.

2. The target folder in which "MCIS DNC" will be installed is displayed in the next window.

3. If you want to change the storage location, click the "Change ... " button.

**Note**
You can change the target folder only if no MCIS application has been installed.
3.2 Installing PC as MCIS server

- The "Change Current Target Folder" window opens. Select a new target folder and click "OK".

4. The "Target Folder for MCIS" window reopens and the new storage path displayed. Click "Next >" to continue installing the software.

Database server

All MCIS products share a common database. Some tables of this database, for example the user administration and plant hierarchy tables, are used by all products.

The SQL database is available as a free version on the CD-ROM and, depending on the selection, automatically installed and configured by the setup.

In principle, a distinction is made between a new installation or selection of an already installed database server.

At the beginning of the installation, a check is made as to whether a database server has already been installed.

If a database server has still not been installed on the target system, then setup installs the "SQL 2005 Express SP2" version.

Note

- If SQL Express is already present on the system, setup will bypass this installation.
- If an older version of a database is already installed, you will receive an appropriate error message.
5. The "Database Server" window opens.
   – Accept the default settings in the "Database server on which you install" selection box.
   – Select "Windows authentication of the current user".

6. Click "Next >" to start the installation of the database server and the configuration of the table.
Starting the installation

7. After successfully establishing a connection, start with the installation. Click the "Install" button.

8. The installation is started and the procedure is displayed on a progress bar.
9. Click "Finish" to complete the installation.

![Installation Completion](image)

10. A restart is required after the installation of DNC. Click "Yes" to reboot the PC.

![Restart Confirmation](image)
3.3 Installing PC as operator control and data acquisition computer

Procedure

1. The "Select Product Type" window opens. Select "Operator PC" as installation type and click "Next >".

2. The next window shows the target folder in which the DNC data will be installed.
   - If you want to change the storage location, click the "Change ... " button.

**Note**

You can change the target folder only if no MCIS application has been installed.
3.3 Installing PC as operator control and data acquisition computer

- The "Change Current Target Folder" window opens. Select the new target folder for the data and click "OK".

![Image of Change Current Target Folder window]

3. The "Target Folder for MCIS" window reopens and the new storage paths displayed. Click "Next >" to continue installing the software.

![Image of Target Folder for MCIS window]
### Database server

All MCIS products share a common database. Some tables of this database, for example the user administration and plant hierarchy tables, are used by all products.

The SQL database is available as a free version on the CD-ROM and, depending on the selection, automatically installed and configured by the setup.

In principle, a distinction is made between a new installation or selection of an already installed database server. At the beginning of the installation, a check is made as to whether a database server has already been installed.

If a database server has still not been installed on the target system, then setup installs the "SQL 2005 Express SP2" version.

#### Note
- If SQL Express is already present on the system, setup will bypass this installation.
- If an older version of a database is already installed, you will receive an appropriate error message.

4. The "Database Server" window opens.
   - Accept the default settings in the "Database server on which you install" selection box.
   - Select "Windows authentication of the current user".
3.3 Installing PC as operator control and data acquisition computer

5. Click "Next >" to start the installation of the database server and the configuration of the table.

Starting the installation

6. After successfully establishing a connection, you can start with the installation. Click the "Install" button.
7. The installation is started and the procedure is displayed on a progress bar.

8. Click "Finish" to complete the installation.

9. A restart is required after the installation of DNC. Click "Yes" to reboot the PC.
Update of DNC

Update to DNC Cell/Plant V2.4.1

The procedure is the same as for a new installation.
The update will remove any existing versions of DNC. The DNC data, however, is retained.

Note
Perform a backup before an update.

Procedure

1. Start "SetupDNC.exe" from the installation directory of the CD-ROM.
The "Choose Setup Language" window opens.

2. Select a setup language.
This language is binding only for the installation.
The following languages are listed:
   - English
   - German
3. Click "OK" to confirm the selection.

![Image of Choose Setup Language dialog]

4. You will receive a welcome dialog. Click "Next >" to confirm the dialog. The installation will be prepared.

![Image of Welcome to the Setup for MCIS DNC dialog]
5. Click the "I would like to read the information" button to display the product information in the "Readme.rtf". After you have read the information, click the "Next >" button.

