

# **GX Configurator-DP 7.01B**

Configuration System  
for Open Networks

## **Software Manual**

Art.no.: 65778  
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Version 1

## About this Manual

The texts, illustrations, diagrams and examples in this manual are only intended as aids to help explain the functioning, operation, use and programming of the open network configuration system  
MELSOFT GX Configurator-DP.

Separate manuals are available for MITSUBISHI ELECTRIC's various series of MELSEC programmable logic controllers.

This manual is only intended for users with experience in handling automation and communication networks.

For using and usage of this software only the user his own is responsible.

If you have any questions regarding the installation and operation of the software described in this manual, please do not hesitate to contact your sales office or one of your MITSUBISHI ELECTRIC distribution partners. You can also obtain information and answers to frequently asked questions from our MITSUBISHI ELECTRIC website under  
[www.mitsubishi-automation.com](http://www.mitsubishi-automation.com).

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MITSUBISHI ELECTRIC reserves the right to change the specifications of its products and/or the contents of this manual at any time and without prior notice.

The IEC 61131.1 standard cited in this manual is available from the publishers Beuth Verlag in Berlin (Germany).

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# 1 Introduction

## **This manual...**

...is a compact guide to using GX Configurator-DP software suitable both for beginners and experienced users upgrading from other systems. The manual includes explanations of the terms and structural concepts about the software and the configuration of an open network system. The manual provides a precise step-by-step description of how to use GX Configurator-DP including sample projects. These executable application is used to demonstrate the operation of the program with the help of the examples provided in this manual. The PLC series MELSEC Q Series is designated as MELSEC system Q in this manual.

## **If you are not yet familiar with MS Windows...**

... please at least read the Windows Fundamentals section in the Windows User's Guide, or work through the Windows Tutorial accessible through the Help menu of the Windows Program Manager. This will teach you what you need to know about using the basic elements of Microsoft® Windows, and the operating procedures that are identical in all Windows application programs.

## **If you have problems with parameter settings, ...**

... please refer to the user's manuals of the concerning open network modules.

## **If you get stuck...**

... do not despair, help is never far away! If you run up against seemingly insoluble problems, or if you have questions about GX Configurator-DP or the connected programmable logic controller (PLC) configuration, please first refer to the manuals and documentation. Many answers and solutions can also be found directly in the GX Configurator-DP context-sensitive online help system, which can always be accessed by pressing the <F1> key. Make use of the Index command in the Help menu as well, as this will often locate the information you need. If you cannot find answers to your questions in any of these places, contact your local MITSUBISHI ELECTRIC representative or call our European headquarters in Ratingen directly. The addresses and phone numbers are provided on the back covers of all our manuals.

## 2 Installation

### Before You Begin

#### Copyright

**Important Notice:**

This software is protected by copyright. By opening the distribution disks package you automatically accept terms and conditions of the license agreement. You are only permitted to make one single copy of the original distribution disks for your own backup and archiving purposes.

#### Software Purpose

This software is a configuration utility software package which will be used to configure PROFIBUS DP network interface modules of MELSEC System Q, QnA, A and FX series' PLCs such as:

- PROFIBUS DP master interface A(1S)J71PB92D
- PROFIBUS DP master interface QJ71PB92D
- PROFIBUS DP V1/V2 master interface QJ71PB92V
- PROFIBUS DP V1 master interface FX3U-64DP-M
- PROFIBUS DP slave interface QJ71PB93D

#### General Features

This software package has the following features:

- editor windows
- network parameter checking functions
- download and verify possibilities to the network modules
- parameter file handling on floppy disk / hard disk
- parameter print feature
- screen resolution independent

## 2.1 System Requirements

To install the GX Configurator-DP software package, your computer has to meet the following requirements

#### Minimum Hardware Requirements

- Pentium II 350 processor
- 32 MB RAM for Microsoft ® Windows 98/Windows Me
- 64 MB RAM for Microsoft ® Windows NT 4.0, Windows 2000
- 128 MB RAM for Microsoft ® Windows XP
- VGA compatible graphics adapter
- 17"/43 cm diag. VGA monitor
- At least 200 MB free hard disk space
- CD-ROM drive
- interface for communication with the PLC system

#### Software Requirements

GX Configurator-DP is a 32-bit software that runs on the following operating systems

- Microsoft ® Windows 98 or Windows Me (at least Microsoft ® Internet Explorer 5.5 installed)
- Microsoft ® Windows NT 4.0 ( Service Pack 6 or later and at least Microsoft ® Internet Explorer 5.5 installed)
- Microsoft ® Windows 2000 (Service Pack 2 or later installed)
- Microsoft ® Windows XP Home or Professional Edition

**Note:**

It is recommended to use Microsoft ® Windows 2000 or Windows XP. On all operating systems with the exception of Microsoft ® Windows XP, Microsoft ® Internet Explorer 5.5 must be installed.

## 2.2 Software Installation

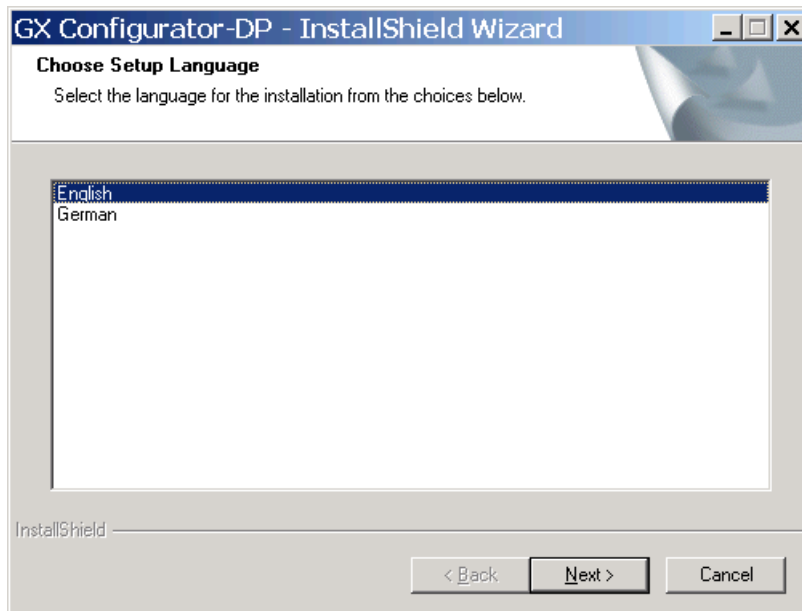
### GX Configurator-DP Setup

To install the GX Configurator-DP software from CD-ROM under Microsoft ® Windows 98/Windows Me or Windows NT/Windows 2000/Windows XP, you need to have Microsoft ® Windows installed properly. You will need administrator privileges when installing the software. If an old version of GX Configurator-DP is already installed, uninstall it first. After the de-installation please start the installation of the new version. If you want to keep the older version of GX Configurator-DP please select a different directory and program folder for the new version of GX Configurator-DP. If the newer version is installed over the older version into the same directory, this will cause problems with the old entries in the **Start/Programs** menu. A de-installation of the older GX DP version, after the newer version has been installed, will also damage the newer version. Therefore if you want to correct problems with the older entries please reinstall new version after uninstalling both the older and the newer GX Configurator-DP versions. Please close all other running software before installation and do not run other installation programs during the installation of the GX Configurator-DP software.

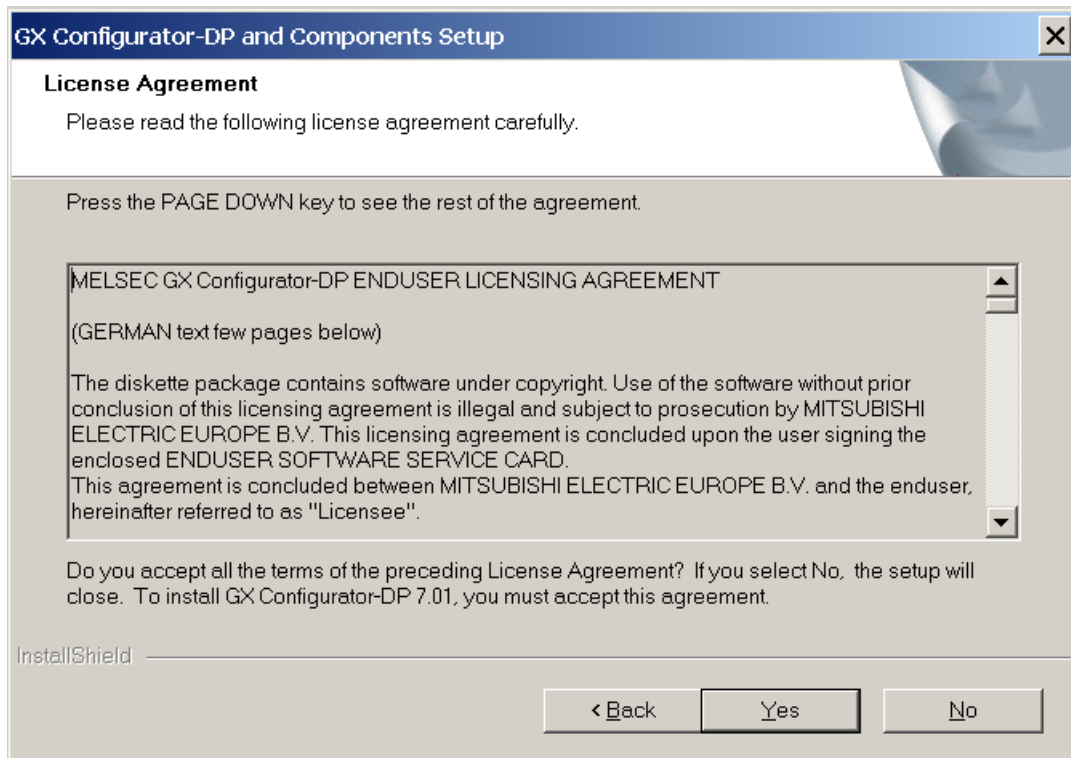
### Installing GX Configurator-DP/GX Configurator-ST

To start the installation, proceed as follows:

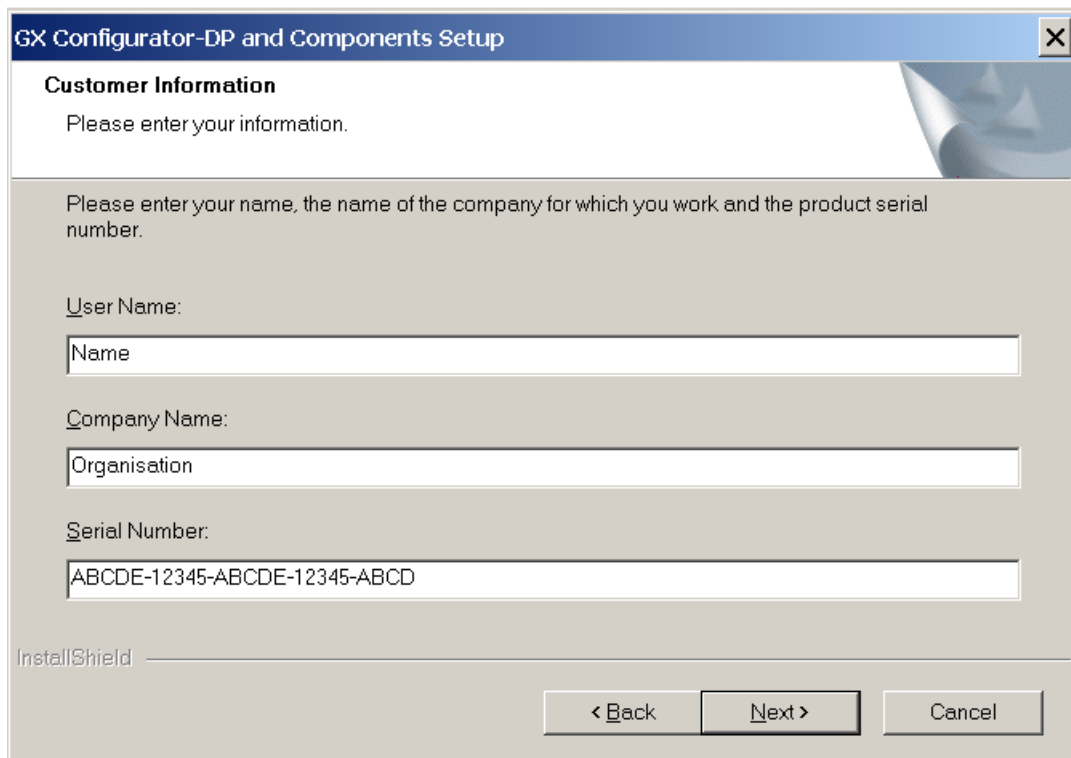
1. Insert the installation CD-ROM into your CD-ROM drive.
2. On the Desktop select the **Start** menu and open a Command Shell with the **Run...** command.
3. Enter: d:\setup.exe (for "d:" enter the drive letter of YOUR CD-ROM drive).
4. The language selection screen appears. Choose the application language.



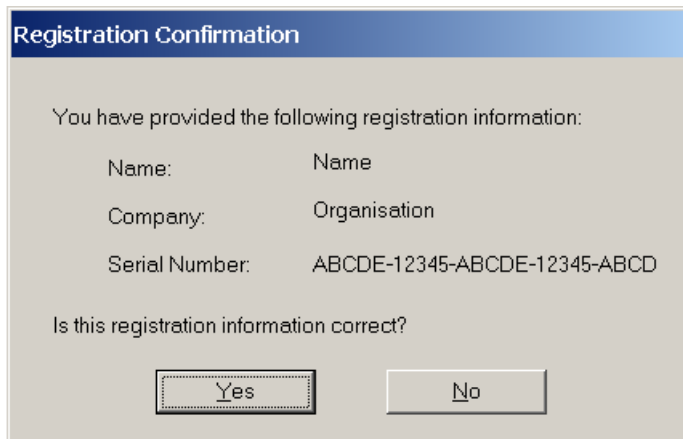
5. Follow the given instructions that guide you through the installation procedure. Continue with **Next >**.
6. The licensing agreement is displayed. Please read these terms carefully and click **Yes**, if you agree with the licensing agreement, or **No**, if you want to abort.



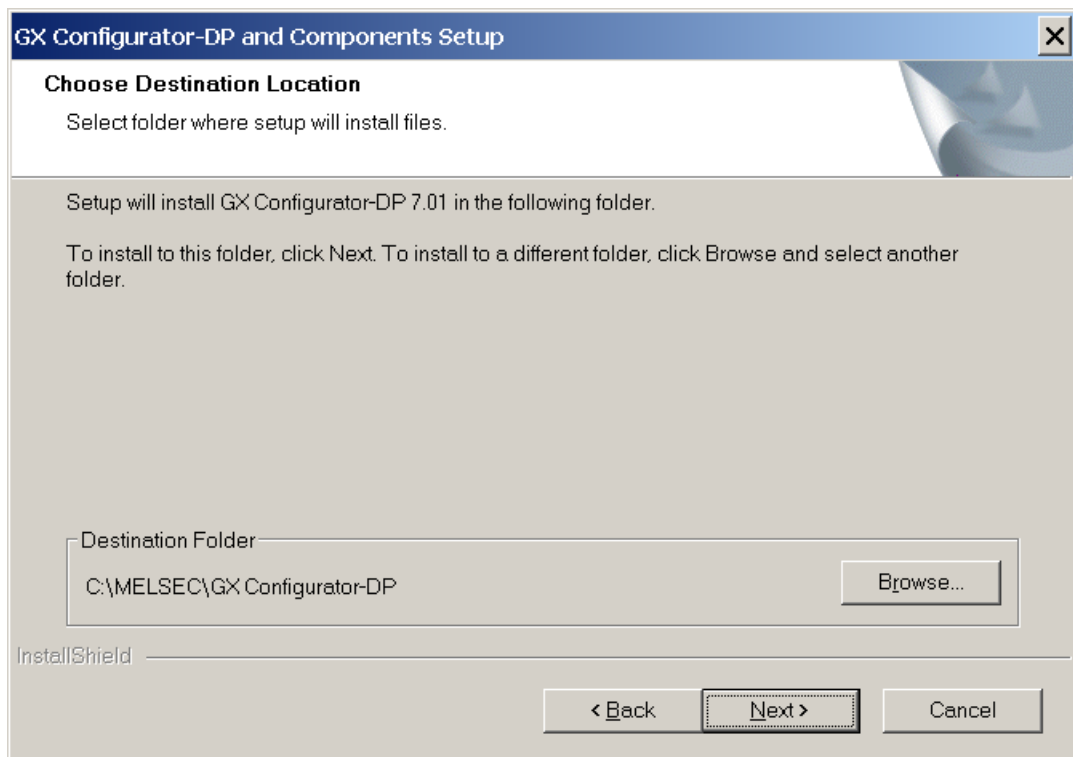
7. Enter your name, company and the product serial number. Click on **Next >** to proceed.



8. Check the registration information you have provided. Click on **Yes** to proceed with the installation



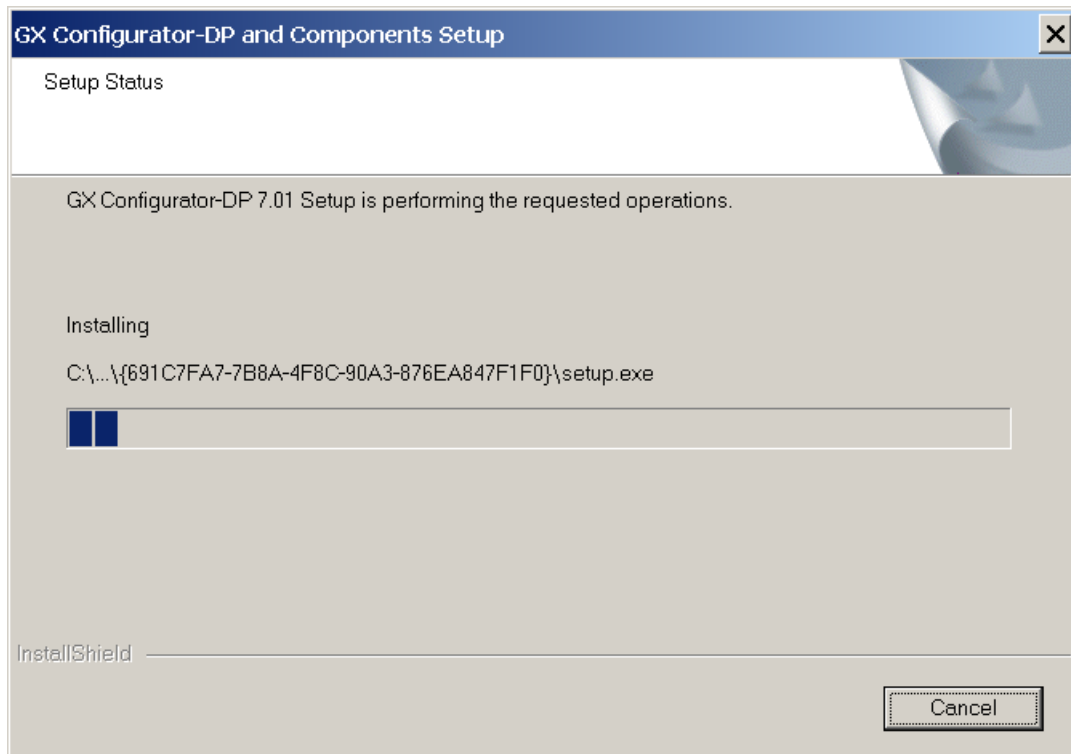
9. Enter the destination folder where you want the GX Configurator-DP software to be installed. (Default **C:\Melsec\GX Configurator-DP** ). If you agree with the default setting, just click on **Next >**.



10. If you want to install to a different directory click on Browse and select the installation directory.







13. After the installation, you will see an appropriate message.

### Button Functions

With the **Next** button you will leave the current menu and enter the next menu.

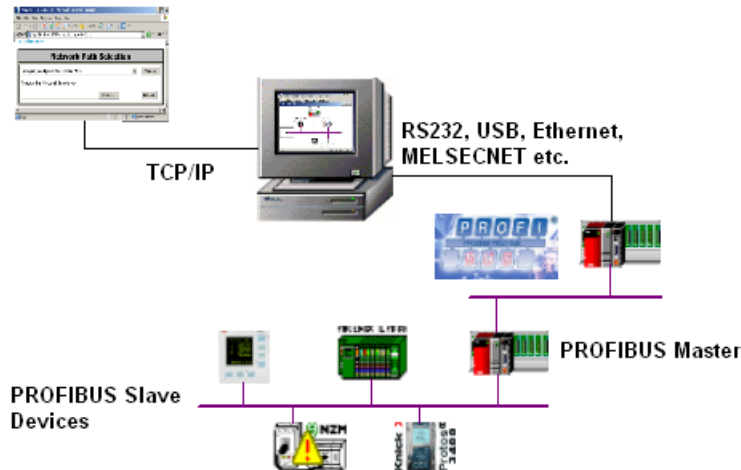
With the **Back** button you go to the previous window.

**Cancel** button ends the installation procedure.

### 3 System Description

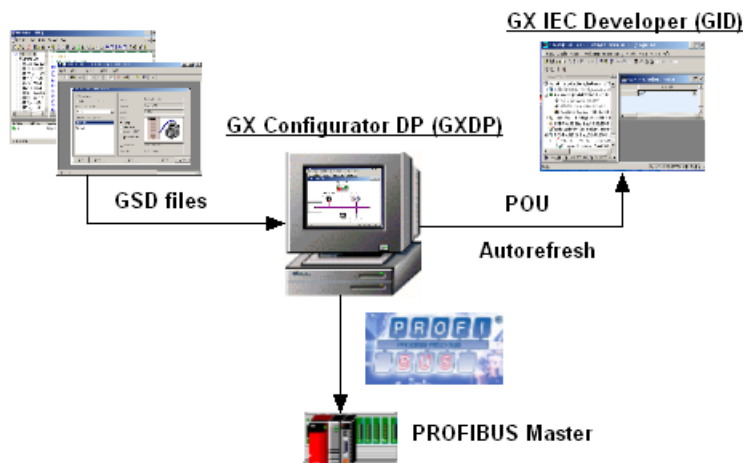
#### System Concept

GX Configurator-DP is the configuration tool for PROFIBUS interfaces in MITSUBISHI PLCs. It provides functions for defining a PROFIBUS network, validating the configuration and downloading it to the respective PLC module via a MITSUBISHI automation network. For remote access independent of the user platform a web server is included.



#### Architecture

GX Configurator-DP takes information on PROFIBUS DP slaves from GSD files, which are specific to the respective slave module and typically provided by the vendor of the slave hardware. It generates information for use in GX IEC Developer (GID) in form of program code and CPU parameters (autorefresh).

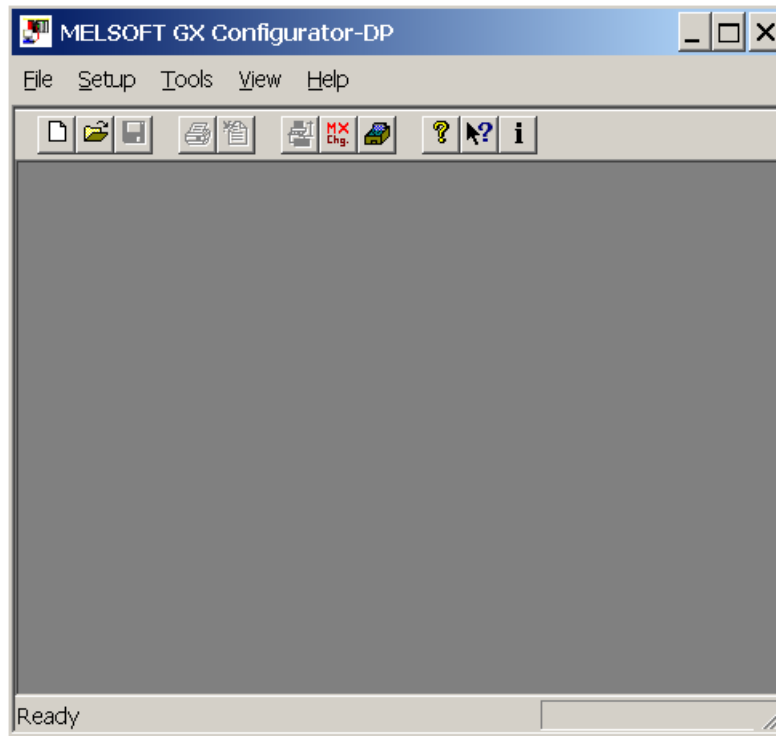


## 4 Getting Started

Below are the main steps, which are required to configure a PROFIBUS DP master module. The QJ71PB92V module is used as an example.

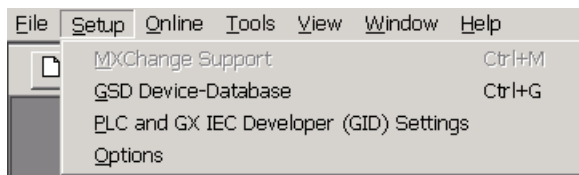
### Start GX Configurator DP

1. Start GX Configurator-DP via the shortcut in the Programs menu. The default is MELSOFT Application/GX Configurator DP/GX Configurator DP.

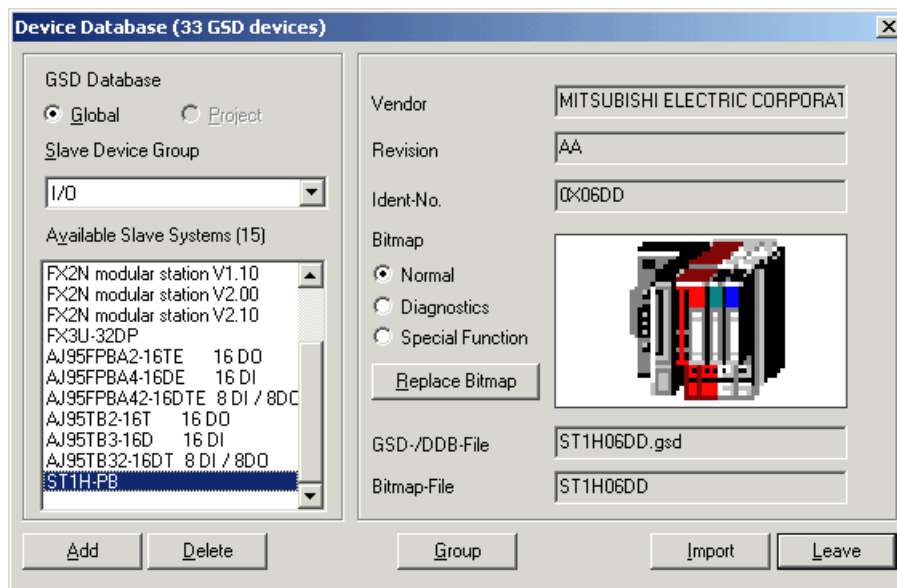


### Add GSD File

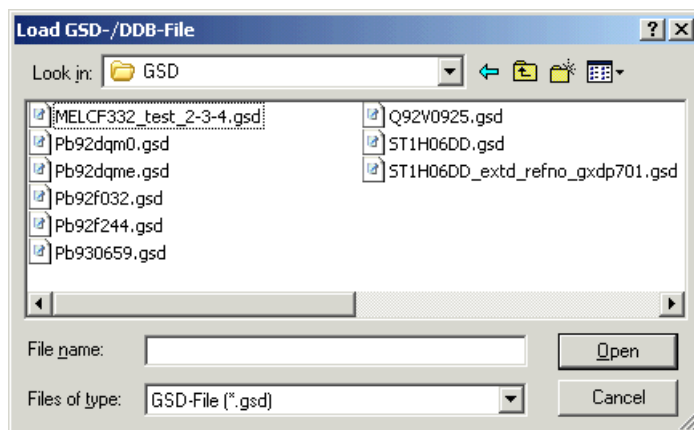
1. Select the item **GSD Device-Database** in the main menu Setup to open the [GSD Database](#).



2. Click on <Add> to add the new GSD file to the database.

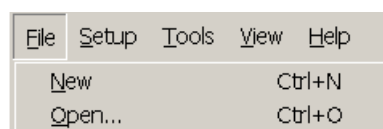


3. Select the GSD file, which should be added to the database, and confirm with <Open>.

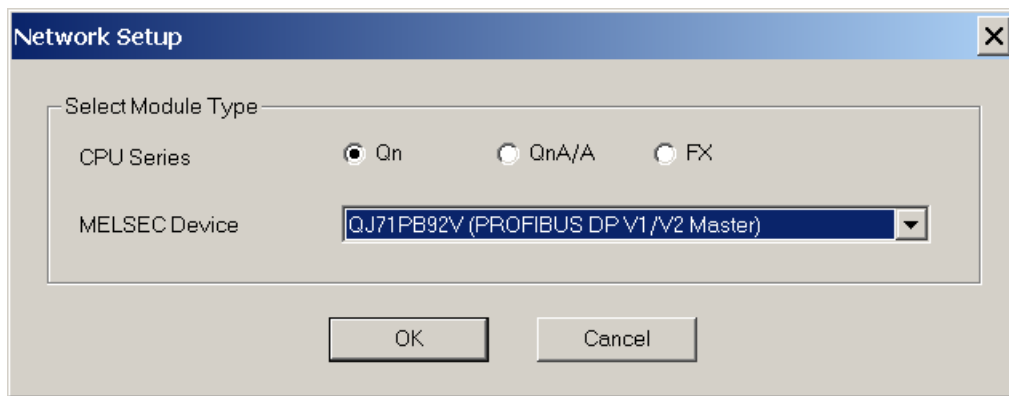


## Start a New Project

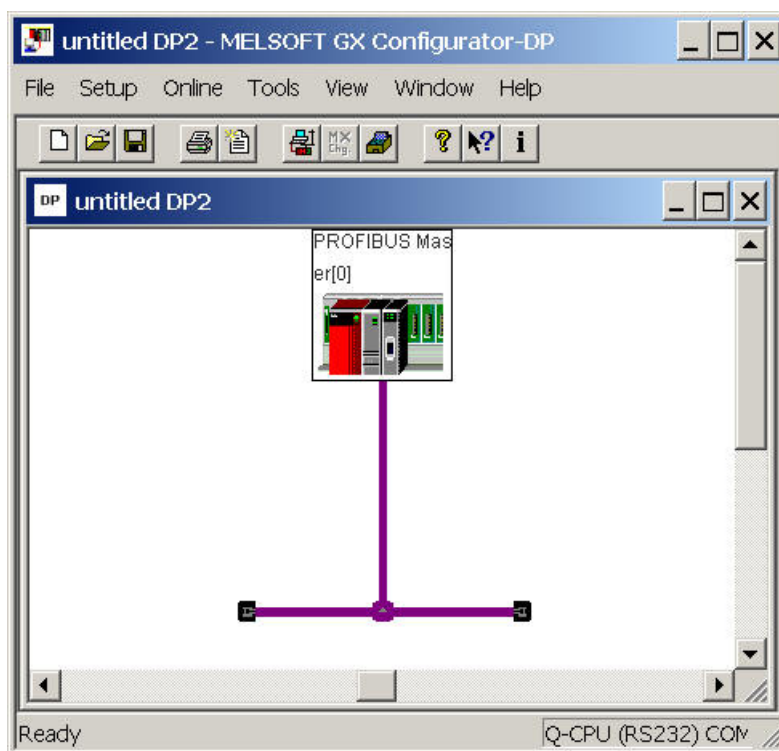
1. In the main menu **File** select **New** to open a new project file.



2. Select the type of master module, which you want to configure.

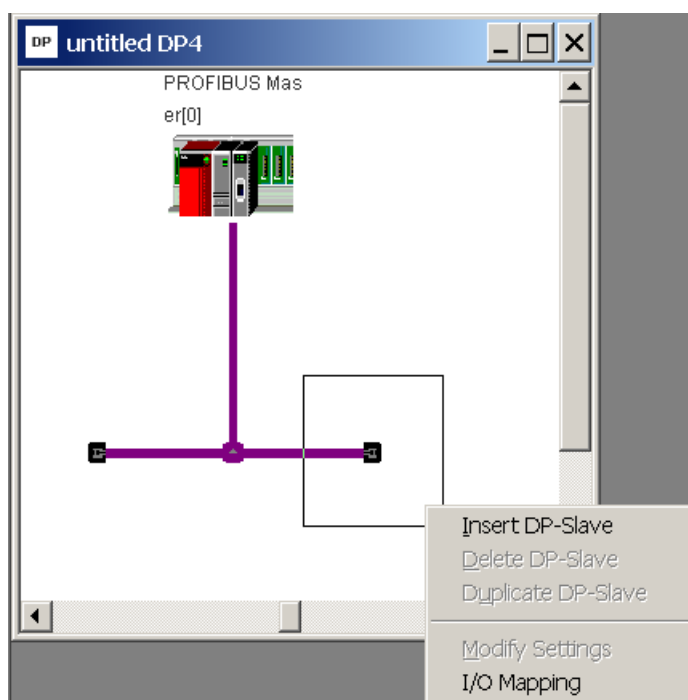


3. When you have clicked on <OK> a new project file is opened in the graphical network editor showing the selected type of PROFIBUS master module.

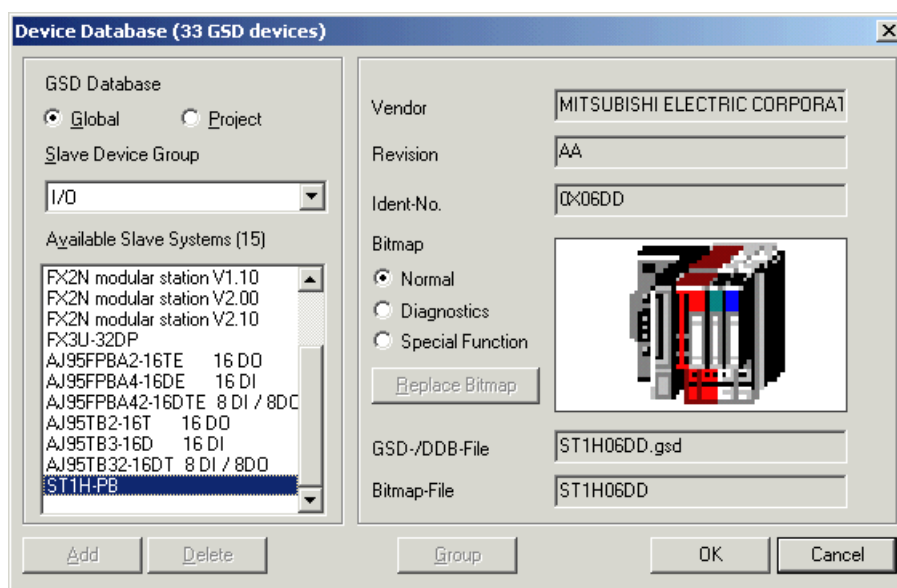


### Add Slave to the Network

1. In the graphical network editor press the right mouse button to open the context menu. Select the menu item [Insert DP-Slave](#) from the context menu to add a slave.



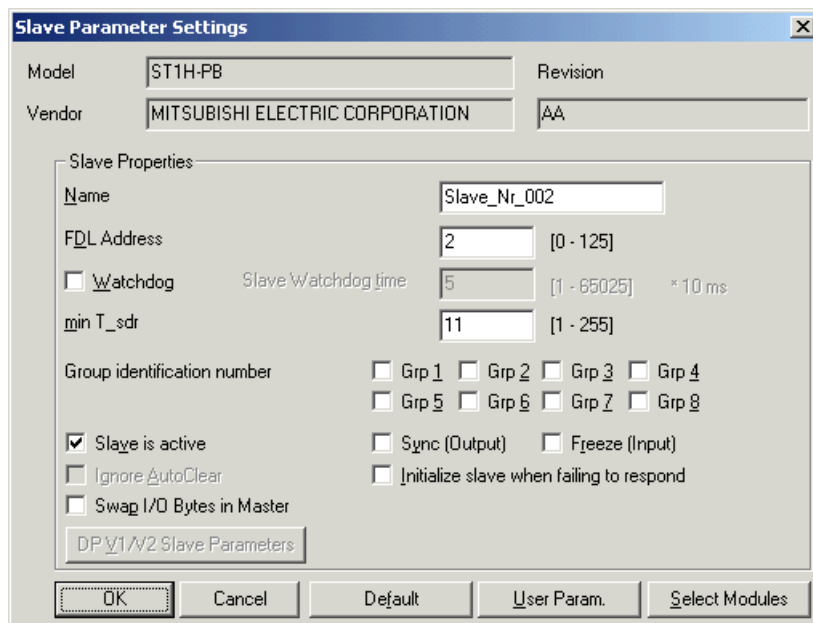
2. The GSD device database dialog opens where you can select the slave module. Choose the Slave Device Group from the drop down list and select a slave module from the list of the available slave systems below. Then confirm your selection with <OK>.



3. The slave is added to master configuration.

## Select Slave modules and Set User Parameters

1. In the 'Slave Parameter Settings' dialog click on <Select Modules> to select the modules installed in the slave device. If you later want to change the slave settings and installed slave modules, select [Modify Settings](#) from the context menu of the graphical network view.



**Slave Parameter Settings**

Model: ST1H-PB Revision: AA  
Vendor: MITSUBISHI ELECTRIC CORPORATION

**Slave Properties**

Name: Slave\_Nr\_002  
FDL Address: 2 [0 - 125]  
☐ Watchdog Slave Watchdog time: 5 [1 - 65025] \* 10 ms  
min T\_sdr: 11 [1 - 255]

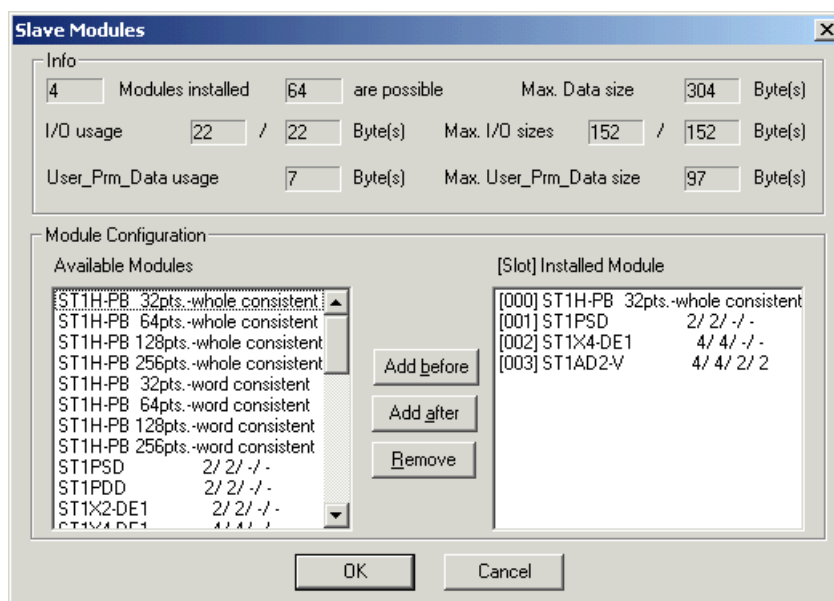
Group identification number  
☐ Grp 1 ☐ Grp 2 ☐ Grp 3 ☐ Grp 4  
☐ Grp 5 ☐ Grp 6 ☐ Grp 7 ☐ Grp 8

☒ Slave is active ☐ Sync (Output) ☐ Freeze (Input)  
☐ Ignore AutoClear ☐ Initialize slave when failing to respond  
☐ Swap I/O Bytes in Master

DP V1/V2 Slave Parameters

OK Cancel Default User Param. Select Modules

2. Select the modules, which are installed in the slave device, in the left list and add them to the list of installed modules by pressing <Add before> or <Add after>. The sequence of modules in the 'Installed Modules' list must usually equal the sequence of modules within the slave device. To delete a module from this list, mark the entry and press <Remove>.



**Slave Modules**

**Info**

4 Modules installed 64 are possible Max. Data size 304 Byte(s)  
 I/O usage 22 / 22 Byte(s) Max. I/O sizes 152 / 152 Byte(s)  
 User\_Prm\_Data usage 7 Byte(s) Max. User\_Prm\_Data size 97 Byte(s)

**Module Configuration**

Available Modules	[Slot] Installed Module
ST1H-PB 32pts.-whole consistent	[000] ST1H-PB 32pts.-whole consistent
ST1H-PB 64pts.-whole consistent	[001] ST1PSD 2/ 2/ -/ -
ST1H-PB 128pts.-whole consistent	[002] ST1X4-DE1 4/ 4/ -/ -
ST1H-PB 256pts.-whole consistent	[003] ST1AD2-V 4/ 4/ 2/ 2
ST1H-PB 32pts.-word consistent	
ST1H-PB 64pts.-word consistent	
ST1H-PB 128pts.-word consistent	
ST1H-PB 256pts.-word consistent	
ST1PSD 2/ 2/ -/ -	
ST1PDD 2/ 2/ -/ -	
ST1X2-DE1 2/ 2/ -/ -	
ST1X4-DE1 4/ 4/ 2/ 2	

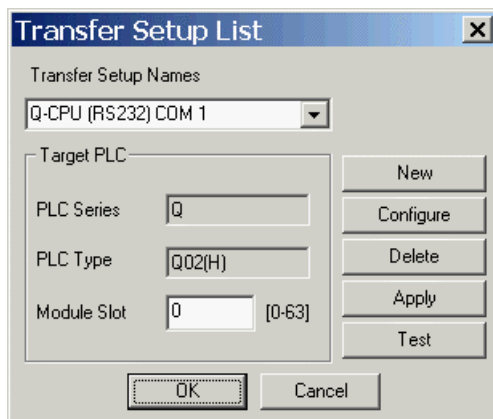
Add before Add after Remove

OK Cancel

## Configure Connection to PLC

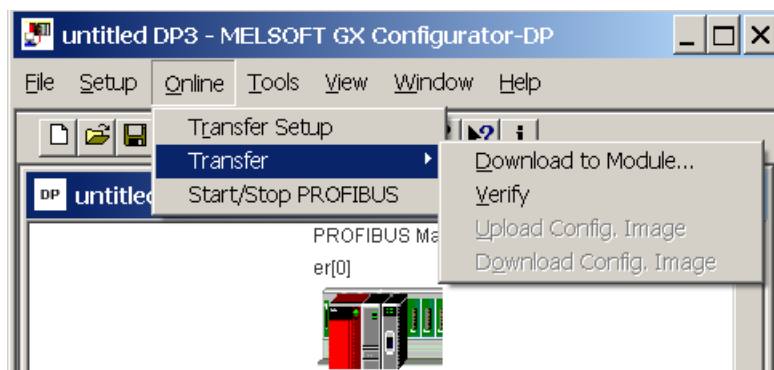
1. To configure a transfer connection to the PLC select **Online->Transfer Setup** from the main menu. You can either [configure](#) the default transfer setup or define a [new](#) one.





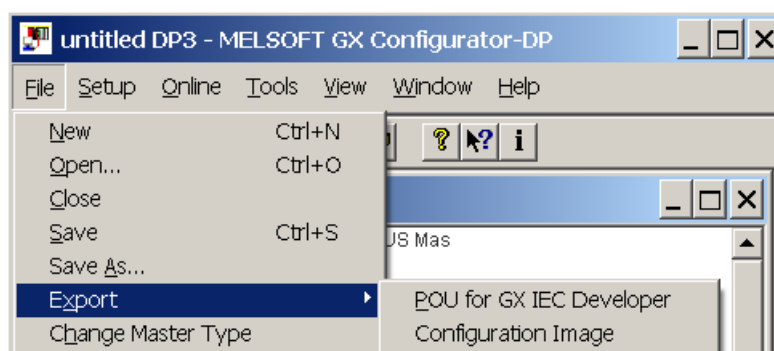
## Download Configuration to Master

1. Select **Online** -> **Transfer** -> [Download to Module](#) in the main menu to download the configuration to the master module.

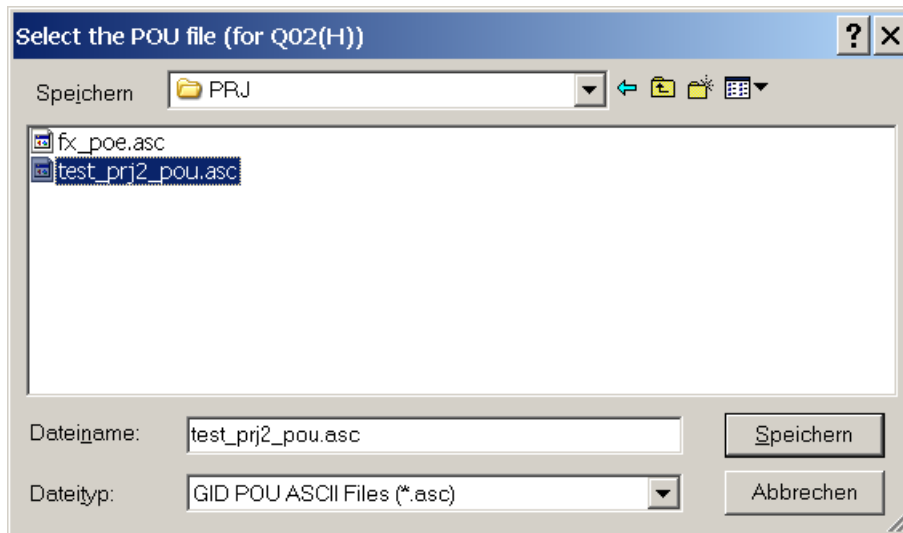


## Create POU

1. To create the program code for GX IEC Developer, which assists with access to PROFIBUS I/O select **File** -> **Export** -> [POU for GX IEC Developer](#).

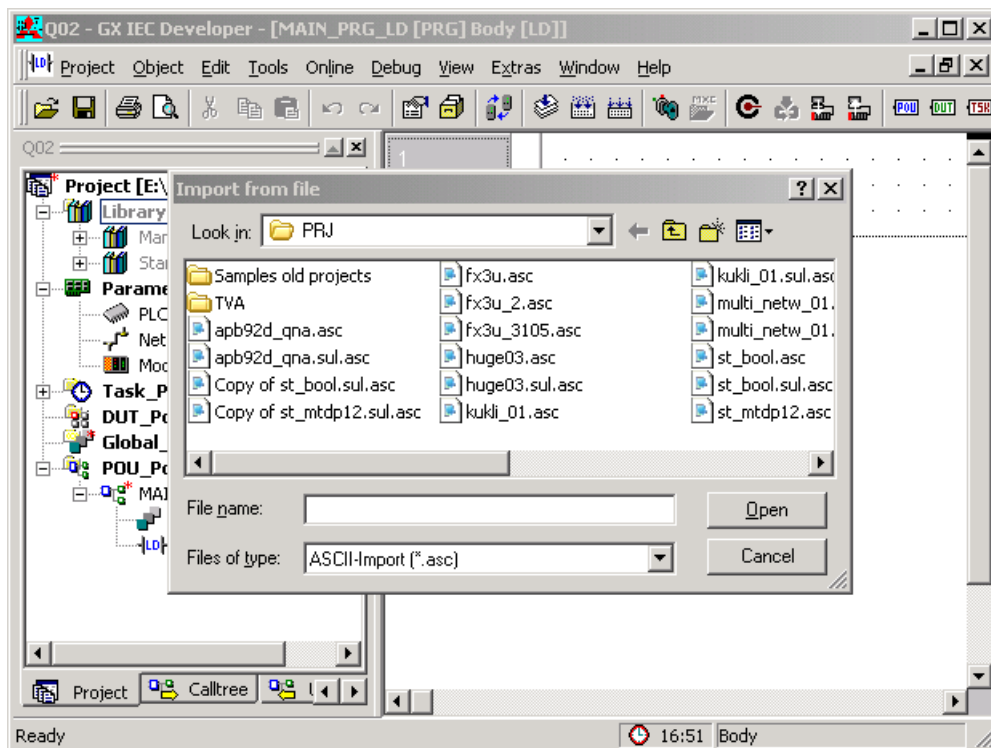


2. Select the path for the GID ASCII file.



### Import POU in GID

1. Start GX IEC Developer and open the project for the PLC, which accesses the PROFIBUS master module.
2. Import the ASCII file generated by GXDP.



## 5 Main Menu

### Starting GX Configurator-DP

Select GX Configurator-DP from the Windows Start menu. The default shortcut is

**Start/Programs/MELSOFT Application/GX Configurator-DP**

### Main menu

The main menu offers the following pull-down menus. The menu items **Online** and **Window** are available only, if a project is open.



The pull-down menus can be selected via mouse or keyboard.







Main Menu Items	Description
<a href="#">File</a>	menu for opening and printing project files and exporting POU's
<a href="#">Setup</a>	menu for configuration and application settings
<a href="#">Online</a>	menu for online access to a module
<a href="#">Tools</a>	menu for external tools
<a href="#">View</a>	menu for configuration of the application
<a href="#">Window</a>	menu for listing the open project windows
<a href="#">Help</a>	menu for help and application information

The items in the open pull-down menus can be reached via mouse or keyboard. The underlined character will start the function. In addition there are some menu items which may be started using predefined hotkeys.

### Toolbar items

The toolbar just below the main menu contains buttons for an instant access of the most frequently used functions of GX Configurator-DP:

	Command	Description
	<a href="#">New</a>	Starting a new project
	<a href="#">Open</a>	Opening an existing project
	<a href="#">Save</a>	Saving a modified project
	<a href="#">Print</a>	Printing the current project
	<a href="#">Page Setup</a>	Defining the parameters to be printed

	Command	Description
	<a href="#">Transfer Setup</a>	Defining the network connection type (PC to PLC)
	<a href="#">MXChange</a>	MXChange support properties
	<a href="#">GSD</a>	GSD device database
	<a href="#">Help</a>	Getting context help
	<b>Help Tool</b>	Getting help on items you click on
	<a href="#">About</a>	Displaying program information

## 5.1 File Menu

After having started the GX Configurator-DP software, this is the first menu to work with. With the help of this menu you can create a new or load an existing project.

File	Setup	Online	Tools	View	Window
New					Ctrl+N
Open...					Ctrl+O
Close					
Save					Ctrl+S
Save As...					
Export					
Change Master Type					
Print...					Ctrl+P
Page Setup					
1 E:\Georg-Inbox\fx_cpu.dp2					
2 E:\Georg-Inbox\test_prj1.dp2					
3 E:\Georg-Inbox\test.dp2					
4 E:\Georg-Inbox\test.dpx					
Exit					

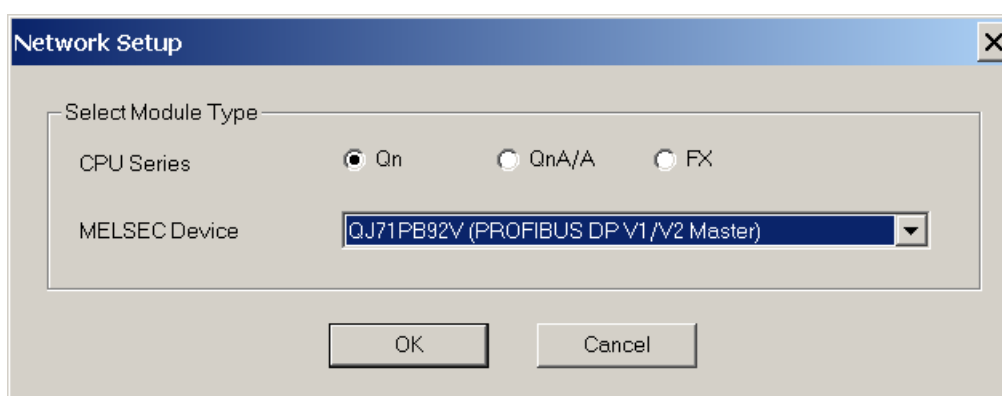
The File menu offers the following commands:

Command	Description
<a href="#">New</a>	Starts a new project.
<a href="#">Open</a>	Opens an existing project.
<a href="#">Close</a>	Closes the active project.
<a href="#">Save</a>	Saves a modified project.
<a href="#">Save As</a>	Saves a modified project under a new name.
<a href="#">Export</a>	Saves configuration as a configuration image or creates a POU for use in GX IEC Developer.

Command	Description
<a href="#">Change Master Type</a>	Changes the current project to a different type of master module.
<a href="#">Print</a>	Prints the project.
<a href="#">Page Setup</a>	Specifies the page layout and selects parameters for printouts.
<a href="#">Recent Files</a>	Opens one of the latest used projects.
<a href="#">Exit</a>	Ends GX Configurator-DP.

## Command New

The menu command **New** is used to create a new project.



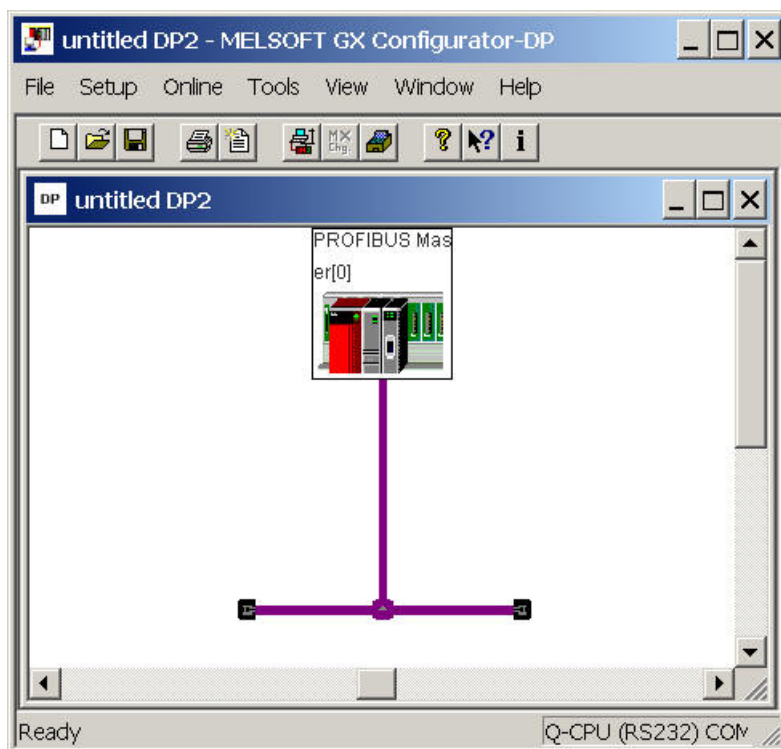
### Note:

No default module type is selected. Choose the target PLC family and a supported module type before continuing.

First you have to select the type of module, which you want to configure. The modules are grouped by the PLC family, they can be used with.

CPU Series	Available Modules
<b>Qn</b>	QJ71PB92D (PROFIBUS DP V0 Master) QJ71PB92D – Mode 0 (PROFIBUS DP V0 Master) QJ71PB92V (PROFIBUS DP V1/V2 Master) QJ71PB93D (PROFIBUS DP V0 Slave)
<b>QnA/A</b>	A(1S)J71PB92D (PROFIBUS DP V0 Master) A(1S)J71PB92D – Mode 0 (PROFIBUS DP V0 Master)
<b>FX</b>	FX3U-64DP-M (PROFIBUS DP V1 Master)

Then the *graphical network editor* appears



Here you edit the dedicated parameters for the selected network interface module in specific editors.

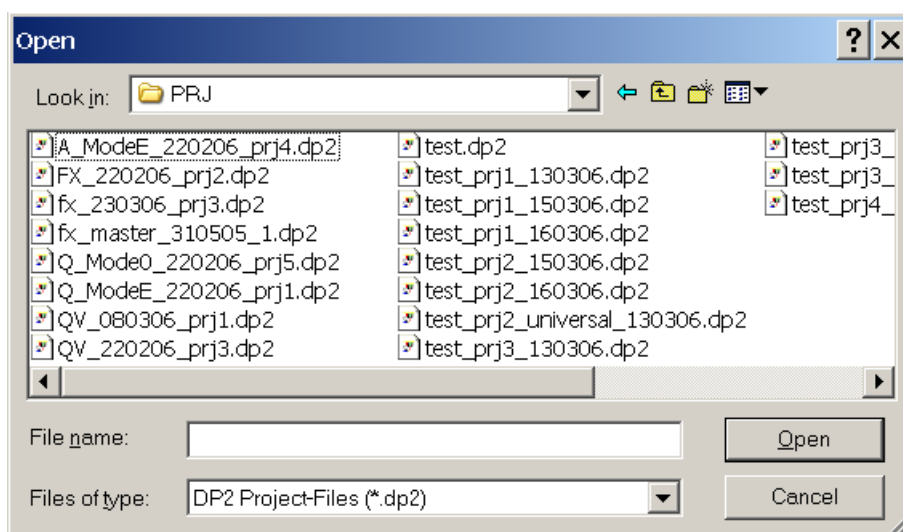
At present the A(1S)J71PB92D, QJ71PB92D, QJ71PB93D, QJ71PB92V and FX3U-64DP-M PROFIBUS DP network interfaces are supported.

The following parameters can be edited:

- [Master Settings](#)
- [Bus Parameters](#)
- [Slave Parameter Settings](#)

## Command Open

The menu command **Open** allows to open a project, which has previously been saved. This command uses the Windows dialog box for file open operation.



The **Open** dialog box lists only files of the following type:

- **\*.DP2**: project for a master module configuration
- **\*.DPX**: project for a QJ71PB93D slave module configuration

The shortcuts defined by the Windows dialog box for file open are valid.

### Compatibility to Older Versions

Open previous project files in GX Configurator-DP 7.01B according to the following table

File type	Software version
*.dp2	ProfiMap 3.0 GX Configurator-DP 4.00 GX Configurator-DP 4.01A GX Configurator-DP 4.02C GX Configurator-DP 5.00A GX Configurator-DP 5.01B GX Configurator-DP 6.00A GX Configurator-DP 6.01B GX Configurator-DP 6.02C GX Configurator-DP 7.00A
*.dpx	GX Configurator-DP 5.00A GX Configurator-DP 5.01B GX Configurator-DP 6.00A GX Configurator-DP 6.01B GX Configurator-DP 6.02C GX Configurator-DP 7.00A

Previous versions cannot open GX Configurator-DP 7.01B project databases.



#### Note:

\*.DP-projects generated with software versions previous to MELSEC ProfiMap V. 3.0 cannot be opened.

### Command Close

This menu command closes the active project.

### Command Save

This menu command is used to save a modified project. The project will be saved to the assigned file name. If no file name exists (e.g. new project) the standard dialog box for **Save as** will be opened.

Two different file types are used:

- **\*.DP2**: project for a master module configuration
- **\*.DPX**: project for a QJ71PB93D slave module configuration

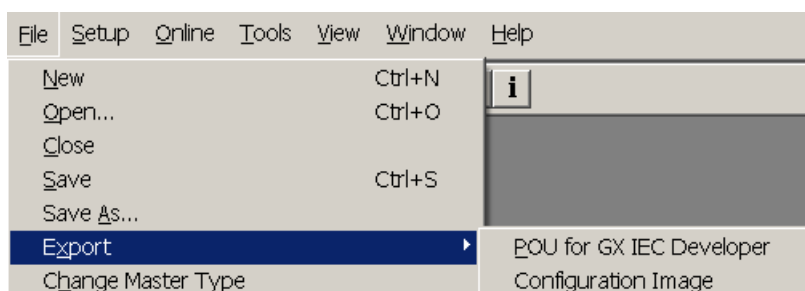
### Command Save As

This menu command is used to save a modified project with a new assigned file name. This command uses the dialog box for file saving.

The file extension \*.DP2 or \*.DPX is appended automatically depending on the module type you selected.

### Command Export

This menu command opens another submenu in which the user can choose between generating PLC program code or saving the configuration image to file for a download to the master with a different tool.



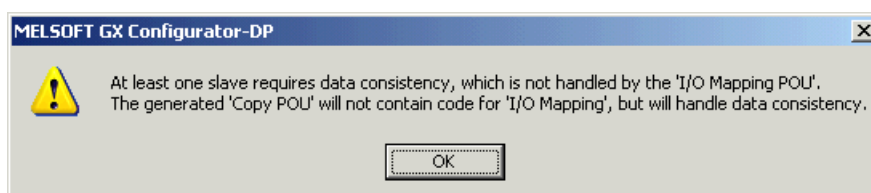
### POU for GX IEC Developer

This function generates PLC program code for GX IEC Developer (GID), which assists the application programmer in accessing the I/O data cyclicly transferred via PROFIBUS. The type and contents of the generated code depend on the type of the master module.

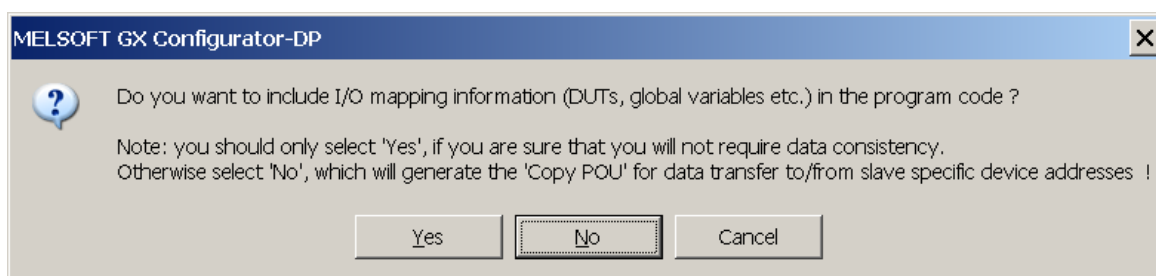
For A(1S)J71PB92D and QJ71PB92D in operating mode E as well as for QJ71PB92V modules an ASCII file and a user library are generated by GXDP in the given directory. The ASCII file contains the task definition and the reference to the user library. The user library contains the DUT definitions, global variable declarations and program instructions for [I/O mapping](#). When importing the ASCII file into a GID project, the user library is automatically imported as well.

For FX3U-64DP-M master modules the 'Copy POU' or the 'I/O Mapping POU' can be generated. The 'I/O Mapping POU' contains global variables for access to PROFIBUS I/O. It does however not ensure data consistency. This is only done by the 'Copy POU'.

All slaves in the project are checked whether they require consistency. If a slave requires consistency, the user is informed and can only generate the 'Copy POU'.

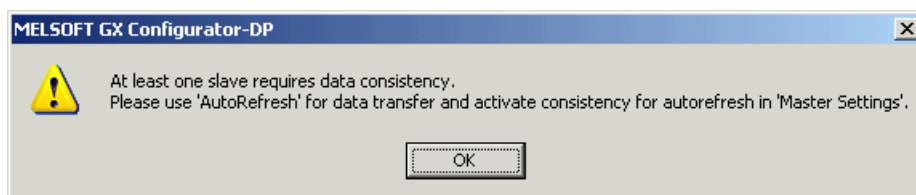


If consistency is not required, the user can choose for an FX3U-64DP-M master between the normal 'Copy POU' or the 'I/O Mapping POU'.





For QJ71PB92D and QJ71PB92V master modules consistency can only be ensured, if autorefresh with consistency is used for data transfer between CPU and master.



The A(1S)J71PB92D master maintains consistency in both A- and QnA-series systems.

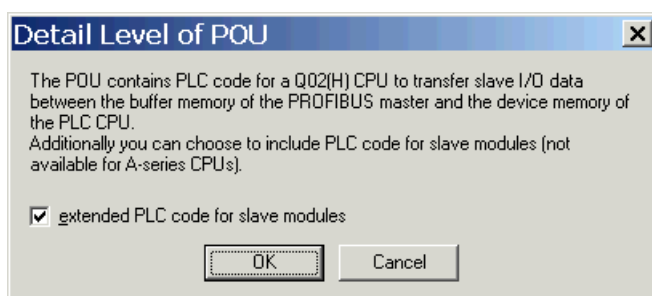
For A(1S)J71PB92D and QJ71PB92D in operating mode 0 no POU can be generated.



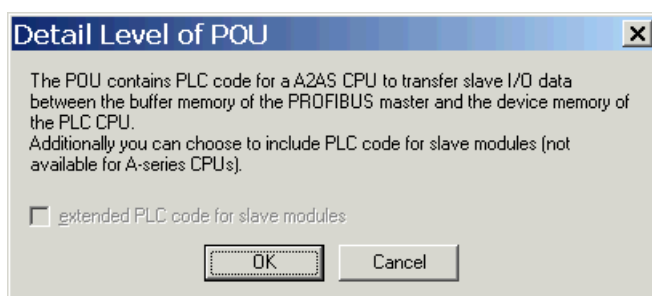
**Note:**

The ASCII file must be imported in GX IEC Developer. If a user library is referenced, it will automatically be imported as well. Because the ASCII file contains the absolute path of the user library, the user library must not be moved to a different directory.

The 'I/O Mapping POU' can be created in a full or a reduced version, i.e. with or without code for slave modules.



For A-CPU's (i.e. a transfer setup with an A-CPU is currently selected) only the reduced POU is available.

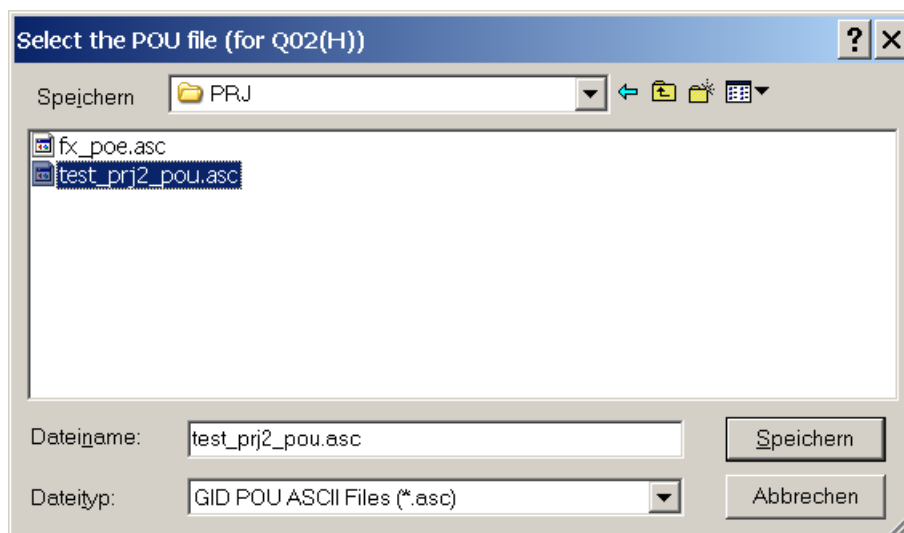


If the user selects to include the code for slave modules, the POU respectively the user library will also contain DUTs and global variables representing the slave modules. Separate networks will copy the I/O data of the slave modules between the global variables of the modules and the transfer buffer. The additional global variables and devices, which the user has assigned to individual I/O areas of modules, are also only included in the full version of the I/O mapping POU. The benefits of the reduced POU are lower memory consumption and less programming instructions. The disadvantages are the higher programming effort for the user and the required knowledge on the I/O structure of the slaves.