6. The "License Agreement" window opens. Agree to the license agreement and click the "Next >" button.
7. The "Remove Program" window opens. Click "Remove" to uninstall the data for the previous DNC version.

8. The procedure is displayed in a progress bar.
9. The "InstallShield Wizard Completed" window is displayed. Now click "Finish" to close the installation.
Uninstalling DNC

Introduction

You have the following two options to uninstall DNC Cell/Plant on the PC:

- Using DNC Uninstall
- From the Windows control panel

DNC Uninstall

1. Select Start → Programs → MCIS DNC → Uninstall.

2. You then receive a confirmation prompt. Click "Delete data" to uninstall the program.
Uninstalling DNC

Windows control panel

1. From Start → Settings → Control Panel → Software, select the "MCIS DNC" program. The "Add or Remove Programs" window opens. Click the "Remove" button.

2. The installation wizard is invoked. Click "Next >".
3. The "Program Management" window opens. Select the "Remove program" option and click "Next >".

4. The "Remove Program" window is displayed. Use the "Delete DNC data" checkbox to define whether the data should be retained or deleted. Click the "Remove" button to uninstall the software.
5. Now click “Finish” to complete the uninstallation.
Customizing the firewall

As of Windows XP Service Pack 2, greater emphasis is placed on increased security. For this reason, after the installation of DNC, changes must be made to the operating system in order to enable communication with other computers.

If machines are connected via a network, changes must be made in the integrated Windows XP firewall so that they can be accessed.

Procedure

Open the Control Panel (Start → Settings) and double-click the "Windows Firewall" entry.

If the firewall is "Active", the "Do not allow exceptions" checkbox should not be activated as this blocks the data traffic.

Changes for DNC must be in the "Exceptions" tab for the network access to function.

In order to grant access to the file system, place the check mark for "File and Printer Release".

If the server is accessed from a PC with DNC, the network port of the database must be opened there (Microsoft SQL 2005 Express port: 1433).

With Microsoft SQL 2005 Express, access must then be activated via network protocols (→"C:\Programs\Microsoft SQL Server\80\Tools\Bin\SVRNETCN.exe", set TCP/IP to "enable").
Changes in the code conversion table

If changes have been made in the code conversion table, they will only take effect after a restart of the code conversion server or DNC Cell/Plant.
Automatic import of NC programs

Starting DNC_Import.exe

The "DNC_IMPORT.exe" program is located in the program directory of DNC Cell/Plant. "DNC_IMPORT.exe" can be started as follows:

- Either by the autostart mechanism (after the login) of Windows 2000/XP.
- OR -
- With the Windows Task Scheduler under Windows 2000/XP or via the "AT" task scheduler routine.

Method of operation of the program for automatic import

The program checks cyclically whether files with a certain extension are present in a specific folder. The program tries to import these files.

The parameters for the program are in the registry:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ImportPath</td>
<td>The import directory that contains the file to be imported.</td>
</tr>
<tr>
<td>ImportExt</td>
<td>The extension of the files to be imported.</td>
</tr>
<tr>
<td>SuccessExt</td>
<td>If DeleteImported=0 is set, this extension must be defined. The file will be assigned this extension after the import.</td>
</tr>
<tr>
<td>ErrorExt</td>
<td>This extension will be set for a faulty import file.</td>
</tr>
</tbody>
</table>
| DeleteImported    | Specifies whether the imported files will be renamed or deleted in the import directory:  
|                   | 0 = rename  
|                   | 1 = delete                                                               |
| DelayTime         | The time in minutes before a new search for import files is made (permitted range 1..1440 minutes). |
| TraceLevel        | This is used for testing and troubleshooting. Values from 0 to 4 are permitted. |
| TraceFileSize     | This defines the size of the log file in KB.  
|                   | All the actions are logged in a log file maintained in the import directory. |
| Language          | Language code  
|                   | EN = English
Automatic import of NC programs

[HKEY_LOCAL_MACHINE\SOFTWARE\Siemens\MCIS\DNC\ImportSettings]
"ImportPath"="C:\\Siemens\\MCIS\\Data\\DNC\\Import"
"ImportExt"="IMP"
"SuccessExt"="IOK"
"ErrorExt"="IER"
"DeleteImported"=dword:00000000
"DelayTime"=dword:0000003c
"TraceLevel"=dword:00000001
"TraceFileSize"=dword:0000000a
"Language"="EN"

Call DNC_Import.exe

The "DNC_Import.exe" can also be invoked with the "/NOLOOP" start parameter.
In this case, the program terminates itself after performing an import run. This parameter should be used when the import is started from the Windows XP/2003 Task Scheduler.