**Note:**

The detailed I/O data structures for ST1H-PB slave modules are only available in the full version of the POU.

The user can select the directory and the name of the POU ASCII file. The file name must start with a letter and not have more than 16 characters. The file name is used as name for user library and program as well.



If a user library is generated as well, it is located in the same directory, but with the extension '.sul' instead of '.asc'. Additionally to the .sul file the contents of the user library are saved in an ASCII file with the extension '.sul.asc'. This file should not be imported in GID. Its purpose is to allow the user to view the contents of the user library without importing and opening the user library in GID.

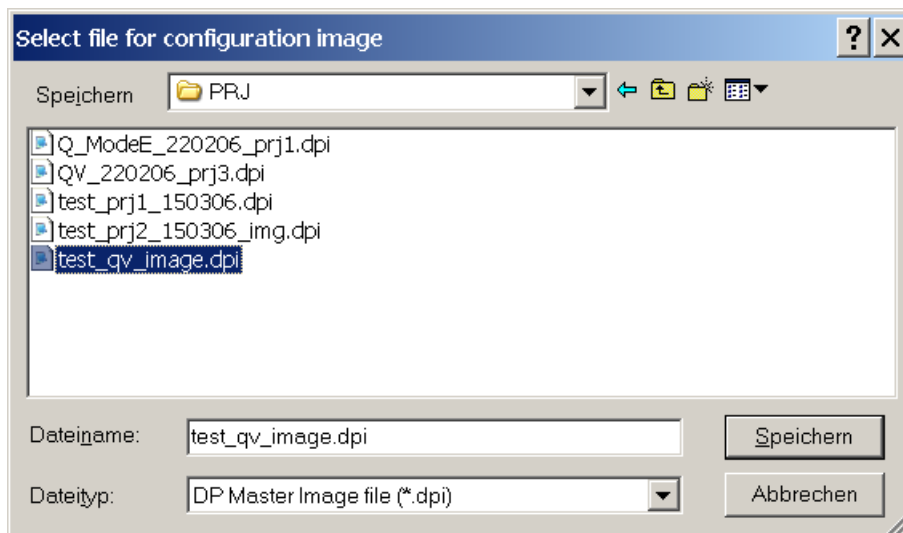
The title of the file dialog shows the CPU type, for which the POU is generated. This is the CPU type set in the currently selected transfer setup.

**Note:**

If the PROFIBUS master is located in a Q-series 'Remote I/O' rack, the POU must be imported in the GID project for the controlling PLC, not the project of the 'Remote I/O' rack.

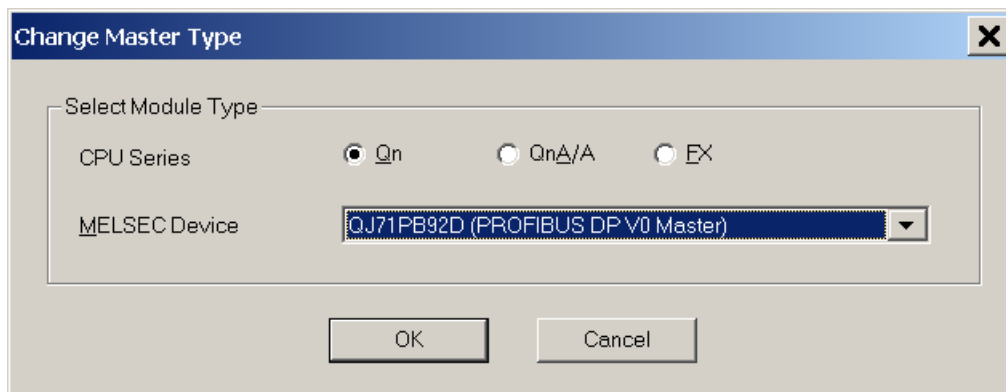
### Configuration Image

With this menu command the user is prompted for a file path to store the configuration image, which is generated from the current project. The configuration image contains the binary encoded structure of master and slave parameters as they are stored in the master. Its contents are therefore specific for the type of the master.



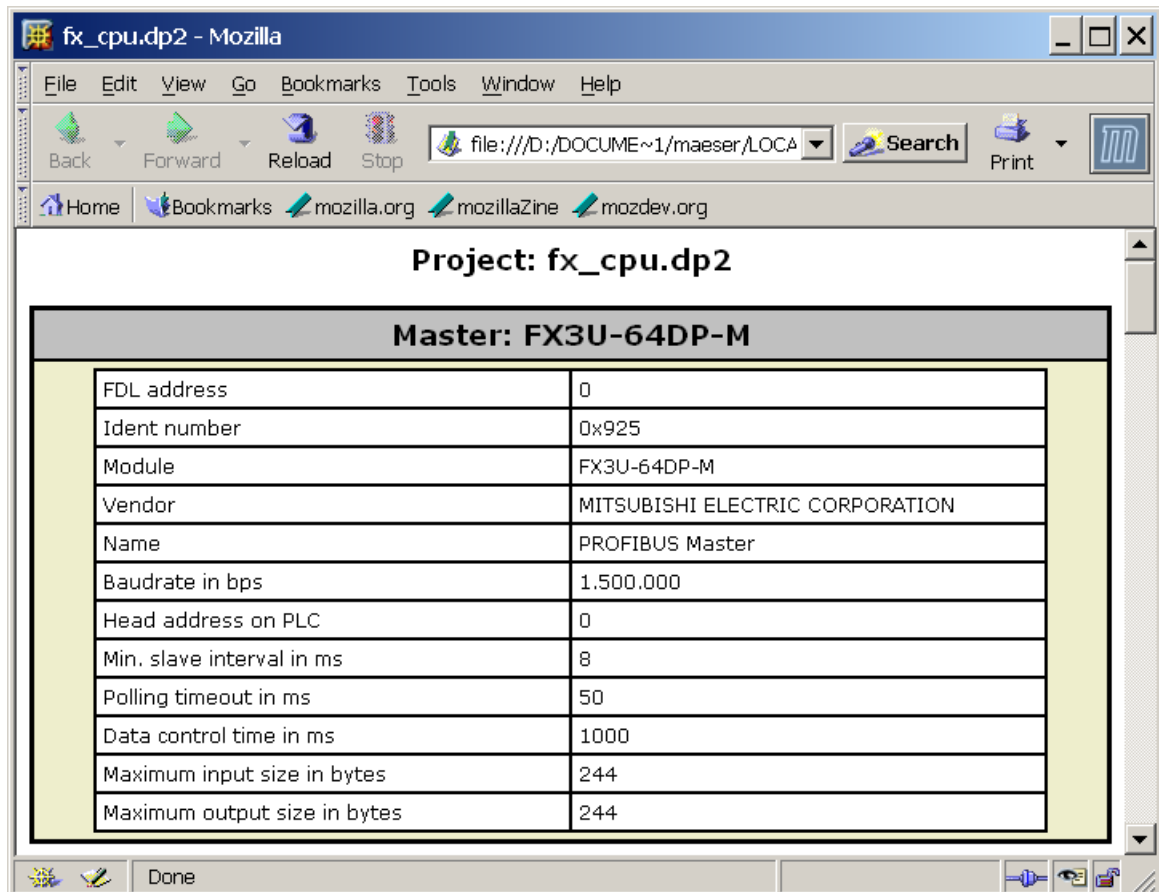
### Command Change Master Type

With this menu item the user can change the current project to a different operating mode or to a different type of master module.



### Command Print

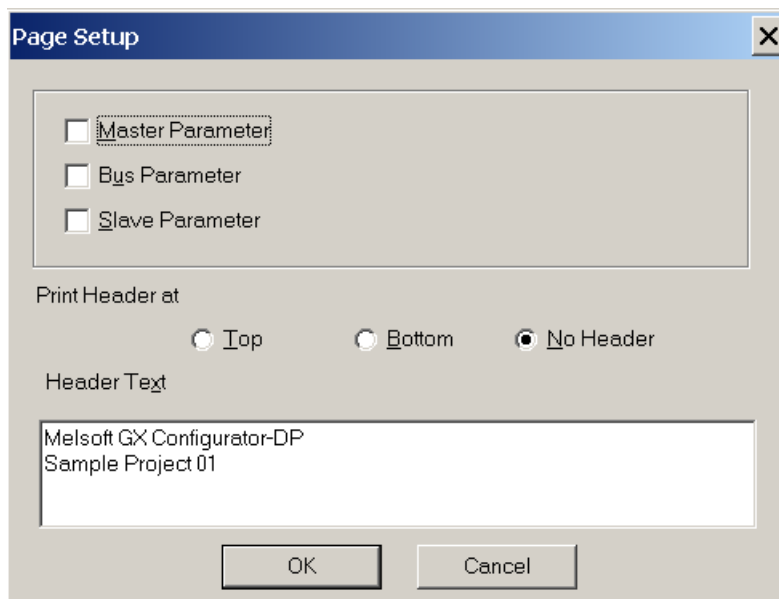
This command is available for master projects only. It creates an HTML document containing the settings of the current project and displays the document in the default web browser. Detailed appearance of the printout depends therefore on the browser. Via the browser menu the settings can be printed or saved for documentation purposes. The information about what is to be printed is set via [Page Setup](#).



### Command Page Setup

Available for master projects only. When you choose **Page Setup** you can select the parameters to be printed. Additionally you can enter a descriptive header text and select the position of the header on the page: top or bottom. If you select **No header** the header information will not be printed.

The settings including the header text are not stored in the project file, but locally on the PC and apply to all projects.

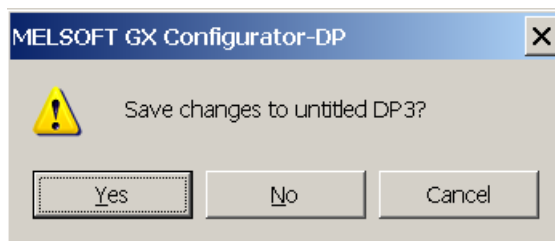


### Command Recent Files

The pull-down menu shows you the last four used projects. You can open one of them by pressing the shortcut 1 to 4 or selecting it using mouse or keyboard.

### Command Exit

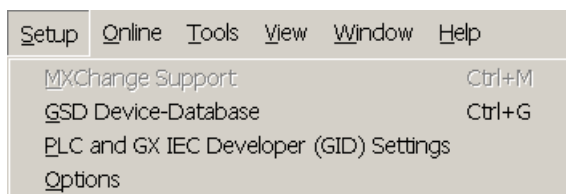
You can use this menu command to quit the software. If an open project has been modified and has not yet been saved the following message appears:



If you want to save the last changes before leaving and terminating the GX Configurator-DP software choose <Yes> .

If you choose <No> all modifications are lost.

## 5.2 Setup Menu



The Setup menu offers the following commands:

Command	Purpose
<a href="#">MXChange Support</a>	setup of the properties of the MXChange connection
<a href="#">GSD Device Database</a>	access to the GSD device database
<a href="#">PLC and GX IEC Developer (GID) Settings</a>	opens a dialog with tab pages, which allow to configure the data exchange between PROFIBUS master and PLC CPU
<a href="#">Options</a>	opens a dialog in which the user can change settings related to the GSD database

### Command MXChange Support

Available for \*.DP2 projects only. MXChange is an external software package made by Mitsubishi Electric. An A(1S)J71PB92D or QJ71PB92D PROFIBUS DP project can use MXChange to export information for MELSOFT GX IEC Developer or MELSEC MEDOC plus v2.32 or later. The update is done automatically when the A(1S)J71PB92D or QJ71PB92D project is saved. For this purpose the MXChange server must be installed and GX Configurator-DP must be connected to this server.

This dialog is used to set up the MXChange connection

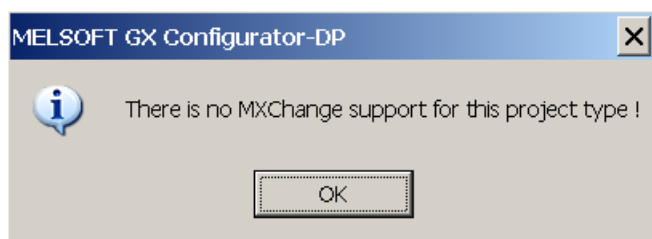
Command	Description
<b>MXChange Connection Usage</b>	enable/disable MXChange function
<b>Local MXChange Server</b>	specifies that MXChange is installed locally on the same system as GX Configurator-DP (not in LAN)

Command	Description
<b>Select Server Instance</b>	selects one of up to 16 available servers to connect to
<b>IP Address</b>	specifies the IP address of the MXChange server in LAN (ask your network administrator)
<b>User Name</b>	enter your user name for the MXChange server
<b>Password</b>	enter your password for the MXChange server
<b>Test</b>	tests, if a connection to the MXChange server can be established with the specified settings

You can set the MXChange connection usage for the A(1S)J71PB92D or QJ71PB92D project by enabling the MXChange Connection Usage check box.

If you prefer a local MXChange server, it is compulsory to install the server on the local PC. The local MXChange server is selected by enabling the Local MXChange Server check box. For correct remote MXChange support it is compulsory to install the TCP/IP services of the operating system. The correct IP address of the remote station, where the server is located, can be set by disabling the local MXChange server check box. The correct account consisting of user name and password is also compulsory for remote connection usage.

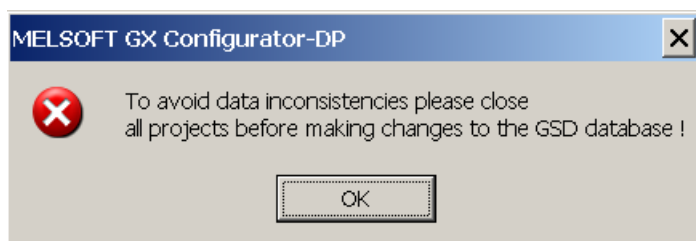
If the MXChange connection is enabled and a project is saved for a master, which is not supported by MXChange, a warning message is displayed.



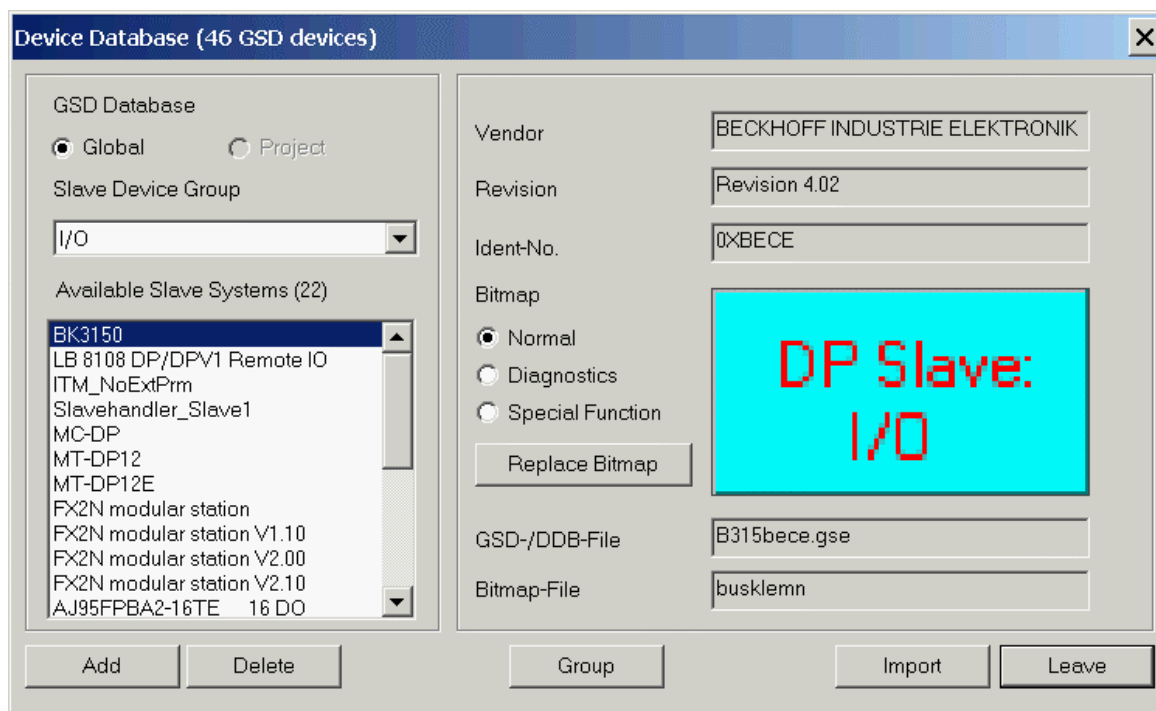
### Command GSD Device Database

The command is only available, if no project is currently open. However the GSD database only effects .DP2 projects. The device database contains information about PROFIBUS DP slave devices from Mitsubishi or 3rd party manufacturers. This item is used to add device information stored in GSD files to the internal database and to import extracted GSD data from other computers running GX Configurator-DP.

Because changes to slave types, which are used in any currently open project, may impact these projects, the **GSD database can only be modified**, if no project is open. Therefore the following message box will be displayed, when trying to open the dialog with a project currently opened. So first close all open projects.



The **Device Database** can be modified in the following dialog



When a group is selected in the box "Slave Device Group", the model names of the devices belonging to the selected group are displayed in the lower list box "Available Slave Systems".

Upon selecting a device entry in this list box the bitmap, which has been assigned to the device, is displayed on the right side of the list box.

By double-clicking on the bitmap display or using the button "Replace Bitmap", a file dialog is opened, in which a file with a new bitmap can be selected. Via the group of radio buttons the type of bitmap that is replaced can be selected. The GSD standard specifies bitmaps for:

- normal operation (this is used in the GX Configurator-DP editor)
- diagnostic status
- special operations mode

Beneath the bitmap both vendor name and revision string are displayed, as well as the name of the GSD file and the bitmap file. The so called GSD file describes the features of the slave such as the supported baud rate and the slave structure (modular slave/compact slave). The displayed vendor name and revision are included in the GSD file as well.

Please ask the manufacturer of the slave device for the matching GSD file.

### Adding Devices

A slave device can be added to the database by pressing the <Add> button. A file dialog appears to select the GSD file. When leaving the dialog with <Ok>, the GSD file is parsed and its contents stored in the local GSD device database. The GSD file itself is no longer required. If the GSD file references a bitmap file for the slave device GX Configurator-DP automatically tries to load the respective bitmap file and store it in the GSD database. In case the file is not found a default bitmap is used instead. This can lateron be replaced with a device specific bitmap.

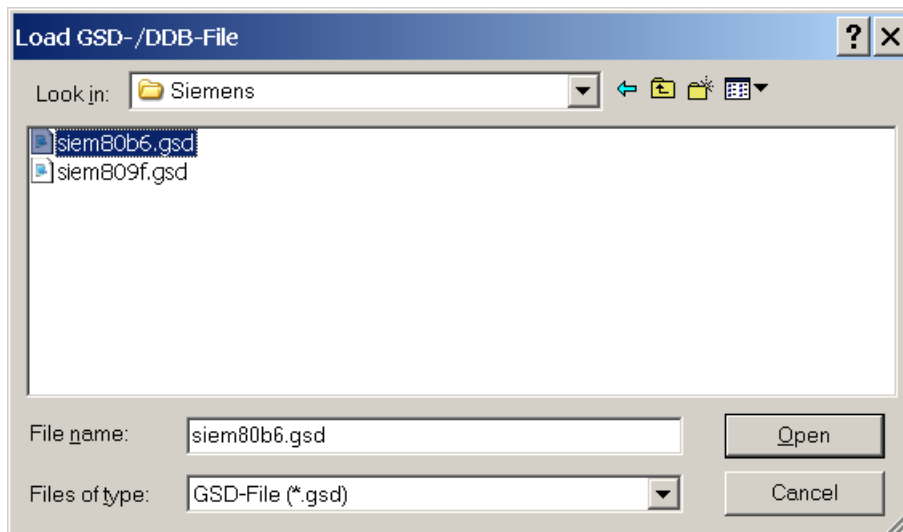
The PROFIBUS standard specifies the following format for the bitmap file:

<b>Width</b>	70 pixels
<b>Height</b>	40 pixels
<b>Colors</b>	16

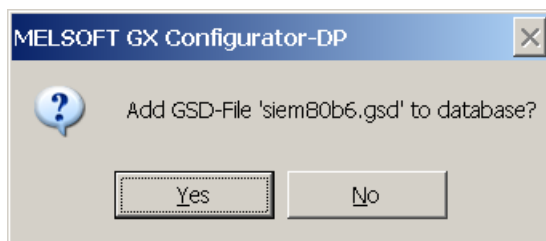


<b>File Extension</b>	dib, bmp
-----------------------	----------

Only bitmaps that match the requirements in the table above should be used. Other bitmaps with other sizes and color depths can be used, but will cause a warning message



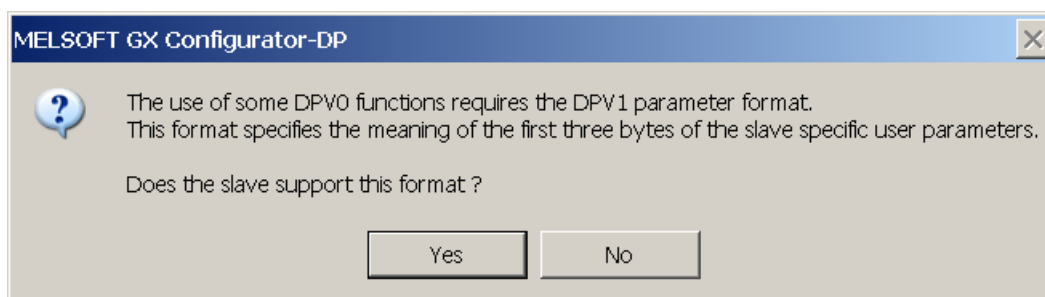
When both GSD and bitmap file have been selected, you will be asked to confirm the operation.



If you confirm, the contents of both files are read in and an entry is added to the internal device database for that device. Thereafter, you do not need the actual GSD and bitmap files any more.

### Updating DPV1 Slave Settings

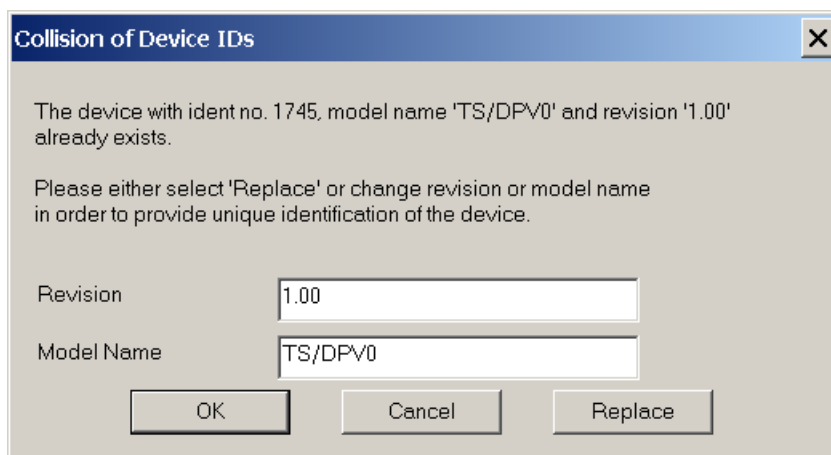
Some slaves, which support the alarm handling of DPV1, but not acyclic read/write, do not include the DPV1\_Slave keyword in their GSD file. Therefore the user is asked after parsing the GSD file, whether the slave supports the DPV1 format for parameter encoding. If <Yes> button is selected, the GSD database is updated as if the GSD file would have contained the entry **DPV1\_Slave=1**.



### GSD Update

If you try to add a GSD file to the device database for a device, which already exists, a warning is shown. You can either choose to add the device information with a device revision or type name

different to that of the existing device or choose to replace the existing entry.

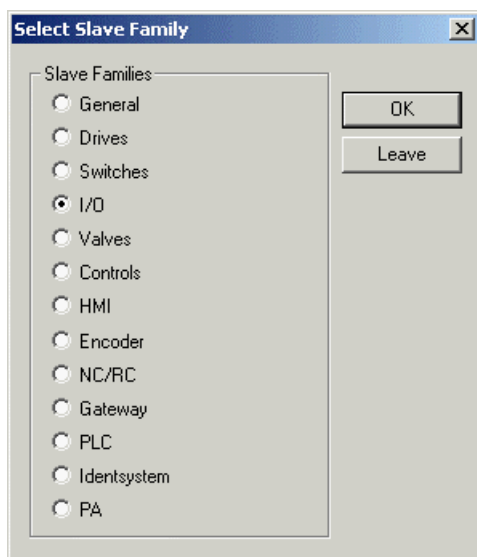


If you choose to replace the GSD file, internally the existing entry is deleted first and then the new GSD file is parsed. This will however not effect existing projects, which already use the device type and where the GSD information is part of the project file.

### Slave Device Group

DP slaves are grouped in one of the so-called 'slave families'. The default group is usually specified in the GSD file. The slave can be assigned to a different group in the **Slave Device Group** dialog.

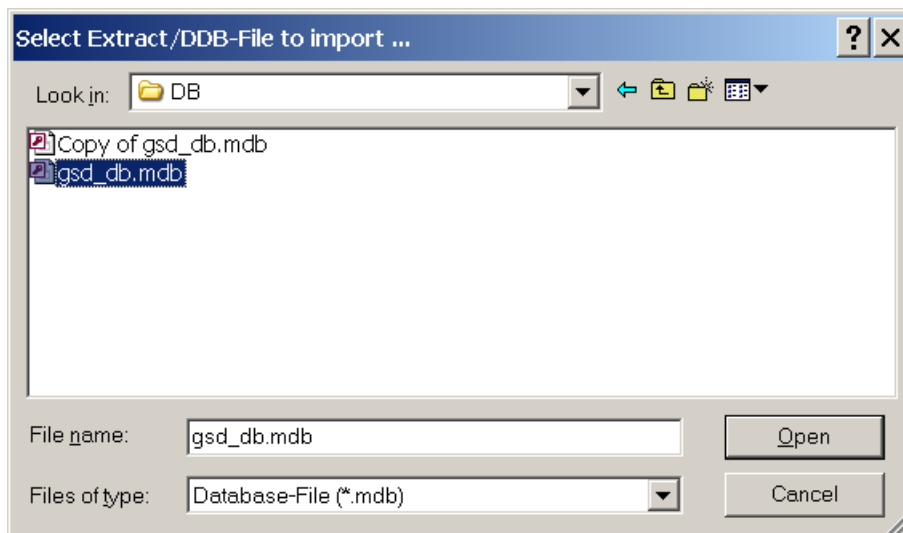
Click on the <Group> button to open the dialog **Select Slave Family**.



Click on one of the radio buttons to select a family. If the device group has not been specified in the GSD file, the slave is placed by default into the '**General**' group.

### Importing GSD-Extract Files

When pressing the 'Import' button, an external GSD database file can be selected for adding the devices contained therein to the local GSD database. The external database file can also be a 'GSD Extract' file exported by previous GXDP versions together with a project.



### Removing devices

A device can be removed from the database by selecting the entry in the left list box and pressing the <Delete> button. This deletes only the entry in the GSD database. It does not delete the GSD and bitmap files for that device. These files have to be removed manually.



**Note:**

The entry is immediately removed after clicking on the <Delete> button.

### Command PLC and GX IEC Developer (GID) Settings

With the menu command **PLC and GX IEC Developer (GID) Settings** the user can view and change the settings related to the PLC and GID project, which the master module is used with.

### CPU Device Access

In the tab 'CPU Device Access' the data transfer between the buffer memory of the master module and the PLC device memory is configured. The following table lists the input fields.

PLC and GX IEC Developer (GID) Settings

CPU Device Access | GX IEC Developer (GID) Settings

Buffer Devices

☐ Slave Specific Transfer

☒ Block Transfer

Input: D100 to D131

Output: D200 to D230

☐ Comm. Trouble Area

☐ Extd. Comm. Trouble Area

☐ Slave Status Area

Data Transfer using ...

☒ Copy Instructions

☐ AutoRefresh (Update of CPU)

☐ AutoRefresh (Update of GID Project)

OK Abbrechen

Input Fields	Description
<b>Slave Specific Transfer</b>	Buffer devices are assigned to each slave individually in the column "Buffer MIT-Address" in the "I/O Mapping" dialog. This option is only useful in combination with autorefresh or for the 'Copy POU' of the FX3U-64DP-M master.
<b>Block Transfer</b>	The input as well as the output areas of all slaves are transferred in a single step using one common transfer buffer.  Input: device address, where the slave input data is copied to from the buffer memory.  Output: device address, where the slave output data is copied from to the buffer memory.
<b>Comm. Trouble Area</b>	Device address, where the so-called 'Communication Trouble Area' is copied to from the buffer memory
<b>Extd. Comm. Trouble Area</b>	Device address, where the so-called 'Extd. Communication Trouble Area' is copied to from the buffer memory
<b>Slave Status Area</b>	Device address, where the so-called 'Slave Status Area' is copied to from the buffer memory
<b>Data Transfer using...</b>	Select, whether TO/FROM instructions or autorefresh is used for exchanging the data between PLC device memory and the buffer memory of the master module
<b>Copy Instructions</b>	Use TO/FROM instructions (for all PLC series except Q-series 'Remote I/O')
<b>AutoRefresh (Update of CPU)</b>	Use autorefresh and update of the settings online on the CPU (Q-series only except 'Remote I/O')

Input Fields	Description
<b>AutoRefresh (Update of GID project)</b>	Use autorefresh and update the settings offline in the corresponding GID project or the selected autorefresh settings file (usually named 'iparam.wpa')

For transferring the slave I/O data, there is a choice of two different methods:

**Slave Specific Transfer:** each input and output area of a slave can be mapped to a separate device address. This type should not be used in combination with the I/O mapping POU because it increases the time for data exchange between PROFIBUS master and PLC CPU. It is mainly provided for compatibility with previous versions in combination with autorefresh and for use with FX master modules. The device addresses are assigned in the [I/O mapping](#) dialog.

**Block Transfer:** the complete inputs and outputs of all slaves are transferred to and from a single device area in the CPU. This requires a larger contiguous memory area in the CPU, but saves transfer time and autorefresh entries, if used in combination with autorefresh. It is the preferred mode for use with I/O mapping. The device addresses for the input and output buffer must be set.



**Note:**

When using 'Slave Specific' transfer in combination with autorefresh, the total maximum of 256 autorefresh entries per PLC CPU may be exceeded, when a large number of slaves is used. Each input and each output area of a slave requires a separate autorefresh entry.

Additionally to the I/O data the buffers containing diagnostic and status information can be mapped to a device area in the CPU. For information on the contents of these buffers please consult the manual of the respective master module.

The data is transferred between module buffer memory and CPU devices using TO/FROM instructions, which are included in the PLC program code exported by GXDP. For Q-series PLCs there is the additional option of autorefresh transfer. Autorefresh is supported for both slave specific as well as block transfer mode. The advantages of the use of autorefresh are the faster data exchange, data consistency and that there is no influence on the PLC cycle time. It is configured via a parameter file on the PLC CPU.

### Copy Instructions

The output transfer buffer at the user specified device address is copied to the buffer memory with one (for 'Block Transfer') or several (for 'Slave Specific') TO instructions. In the opposite direction the inputs are transferred with one or more FROM instructions from the buffer memory to the input buffer device specified by the user. With the exception of the 'Copy POU' for the FX master 'Block Transfer' should be used in combination with TO/FROM instructions.

### AutoRefresh (Update of CPU)



**Note:**

Available for Q-series only !

If selected, the autorefresh settings are updated online in the CPU after downloading the configuration to the master module. The CPU must be stopped during the autorefresh update.

### AutoRefresh (Update of GID Project)



**Note:**

Available for Q-series only !

If selected, the autorefresh settings are either updated in the autorefresh parameter file in the corresponding GID project, or, if no GID project has been assigned, in the file specified by the user.

By updating the GID project instead of the CPU directly it is ensured that the autorefresh settings for PROFIBUS are not accidentally deleted by a download of autorefresh settings from GID.



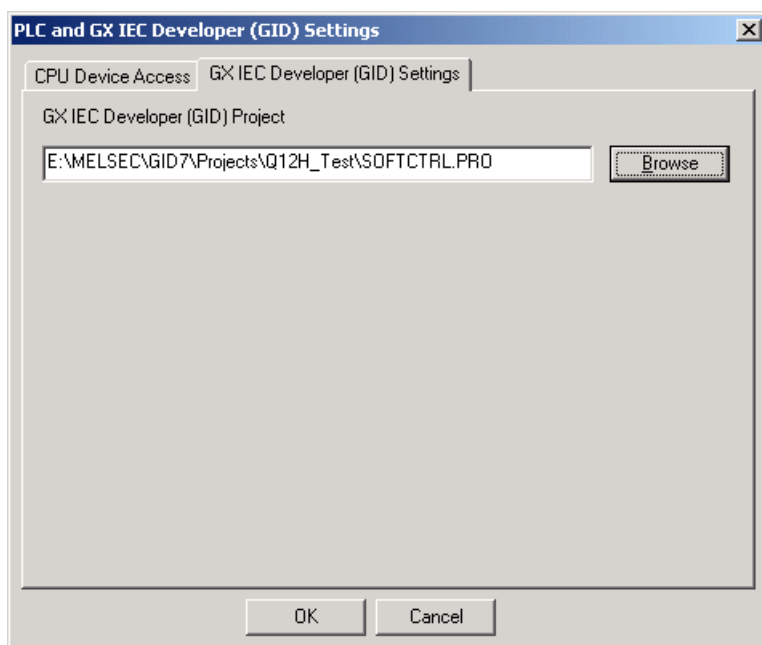
**Note:**

If the PROFIBUS master is located in a Q-series 'Remote I/O' rack, the option '**AutoRefresh (Update of GID Project)**' must be selected. The selected GID project must be the one for the 'Remote I/O', not for the controlling CPU. This will add the autorefresh settings to the 'Remote I/O', which will exchange the I/O data between the buffer memory of the PROFIBUS master and the transfer devices in the 'Remote I/O'. These transfer devices must be exchanged via MELSECNET with the controlling CPU.

The [I/O mapping POU](#) (without FROM/TO instructions) must be imported in the GID project for the controlling CPU. It will access the devices transferred via MELSECNET with the 'Remote I/O'.

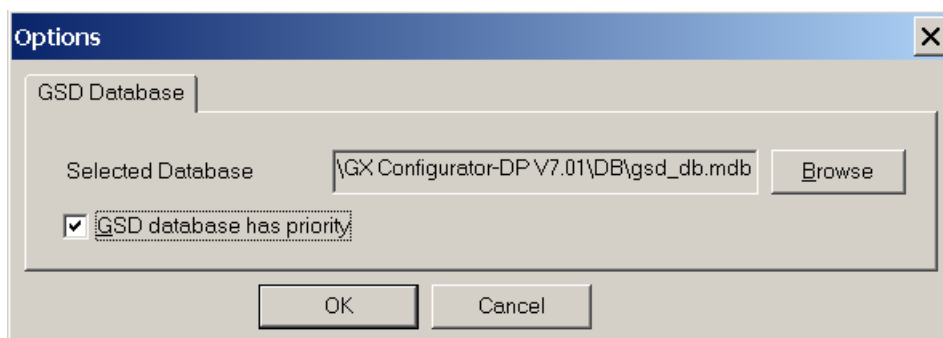
### GX IEC Developer (GID) Settings

In the GID settings page the user can select the path of the GID project file for the PLC, in which the PROFIBUS master is installed. This path is used to locate the autorefresh settings of the GID project.



### Command Options

Change settings related to the GSD database. This command opens the following dialog providing access to different options.



To apply the updated GSD database to an existing project the option **GSD database has priority** must be enabled.

### GSD database has priority

This option controls, whether GSD information in the project file, if present, is overwritten by the corresponding information from the GSD database for the same types.

This option has the following effects:

#### When opening a project file

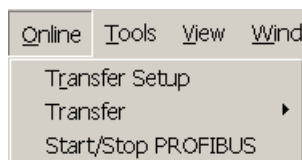
- Case 1: The option GSD database has priority is selected  
GX Configurator-DP tries to locate the GSD information for the slave types, which are used in the project, in the local GSD database. If the type cannot be found in the database, it tries to find the information in the project file. If that fails as well, an error message is displayed and the project cannot be opened.
- Case 2: The option GSD database has priority is not selected  
GX Configurator-DP tries to locate the GSD information for the slave types, which are used in the project, in the project file itself. If the type cannot be found in the project, it tries to find the information in the local GSD database. If that fails as well, an error message is displayed and the project cannot be opened.

#### When saving a project file

When a project is saved, GXDP adds the GSD information for all slave types, which are used in the project and for which the GSD information does not already exist in the project file, to the project file. GSD information in the project file for types, which no longer are used in the project, is removed from the project file. GSD information existing in the project file for types still in use, is handled depending on the option 'GSD database has priority'.

- Case 1: The option 'GSD database has priority' is selected  
If the GSD information for a certain type exists in both project file and local GSD database, the GSD entries in the project file are deleted and replaced by those from the GSD database.
- Case 2: The option 'GSD database has priority' is not selected  
Existing GSD entries in the project file for types, which are still in use, will not be changed.

## 5.3 Online Menu



The Online menu offers the following commands:

Command	Description
<a href="#">Transfer Setup</a>	defining the network connection type (PC to PLC).
<a href="#">Transfer</a>	downloading the configuration from the current project to the module specified by the current transfer setup.
<a href="#">Start/Stop PROFIBUS</a>	user can start and stop the cyclic DP data transfer.

### Command Transfer Setup

The dialog is started via the menu item **Online/Transfer Setup**. When a new project is created, a

default transfer setup is automatically added to the project file. With the <Configure> button you can change the settings both for the default and for a new created transfer setup.

For a more detailed description how to handle a transfer setup see also chapter [Opening the transfer setup and defining a network connection.](#)

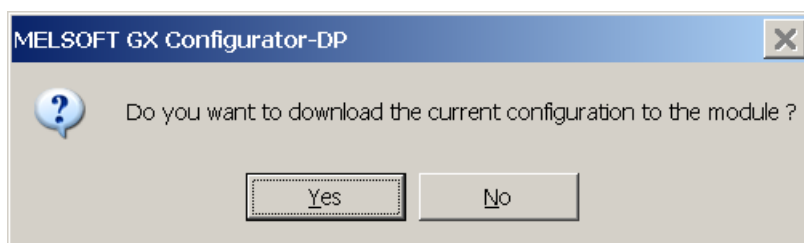
## Command Transfer

In the submenu Transfer the user can choose between:

- [Download to Module...](#): download the configuration from the current project to the connected module.
- [Verify](#): upload the existing configuration from the module and compare it with the current project.
- [Upload Config.Image](#): read the binary configuration image from the master and store it in a file
- [Download Config.Image](#): download the configuration image taken from the specified file to the master module

### Command Download to Module...

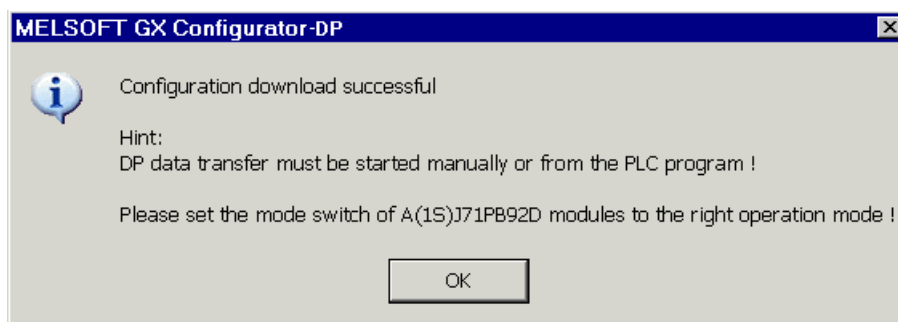
This item downloads the configuration in the current project to the master module specified in the transfer setup. The user must confirm the operation, before the download is actually started.



#### Note:

The FX3U-64DP-M PROFIBUS master can only be updated, if the CPU is stopped. The CPU can be stopped and restarted automatically during the download, if the user agrees.

If the download has been successful and autorefresh is selected as data transfer method, the user is asked, whether the autorefresh settings should be updated or not. Depending on the selection in [CPU Device Access](#) either the CPU or a file is updated.



For other master modules than A(1S)J71PB92D the note about the mode switch is hidden in the message box.



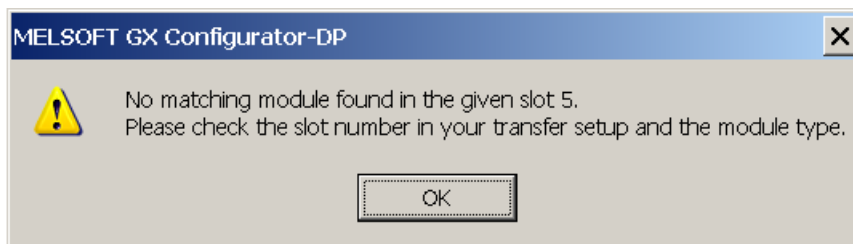
#### Note:

If you use a A(1S)J71PB92D module the user must set the correct operation mode (0 or E) with the switch on the front of the module. The module will take over the setting of the mode switch after a CPU reset.



### Download to project module type only

GXDP will allow a download only to the same module type as specified in the project. If the module found in the specified slot of the target PLC rack does not match that of the project, an error message is displayed.

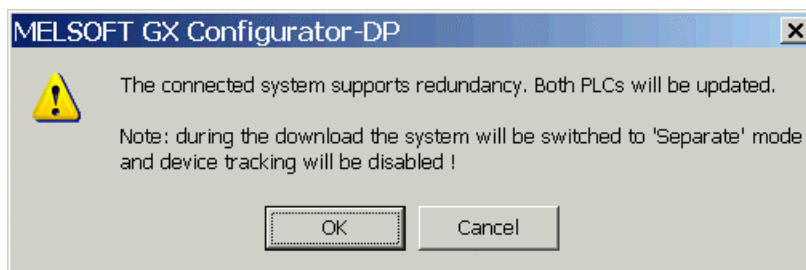


If the user wants to download the project to a different module type, the project must first be converted to the type of the connected module. This is done by selecting the [Change Master Type](#) menu item.

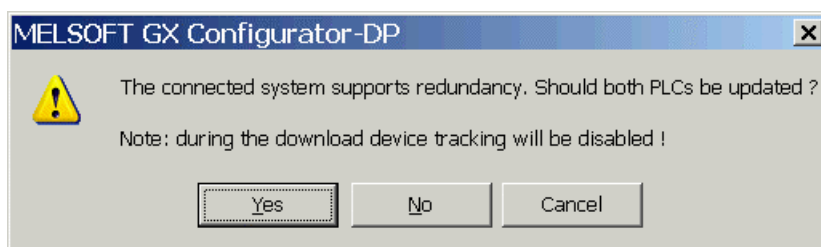
### For QnPRH redundant systems

If the connected PLC is a QnPRH, GXDP automatically checks whether both PLCs of the redundant system are accessible by using the tracking cable and also checks the current backup mode. The procedure for download is adapted according to the result of these tests

1. 'Backup' mode and both PLCs connected: the user is asked for confirmation to update both master modules. If the user confirms, the system is automatically switched to 'Separate' mode and default device tracking is turned off. Then the configuration is downloaded to the master in the control as well as in the standby system. After the download, the system is set back to the original state.



2. 'Separate' mode and both PLCs connected: the user is asked, whether the configuration of both master modules or only of the one in the locally connected PLC should be updated. In both cases device tracking is turned off, while the configuration is downloaded to the master(s). After the download, device tracking is enabled again.



3. 'Debug' mode or only one PLC connected: only the master in the connected PLC is updated.

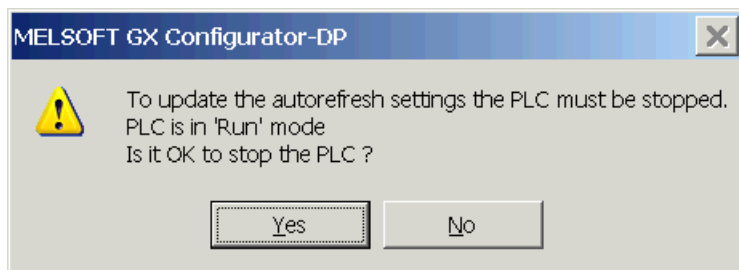
### AutoRefresh Update

If the user has selected 'AutoRefresh (Update of CPU)' or 'AutoRefresh (Update of GID Project)' in the [PLC and GID Settings](#) dialog, the autorefresh settings are updated, after the configuration

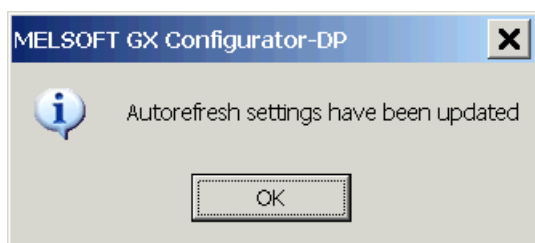
has been successfully downloaded to the PROFIBUS master module.

#### *AutoRefresh (Update of CPU)*

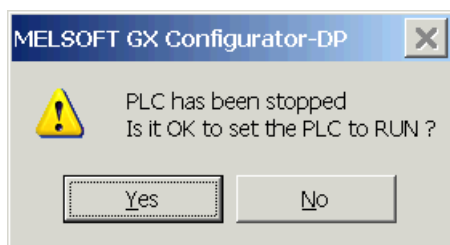
The (online) update of the autorefresh settings on the CPU is only possible, if the CPU is stopped. The CPU status is checked and, if the status is not 'Stopped', the user is asked, whether the CPU can be stopped.



After stopping the CPU the autorefresh settings on the CPU are updated. Existing autorefresh settings on the CPU for the same head address as the current master module are overwritten with the settings for the master, existing settings for other modules remain unchanged.

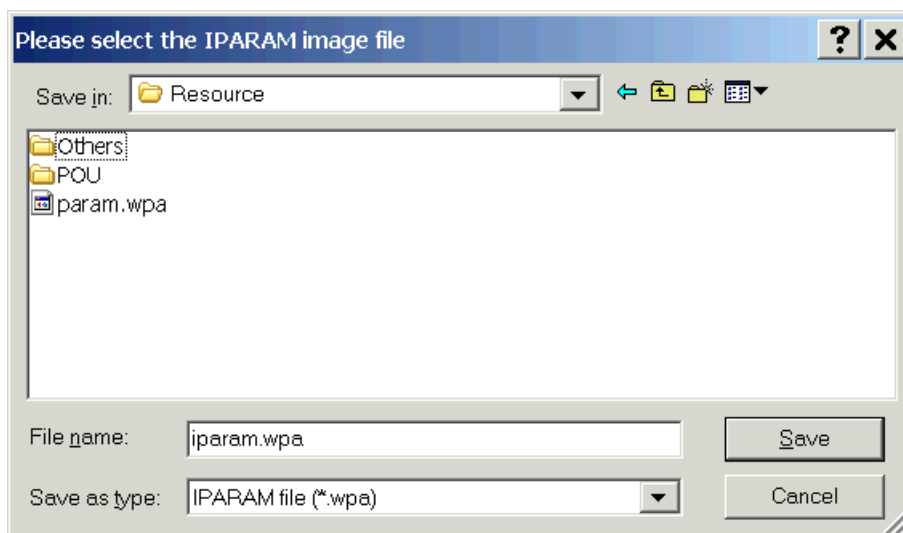


If the CPU had been stopped prior to the update, the user is asked whether to start the CPU again.

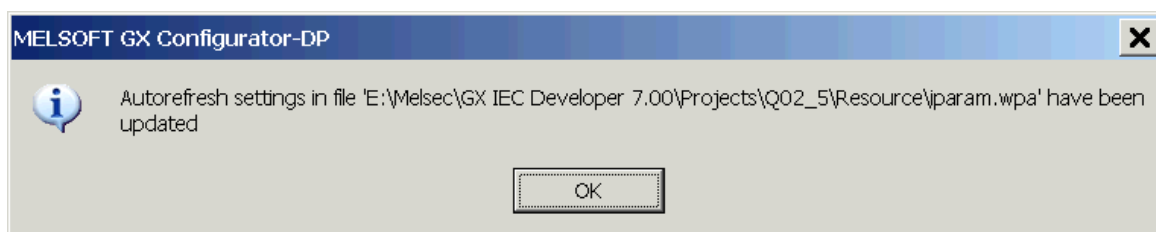


#### *AutoRefresh (Update des GID Project)*

The (offline) update of the autorefresh settings in the parameter file of a GID project is done automatically, if the path to an existing GID project directory has been set. Otherwise the user is prompted for the path of the parameter file, which should be updated.

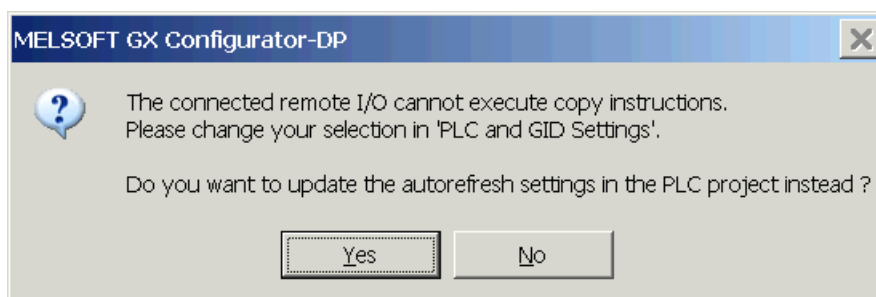


After a successful update, the path of the updated file is displayed.



#### *AutoRefresh Update of Q-series 'Remote I/O' CPU*

If the PROFIBUS master is located in the rack of a Q-series 'Remote I/O' CPU, the options 'AutoRefresh (Update of CPU)' and 'Copy Instructions' are not possible for data transfer. The user is informed and offered to update the autorefresh settings in a GID or GD project instead.



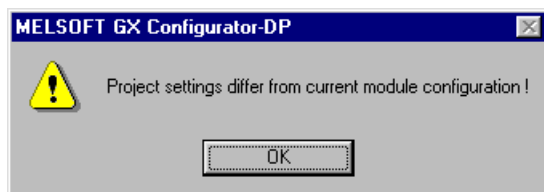
#### **Command Verify**

This function verifies the settings of the selected project with the current configuration of the module. For PB92D masters a warning is displayed to inform the user that the data exchange on the PROFIBUS network will be stopped. Click <OK> to continue. The current configuration is read from the module and compared with the

configuration created from the current project. If both settings match, the following message box is displayed.



If the settings differ, the following message box is displayed. More detailed information on which parts of the settings are different, is not provided.

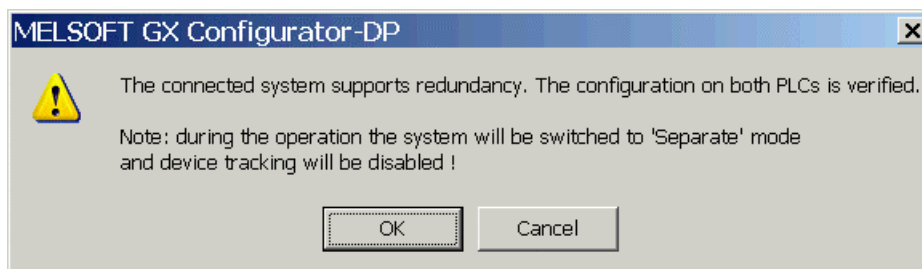


In case any problems occur, for example when reading the configuration from the module, a general error message is shown.

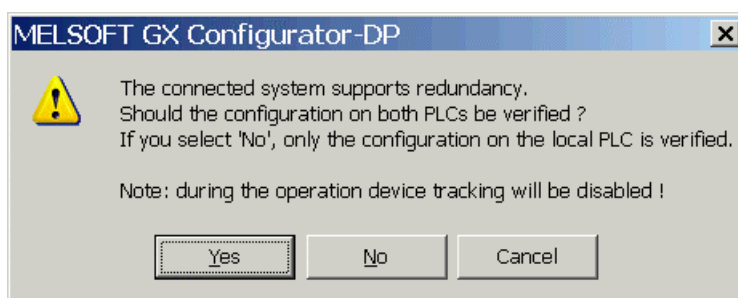
#### For QnPRH redundant systems

If the connected PLC is a QnPRH, GXDP automatically checks whether both PLCs of the redundant system are accessible by using the tracking cable and also checks the current backup mode. The procedure for verify is adapted according to the result of these tests

1. 'Backup' mode and both PLCs connected: the user is asked for confirmation to verify the configuration of both master modules. If the user confirms, the system is automatically switched to 'Separate' mode and default device tracking is turned off. Then the current configuration is read from the master in the control as well as in the standby system and compared with the configuration of the current project..



2. 'Separate' mode and both PLCs connected: the user is asked, whether the configuration of both master modules or only of the one in the locally connected PLC should be verified. In both cases device tracking is turned off, while the current configuration is uploaded from the master(s). After the verify, device tracking is enabled again.



3. 'Debug' mode or only one PLC connected: only the master in the connected PLC is checked.

### Upload Config. Image

GXDP tries to connect to a master module of the type set in the current project, using the selected transfer setup. If the connection is established, the current configuration is read from the master module and stored in binary format in the file, which the user has selected. Information stored in the PLC CPU like autorefresh settings or POU code is not retrieved.

The configuration image can be used to configure another master module, if the original GXDP project file is not available. The configuration image is downloaded a master with the ['Download Config. Image'](#) function.



**Note:**

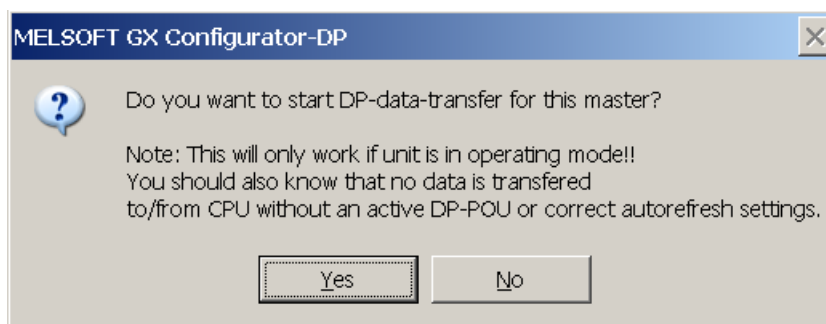
The information read from the master module cannot be used to create a GXDP project file.

### Download Config. Image

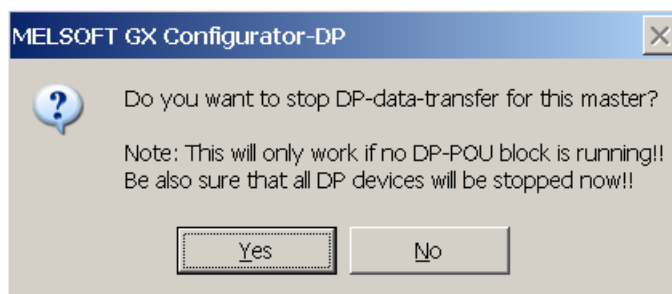
The user must first select a file with configuration image created by a previous upload ( see ['Upload Config. Image'](#) ) or the corresponding export function of GXDP (see ['Export -> Config. Image'](#) ). This configuration must be compatible to the module type set in the current project. GXDP tries to connect to the master module, using the selected transfer setup. If the connection is established, the configuration image is written to the master module.

### Command Start/Stop PROFIBUS

This item is used to manually start or stop the PROFIBUS DP cyclic data transfer of DPV0. The current status of the connected PROFIBUS master is checked. If there is no active data transfer, the user is asked to confirm starting the transfer.

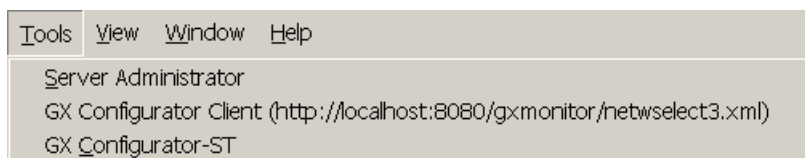


If the data transfer is active, the user is asked to confirm stopping the transfer.



The cyclic data transfer is started and stopped by setting respectively resetting the Y0 (+ starting I/O number) device of the master. If a PLC program, which starts the data transfer, is running, while the user tries to stop the data transfer, the operation fails. An error message is displayed and the user is informed of the possible access conflict between PC and PLC program.

## 5.4 Tools Menu



The Tools menu offers the following commands:

Command	Description
<a href="#">Server Administrator</a>	starts a web server for online access to the modules.
<a href="#">GX Configurator Client</a>	client for logging in to the web server for online access to the modules.
<a href="#">GX Configurator-ST</a>	starts GX Configurator-ST for configuration of ST1H-PB 'Slice I/O' slaves

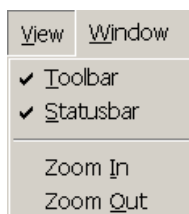
### Starting GX Configurator-ST

The menu command GX Configurator-ST is used to start the configuration tool for the ST modules (Slice Terminal). This menu command is enabled, if GX Configurator-ST is installed, i.e. the corresponding executable file can be found.

With the GX Configurator-ST you can operate settings and monitor ST1H-PB graphically. It shows various status of ST1H-PB and slice modules, which include error information. You are able to use the forced output function via GX Configurator-ST and easily check your wirings. You can also set parameters of intelligent modules of ST series.

The GX Configurator-ST runs as a separate application with its own entry in the task list and must be closed separately. However, when GX Configurator-DP is closed, it displays a warning message in case GX Configurator-ST is still running.

## 5.5 View Menu



In the **View** menu you can select the following menu commands:

Command	Description
<a href="#">Toolbar</a>	Shows or hides the application's toolbar.
<a href="#">Status Bar</a>	Shows or hides the application's status bar.
<a href="#">Zoom In</a>	Increases the view size of the graphical network editor.

**Zoom Out**

Decreases the view size of the graphical network editor.

These menu commands allow you to select whether the tool bar and the status bar will be displayed or not. A check mark in front of the commands shows that this function is currently activated.

**Command Toolbar**

If the toolbar is enabled you will find additional buttons for creating documents, opening documents, saving documents or the help menu.

**Command Status bar**

If this command is enabled a status bar will be displayed at the bottom of the window informing you about the selected item and the current status of the project.

**Additional information in status bar**

The following information is displayed in the status bar

1. the name of the currently selected transfer setup
2. the method used for I/O data transfer, i.e. 'Copy Instructions' or 'AutoRefresh'
3. the path of the GX IEC Developer (GID) Project (may be truncated)

**Command Zoom In**

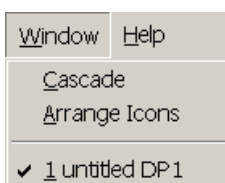
Select this menu item to increase the view size of the graphical network editor.

**Command Zoom Out**

Select this menu item to decrease the view size of the graphical network editor.

## 5.6 Window Menu

This menu provides the standard "window" functions

**Command Cascade**

The user can arrange all open project windows so that they overlap by selecting the menu item cascade.

**Command Arrange Icons**

By selecting arrange icons all minimized window icons are arranged side by side at the bottom of the main window.

**Command 1,2,3,...**

This switches over to one of several projects that you keep open simultaneously. Either click on the loaded project you want to switch to or enter the according number.

## 5.7 Help Menu

The Help menu offers the following commands, which provide you assistance with this application



Command	Purpose
<a href="#">Index</a>	Offers you an index to topics on which you can get help.
<a href="#">Using Help</a>	Provides general instructions on using help.
<a href="#">About</a>	Displays the version number of this application.

### Command Index

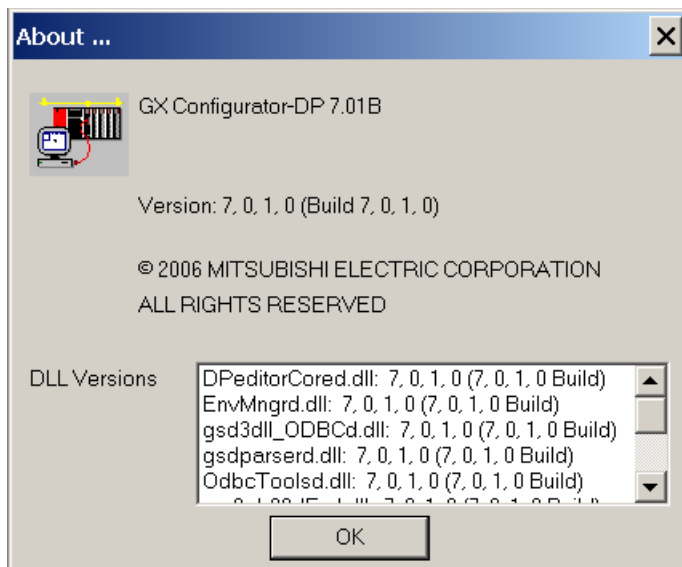
With the help of this function you can search for a keyword. Just type in the term you need information about and you will get help. In addition you will be supported by a context-sensitive help. If you have opened any dialog box you can access the help function by pressing the <F1> key.

### Command Using Help

The purpose of this function is to start the Windows help informing you on how to use the help system.

### Command About...

This function displays information about your software release. Additionally the about box displays a list of the \*.dll files used in order to check the versions of the different modules.



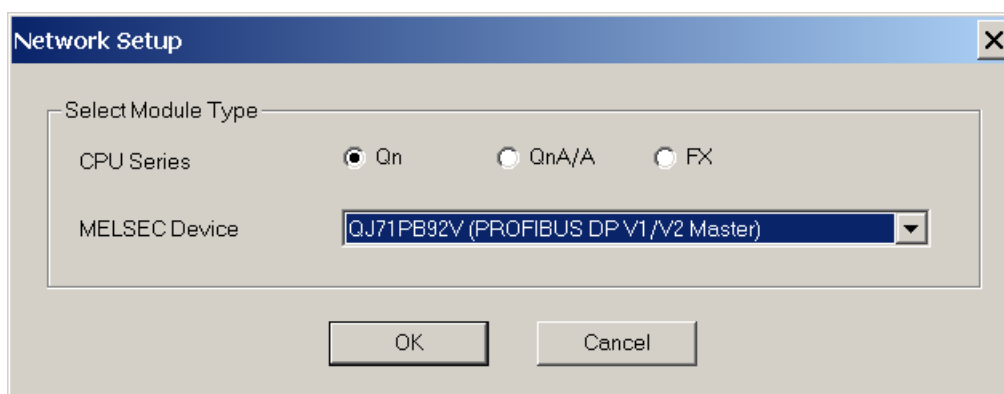


## 6 How to Create a New DP Master Project

### Parameter Setting for PROFIBUS Master Modules

#### Introduction and Overview

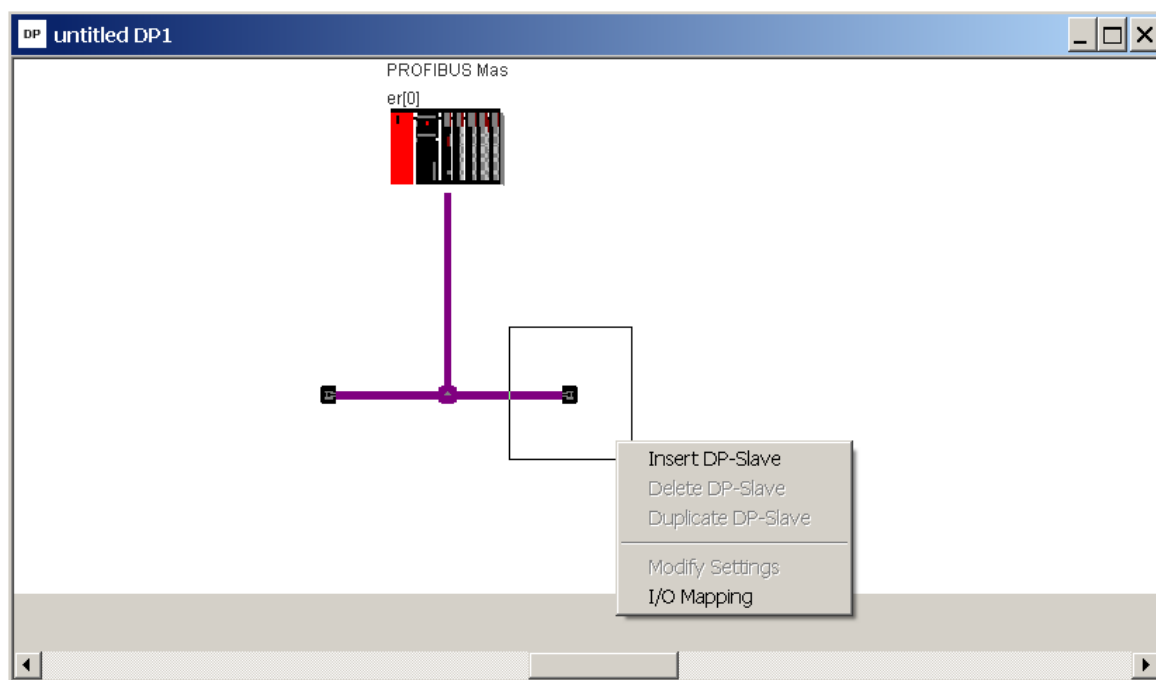
This section describes how to generate the parameter settings for the **A(1S)J71PB92D**. Differences to the parameter setting for other PROFIBUS master modules are mentioned explicitly. After selecting the command **New** in the **File** menu choose the module type **A(1S)J71PB92D**.



All PROFIBUS DP master modules support an advanced buffer memory management in 244 byte mode with larger and more flexible data telegrams and thus less delay in the sequence program. The A(1S)J71PB92D and QJ71PB92D master modules additionally provide a 32 byte mode (operating mode 0) for compatibility reasons with the MELSEC ProfiMap 1.0 software and with previous A(1S)J71PB92D modules.