Example:

With the following calls, an import would be performed four times a day even if nobody is logged in.

at 08:00 /every:Mo,Tu,We,Th,Fr,Sa
D:\Programs\Siemens\DNC\DNC_Import.EXE /NOLOOP

at 12:00 /every:Mo,Tu,We,Th,Fr,Sa
D:\Programs\Siemens\DNC\DNC_Import.EXE /NOLOOP

at 16:00 /every:Mo,Tu,We,Th,Fr,Sa
D:\Programs\Siemens\DNC\DNC_Import.EXE /NOLOOP

at 20:00 /every:Mo,Tu,We,Th,Fr,Sa
D:\Programs\Siemens\DNC\DNC_Import.EXE /NOLOOP
Installation of the eight-port card in a PC

The following settings have been tested and are recommended:

I/O port SW1 1-OFF, 2-ON, 3-OFF, 4-ON (280H ... 2B8H) IRQ port SW2 1-OFF, 2-ON, 3-OFF, 4-OFF, 5-ON, 6-ON, 7-ON, 8-OFF (2C0H) IRQ SW3 6-ON (IRQ=11)

Under Windows 2000, Windows XP or Windows 2003

The "PC COM PCI BUS 4 Port Serial Adapter" card has been tested for installation under Windows XP and Windows 2000.

The driver software is available at the following address:

http://www.pccompci.com/driver/8p232.html

The driver for Windows 2000 also works for Windows XP.

Under Windows XP, all the Com ports are automatically detected and installed successively.

The registry entry for "Permit Share" must be set, see Windows NT installation.
NC data comparison and parameterization of FTP for SINUMERIK

Data transfer

If you install the "DNC Compare" option on the host computer and the DNC IFC software component on a SINUMERIK controller, you will also be able to transfer data from the DNC Cell/Plant to the controller.

This option also makes it possible to compare NC data on the DNC system directly with that on the controller (also in the NCK). As standard, this is performed with the help of Microsoft Networking and released network drives.

An auto-archive function is integrated in DNC Cell/Plant as standard. This permits the automatic backup of NC data from SINUMERIK controllers to the DNC system.

It is also possible to transfer the data via FTP protocol if there is an FTP server in the network or directly on the DNC Cell/Plant computer and secure transmission paths are of prime importance.

Sample file

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHPath</td>
<td>The path for the MMC/PCU data management from the perspective of the controller (very important!) must be entered.</td>
</tr>
<tr>
<td>UseFTP</td>
<td>Whether or not FTP should be used; values: 1/0</td>
</tr>
<tr>
<td>Mode</td>
<td>Always set FTP mode to 2</td>
</tr>
<tr>
<td>HostIpAddress</td>
<td>IP address of the FTP server or its DNS name</td>
</tr>
<tr>
<td>User</td>
<td>FTP user</td>
</tr>
<tr>
<td>Password</td>
<td>Password of the FTP user</td>
</tr>
</tbody>
</table>

DHPath=f:\dh

; You can use FTP for file transfer if you have an FTP server
; available in your subnet. UseFTP 0=NO, 1=YES
; Note: You must set the right FTP path in your FTP settings to
; put the files in the DNC Cell/Plant directory

UseFTP = 1

[FTP]
; HostIpAddress= (or DNC Cell/Plant computer name)
HostIpAddress=daisy2000
User=yourUser
Password=yourPassword
; Mode (1=ASCII/2=Binary)
Mode=2
Procedure