#### Graphical Network Editor

After you have opened a project the graphical network editor appears:



Within this window you can edit and add additional devices. To add a slave open the context

menu by pressing the right mouse button and select 'Insert DP-Slave'. The GSD database dialog is displayed and the type of the new slave device can be selected. After inserting the slave the dialog to adjust the [slave parameter settings](#) is displayed.

The same dialog is displayed, if an existing slave is selected the item 'Modify Settings' is selected from the context menu.

When selecting the master the following parameters can be edited:

- [Master Settings](#)
- [Bus Parameter](#)



**Note:**

Any changes in the master configuration, which change the I/O structure (i.e add/remove slaves or modules), require to generate the Copy- respectively I/O Mapping-POU again and to repeat the import.

## Master Settings

To access the master settings from the graphical network editor:

- Double-click on the master module or
- Right-click on the master module to open the context menu and select **Modify Settings**

Within the Master Settings network related bus and timing parameters can be set as well as master specific parameters like the FDL address.

**Master Settings**

Module:

Vendor:

Revision:

Name:

Baudrate:

FDL address:  [0 - 125]

Starting I/O number:  [0x0 - 0x7]

Error action flag: ☐ Goto 'Clear' State

Min. slave interval:  [1 - 65535] \* 100 μs

Polling timeout:  [1 - 65535] \* 1 ms

Data control time:  [T\_wd \* 6 - 65535] \* 10 ms

☐ Watchdog Slave Watchdog time:  [1 - 65025] \* 10 ms

Estimated bus cycle time:  ms

☐ Autom. Refresh ☐ Consistency

Watchdog for time sync.:  [0 - 65535] \* 10 ms

OK Cancel Default Bus Param.

For PROFIBUS modules supporting DP V2, i.e. the QJ71PB92V, the **Master Settings** dialog is extended by the input of the clock synchronization interval **Watchdog for time sync.** This parameter is disabled and only displayed in grey for the other PROFIBUS modules:

The field '**Estimated bus cycle time**' shows the expected minimum interval between two I/O data exchanges with a slave. The cycle time depends mostly on the following factors:

- baud rate
- number of slaves configured in the master
- I/O size of the configured slaves
- max response time of each slave (max Tsdr)
- number of acyclic requests, diagnostic telegrams and retries
- other master stations sharing the same PROFIBUS network



**Note:**

The cycle time must be observed when setting the minimum slave interval and the watchdog time. If the actual cycle time exceeds the settings for these parameters, the communication cannot be started.

When using the estimated cycle time for adjusting min. slave interval and watchdog time add sufficient time for communication of other masters and for acyclic data exchange (DPV1 and diagnostic messages).

### Communications Parameters of Master Settings

Parameter	Meaning
<b>Name</b>	Shows the project specific name of the master
<b>Baudrate</b>	Transfer rate for the communication. Define a baudrate, which is supported by all slaves.
<b>FDL address</b>	FDL address (station number)
<b>Starting I/O number</b>	Module head address on the base unit  <b>Note:</b> the starting I/O number is only necessary for 'Copy POU' and 'I/O Mapping POU'. It is not required for the download of the PROFIBUS configuration. For online access the module is identified by the slot number in the transfer setup.

Parameter	Meaning
<b>Error action flag</b>	Output processing after failure. Select this option, if you want to have the outputs shut off in case of error (recommended for drives, inverters etc.). In practice this means: After occurrence of any network error all outputs of the network are turned OFF and no diagnostic information from the slaves is returned.
<b>Autom. Refresh (Q series only)</b>	Sets the automatic refresh parameter of the PROFIBUS master <b>Note:</b> the AutoRefresh parameter is automatically set, if AutoRefresh has been selected for data transfer in PLC Settings
<b>Consistency (Q series only)</b>	Ensures data consistency during transfer via AutoRefresh

**Note:**

If you change the baud rate, power off the slaves. Otherwise the slaves cannot synchronize with the newly defined baud rate.

### Timing Parameters of Master Settings

Parameter	Description
<b>Min. slave interval</b>	Smallest allowed period of time between two slave poll cycles. This ensures that the sequence of function requests from the DP master can be handled by the DP slave. This value is valid for all installed slaves. The slowest slave defines this value.
<b>Polling timeout</b>	In case of master-master communication this parameter specifies the max. amount of time it may take the requestor to fetch the response.
<b>Data control time</b>	This parameter defines the period of time during which the master module notifies the slave of its operation status. This time must be at least six times the watchdog time of any slave.
<b>Watchdog</b>	This checkbox enables the watchdog checking in all slaves.
<b>Slave Watchdog time</b>	When the checkbox Watchdog is checked (ON), this specifies the maximum time without communication, after which the slave will regard the connection to the master to be broken. If the slave supports DPV1, the unit will automatically be set to either '10 ms' or '1 ms', depending on the setting of the 'Watchdog Timebase' flag in the user parameters of the slave.  <b>Note:</b> The unit can only be changed to '1 ms', if the watchdog option is enabled for specific slaves. If the watchdog option has been enabled via the master, all slaves must use the default timebase of '10 ms'.
<b>Watchdog for time sync. (QJ71PB92V only)</b>	This parameter specifies the interval, in which time the master broadcasts the current system time.

If you want to use the factory default values click on <DEFAULT> and all values are set to standard values.

### Autom. Refresh (Q series master only)

The automatic refresh option activates the automatic data exchange between CPU and the master on the master side. Additionally the autorefresh parameters, i.e. the assignment of CPU devices to buffer memory addresses, must be written to the CPU. Automatic refresh transfers the input, output, and (if selected) the diagnostic/communication areas of the PROFIBUS master to/from a user definable area in the CPU. This ensures a fast and consistent data transfer without

using a FROM/TO instruction and extending the cycle time.

Automatic refresh is selected and cleared in the [PLC Settings](#) dialog. If either online update of the CPU or offline update of the GID project have been selected, the automatic refresh option in the Master Settings dialog is selected as well.

The data areas included in autorefresh and the respective device addresses can be set in [PLC and GX IEC Developer \(GID\) Settings](#). The settings in the CPU (stored in the IPARAM file) are updated together with the download of the configuration to the PROFIBUS module (see [configuration download](#) and [online tool](#)) or via a GX IEC Developer (GID) project.

For details refer to the hardware manual of the Q series master module.

The automatic refresh option must be activated to enable the consistency function (see below).

### Consistency (Q series master only)

The automatic refresh function (see above) must be activated to enable the consistency function. Otherwise e.g. output data for a slave may be set in the slave in several segments and not in a single PROFIBUS cycle.

The consistency function can be activated for System Q CPUs from OS version B (Sep. 2000). The consistency function interlocks simultaneous access to the buffer memory by the CPU and the DP master. This way, data consistency especially required for high-speed applications is automatically ensured.

This interlock mechanism slightly decreases the transfer speed. Therefore, only enable the consistency function, if you require data consistency.

For details refer to the hardware manual of the Q series master module.

### Bus Parameters

To access the bus parameters from the graphical network editor, click on the **Bus. Param.** button in the [Master Settings dialog](#).

This function allows to select the baud rate and to modify any parameters like timeouts, which are related to the baud rate. The settings are stored independently for each baud rate.

Parameter	Value	Range	Absolute Time (ms)
Slot Time (T_sl)	300	[37 - 16383]	0.200000
min T_sdr	11	[11 - 1023]	0.007333
max T_sdr	150	[37 - 1023]	0.100000
Quiet Time (T_qui)	0	[0 - 127]	0.000000
Setup Time (T_set)	1	[1 - 255]	0.000667
Target Rot. Time (T_tr)	50000	[256 - 16777215]	33.333332
GAP factor	10	[1 - 100]	
HSA	126	[2 - 126]	
Max retry limit	1	[1 - 7]	

Buttons: OK, Cancel, Default

Relative timing factors are displayed as absolute times based on the selected baud rate. The available parameters are:

Parameter	Description
<b>Baudrate</b>	Transfer rate (must be supported by all slaves)
<b>T_sl</b>	Slot time (max interval to wait for response)
<b>min T_sdr</b>	min station delay of responder
<b>max T_sdr</b>	max station delay of responder
<b>T_qui</b>	Quiet time
<b>T_set</b>	Setup time
<b>T_tr</b>	Target rotation time
<b>GAP factor</b>	controls the GAP update timer
<b>HSA</b>	highest station address
<b>Max retry limit</b>	max. number of retries

When pressing the <Default> button all values are set to their default values for the currently selected baud rate.



**Note:**

If you change the baud rate of an existing PROFIBUS DP network, power off the slaves. Otherwise the slaves cannot synchronize with the newly defined baud rate.

The inputs are checked against the input limits when leaving the dialog with the <OK> button. Additionally the following consistency checks are performed:

- min T\_sdr < max T\_sdr
- T\_qui < min T\_sdr
- max T\_sdr < T\_sl
- T\_sl < T\_tr



**Note:**

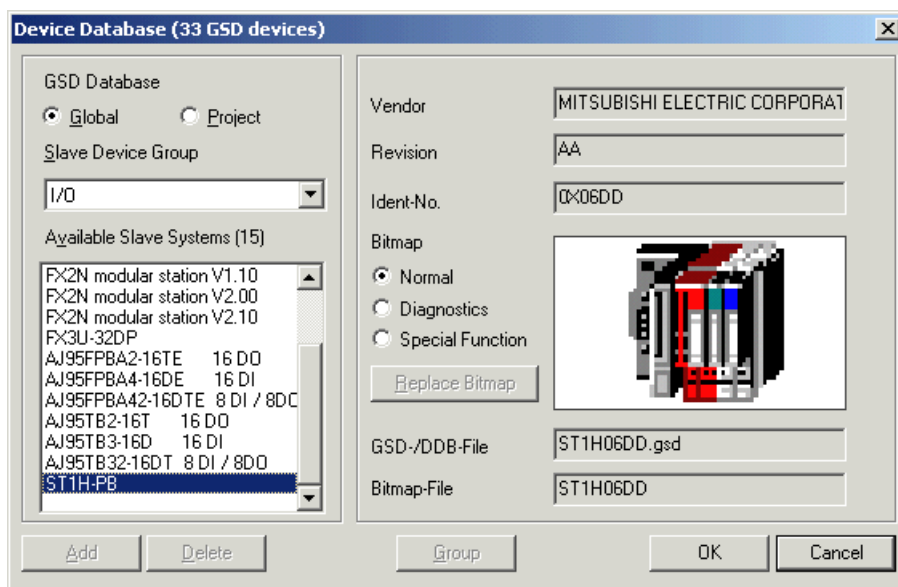
If you are not an experienced PROFIBUS network administrator the bus parameters should not be changed except in the following cases:

- more than 15 slave stations are connected (target rotation time has to be calculated again)
- the network consists of more than 1 master (target rotation time has to be calculated again)

For the correct parameter setting of the target rotation time TTR (t\_tr) please refer to the PROFIBUS standard. However, it is important that the target rotation time is large enough to enable the master module to poll each connected slave once per token cycle.

### Insert DP Slave

In the graphical network editor right-click on the PROFIBUS line to open the context menu. Select 'Insert DP-Slave' to access the [GSD Device Database](#). After having selected a Slave Device Group, a list of all slave models assigned to the respective group is displayed. For the selected slave the vendor and revision string, the bitmap and the path of the GSD file and the bitmap file are displayed.



When a model is selected and the <OK> button has been pressed, the **Slave Parameter Settings** dialog appears.



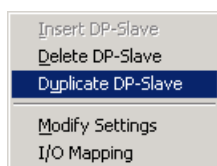
**Note:**

Adding a slave changes the addresses of the I/O data in the buffer memory of the master. It is therefore necessary to update the PLC program and (if used) the autorefresh settings.

## Duplicate Slave

The configuration of a modular DP slave like the ST1H-PB involves several steps like selecting the modules and setting the module specific user parameters. If a PROFIBUS network includes several slaves of the same type, this may require to repeat the same actions for each slave again. To simplify the procedure it is possible to add an exact copy of an already existing slave to the project again.

Select a slave and press the right mouse button to display the slave-specific context menu. This menu contains the entry **Duplicate Slave**. Click on this menu item to get an additional slave with the same configuration (selected modules, user parameters etc.) inserted into the PROFIBUS network. This avoids inserting a new slave of the same type, selecting the modules again and adjusting the parameter settings.



**Note:**

The new slave has identical settings compared to the original one. For this reason the FDL address has to be adjusted and the slave name must be changed after duplicating the slave.



**Note:**

Adding a slave changes the addresses of the I/O data in the buffer memory of the master. It is therefore necessary to update the PLC program and (if used) the autorefresh settings.

## Delete Slave

In the graphical network editor select the slave module to be deleted and either:

- press <Del> key or
- Right-click on DP-Slave to open the context menu and select **Delete DP-Slave**



### Note:

Deleting a slave changes the addresses of the I/O data in the buffer memory of the master. It is therefore necessary to update the PLC program and (if used) the autorefresh settings.

## Modify Settings

The menu item Modify Settings in the context menu of both master and slaves opens the parameter dialog for the selected device.

## Slave Parameter Settings

To access the slave parameter settings from the graphical network editor:

- Double-click on a DP slave or
- Right-click on a DP slave to open the context menu and select **Modify Settings**

For all PROFIBUS master modules except A(1S)J71PB92D there is an additional [Swap I/O Bytes](#) function.

In the upper part of the window, the name of the selected device and the vendor name are displayed. If you have selected a wrong device, you can leave this window with the <CANCEL> button. Then you will return to the **Network Configuration**. When the correct model is displayed you have to set the parameters listed in the following table. When pressing the <Default> button all values are set to their default values.

Parameters in the **Slave Parameter Settings** have the following meaning:



Item	Description
<b>Name</b>	Name of the slave can be defined. This is for documentation purpose only.
<b>FDL Address</b>	Station address of the slave
<b>Watchdog</b>	When selected, the watchdog control of the slave is activated. The slave will check whether the master was in communication with the slave within the defined watchdog time. If there is no communication between slave and master within the specified watchdog time the outputs are turned to the safe state.
<b>Slave Watchdog time</b>	If you have selected the watchdog function you have to define the watchdog time interval of the slave. Make sure that the data control time in the Master Parameter setting is 6 times longer than the slave watchdog time.
<b>Min T_sdr</b>	Minimum waiting time for a DP slave, until it is allowed to send response frames to the DP master. Do not change this value.  The time is entered as multiple of the bit duration on the PROFIBUS. The corresponding absolute time depends therefore on the selected PROFIBUS baud rate.
<b>Group identification number</b>	PROFIBUS DP allows to transmit control commands (such as sync or freeze) from the master to one slave, a group of slaves or all slaves at the same time. The control commands are based on multicast function. This means that slaves with the same group number operate in a synchronized way with each other. A slave can belong to several groups. You can use the boxes to assign the slave to any of the groups.
<b>Slave is active</b>	If selected, the slave is included in the cyclic data transfer. Otherwise the slave is not accessed and a connection failure with that slave will not cause a response error in the master.
<b>Sync(Output) ①</b>	If this option is activated, a synchronous switching of all slave outputs is possible.
<b>Freeze(Input) ①</b>	If this option is activated, a synchronous switching of all slave inputs is possible.
<b>Ignore AutoClear</b>	The slave should ignore a 'Clear' telegram from the master. This function is only enabled, if the option 'Goto Clear State' in the master is set.
<b>Initialize slave when failing to respond</b>	The master initializes a slave, if communication fails.
<b>Swap I/O Bytes in Master②</b>	When the Swap I/O Bytes function is activated, the order of each pair of bytes is reversed by the PROFIBUS master.
<b>DP V1/V2 Slave Parameters②</b>	This button is only enabled for slaves, which support the DP V1/V2 functionality. The GSD file of the slave must contain the keyword 'DPV1_Slave' with the value '1'. Pressing this button opens the dialog for DP V1/V2 parameters.
① only available for slaves where this function is supported (stated at GSD file)	
② only available for QJ71PB92V and FX3U-64DP-M projects	

### Swap I/O Bytes (not for A(1S)J71PB92D)

Several PROFIBUS slave products have a reversed byte order in a word device compared to Mitsubishi. Activate the **Swap I/O Bytes** function to have the byte order reversed by the PROFIBUS master.

## DP V1/V2 Slave Parameters

To access the DP V1/V2 slave parameters open the **Slave Parameter Settings** menu and click on the **DP V1/V2 Slave Parameters** button.

The parameters have the following meaning:

Item	Description
<b>DP V1 support enabled</b>	Enable supported alarm types.
<b>Watchdog time base 1 ms</b>	The slave interprets the given value for watchdog time as a multiple of 1 ms instead of 10 ms.
<b>'Fail Safe' function enabled</b>	The slave works in 'Fail Safe' mode.
<b>Slave-specific check of cfg_data</b>	The slave applies a slave specific check to the configuration data sent by the master.
<b>Update Alarm</b>	The slave can send Update alarms.
<b>Status Alarm</b>	The slave can send Status alarms.
<b>Manufacturer Specific Alarm</b>	The slave can send Manufacturer Specific alarms.
<b>Diagnostic Alarm</b>	The slave can send Diagnostic alarms.
<b>Process Alarm</b>	The slave can send Process alarms.
<b>Pull/Plug Alarm</b>	The slave can send Pull/Plug alarms.
<b>Allow max. one alarm of each type</b>	Only one alarm of each type can be sent.



### Note:

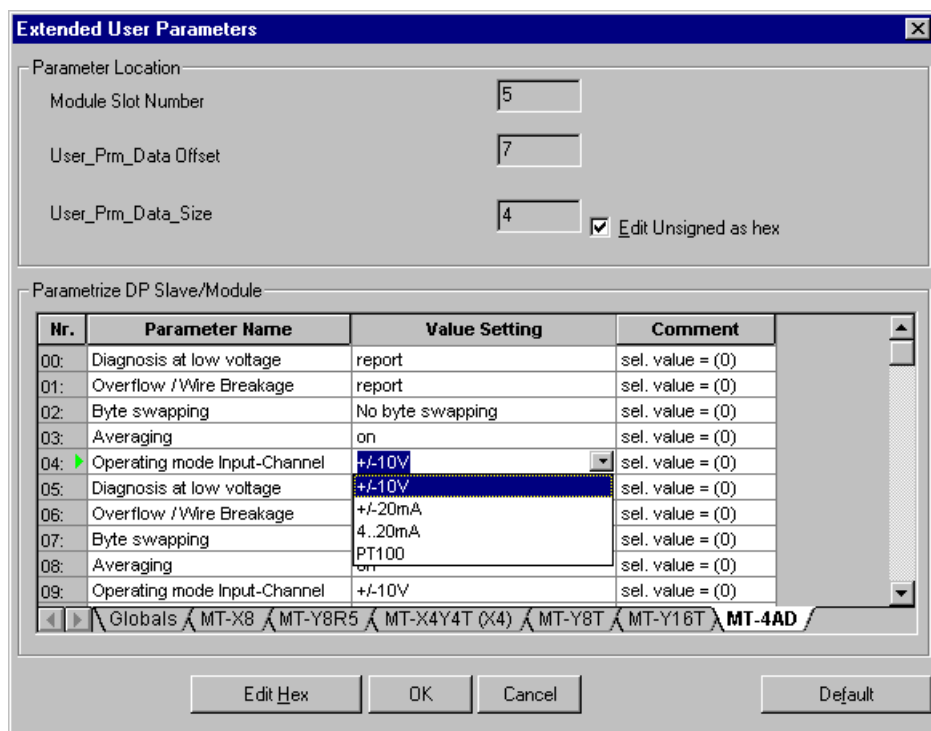
If the watchdog time has been set for all slaves via the master parameter settings, the option for setting the WDT time base to 1 ms is disabled.

## Extended User Parameters

To access the extended user parameters from the graphical network editor, click on the User Param. button in the **Slave Parameter Settings** dialog.

User parameters for the slave device can be defined individually. The purpose of user parameters is to parameterize the individual slave. For example the slave can be an analog input device and the operating mode of the input channel must be parameterized at startup of PROFIBUS.

In case the slave supports the extended user parameter format click on <User Param.> button to access the following dialog box.



The dialog box is titled "Extended User Parameters". It contains two main sections. The first section, "Parameter Location", has three input fields: "Module Slot Number" (value 5), "User\_Prm\_Data Offset" (value 7), and "User\_Prm\_Data\_Size" (value 4). There is a checked checkbox labeled "Edit Unsigned as hex". The second section, "Parametrize DP Slave/Module", contains a table with four columns: "Nr.", "Parameter Name", "Value Setting", and "Comment". The table lists parameters for various modules, with "MT-4AD" selected at the bottom. The "Value Setting" column for the selected module shows a dropdown menu with options like "+/-10V", "+/-20mA", and "PT100".

Nr.	Parameter Name	Value Setting	Comment
00:	Diagnosis at low voltage	report	sel. value = (0)
01:	Overflow / Wire Breakage	report	sel. value = (0)
02:	Byte swapping	No byte swapping	sel. value = (0)
03:	Averaging	on	sel. value = (0)
04:	Operating mode Input-Channel	+/-10V	sel. value = (0)
05:	Diagnosis at low voltage	+/-10V	sel. value = (0)
06:	Overflow / Wire Breakage	+/-20mA	sel. value = (0)
07:	Byte swapping	4...20mA	sel. value = (0)
08:	Averaging	PT100	sel. value = (0)
09:	Operating mode Input-Channel	+/-10V	sel. value = (0)

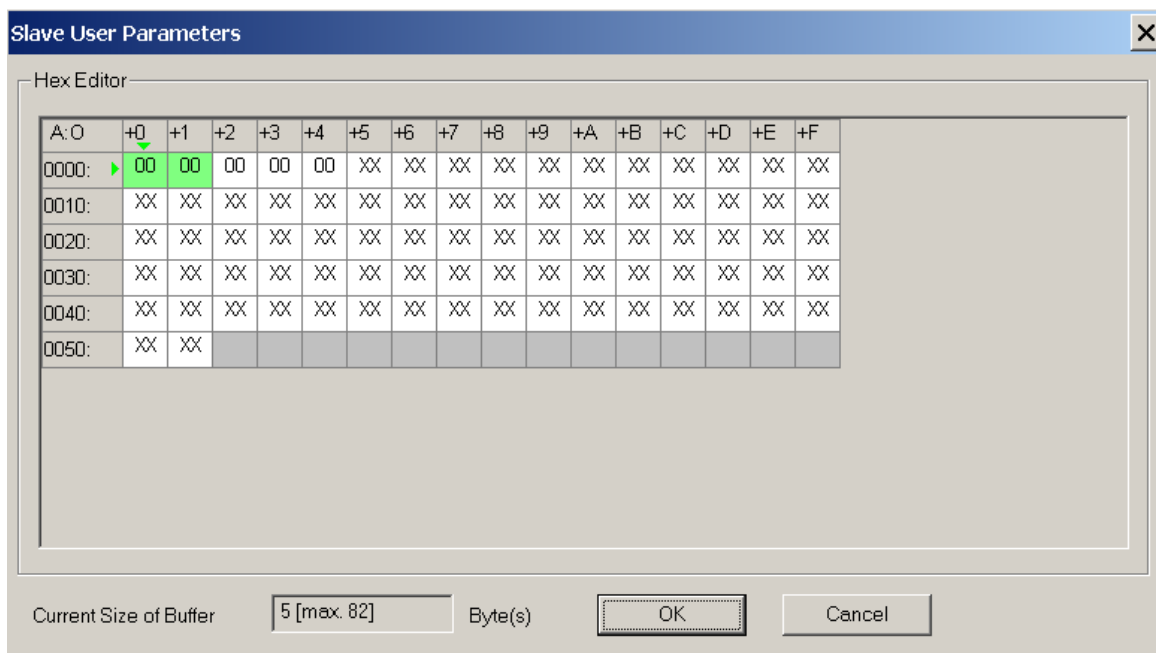
At the bottom of the dialog box are four buttons: "Edit Hex", "OK", "Cancel", and "Default".

The **Extended User Parameters** are not standardized but depend on the slave. The GSD file can provide descriptive texts for parameters as well as available settings.

If these parameter descriptions are missing or incomplete the user parameters can also be changed within a simple hex editor. If you prefer to edit unsigned integer values as hex values, check the <Edit Unsigned as hex> checkbox.

### Hex Editor

Click on <Edit Hex> button to access the **Hex Editor** for the **Slave User Parameters**. The relevant area for the selected module is indicated by colored background and arrows. The address is shown as "tool tip".



Be careful when editing these parameters via the hex editor. You should have a detailed slave documentation from the manufacturer to prevent errors.



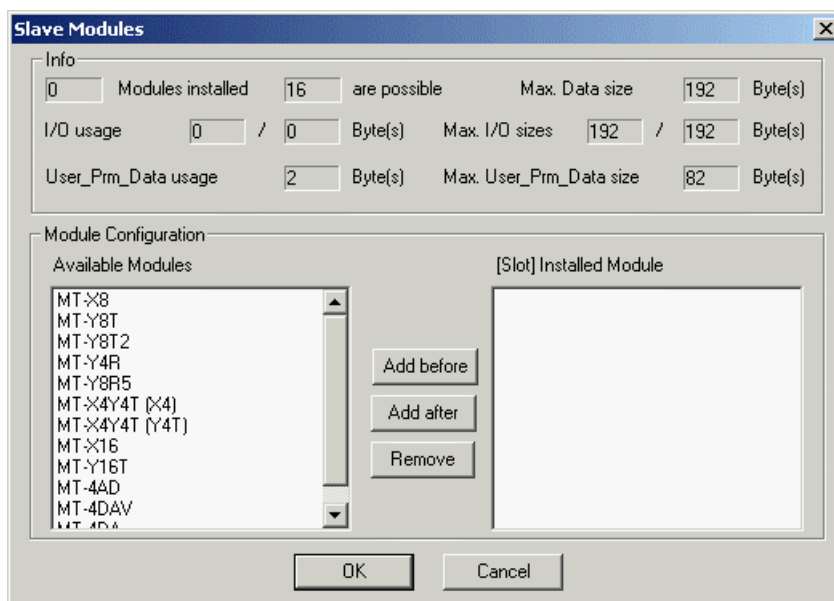
**Note:**

These parameters should only be changed by experienced users. If no extended user parameter descriptions are available in the slave GSD file, this dialog is opened. Consult your slave device manufacturer to generate correct settings.

## Slave Module Selection

Slave modules represent either modular units, from which the DP slave is assembled, or different configurations of a compact slave. The modules can be selected after clicking on <Select Modules> button. This button is enabled depending on the GSD file of the selected PROFIBUS DP slave.

The following dialog box is displayed:



The slave device is the summary of all modules installed in the slave. The GSD file includes all selectable modules for the slave device. Mark a module in the right list of **Installed Modules**. Then select a module in the left list of **Available Modules** and press the <Add before> or <Add after> button. If you press the <Add before> button, the module is inserted before the selected entry in the **Installed Modules** list or, in case the <Add after> button is pressed, the module is inserted after the marked module in the **Installed Modules** list. To remove a module from the **Installed Modules** list, select the module and press the <Remove> button. The slot number they are added to is shown beside the installed modules.

GXDP automatically determines the maximum possible number of modules per slave, the maximum I/O size and user parameter length. It checks the number of I/O and user parameter bytes used by the installed modules against these limits.

After clicking <Ok> the **Slave Parameter Settings** dialog appears again.



**Note:**

Adding or removing slave modules may change the addresses of the I/O data in the buffer memory of the master. It is therefore necessary to update the PLC program and (if used) the autorefresh settings.

### Universal Slave Module Type

Some slave GSD files do not contain module descriptions, but require the module configuration data ('cfg\_data') to be constructed in the configuration tool via a so-called 'Universal Module'. If a slave GSD file does not contain module definitions, GXDP displays the entry **Universal** in the **Slave Modules** dialog. One or more universal module entries can be added to the **Installed Modules** list. The maximum input/output size for each module is 16 words or bytes.



**Note:**

Ensure that the slave can work with the respective settings.

The following sample shows a slave with selected Universal modules.

When a Universal module entry in the **Installed Module** list is double-clicked, the **Universal Module Settings** dialog is opened and the properties of the selected universal module, i.e. consistency, input and output size, can be changed.

The dialog box is titled "Universal Module Settings" and has a close button (X) in the top right corner. It contains the following settings:

- Consistency: ☒ Byte/Word, ☐ Complete
- Input/Output: ☐ Inputs only, ☐ Outputs only, ☒ In- and Outputs
- Data Size Unit: ☒ Byte, ☐ Word
- Input Length: A text box containing "4" followed by "Byte(s)"
- Output Length: A text box containing "4" followed by "Byte(s)"
- Buttons: "OK" and "Leave"

If the module should only have an input area, select the option **Inputs only** and the field for the output length is hidden.

The dialog box is titled "Universal Module Settings" and has a close button (X) in the top right corner. It contains the following settings:

- Consistency: ☒ Byte/Word, ☐ Complete
- Input/Output: ☒ Inputs only, ☐ Outputs only, ☐ In- and Outputs
- Data Size Unit: ☒ Byte, ☐ Word
- Input Length: A text box containing "4" followed by "Byte(s)"
- Output Length: This field is hidden.
- Buttons: "OK" and "Leave"

If the module should only have an output area, select the option **Outputs only** and the field for the input length is hidden.

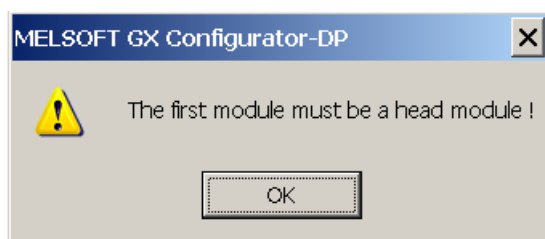
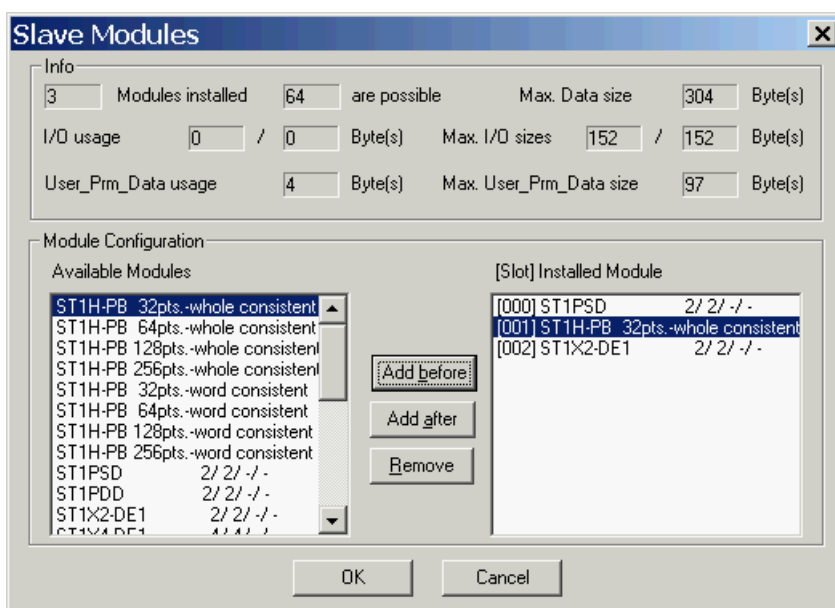
The dialog box is titled "Universal Module Settings" and has a close button (X) in the top right corner. It contains the following settings:

- Consistency: ☒ Byte/Word, ☐ Complete
- Input/Output: ☐ Inputs only, ☒ Outputs only, ☐ In- and Outputs
- Data Size Unit: ☒ Byte, ☐ Word
- Input Length: This field is hidden.
- Output Length: A text box containing "4" followed by "Byte(s)"
- Buttons: "OK" and "Leave"

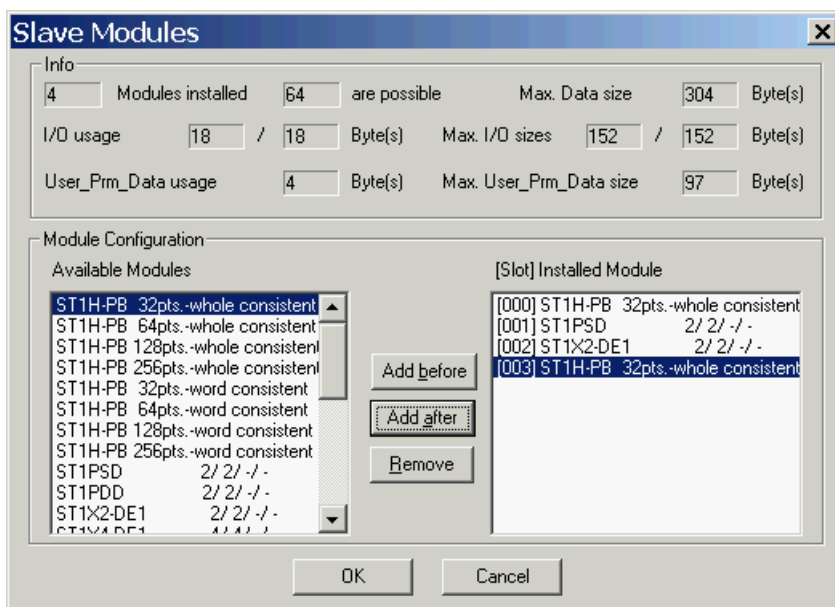
### Special Checks for ST Slave

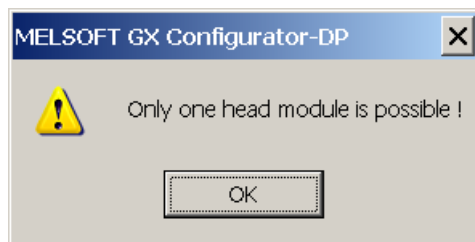
The ST1H-PB slave imposes certain restrictions on the selection of modules. The most important ones are:

1. The first module must be a head module.

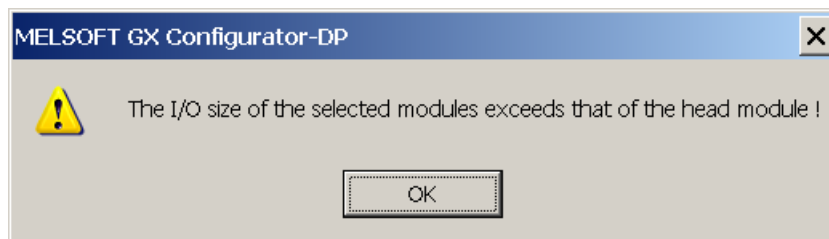
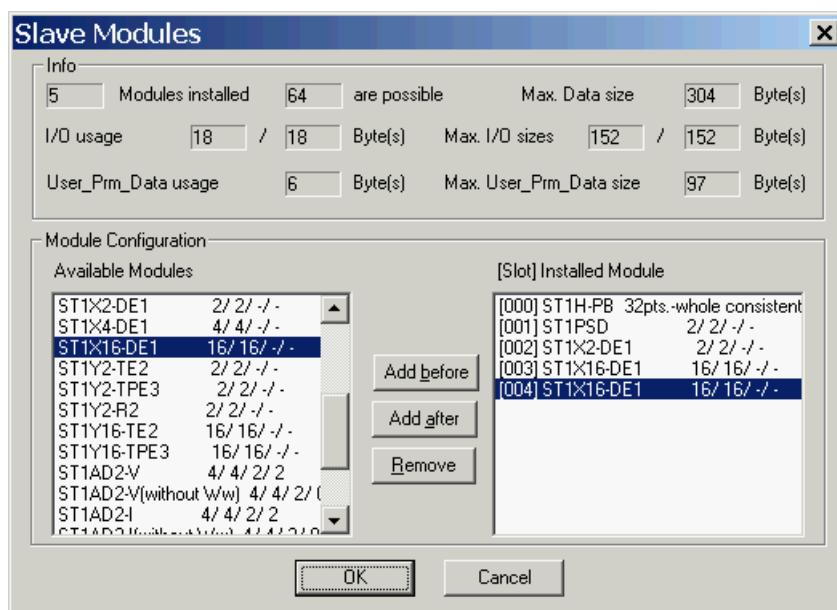


2. Only one head module is possible.





3. The I/O size of all modules must fit within the buffer of the selected head module.



GXDP checks these restrictions for the ST slave, when the user leaves the Slave Modules dialog via the <OK> button. If any of these restrictions are violated, an error message is displayed and the dialog remains open to allow the user to correct the selection.

## Project Transfer

When the whole network creation is complete, the project should be saved with the help of the **File** menu.

Now you can transfer the whole configuration data stored in the configuration project file (\*.dp2) to the connected PROFIBUS master module. For details refer to [online access to the modules](#)



## 7 Parameter Setting for QJ71PB93D Slave Modules

### Introduction

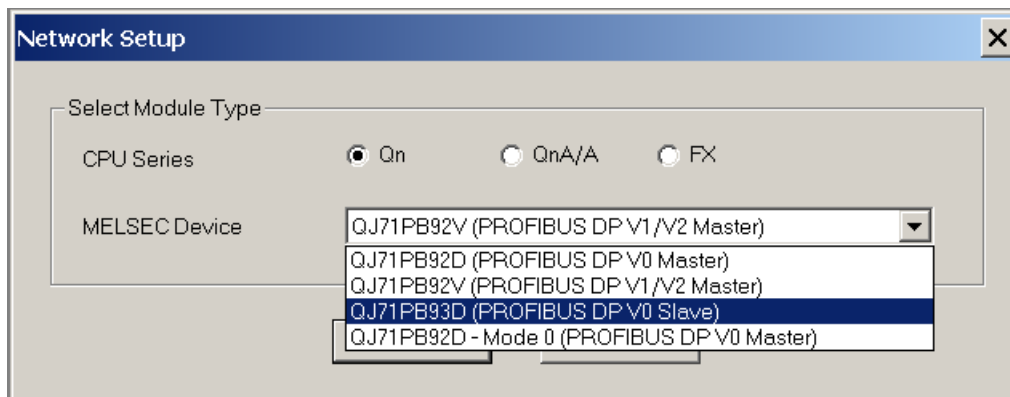
The QJ71PB93D module is a PROFIBUS DP V0 slave for System Q PLCs. It enables a DP master to access devices in a System Q CPU. The QJ71PB93D is configured partially by the DP master and by GX Configurator-DP.

The project file for the QJ71PB93D slave module has the extension \*.dpx (not \*.dp2 as for PB92D master modules).

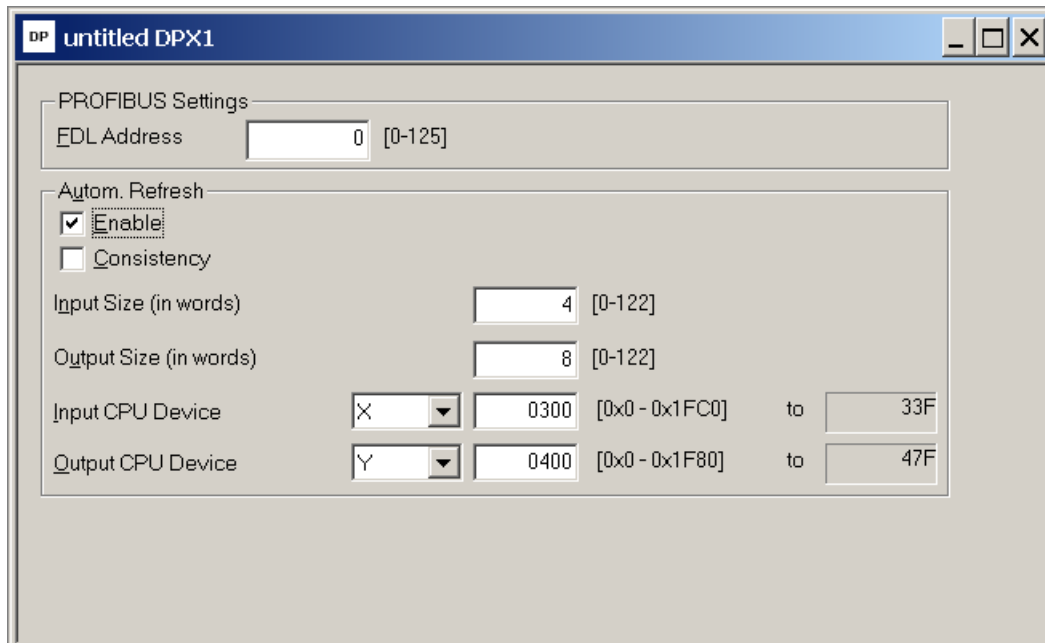
### Parameter Setting

This chapter describes how to generate the parameter settings for the PROFIBUS slave module QJ71PB93D.

After selecting the command **New** in the **File** menu choose the module type PROFIBUS DP Slave (QJ71PB93D).



After you have opened a project the following dialog for the slave parameter settings appears:



Here you specify the following parameter settings:

Item	Description
<b>FDL_address</b>	This item is used to define the station address of the slave.
<b>Autom. Refresh</b>	Enables Consistency function. See detailed description in chapter Autom. Refresh
<b>Input Size</b>	Specifies the size of the input area in units of words.
<b>Output Size</b>	Specifies the size of the output area in units of words.
<b>Input CPU Device</b>	Specifies the input device and its start address in the CPU. The corresponding device range used in the CPU memory is calculated automatically.
<b>Output CPU Device</b>	Specifies the output device and its start address in the CPU. The corresponding device range used in the CPU memory is calculated automatically.

### Automatic Refresh

The automatic refresh function sets the automatic refresh parameters for the PROFIBUS slave QJ71PB93D in the parameter file stored in the System Q CPU. This file manages parameter data for all special function modules of the System Q.

Via automatic refresh the input and output areas of the PROFIBUS slave are transferred to or from a user definable device area in the CPU. This method provides direct and fast access without using FROM/TO instructions.

For details refer to the hardware manual of the QJ71PB93D slave module.

### Consistency

The consistency function can be activated for System Q CPUs from OS version B (Sep. 2000). The consistency function interlocks simultaneous access to the buffer memory by the CPU and the DP slave. This way, data consistency especially required for high-speed applications is automatically ensured.

This interlock mechanism slightly decreases the transfer speed. Therefore, only enable the consistency function, if you require data consistency.

For details refer to the hardware manual of the QJ71PB93D slave module.



#### Note:

Only the FDL address, the autorefresh flag, and the consistency flag are transferred to the DP slave. The size settings in the slave parameter settings dialog are relevant only for the data exchange between DP slave and System Q CPU via autorefresh.

## 8 I/O Mapping

The purpose of I/O mapping is an easier access to the input and output data cyclically exchanged between the Profibus master and the connected slaves. In I/O mapping GXDP generates PLC program code, which will

- transfer output data from buffer devices to the buffer memory of the master
- transfer input data from the buffer memory of the master to the buffer devices
- generate 'Data Unit Types' (DUTs) for each slave module
- exchange data with devices selected by the user
- start the cyclic data exchange
- copy contents of diagnostic buffers to assigned devices
- reference I/O data via global variables

Instead of calculating the I/O data offsets of the slave modules within the I/O buffer of the master, one can read or write the respective global variables for slave modules. These are part of the user library, which is generated via the menu item [POU for GX IEC Developer](#).

I/O mapping program code is only available for the following master modules and operating modes

- A(1S)J71PB92D (Mode E only !)
- QJ71PB92D (Mode E only!)
- QJ71PB92V
- FX3U-64DP-M

For the FX3U-64DP-M master module there is also a 'Copy POU' available, alternatively to the 'I/O Mapping POU'. It contains the code for exchanging I/O data between the buffer memory of the master and the slave specific device areas in the CPU and can handle data consistency. The 'Copy POU' does not however include any information on the I/O structure of the slaves.

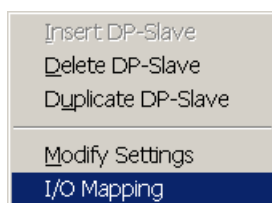


**Note:**

There is no I/O mapping and/or Copy POU support for A(1S)J71PB92D and QJ71PB92D in mode 0.

### Dialog for I/O Mapping

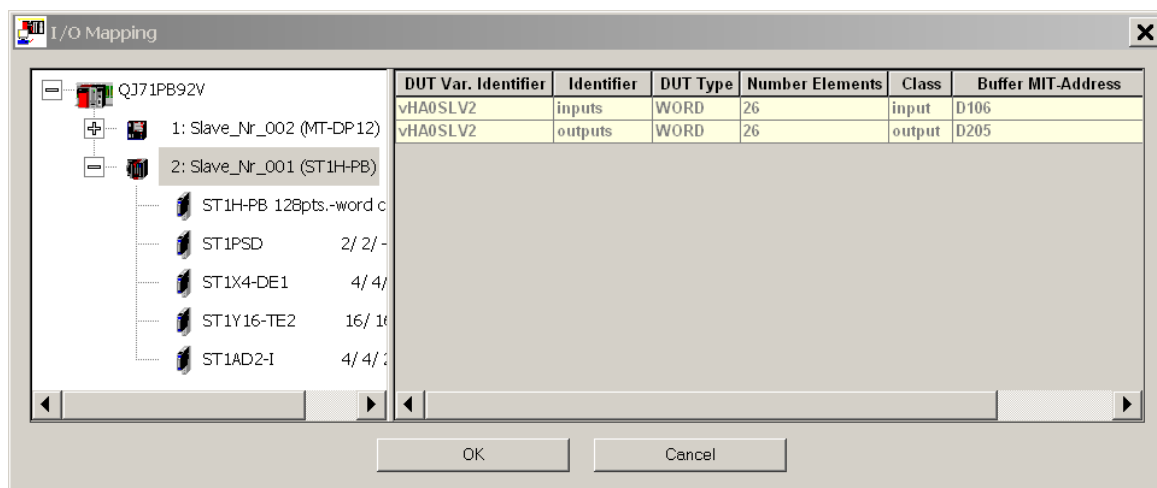
To access the dialog for I/O Mapping select a slave in the in the graphical network editor and then select the item 'I/O Mapping' from the context menu.



The dialog is split into two panes

- the left pane with a tree of the master, slaves and slave modules
- the right pane with the I/O areas of the selected slave or module

### Tree View



The tree view displays the slaves and slave modules in the master configuration project with the following levels:

Level	Type	Text
1	Master	Type name
2	Slave	FDL address, user assigned name and type name
3	Slave Module	Type name of module

#### Table View

When a slave or a slave module is selected in the tree, the table lists the I/O areas of the respective slave or module. These are represented by elements of DUTs in the generated program code.

If a slave has been selected:

DUT Var. Identifier	Identifier	DUT Type	Number Elements	Class	Buffer MIT-Address
vHA0SLV2	inputs	WORD	26	input	D106
vHA0SLV2	outputs	WORD	26	output	D205

If a module (here of an ST1H-PB slave) has been selected:

DUT Var. Identifier	Identifier	DUT Type	Num	Class	Global Var. Identifier	User MIT-Address	Buffer MIT-Address
vHA0SLV2MOD0	ModuleReady	BOOL	1	input			D106.0
vHA0SLV2MOD0	ForcedOutputMode	BOOL	1	input			D106.1
vHA0SLV2MOD0	OnlineChange	BOOL	1	input			D106.2
vHA0SLV2MOD0	CommandExecution	BOOL	1	input			D106.3
vHA0SLV2MOD0	ErrorInfo1	BOOL	1	input			D114.0
vHA0SLV2MOD0	ErrorInfo2	BOOL	1	input			D114.1
vHA0SLV2MOD0	ErrorInfo3	BOOL	1	input			D114.2
vHA0SLV2MOD0	ErrorInfo4	BOOL	1	input			D114.3
vHA0SLV2MOD0	ModuleStatus	BOOL	1	input			D122.0
vHA0SLV2MOD0	CommandRequest	BOOL	1	output			D205.0
vHA0SLV2MOD0	ErrorClear	BOOL	1	output			D213.0
vHA0SLV2MOD0	CmdReq	WORD	4	output		M120	D225
vHA0SLV2MOD0	CmdRsp	WORD	4	input		M240	D126

For standard slaves and modules the generated DUT contains one ARRAY OF WORD element for the input and one for the output area. The array size is determined by the I/O size of the slave or module, rounding an odd byte size up to the next word boundary. For the modules of ST1H-PB slaves the generated DUTs contain module specific elements for I/O data, control, status and error information.

Item	Description
<b>DUT Var. Identifier</b>	Automatically generated name of the global variable instance of the DUT.
<b>Identifier</b>	Name of the DUT element.
<b>DUT Type</b>	Data type of the DUT element or global variable.
<b>Number Elements</b>	Number of elements. If >1, then the element is an array.
<b>Class</b>	Input (data is transferred from the master to the CPU) or output (data is transferred from the CPU to the master).
<b>User MIT-Address</b>	Device, to which the I/O point or I/O point array is mapped.
<b>Global Var. Identifier</b>	Separate global variable name for specific I/O point.
<b>Buffer MIT-Address</b>	<p>The device address of the element within the data exchange buffer. This buffer has been specified by the user and is used to exchange the complete inputs and outputs of all slaves with the buffer memory of the master.</p> <p>If <a href="#">slave specific transfer</a> has been selected, the device address for the I/O-area of the slave selected on the left side must be entered here. If a slave module is however selected on the left side, this column is write-protected. It shows the calculated device address of the selected I/O area. On CPU types, where the calculated device address is actually not accessible, it may still serve as guidance for locating module I/O points within the transfer device buffer.</p>



### Warning:

The buffer MIT-addresses should not be directly accessed. If a 'Copy POU' with the [extended PLC code for slave modules](#) is used, the contents of the DUT variables, which are generated for all modules, are copied to the buffer devices. Data, which has been directly written by the application to these devices, is overwritten.

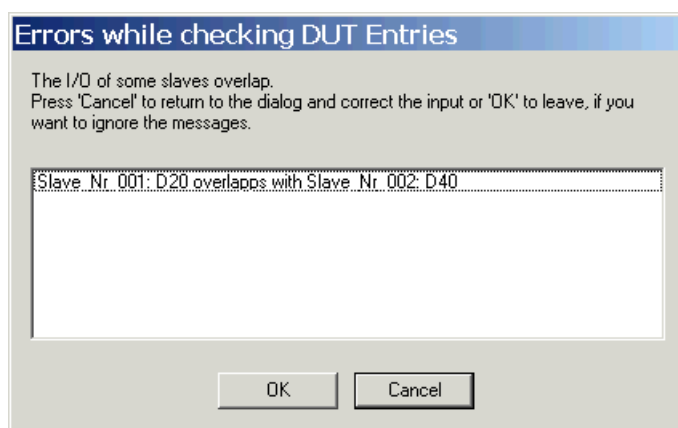
When a module is selected, the user can enter a user device address and/or a global variable name to an I/O area of the module.

### User MIT-Address

The purpose of user devices is to access an I/O area via a fixed device address. The buffer device address of an I/O area should not be referenced by the PLC application program, because they change, when slaves and/or modules are added or removed.

To assign a user device select the cell in the column 'User MIT-Address' and enter the device address. A list shows the available device types and maximum address ranges. The actually available device ranges depend on the CPU type and CPU parameters and may be smaller. Whether a device can actually be used, can only be checked, when the generated code has been imported into the PLC program.

User devices must not overlap with each other or with the device areas used as I/O transfer buffer. This restriction is checked, when the I/O mapping editor is closed.

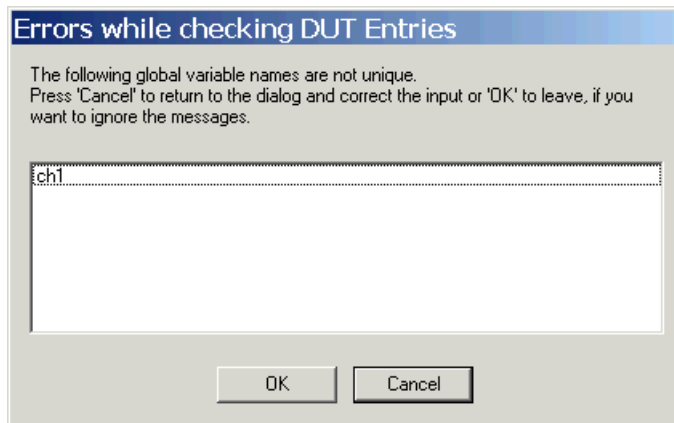


### Global Variable Identifier

The PLC code for I/O mapping contains fixed default global variables for the slaves and modules. The variable name is constructed from the head address of the master, the FDL address of slave and the slot index of the module. This ensures unique identifiers even if several master modules are integrated in the same PLC program. The application can access each I/O area by specifying the name of the DUT variable and the respective DUT element name.

If a fixed application specific name is required, a separate global variable name can be assigned to an I/O area by entering a unique name in the column 'Global Var. Identifier'. The generated code contains a global variable definition of the same type as the DUT element, to which the variable has been assigned. In that case the corresponding I/O point can be accessed either via the DUT element or via the global variable.

Two global variables may not have the same name. This restriction is checked, when the I/O mapping editor is closed.



## 9 Transfer Setup

### Introduction

GX Configurator-DP is capable of downloading configuration data to the PROFIBUS master module via a variety of different communication types. The master module can be located in a PLC rack directly connected to the PC or in a PLC rack, which is connected to other PLCs in a separate network.



**Note:**

The transfer setup is only available in master projects, not in slave projects.

**For successful network settings you should be familiar with the characteristics of MELSEC Ethernet and MELSECNET/10 and consult the corresponding manuals.**



**Note:**

For access to QnA and System Q CPU via MAC select direct connection to CPU port. The PC-side serial port on the MAC must be set to the same settings as the CPU-side port, i.e. 8 data bits, 1 stop bit, odd parity and baud rate as set in the respective GX Configurator-DP transfer path. You can set this parameters with the E-Designer. Select the item "Comm Settings..." in the "Transfer" menu of the E-Designer. For details refer to the Operation Manual of the E-Designer.

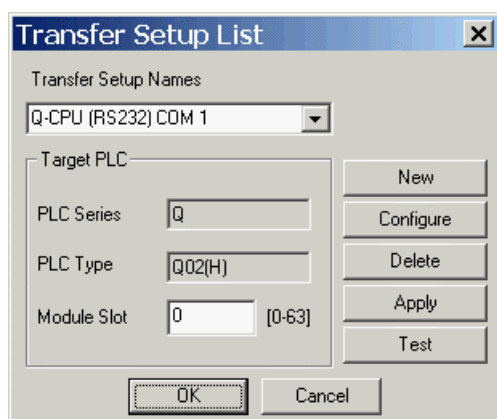
### Combination of AnU and QnA(S) CPUs in a network:

- If GX Configurator-DP is connected to a QnA(S) station in a MELSECNET/10 network, the QnA(S) CPU must be switched to A mode by hardware switch, if transfer to an AnU is required.
- If QnA(S) CPUs are existing in a MELSECNET/10 network, a QnA(S) CPU must be the control station.
- If QnA(S) and AnU CPUs are existing in a MELSECNET/10, a QnA(S) CPU must be the control station. The AnU CPU can only be accessed from a QnA(S) CPU with hardware switch in A mode.

### Transfer Setup Handling

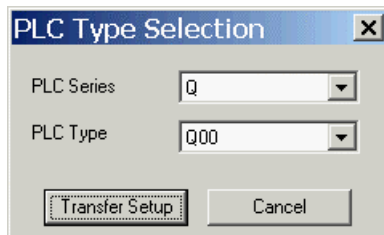
#### Opening the transfer setup and defining a network connection

Click on the Transfer Setup button in the toolbar or select Online/Transfer Setup from the main menu to open the transfer setup. When a new project is created, a default transfer setup is automatically added to the project file.



When the user presses the <New> button, the user is first asked to select the CPU type.



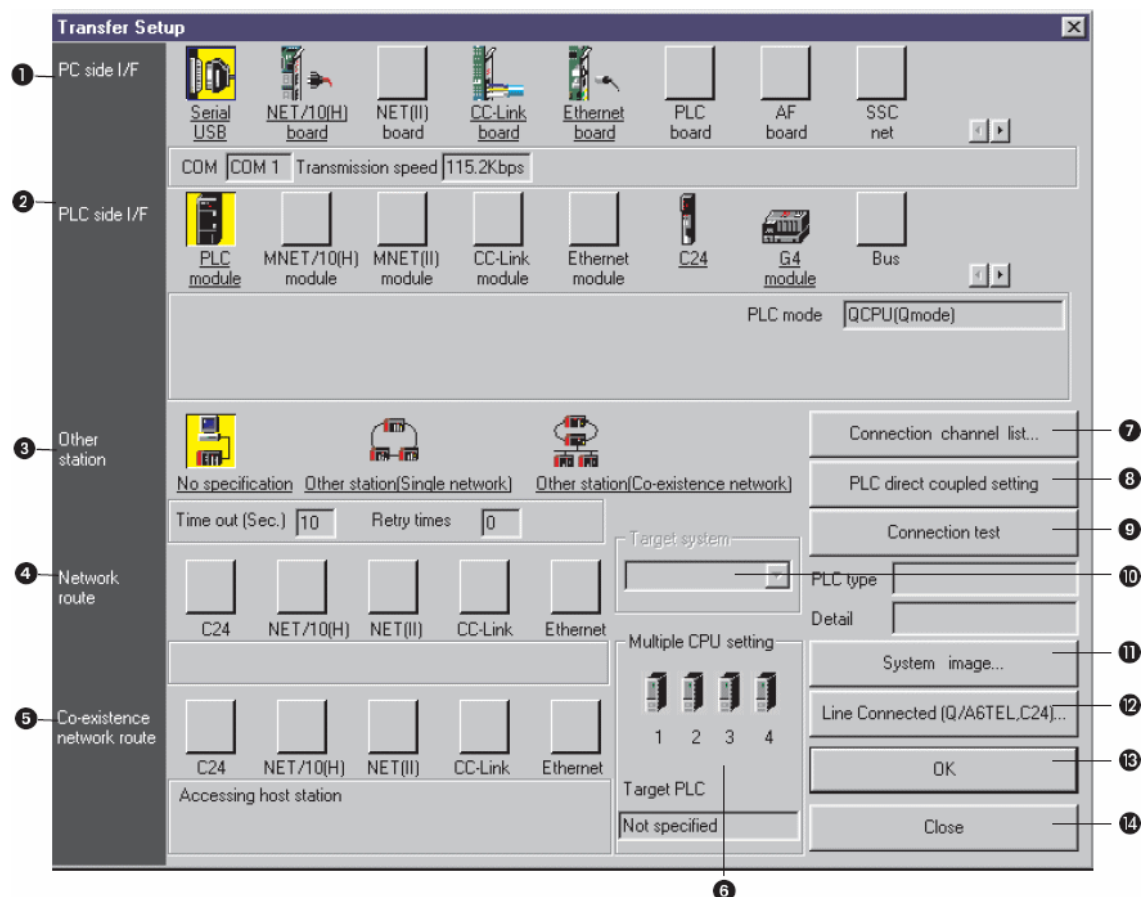


The CPU types are grouped in families. The available families depend on the type of the master module according to the table below.

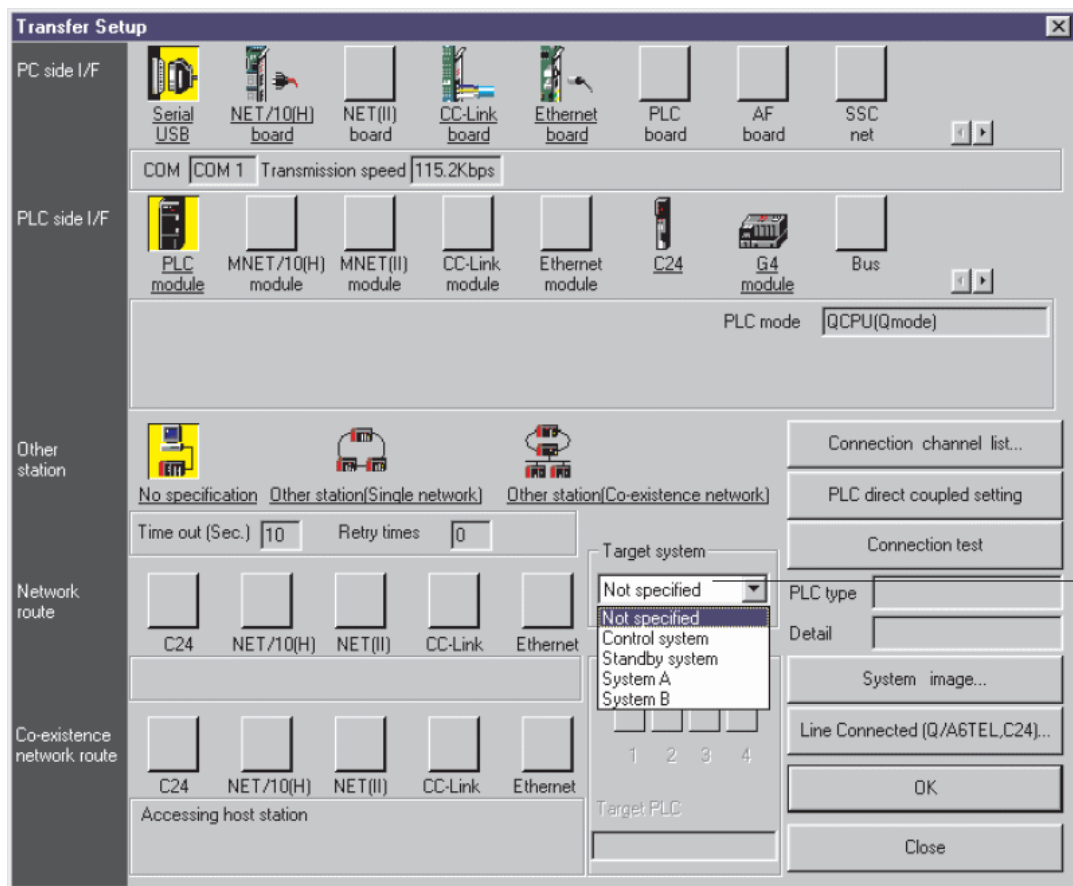
Master Module Type	Available PLC Families
<b>A(1S)J71PB92D</b>	A- and QnA-series
<b>QJ71PB92D</b>	Q-, QnPH- and QnPRH-series
<b>QJ71PB92V</b>	Q-, QnPH- and QnPRH-series
<b>FX3U-64DP-M</b>	FX-Series

If the user selects a different family, the list of CPU types is updated to match the selected family. The user can change the CPU type or just press <Ok> button to accept it.

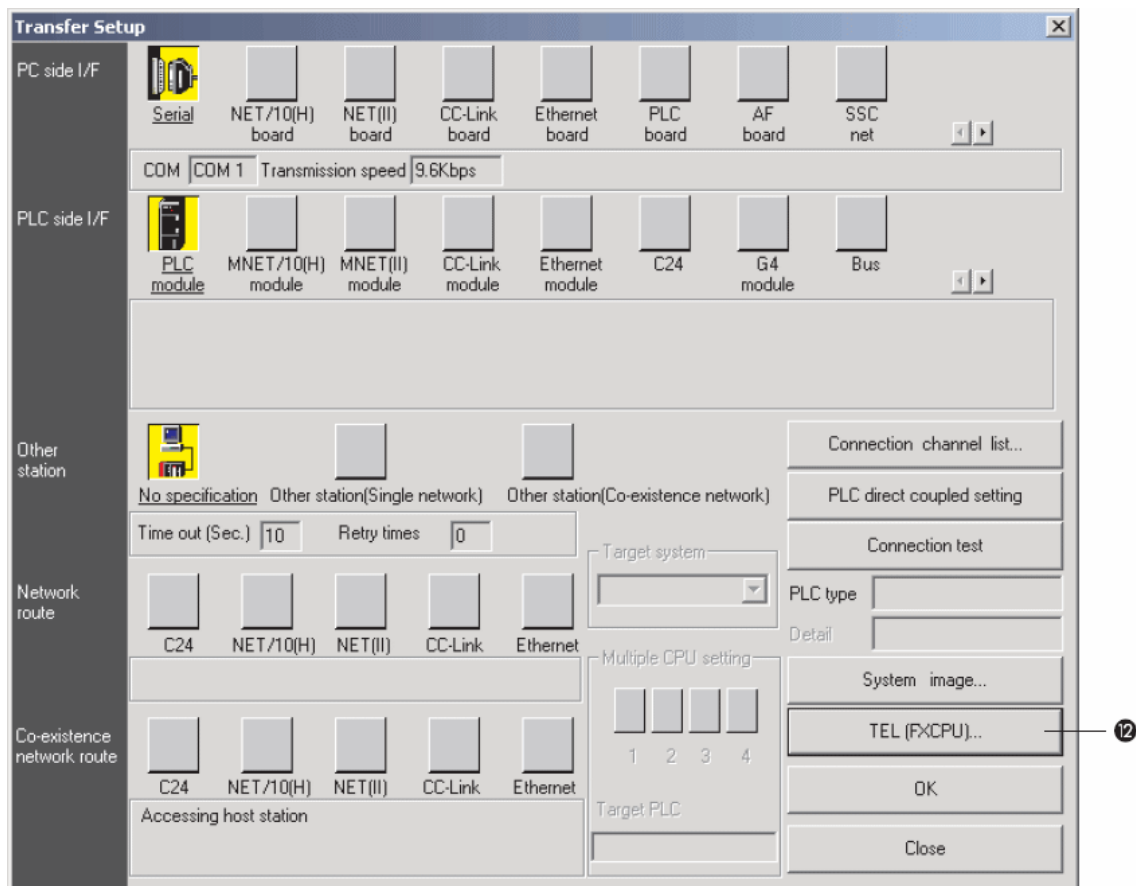
Next the GD transfer setup editor is opened to specify the parameters of the new connection.