1. Create for DNCAdmin a machine of the "840D" type.
2. From the machine properties, open with "Edit" the machine configuration file.
3. Enter the specific parameters for the FTP server and the client for the data transmission. See sample file above.
4. Enter the FTP path name in the Windows registry:
   - Open with administrator rights the Windows registry under "HKLM\Software\Siemens\MCIS\DNC\Settings"
   - You find the "FtpTempPath" and "FtpDataPath" parameters here.
     You require the "FtpTempPath" parameter to transfer data to the DNC computer in order to perform the program comparison.
     You require the "FtpDataPath" parameter in order to transfer NC programs from the DNC system to the controller.
     Enter syntactically correct values in these two parameters in order to access the drives entered here with the help of the FTP user specified in the *.MCF file.

Access rights

The FTP user must have the following rights:

- Read and write authorization to the "FtpTempPath" path.
- Read rights suffice to the "FtpDataPath" path.

Example

The FTP user name is DNC
The FTP password is secret
Now enter this user with password in the machine configuration file (*.MCF file) as described above.
Use a Windows 2000 FTP server with the "DNC" virtual hard drive. This points to the "c:\Siemens\mcis\data\dnctmp\data" path.
You have also created another "DNCTMP virtual drive" that points to the "c:\DNC\tmp" path.
Your "DNC" user has read and write rights to both paths.
Enter the following values:

- FtpTempPath = "/DNCTMP" (without "")
- FtpDataPath = "/DNC" (without ")"
11.1 Documentation on the CD-ROM

Information in PDF format

If you have any further questions with regard to the functionality of DNC Cell/Plant, we expressly refer to the supplied software documentation in PDF format on the CD-ROM. This requires "Adobe Acrobat Reader" as of V4.0.

11.2 DNC Cell/Plant with MCIS DNC IFC

DBServerTask.exe

The communication of DNC Cell/Plant with DNC IFC to a controller with PCU is performed with the "DBServerTask.exe" service application.

This service application is not started by default under Windows 2000/ XP and is set to "Manual". If necessary, that is, always when DNC IFC is used for communication, change the setting to "Automatic" in the services. Only then is communication from DNC IFC to the DNC Cell/Plant database possible.

General conditions with Windows XP SP2

Several general conditions must be observed under Windows XP SP2. A separate document is provided on this CD-ROM for this purpose:

<CD-ROM>:Docu\English\IBS_Docu\MCIS-SW-DCOM-plus-Firewall-for-WinXPSP2-ENG.pdf

Please note points 1 (general) and 2 (DNC configuration) here.

This document is also available for Siemens employees on the Intranet at http://support.automation.siemens.com. Search for it specifically, e.g. for "MCIS" and "FIREWALL".

The document is being continually updated, e.g. if new security settings must be observed in the supported Windows systems.
11.3 Changing the background colors for DNCAdmin

Changing background colors

The background colors can be changed individually.
The usual mixture of colors for red, yellow and blue are entered in the following key:

[HKEY_LOCAL_MACHINE\SOFTWARE\Siemens\MCIS\DNC\AdminSettings]
RGBNormal
RGBConfig

The values are separated by a comma, e.g. "235, 255, 255" or "135, 125, 140" (violet)

11.4 "Machine comparison" function for SINUMERIK with PCU/MMC103

"DNC Compare" option

If the "DNC Compare" option has been purchased together with MCIS DNC IFC, a correct comparison of data on the controller is possible only with the following setting.

Set the "DriveInternPath" parameter in the "DNC_IFC.ini" file to the value "0".

This ensures that no header information is transferred to the NC data.

11.5 Passwords and user logins

Default settings

After the installation of DNC Cell/Plant, the following users will have been configured:

<table>
<thead>
<tr>
<th>Name</th>
<th>Password</th>
<th>Rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNC</td>
<td>DNC</td>
<td>Administration</td>
</tr>
<tr>
<td>programmer</td>
<td>programmer</td>
<td>Extended user rights</td>
</tr>
<tr>
<td>worker</td>
<td>worker</td>
<td>Basic user rights</td>
</tr>
<tr>
<td>helper</td>
<td>helper</td>
<td>Limited user rights</td>
</tr>
</tbody>
</table>