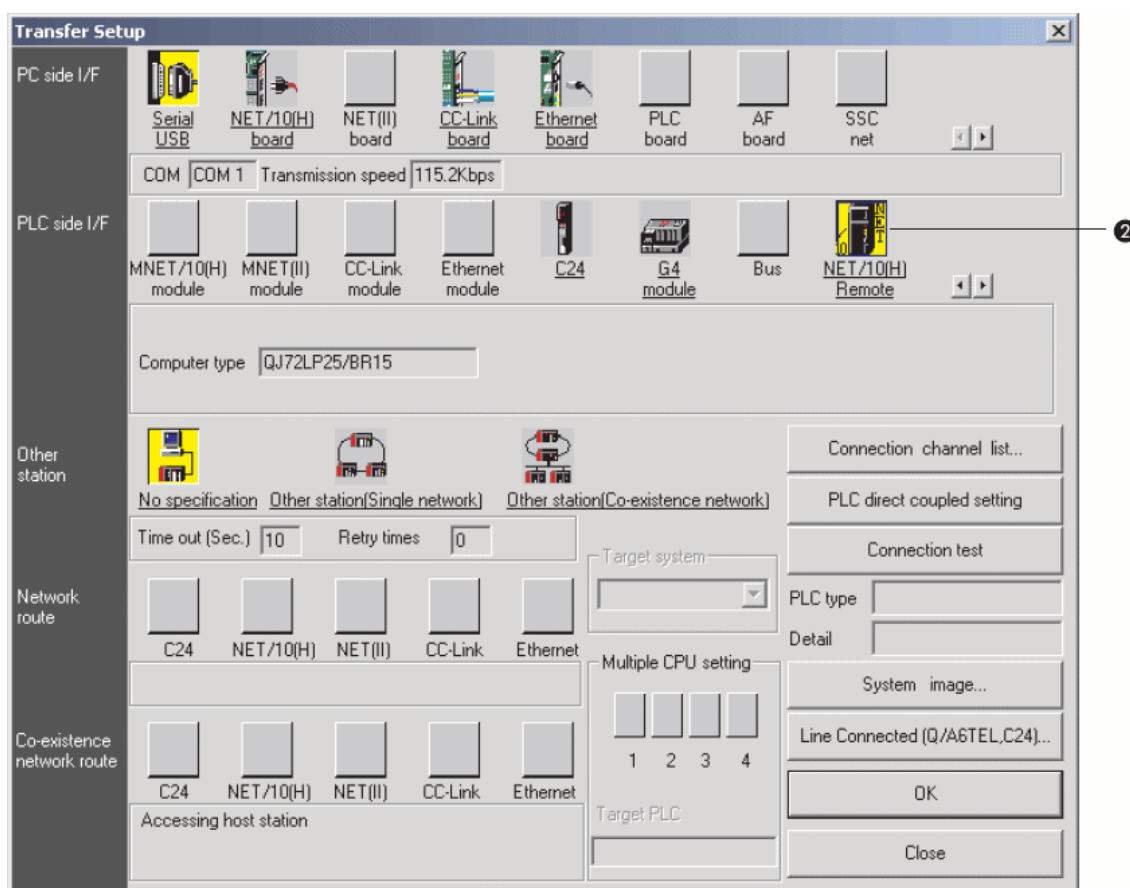
Transfer Setup (1)



Transfer Setup for QnPRH CPU (2)



Transfer Setup for FX3U CPU (3)



Transfer Setup for Q Remote I/O (4)

No	Description
①	<b>PC side I/F</b> Choose the I/F for the connection of the PC to the PLC.
②	<b>PLC side I/F</b> Choose the unit to be connected with the personal computer.
③	<b>Other station</b> Choose no network or one of the specified network types
④	<b>Network route</b> Choose the network type, network No., station number and first I/O No. to be accessed. The setting items depend on the network type that has been set.
⑤	<b>Coexistence network route</b> Choose this when making access to the network different from the one where the personal computer is connected. Choose the network type, network No., station number and first I/O No. to be accessed. The setting items depend on the network type that has been set.
⑥	<b>Multiple PLC setting</b> Specify when the access target is multiple CPUs. You can connect up to four PLC CPUs. In this option you decide which CPU is to be connected.
⑦	<b>Connection channel list...</b> Lists possible connection modes and their image. You can set the connection target while looking at the Connection channel list.

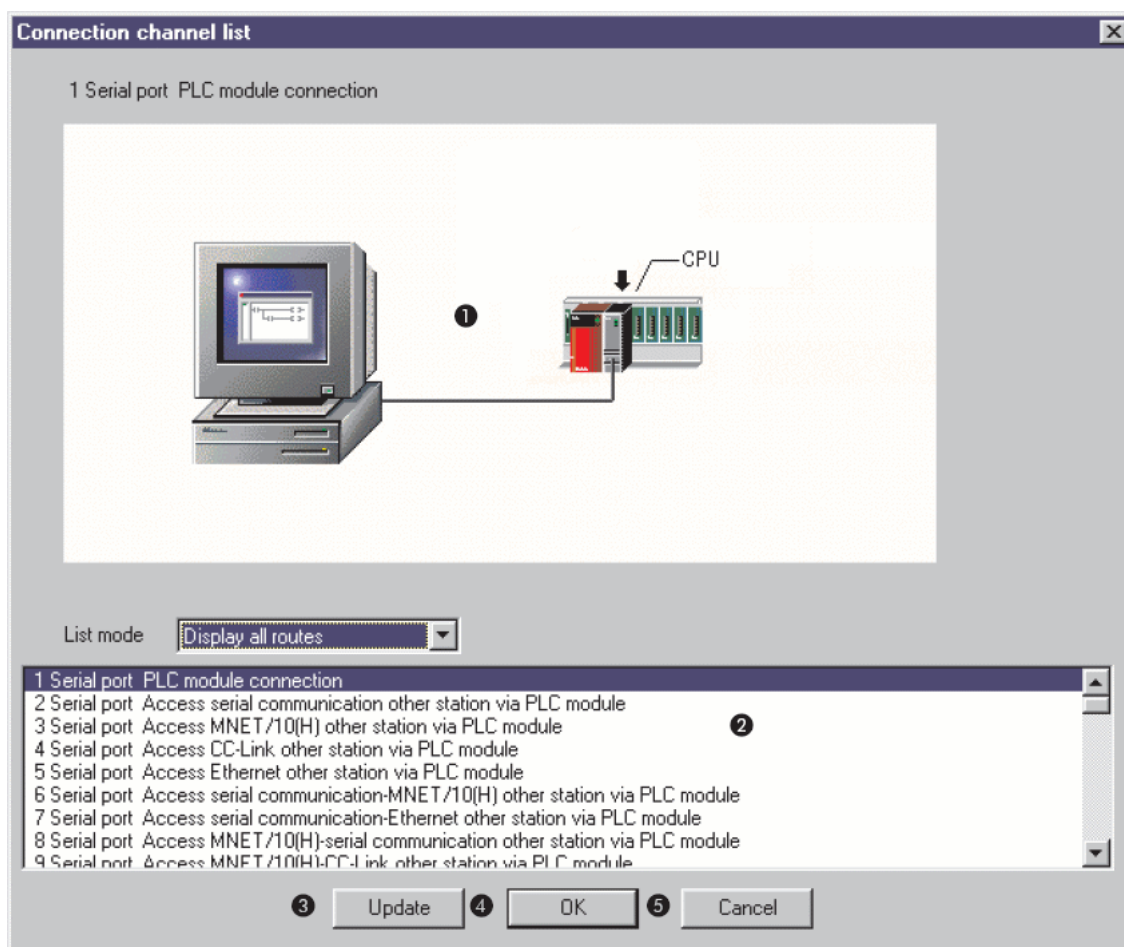
⑧	<b>PLC direct coupled setting</b> By clicking this button you change from Other station to the own station.
⑨	<b>Connection test</b> Tests whether proper access can be made to the PLC set as the access target on the Connection Setup screen. If proper access can be made, the model name of the PLC as the access target appears in the CPU type field
⑩	<b>Target System</b> Specifies the connection destination for redundant PLC systems: <b>1. Not specified:</b> <ul style="list-style-type: none"> <li>• <b>When a PLC is directly connected:</b> the PLC directly connected to the personal computer</li> <li>• <b>Via network:</b> The PLC at the station where the network module of the specified station No. is installed in the network communication path.</li> </ul> <b>2. Control system:</b> The PLC whose system type is the control system. <b>3. Standby system:</b> The PLC whose system type is the standby system. <b>4. System A:</b> The PLC connected to the A side connector of the tracking cable. <b>5. System B:</b> The PLC connected to the B side connector of the tracking cable.
⑪	<b>System image</b> Here you see an image of the setup system.
⑫	<b>Line connected(Q/A6TEL,C24).../TEL(FXCPU)...</b> Clicking on this button opens a dialogue to setup a modem connection.
⑬	<b>OK</b> Closes the dialogue and saves the settings.
⑭	<b>Cancel</b> Closes the dialogue without saving.

*Description for Transfer Setup (1 - 4)*

#### **Setup of the connection to the PLC**

To setup the connection follow the different setup options in *Transfer Setup (1)*. Consult the manuals of the PLC CPU and the network type you are using.

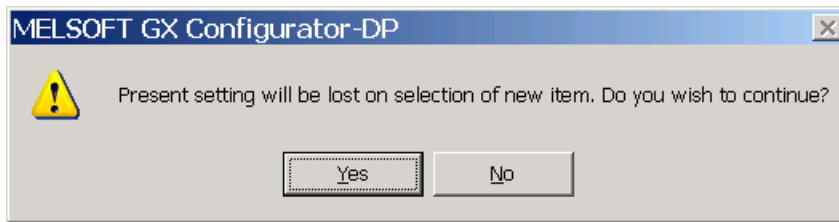
To select a network type you can also click on the button **Connection channel list**. The following dialog window is opened.



*Dialog Connection channel list*

No.	Description
①	Graphical image of the in ② selected network type.
②	Listing of the possible network configurations for the selected PLC.
③	<b>Update</b> Click this button to confirm the selected network configuration without closing the dialogue
④	<b>OK</b> Confirm the set network configuration and close dialogue.
⑤	<b>Cancel</b> Closes the dialogue without saving. When the button Update was clicked the dialogue is closed but the network configuration is already saved.

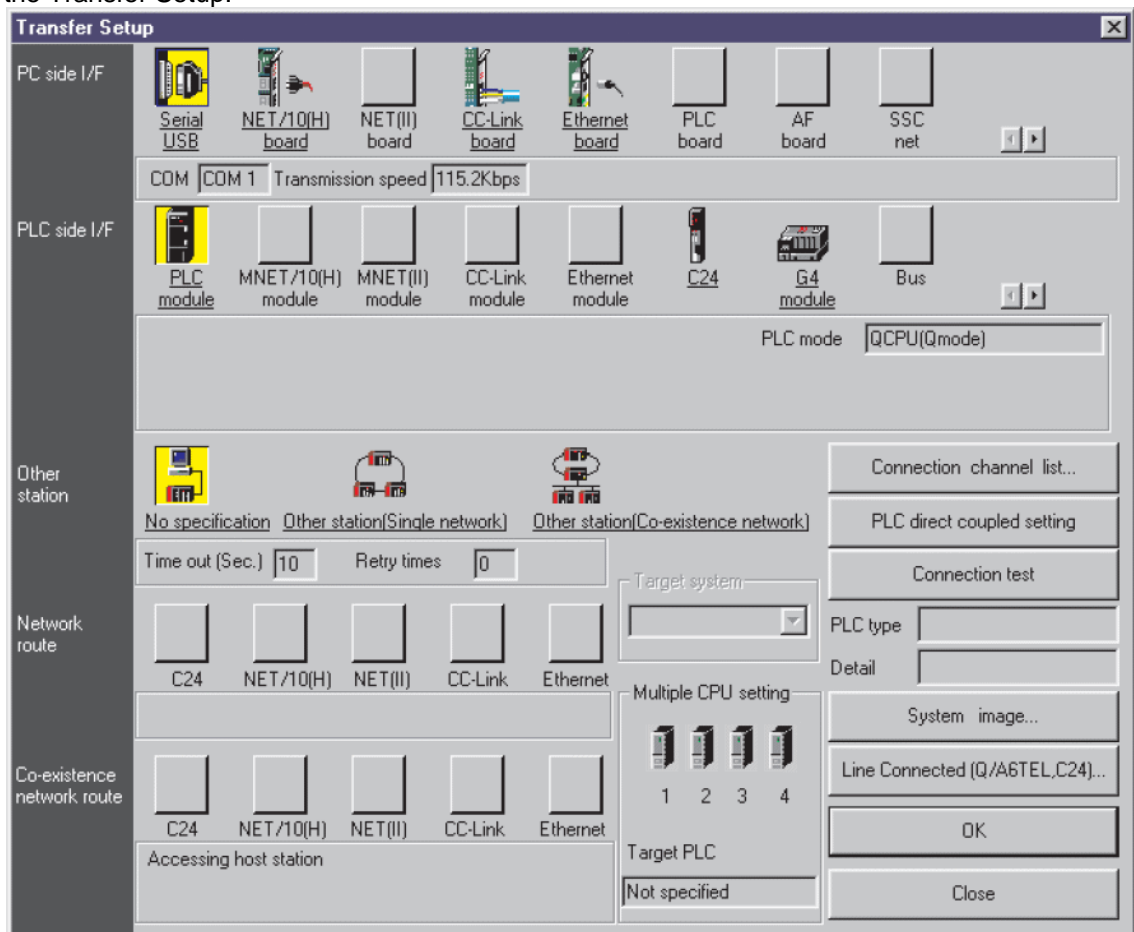
Use the scrollbar to scroll through the network configurations and select a network configuration corresponding to your network type by clicking in the list. Click on the button Update. Confirm the following security note with OK.



#### Security note

Test the selected network configuration by clicking on the button Connection test. If the connection between the PC and the network is possible a positive note will be shown on the screen. If no connection is possible an error message is shown. In this case you have to check the cabling as well as the connection parameters set in the transfer setup and, if used, the respective PLC network modules.

Close the dialog by clicking on OK. The selected network configuration will be saved and shown in the Transfer Setup.

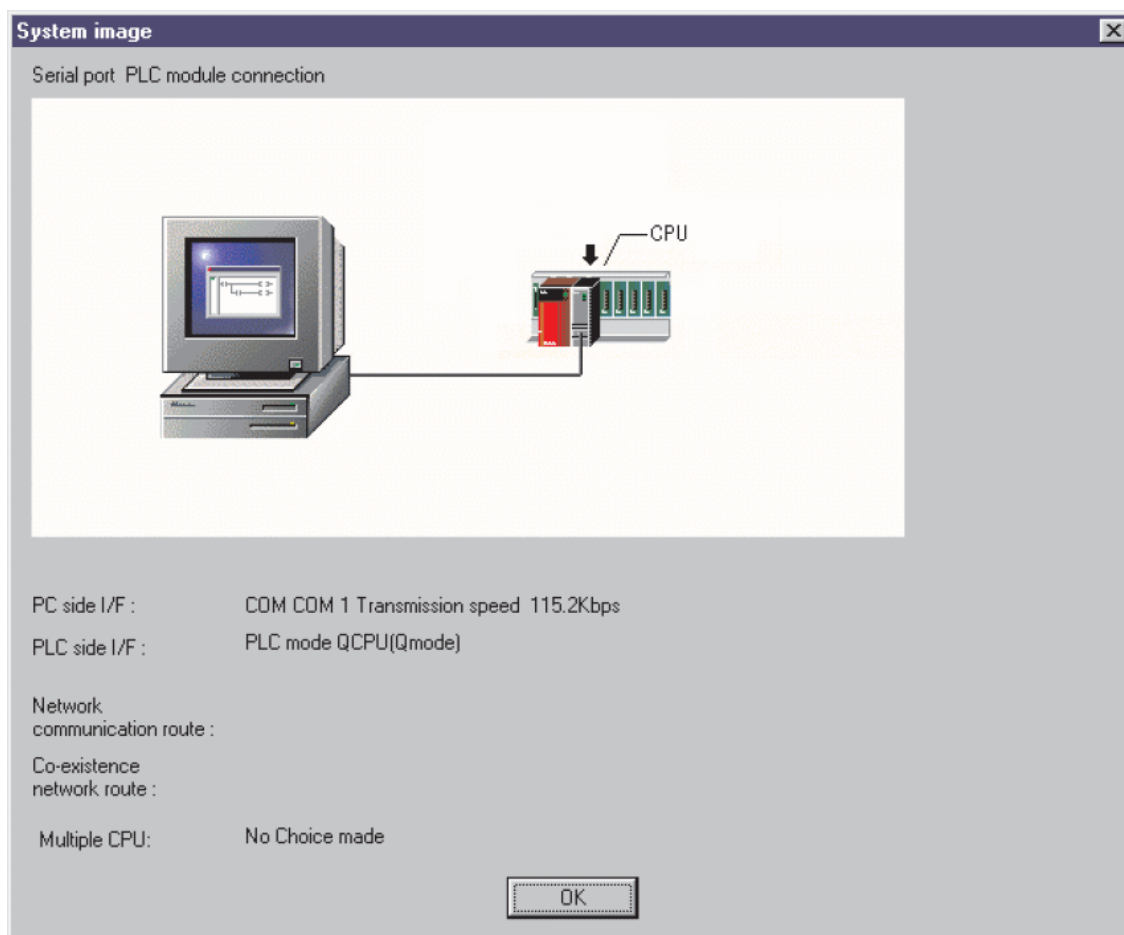


#### Dialog Transfer Setup

Now click on System image. An information window is opened in which an image of the setup system is shown.

In comparison to the Connection channel list dialog in this dialog the system parameter are also listed.

So you can change single settings and check the settings by the help of this dialog.



#### Dialog **System image**

After leaving the dialog, the new transfer setup is added with a default name. The default name is constructed as '**TransferSetup<n>**', where <n> is the sequential index of the setup. If this name is already used, <n> is incremented, until the name is unique. Define a network name or just use the default transfer setup name.



#### **Note:**

The network name is used to identify the settings for one transfer path and must therefore be unique.

The new transfer setup automatically becomes the selected one.



#### **Note:**

The length of the network name is limited to 32 characters. The network name can only contain alphanumeric characters and "\_", "-", "(", ")", "(", ")".

## Transfer Setup Options

### Command New

Creates a new transfer setup. For further information see above [Define a New Transfer Setup](#).

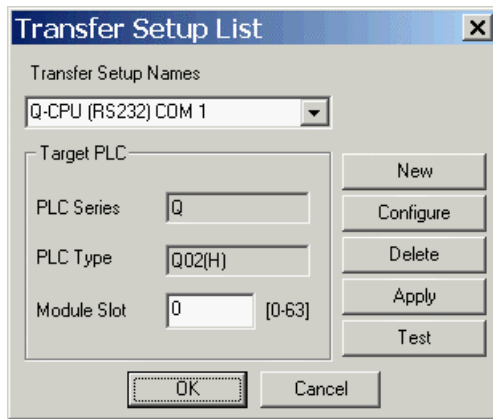
### Command Configure

The <Configure> button allows the user to change the settings of the selected transfer setup. The procedure is the same as for creating a new path. First the user can either confirm the current CPU type or select a different one. Next the [transfer setup](#) is opened, showing the existing settings.

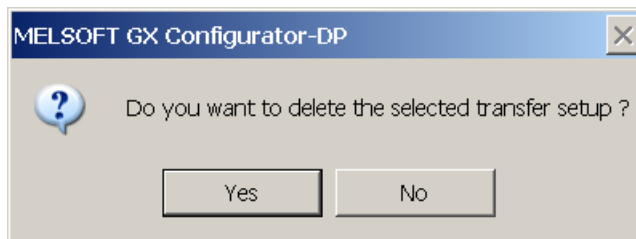
### Command Delete

By pressing the <Delete> button the selected transfer setup is deleted.



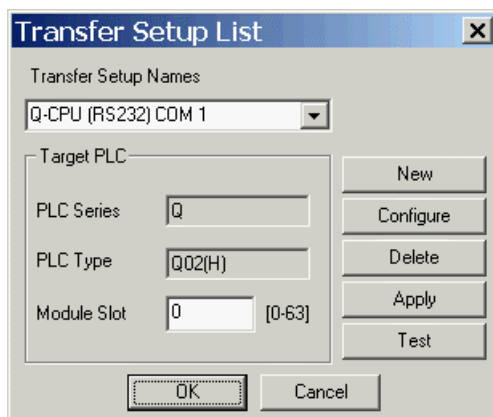


Before the setup is actually removed, the user is asked to confirm the operation.



### Command Apply

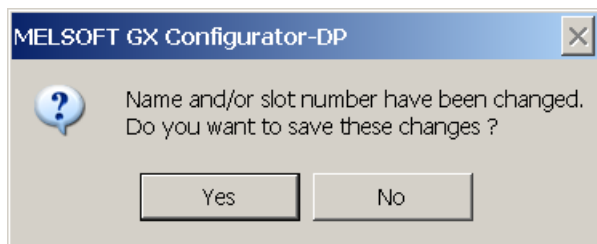
Changes of the transfer setup name and/or the module slot are saved. You can change the symbolic name of any network connection. Select the network connection you want to change. Enter the new name in the **Transfer Setup Names** drop-down list and confirm with the <Apply> button.



#### Note:

The length of the transfer setup name is limited to 32 characters. The name can only contain alphanumeric characters and "\_", "-", "(", ")", "(", ")".

If you do not press the <Apply> button after changing the transfer setup name or the slot number and try to leave the transfer setup or to select a different setup, a message box is displayed that asks you to confirm the changes.



The symbolic name for the transfer setup has changed and can be selected from the **Transfer Setup Names** drop-down list.

### Command Test

The configured transfer setup can be tested online. When the <Test> button is clicked, a connection to the master module is initiated in two steps using the configured communication interfaces and parameters

1. connect to the target PLC
2. connect to the master module within the target PLC with the specified slot

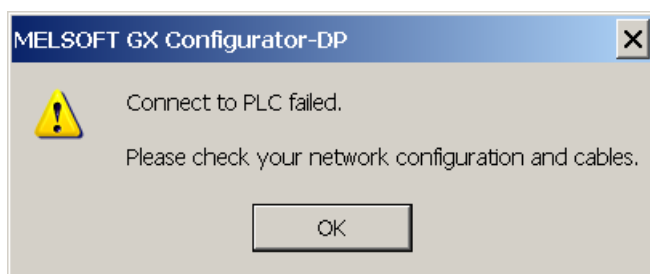
If no module of the type selected in the project is found in the specified slot, a list of the modules found in the target PLC rack is displayed, so the user can determine the slot number of the master module and correct it.

If you click on the <Test> button and the connection to the PLC can be established, a message is displayed.

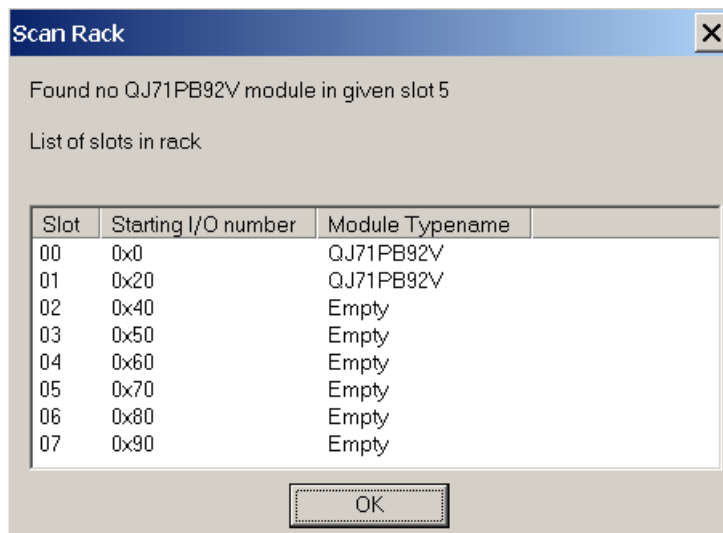


The type may differ from the CPU type, which the user has set in the selected transfer setup. As long as the connected CPU belongs to the selected 'PLC Series', the exact CPU type is automatically detected.

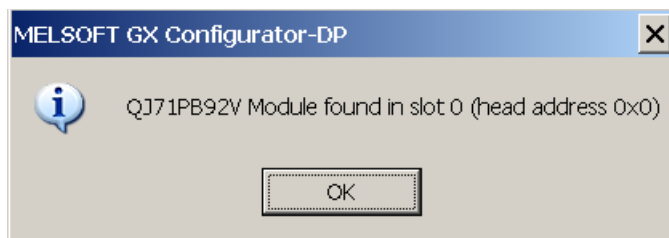
Failing of a PLC CPU connection leads to a warning message.



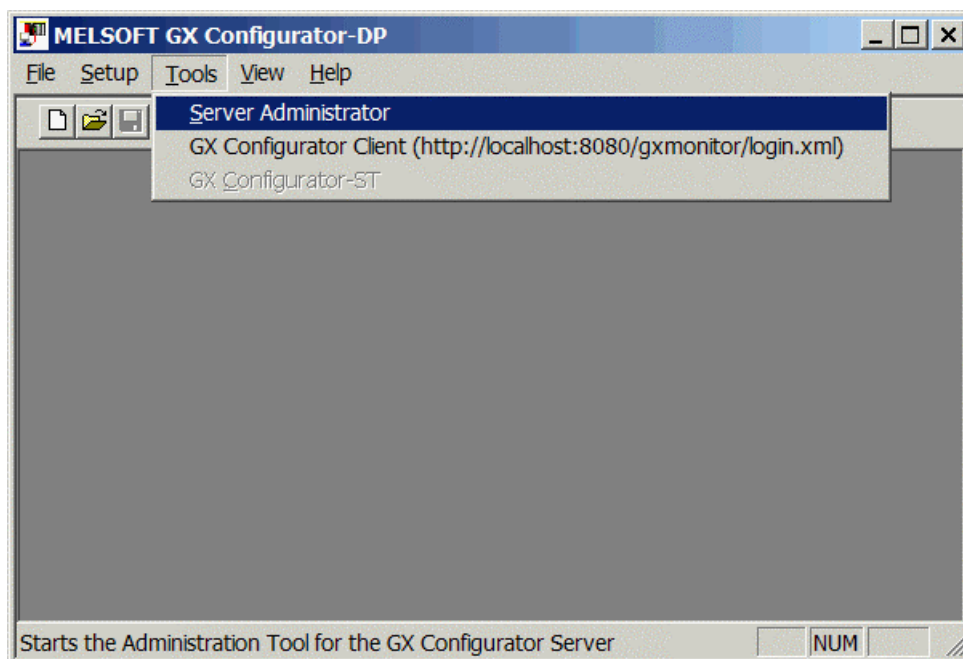
In that case check the transfer setup settings and the cable connection between PC and PLC.



If a module of the specified type is found, a confirmation message is displayed.

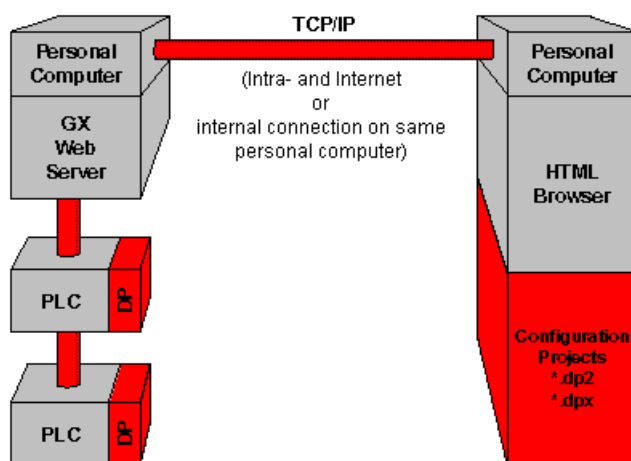


## 10 Web-Based Online Access



The [Tools](#) menu includes tools for web-based online access to the network interface modules. Via the online access configuration projects (\*.dp2 for DP masters, \*.dpx for DP V0 slaves) created by GX Configurator-DP can be transferred to the PLC. In addition several diagnostics and service functions are available.

For this purpose a [Server Administrator](#) is supplied which starts a web server on the personal computer the PLC to be configured is connected to. This web server can be accessed via TCP/IP by the Tools menu item [GX Configurator Client](#) which opens your local standard web browser together with the correct URL or by an external web browser from a remote or local personal computer.



### Notes:

For connection between Web Server and PLCs you can use a variety of protocols and network types. For supported networks please see ['Supported connections to PLC'](#)

## System requirements for web-based access

## Supported platforms

Editing master modules and PB93D configuration projects with the GX Configurator-DP software is supported on Microsoft Windows platforms only.

### Server:

- Microsoft Windows 98/ Windows Me, Windows NT, Windows 2000, Windows XP
- Microsoft Internet Explorer 5.5 or higher

### Client:

Web browser with support of HTML 3 and JAVA2 like Netscape [TM], Microsoft Internet Explorer [TM], and Conqueror on

- Microsoft Windows 98/ Windows Me, Windows NT, Windows 2000, Windows XP
- LINUX
- Others

## Supported DP modules

The firmware of the PROFIBUS master modules must support the configuration via the CPU. Some older firmware versions of A1SJ71PB92D are accessible only via the serial port on the front panel of the module. These modules would either require a firmware update or the software version GX Configurator-DP 4.00.

Module	Min. Firmware Version	Comments
AJ71PB92D	B	Older firmware does not support CPU access
A1SJ71PB92D	F	
QJ71PB92D	A	
QJ71PB93D	A	
QJ71PB92V	A	
FX3U-64DP-M	A	

## Supported PLC types

In general all CPU types which are supported by the respective DP modules are supported by the configuration software.

### Supported are:

- A series
- QnA series
- Q series (Q mode only)
- FX series

## Supported connections to PLC

The following CPU port and network connections from a personal computer (PC) to the PLC are supported:

- Serial to CPU port in A, QnA, System Q, and FX series PLCs
- USB to CPU port in System Q PLCs
- Ethernet from PC to E71 modules in QnA series and System Q PLCs
- Serial link from PC to QnA PLC and MELSECNET/10 to 2nd level QnA rack
- Ethernet link from PC to QnA PLC and MELSECNET/10 to 2nd level QnA rack
- Serial link from PC to System Q PLC and MELSECNET10 to 2nd level QnA rack
- Ethernet link from PC to System Q PLC and MELSECNET/10 to 2nd level QnA rack
- Serial link from PC to System Q PLC and MELSECNET10 to 2nd level System Q rack

- Ethernet link from PC to System Q-PLC and MELSECNET/10 to 2nd level System Q rack
- Serial via MAC to A, QnA series, and System Q PLCs (transparent mode)

#### Not supported are:

- Ethernet and MELSECNET access to A series PLCs
- Serial access to C24 modules
- CC-link networks



#### Note:

For successful network settings you should be familiar with the characteristics of MELSEC Ethernet and MELSECNET/10 and refer to the corresponding manuals.

## Server Administrator

The **Server Administrator** starts a web server on the personal computer the PLC to be configured is connected to. This web server can be accessed via TCP/IP by the **Tools** menu item **GX Configurator Client** which opens your local standard web browser together with the correct URL or by an external web browser from a remote or local personal computer.

The **Server Administrator** can either be started from the **Tools** menu or from the Start menu as stand-alone version. It shows the URLs for local and for remote access by an HTML browser.

When started from the **Tools** menu the **Server Administrator** provides an additional check box "**This computer is the server**". If you clear this check box, a remote server computer name can be entered. By pressing the Save button this entered name is stored together with the menu item "**GX Configurator Client**". The server can only be started or stopped, if it is located on the same computer. If a server on a remote computer is to be accessed, the server must already be running on that computer.

When started from the **Start** menu as stand-alone tool the **Server Administrator** does not display an additional check box.

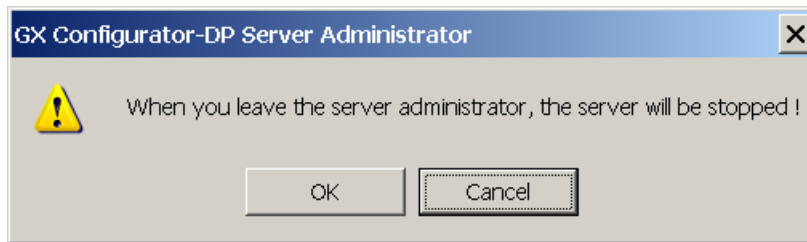


#### Notes:

The URLs for local or remote web browser access of the server is shown in the fields **URL** of the **Server Administrator** dialog.

The server occupies a TCP port. The number of this port is read from the configuration files by the **Server Administrator** and displayed in the field **Server TCP Port**. This port number must not be used by any other application running on the same computer.

If you leave the Server Administrator dialog, the server must have been stopped. Otherwise the following warning message appears:



When the server is started, a separate console (DOS) window appears. This window should never be closed, as this will result in an improper termination of the server. The "Stop Server" function of the server administrator should be used instead. This will also close the console window, after the server has been shutdown.

## GX Configurator Client

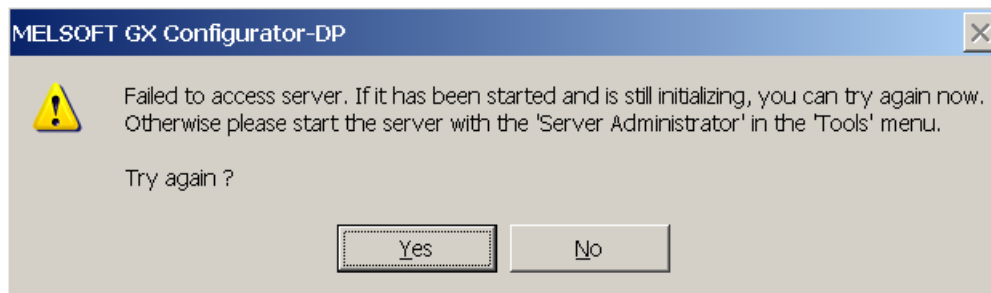
The web server is accessed from the client system via the menu item **GX Configurator Client** from the **Tools** menu or by a stand-alone web browser. The server address (URL) can be taken from the **Server Administrator** dialog.



**Note:**

The web server must have been started via the **Server Administrator** (see above) either on your local personal computer or on a personal computer within your TCP/IP network before it can be accessed by a web browser.

When the GX Configurator Client is started from the menu, the connection to the server is tested. If the server cannot be accessed, the following warning message appears

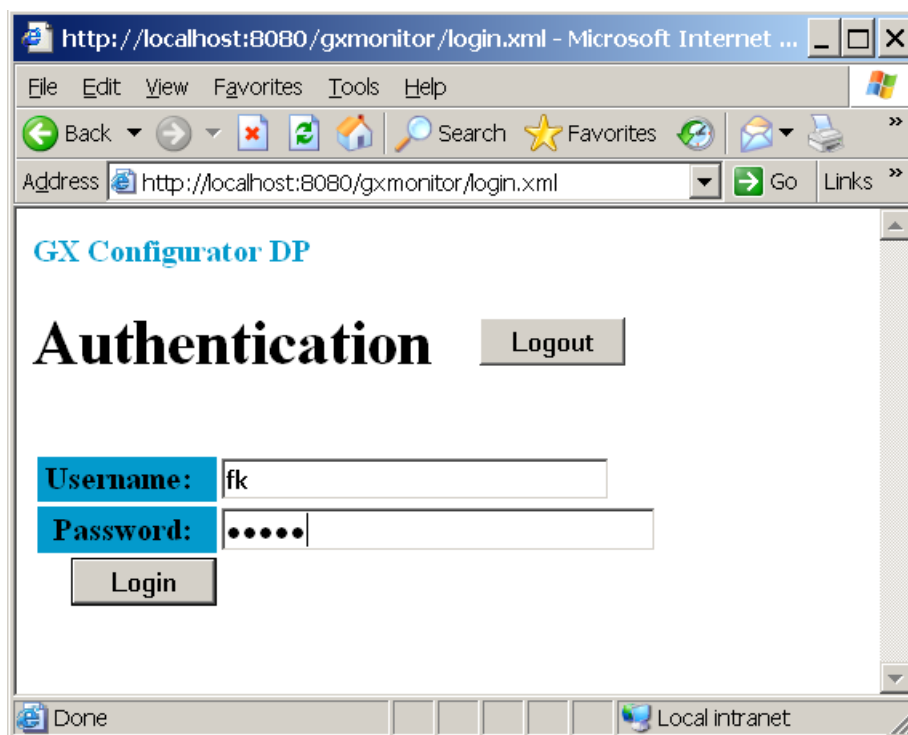


## Authentication

When you access the web server via a web browser the web page **Authentication** opens. Here you have to log in to the web server by entering a valid username and password. Usernames and passwords are edited and stored in the file *users* in the GX Configurator-DP directory *server\gxmonitor\Admin*.

Valid are for example:

- Username: gxinet
- Password: super



The file *users* is an ASCII file and can be edited with for example Microsoft Notepad. For each user there is a line in the file with the user name and the password separated by a colon (':'). Optionally the attribute 'read+write' can be added, separated from the password with another colon. This attribute means that the user has read and write access, i.e. he can download a PROFIBUS configuration or start/stop the CPU. If this attribute is missing, the user can only read information from the PLC.

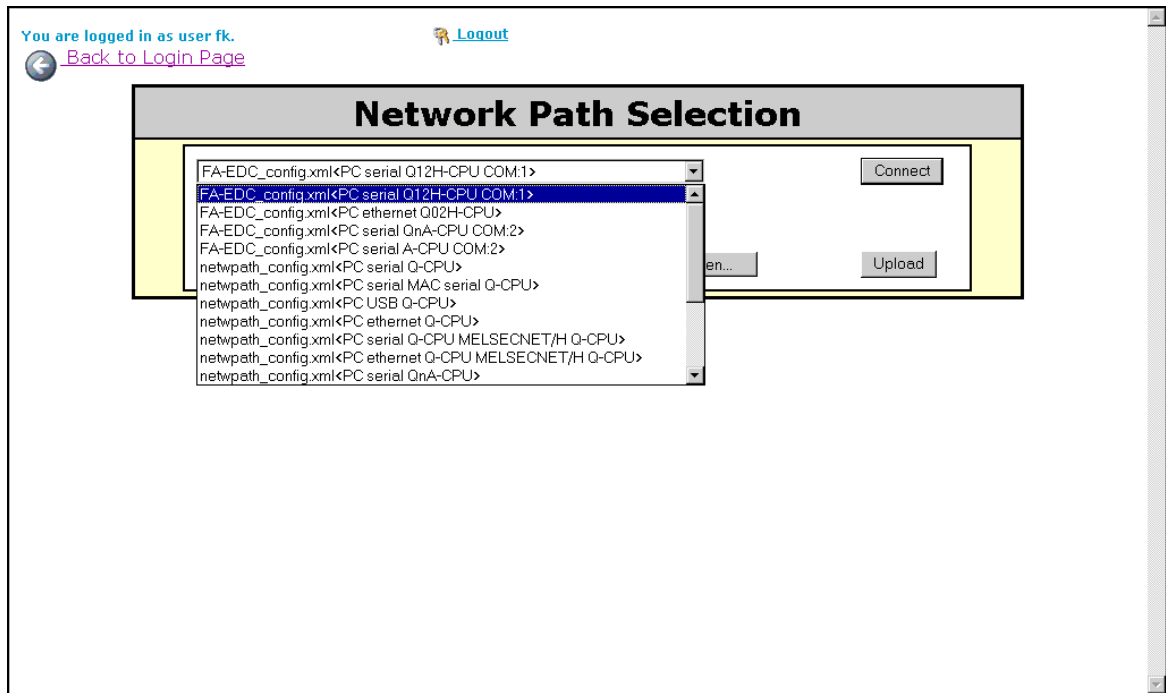
Sample contents of users file.

```
profibus : gxmonitor
gxinet : super : read+write
```

### Network Path Selection

After a successful login this web page opens. Here you select a connection to the target PLC to be configured. Additional network configuration files (\*.xml) can also be added to the network database.





### Connect

Connect to the selected target PLC to be configured.

### Browse

Browse for network configuration files (\*.xml) to be uploaded to the web server.

### Upload

Upload the browsed network configuration file (\*.xml) to the web server to be added to the network database.

## Network Configuration File

### Location of Configuration Files

The GXDP webserver loads the configuration of PLC connections from XML files in the subdirectory 'Server\gxmonitor\WebApps\config'. All XML files in this directory are scanned for valid transfer configurations. As part of the installation procedure the file 'netwpath\_config.xml' is copied to this directory. It contains several default configurations for various types of PLC connections.

The transfer setup editor of GXDP 7.01 does use a different format for storing the transfer configurations. This new format is not supported by the GXDP webserver included in GXDP 7.01.

To add or modify transfer setups for the webserver the following procedures are possible:

1. edit the existing entries in the default file 'netwpath\_config.xml'
2. add new transfer configurations with new names to the default configuration file 'netwpath\_config.xml'
3. copy new XML files with additional transfer configurations to the server directory
4. upload new XML files with additional transfer configurations via the start page of the GXDP webserver

The XML files are text files. If a special XML editor is not available, a simple text editor like 'Notepad' is sufficient.

### Elements of a Transfer Path

The configuration for a connection is maintained in 'NetworkPath' entries in the configuration files. Sample for a transfer path:

```

<NetworkPath name="PC serial Q-CPU MELSECNET/H QnA-CPU">
  <PCNode commType="serial" baudRate="19200" commPort="1">
  </PCNode>
  <PLCModule boardType="cpu" plcFamily="q">
  </PLCModule>
  <PLCModule boardType="melsecnetH" plcFamily="qna"
    networkNumber="10" stationNumber="2">
  </PLCModule>
</NetworkPath>

<NetworkPath>
  <PCNode />
  <PLCModule />
  <PLCModule/>
</NetworkPath>

```

Figure 1 The XML network path resembles the actual network architecture

The network path is described by listing the connected components, i. e. the communication interface on the PC side (XML node <PCNode>) and in the PLC (XML node <PLCModule>). A network path definition must always contain a node 'PCNode' and one or two nodes of type 'PLCModule'.

Node Name	Remark	Attributes	Values	Description
<PCNode>	describes the PC, from which the path originates	baudRate	9600, 19200, 38400, 57600, 115200	baud rate of serial interface
		commPort	1-10	serial communication port
		commType	Serial, usb, ethernet	Type of PC-side interface
		portNumber	1-65535	Port for TCP/UDP communication
		stationNumber	0-64	Station number within MELSECNET network
<PLCModule>	describes an communication interface on the PLC (on the CPU itself or special module)	boardType	cpu, melsecnetH, ethernet, mac	Type of module, typically cpu or ethernet are used; mac represents MAC transparent module
		networkAddress	IP-address or hostname	IP-address, which has been configured in PLC Ethernet module
		networkNumber	1-239	Network number, which has been configured in PLC Ethernet module
		plcFamily	a, qna, q, fx	PLC series
		protocol	udp, tcp	Protocol for Ethernet connections (this parameter is usually not set!)
		stationNumber	0-64	Station number, which has been configured in PLC Ethernet modules

## Network Path Samples

### PC accesses MELSECNET via Serial Port

In this combination a PLC is connected to the PC via a serial link. The user must specify the serial port on the PC, to which the relaying PLC is connected. On the PLC side the network setup supports only the serial port in the CPU, not a separate serial board like C24.

The relaying PLC contains a MELSECNET/H board, which is connected to another MELSECNET/H interface in the target PLC with the PROFIBUS board.

The network and station number of the MelsecNet board in the relaying PLC are not relevant for the setup of the network path. The MELSECNET boards in both relay and target PLC must share the same network number and have different station numbers.

```

<NetworkPath name="PC serial Q-CPU MELSECNET/H QnA-CPU">
  <PCNode commType="serial" baudRate="19200" commPort="1">
  </PCNode>
  <PLCModule boardType="cpu" plcFamily="q">
  </PLCModule>
  <PLCModule boardType="melsecnetH" plcFamily="qna"
    networkNumber="10" stationNumber="2">
  </PLCModule>
</NetworkPath>

```

### PC accesses MELSECNET via Ethernet

In this combination a PLC is connected to the PC via ethernet. The PC must therefore know the IP address of the E71 board in the PLC rack. Connection to the E71 can be tested with the 'ping <n>.<n>.<n>.<n>' command, where the parameter is the IP address, which has been set in the network parameters using either GX Developer or GX IEC Developer.

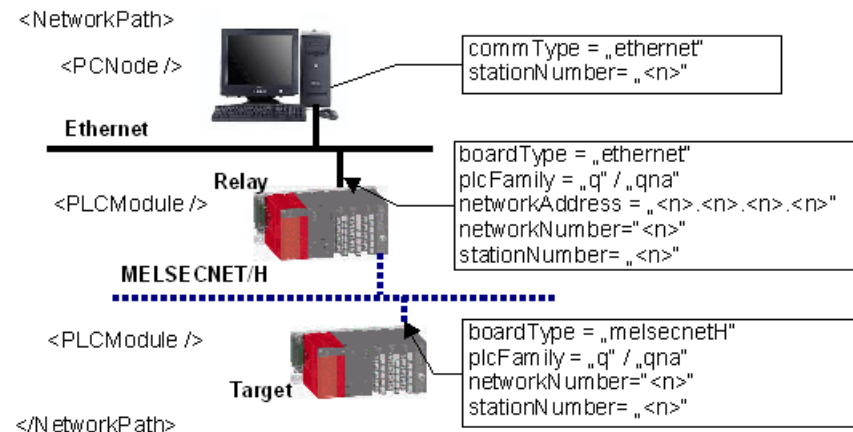
The relaying PLC contains a MELSECNET/H board, which is connected to another MELSECNET/H interface in the target PLC, which also holds the PROFIBUS board. For this relaying the PC and the E71 in the PLC must be setup as a virtual MelsecNet, i.e. the E71 must also be configured with a MelsecNet network and station address. The PC must have a station address, which must not exist already in the same network number.

The network and station number of the MelsecNet board in the relaying PLC are not relevant for the setup of the network path. The MelsecNet boards in both relay and target PLC must share the same network number and have different station numbers.

```

<NetworkPath name="PC ethernet QnA-CPU MELSECNET/H QnA-CPU">
  <PCNode commType="ethernet" stationNumber="1"> </PCNode>
  <PLCModule boardType="ethernet" plcFamily="qna"
    networkAddress="10.226.126.220" networkNumber="1"
    stationNumber="2" >
  </PLCModule>
  <PLCModule boardType="melsecnetH" plcFamily="qna"
    networkNumber="10" stationNumber="2">
  </PLCModule>
</NetworkPath>

```



### Rack Configuration

When you are successfully connected to this web page opens. Here the modules found in the PLC rack are listed including their slot number, head address, and module name.

GX Configurator DP  
[Back to Network Path Selection](#)

### Rack Configuration

Link: PC serial Q-CPU Target: Q02(H)

Slot Nr	Head Addr	Module Name
0	0x0	Empty
1	0x2	<a href="#">QJ71PB93D</a>
2	0x4	<a href="#">QJ71PB92D</a>
3	0x6	QJ71E71-B2
4	0x8	Empty
5	0x9	Empty
6	0xA	Empty
7	0xB	Empty

#### CPU Settings

CPU Mode	Run <input type="button" value="Set"/>
----------	--

[Current Autorefresh Settings](#)

Delete IPARAM File on CPU Module (CPU must be stopped)

[Reload](#)

#### Module Name (underlined)

Opens the web page **Module Configuration** for a PROFIBUS master (see below) or for a PROFIBUS slave (see below).

#### CPU Mode

Displays the current CPU mode. The desired CPU mode can be selected from the drop down list and set via the <Set> button.

#### Current Autorefresh Settings

Open the Auto Refresh Settings page. On this page the autorefresh entries in the IPARAM file are read from the connected PLC CPU, parsed and displayed in a table (see below)

#### Delete IPARAM File on CPU Module

Deletes the IPARAM file storing the autorefresh settings on the CPU module.

#### Reload

Reload (refresh) the Rack Configuration dialog.

#### Module Configuration

This web page shows the current configuration of the DP master module previously selected.



#### Note:

If the master type set in the project does not match the type of the actually connected module, the configuration download will fail. If the types of the master modules do not match, select the correct master type when creating a new project or convert the project to the correct type.

GX Configurator DP  
[Back to Rack Configuration](#)

Module Configuration	
Slot 1	
Board Type	QJ71PB92D
FDL Address	0
Mode	Extd. Operation (Frozen) <input type="button" value="Set Mode"/>
Project	project.dp2 <input type="button" value="Browse..."/> <input checked="" type="checkbox"/> Update Autorefresh in CPU <input type="button" value="WriteToPLC"/>
CPU Mode	Stop <input type="button" value="Set"/>
Data Transfer	<a href="#">Start DP</a> <a href="#">Stop DP</a> <a href="#">Current Autorefresh Settings</a>

[Slave List](#)  
[Current Configuration](#)  
[Save Current Configuration](#)

### Mode

Displays the current operating mode of the module. The desired operating mode can be selected from the drop down list and set via the Set button.



#### Note:

The current FDL address cannot be displayed for the A(1S)J71PB92D.

If you use a A(1S)J71PB92D module the user must set the correct mode with the switch on the front of the module. The modes are 0 or E for operation mode and 1 for configuration mode. The module will take over the setting of the mode switch after a CPU reset.

The mode of a FX3U-64DP-M will not be displayed and also cannot be changed. This master module supports only one operation mode.

For redundant systems:



#### Note:

Only the mode of that master module is changed, which is located in the PLC rack connected to the PC. The second QnPRH system is not accessed via the tracking cable. If you want to change the mode of both master modules, you must therefore connect to both modules one after the other.

Depending on the mode of the redundant system, certain restrictions apply:

- **Debug mode:** the mode of the master modules in both PLC racks can be changed
- **Separate mode:** device tracking must be turned off, before changes to the standby master are possible
- **Backup mode:** the redundant system must first be switched to separate mode and device tracking must be turned off, before changes to the standby master are possible

### Project

To configure the DP master a configuration project (\*.dp2) created by GX Configurator-DP is required. The Browse button opens a file dialog to browse for such a configuration project on the

client computer. The **Write to PLC** button uploads the selected configuration project to the web server where it is written to the PLC.



**Note:**

By downloading a configuration you stop the data exchange on the DP network.

If the configuration download is successful, the following web page appears:

GX Configurator DP  
[Back to Rack Configuration](#)

Slot 1	
Board Type	QJ71PB92D
FDL Address	0
Mode	Extd. Operation (Frozen) <input type="button" value="Set Mode"/>
Project	<input type="text"/> <input type="button" value="Browse..."/> <input type="checkbox"/> Update Autorefresh in CPU <input type="button" value="WriteToPLC"/>
CPU Mode	Stop <input type="button" value="Set"/>
Data Transfer	<a href="#">Start DP</a> <a href="#">Stop DP</a> <a href="#">Current Autorefresh Settings</a>

**Configuration updated successfully**

[Slave List](#)  
[Current Configuration](#)  
[Save Current Configuration](#)

*Update Autorefresh in CPU:*

Only available for Q series, and only if the CPU is stopped. If selected, the autorefresh settings in the IPARAM file of the CPU are updated immediately after successfully writing the configuration project to the PLC.

If an autorefresh entry for this slot is already present in the IPARAM file, it is overwritten with the settings matching the module configuration. If no IPARAM file is found, it is created. If no entry for this slot can be found, it is inserted at the appropriate position in the file.

### CPU Mode

Displays the current CPU mode. The desired CPU mode can be selected from the drop down list and set via the <Set> button.

### Data Transfer

Manually starts or stops the PROFIBUS DP data transfer for the displayed DP master.



**Note:**

If you manually start the PROFIBUS DP data transfer, the data transfer will stop after a reset or after turning on the power supply of the PLC. The PROFIBUS DP data transfer must be started explicitly by an extra program that sets the startup request signal at the respective address of the DP master (Y0 + offset: start request signal).

### Current Autorefresh Settings

Open the Auto Refresh Settings page. On this page the autorefresh entries in the IPARAM file are read from the connected PLC CPU, parsed and displayed in a table (see below).

**Slave List**

Opens the web page **Slave List** (see below)

**Current Configuration**

Opens the web page **Current Module Settings** (see below)

**Save Configuration**

Saves the current module settings in an XML-format file with the default extension \*.gxdp. This function is intended for documentation purposes only. The saved XML-format file does not contain the full contents of a configuration project file but only the information that is actually on the module. You can rename the file extension \*.gxdp to \*.xml and view the file e.g. in a web browser.

**Note:**

The saved XML-format file cannot be opened in GX Configurator-DP as configuration project.

**Trouble Information**

Available only if the external monitoring package is installed. For details refer to the software manual of the monitoring package. This web page shows monitored error status information.

You are logged in as user fk. [Logout](#)

[Back to Module Configuration](#)

Trouble Information		
Last known Troubles of Slot 1		
Index	Error Code	Error Text
<a href="#">Reset List</a>		

**Auto Refresh Settings**

Available only for MELSEC System Q PLCs, except 'Remote I/O'.

GX Configurator DP  
[Back to Module Configuration](#)

### Auto Refresh Settings

Link: PC serial Q-CPU

Head addr.	Module Name	Consistency Device	Direction	Buffer addr.	Buffer size	Device
0x0	QJ71PB92D	XD	input	0	8	X20
			output	960	12	Y20
			output	972	1	X10
			input	8	1	X0
			output	973	1	Y0
0x2	QJ71PB93D	X10	input	0	2	X0
			output	256	2	Y0

**Note:**

At this page the information of all installed modules are displayed.

**Slave List**

This web page shows status information on the DP slaves connected to the DP master.

You are logged in as user fk. [Logout](#)  
[Back to Module Configuration](#)

### Slave List

Index	FDL Addr	Link Status	Input Addr.	Input Size	Output Addr.	Output Size
1	32	Link	0	6	960	6

Last known CPU Error
No Error

**Current Module Settings**

This web page shows the current configuration of the DP master module previously selected.



Current Module Settings - Microsoft Internet Explorer

You are logged in as user gxinet. [Logout](#)

[Back to Module Configuration](#)

## Current Module Settings

### Read Master Parameter from Module

FDL address	Clear state	Min. slave interval	Polling timeout	Data control time	Autom. Refresh	Consistency	Handshake	WD for time sync.
0	0	800	50	100	1	0	0	0

### Read Bus Parameter from Module

Baudrate	T_sl	min T_sdr	max T_sdr	T_qui	T_set	T_tr	GAP	HSA	Max retry limit
1500000	300	11	150	0	1	50000	10	126	1

## Module Configuration

This web page shows the current configuration of the PB93D DP slave module previously selected.

GX Configurator DP

[Back to Rack Configuration](#)

## Module Configuration

Slot 3	
Board Type	QJ71PB93D
FDL Address	1
Mode	Normal Operation <input type="button" value="Set Mode"/>
Project	<input type="text"/> <input type="button" value="Browse..."/> For Autorefresh Setting CPU must be stopped <input type="button" value="WriteToPLC"/>
CPU Mode	Run <input type="button" value="Set"/>
Data Transfer	<a href="#">Start DP</a> Stop DP <a href="#">Save Current Configuration</a>

### Mode

Displays the current operating mode of the module. The desired operating mode can be selected from the drop down list and set via the Set button.

- **Mode 0:** Normal operation mode. Allows upload and download of configuration.
- **Mode 2:** Diagnostic mode.

### Project

To configure the DP slave a configuration project (\*.dpx) created by GX Configurator-DP is required. The Browse button opens a file dialog to browse for such a configuration project on the client computer. The **Write to PLC** button uploads the selected configuration project to the web server where it is written to the PLC.

### Update Autorefresh in CPU

Only available, if CPU is stopped. If selected, the autorefresh settings in the IPARAM file of the

CPU are updated immediately after successfully writing the configuration project to the PLC.

If an autorefresh entry for this slot is already present in the IPARAM file, it is overwritten with the settings matching the module configuration. If no IPARAM file is found, it is created. If no entry for this slot can be found, it is inserted at the appropriate position in the file.

**Note:**

If the IPARAM file is written into the CPU while GX Developer is running, GX Developer cannot display the IPARAM file in the list of "Read from PLC/Delete PLC data". Therefore, please update the file list by pressing the "Refresh View" button of the "Read from PLC/Delete PLC data" function.

**CPU Mode**

Displays the current CPU mode. The desired CPU mode can be selected from the drop down list and set via the <Set> button.

**Data Transfer**

Manually starts or stops the PROFIBUS DP data transfer for the displayed DP slave.

**Save Configuration**

Saves the current module settings in an XML-format file with the extension \*.gxdp. In case of a slave project the current module settings are saved in an XML-format file with the extension \*.dpx. This function is intended for documentation purposes only. The saved XML-format file does not contain the full contents of a configuration project file but only the information that is actually on the module. You can rename the file extension .gxdp (.dpx) to \*.xml and view the file e.g. in a web browser.

**Note:**

The saved XML-format file cannot be opened in GX Configurator-DP as a configuration project.

# 11 Troubleshooting

## Web Browser Related Hints

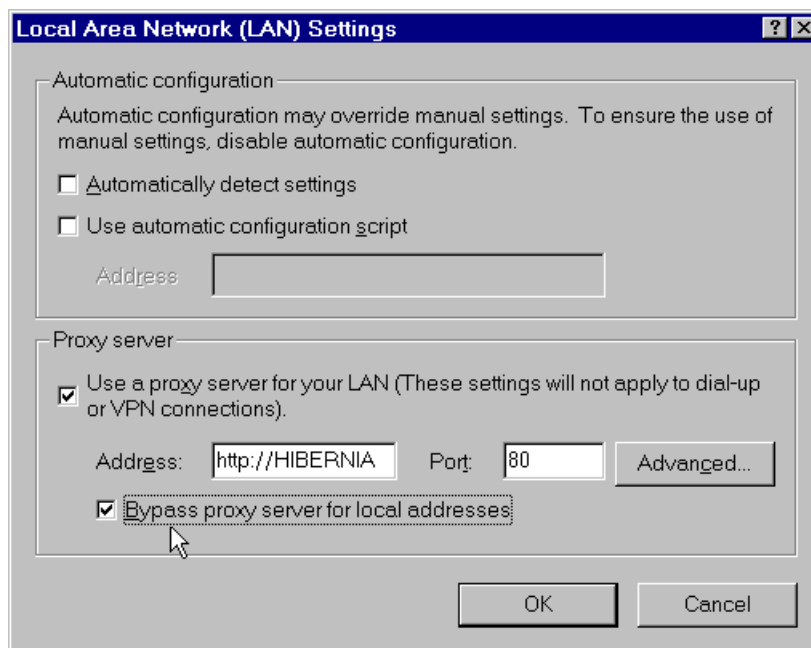
### Problem 1

Your web browser can not access the GX Configurator-DP web server running on your local computer or in your local network.

### Solution

In case you use a proxy server for the connection of your intranet (LAN) to the Internet ensure that your web browser bypasses this proxy server for **local** connections.

In the *Microsoft Internet Explorer* for example the proxy settings are setup in the dialog **Extras > Internet Options > Connections > LAN Settings**:



Other browsers will have similar settings. For further details ask your network administrator.

### Problem 2

Your web browser notifies that the addressed server could not be located ("URL not found" etc.).

### Solution

The GX Configurator-DP web server needs a little time for initialization. After you have started the server wait for 15 – 30 seconds before you connect to it.

### Problem 3

Inconsistent data especially with several web browsers accessing the server simultaneously

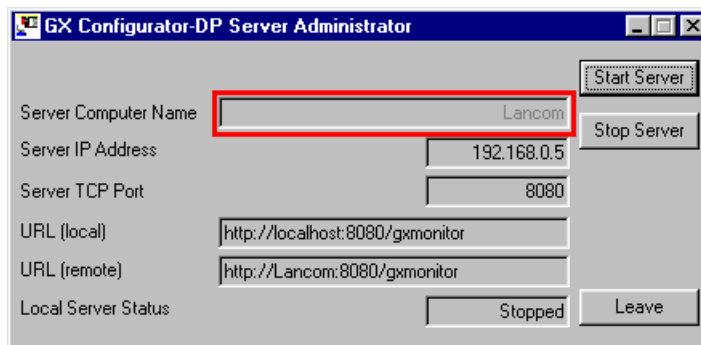
### Solution

Accept cookies sent from the GXDP web server. Please check your browser settings. For example in Internet Explorer 5 open the security settings. Go to the settings for Cookies. The option "Allow per-session cookies" must either be set to "Enable" or "Prompt". If set to "Prompt", you will be asked, whether you accept the cookie when connecting to the GXDP web server. Please press "Yes" to accept the session-cookie.

## TCP/IP Network Related Hints

**Problem 1:**

Your web browser cannot connect to the web server computer via the **Server Computer Name** displayed in the **GX Configurator-DP Server Administrator**.

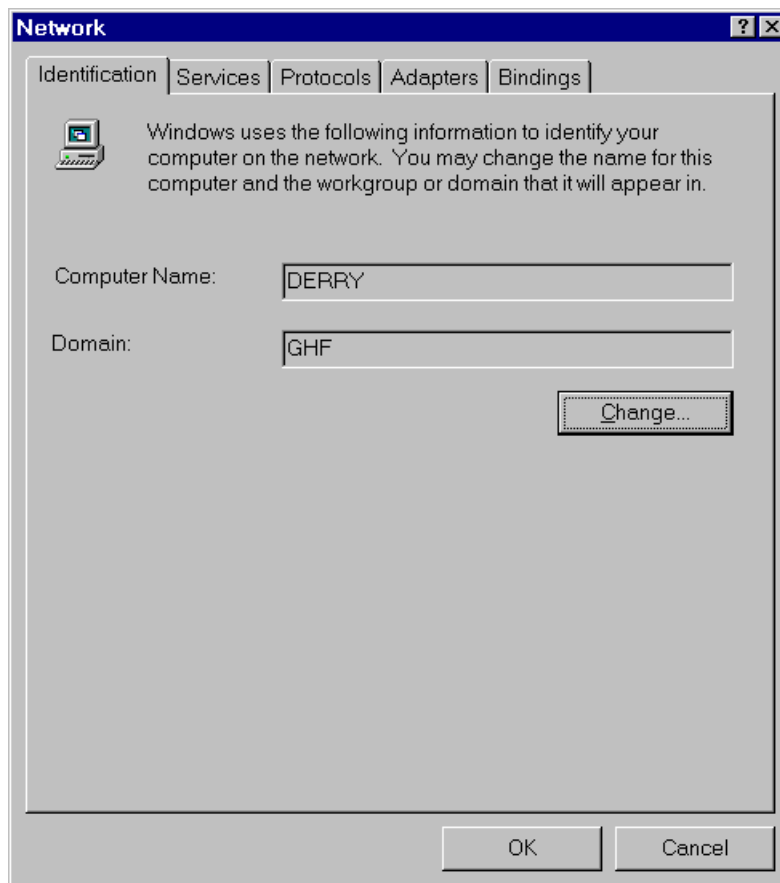
**Solution**

The **Server Computer Name** (i.e. DNS Host Name) cannot be resolved by a DNS server.

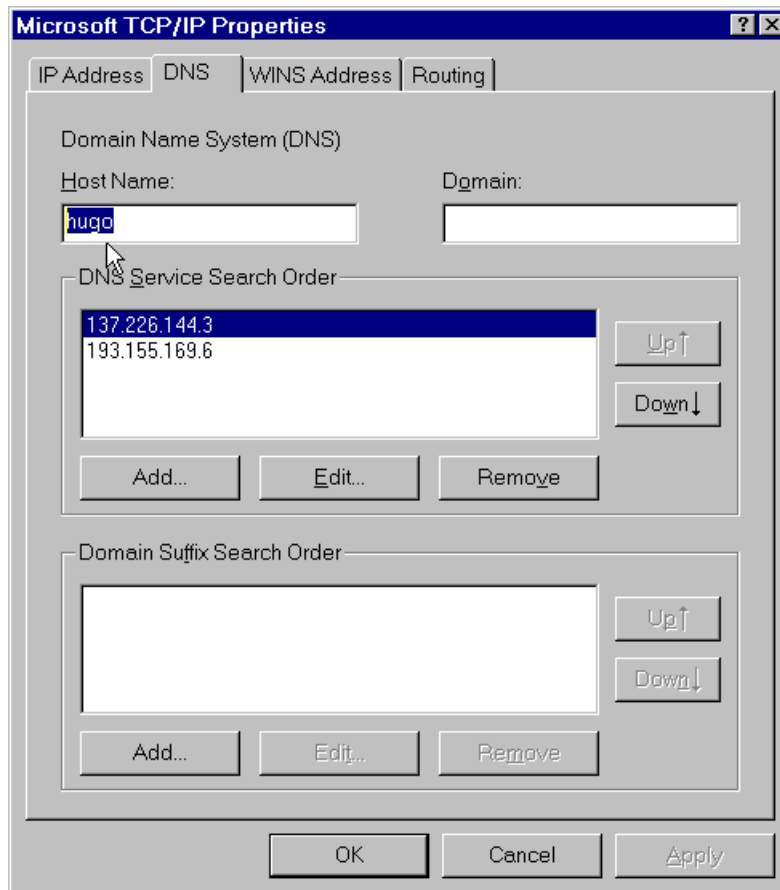
Microsoft Windows computers have a computer name entered when installing the operating system, which can also be changed afterwards. This is the "NetBIOS name". Usually this name is the only name of this computer across a network.

But it is also possible to assign a second name to the computer for the "Domain Name Service (DNS)". This is the "DNS Host Name"

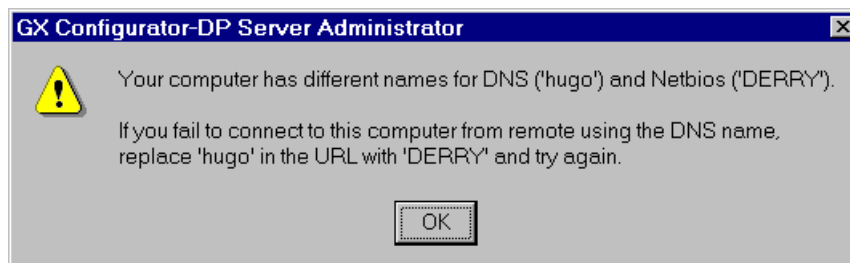
In the example below a *Microsoft Windows NT 4* computer has the original (NetBIOS) name "Derry" shown in its **Network properties** dialog under the **Identification** tab:



In the **TCP/IP Properties** dialog under the **DNS** tab we enter the new **DNS Host Name** "hugo" in the Host Name field. This name is not registered on a DNS server.



When the DNS Host Name (here: "hugo") and the NetBIOS name (here: "derry") differ, GX Configurator-DP displays the following message box:



When you use the DNS Host Name on another (client) computer as communication target the other computer will try to get the IP address from a DNS server. If the target computer is not found by its DNS Host Name, it is not possible to communicate with it.

Using the NetBIOS name or the IP address as communication target should succeed because computers in a Microsoft Windows network send their names as broadcasts to other computers.

*Microsoft Windows 9x* provides similar settings. With *Microsoft Windows 2000* and *Windows XP* the network configuration has changed a lot. It is not as easy anymore to assign a separate DNS computer name.

For further details ask your network administrator.

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