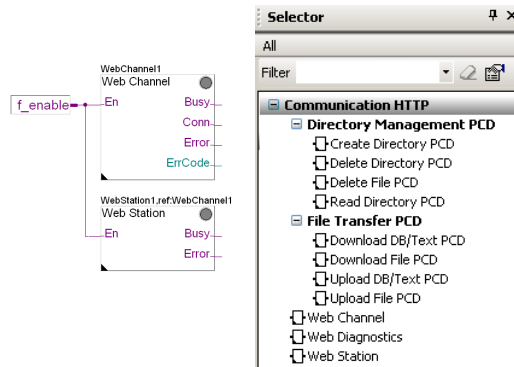


First steps with the HTTP Client Library



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Project history

Date	Author	Modification
14.12.2011	TPM / DK	V1 Creation of documentation (Version 1) and project for PG5 2.0.200

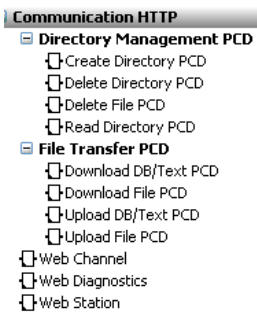
1 Introduction

This document is intended to offer an initial, easy entry into using the Saia HTTP Client Library. With the appropriate PG5 project, it can be used as a guide for any initial implementation.

The information contained in this document has been drawn from the corresponding online helps and should help you get started. For further information, please consult the relevant documents (see “References”).

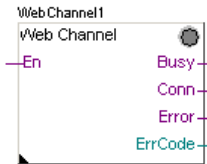
2 Functions of the FBox Library

The structure of the new library is shown below:



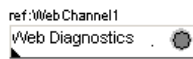
HTTP Communication

Three FBoxes are offered (Web Channel, Web Diagnostics and Web Station) and two groups (File Transfer PCD and Directory Management PCD).



Web Channel

Manages HTTP communications. It must be put in place to establish communication. Up to 10 Web Channel FBoxes can be used in one or more Fupla files.



Web Diagnostics

This FBox offers additional details for diagnosing and fixing bugs in HTTP Client communication. It is not needed in most cases.

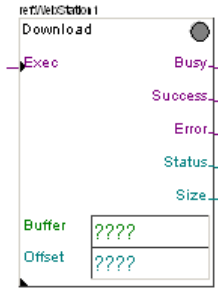


Web Station

This FBox manages the implementation of data exchange with another PCD via the HTTP communications channel. An input is, for example, the IP address of the other PCD with which communication is intended.

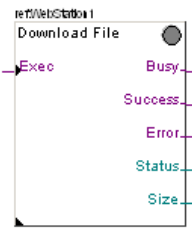
File Transfer PCD

File Transfer PCD FBoxes are used to download and upload files to remote PCD controllers.



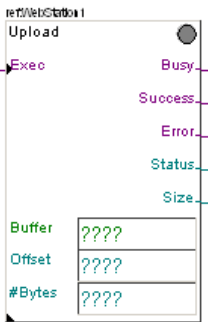
Download DB/Text PCD

This FBox loads the content of a file from another PCD to a RAM DB/Text.



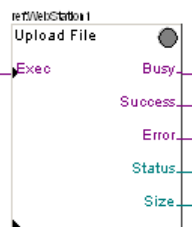
Download File PCD

This FBox loads the content of a file from another PCD to a local file.
 If the file already exists in the local directory, it will be deleted and replaced with the new one.



Upload DB/Text PCD

This FBox loads the content of a DB/Text to a file in another PCD.
 If the file already exists on the other PCD, it will be deleted and replaced with the new one.



Upload File PCD

This FBox copies the content of a local file to a file on another PCD.
 If the file already exists on the other PCD, it will be deleted and replaced with a new one.



Please note the following:

All File Transfer PCD FBoxes must include a reference (FBox name) to the appropriate Web Station FBox. This must in turn be referenced on the Web Channel FBox.

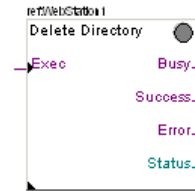
Directory Management PCD

Directory Management PCD FBoxes are used to delete files and to create, delete and list the directories of the other/remote PCD.



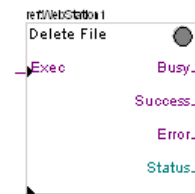
Create Directory PCD

This FBox creates a directory on the other/remote PCD.



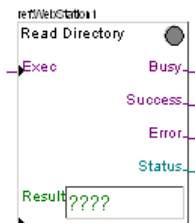
Delete Directory PCD

This FBox deletes a directory on the other/remote PCD.



Delete File PCD

This FBox deletes a file on the other/remote PCD.



Read Directory PCD

This FBox reads elements from a directory on the other/remote PCD and saves them in a RAM text.



Please note the following:

All Directory Management PCD FBoxes must include a reference to the appropriate Web Station FBox. This must in turn be referenced on the Web Channel FBox.

3 Hardware and software required

Hardware

The project example described below has been configured with the following hardware combination:

- PCD3.M5540 firmware 1.16.00 or higher as HTTP Client
- PCD3.M5540 firmware 1.16.00 or higher as Web Server

Software

To program the PCD the following software versions are required:

- PG5 version 2.0.210 or later
- HTTP Client Library (min. B0.4.025)



It is also possible to run this project with other hardware. Depending on the hardware used, specific adjustments will have to be made to the configuration (hardware configuration in PG5, software settings in PG5. In Fupla, appropriate settings for communication between the PCDs).

4 Step-by-step creation of the project example

The following project example consists of two PCD3.M5540 controllers. One PCD operates as the HTTP Client and the other as the Web Server. In this example, they are connected via a LAN network.



The objective in this example is to copy an existing file from the file system of the other PCD (Web Server) to the PCD (HTTP Client).



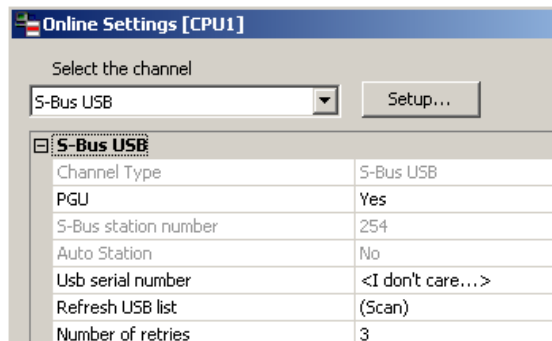
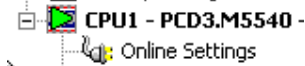
4.1 Configure PCD


To prepare the PCD, the following steps are necessary:

Establish online connection to PCD

Before a connection can be established, the PG5 must “know” which medium/cable will be used to access the PCD. This is defined in the “Online settings”, located in the PG5 project structure:


The “Channel” selected here is “S-Bus USB”. The “PGU” option should be enabled.



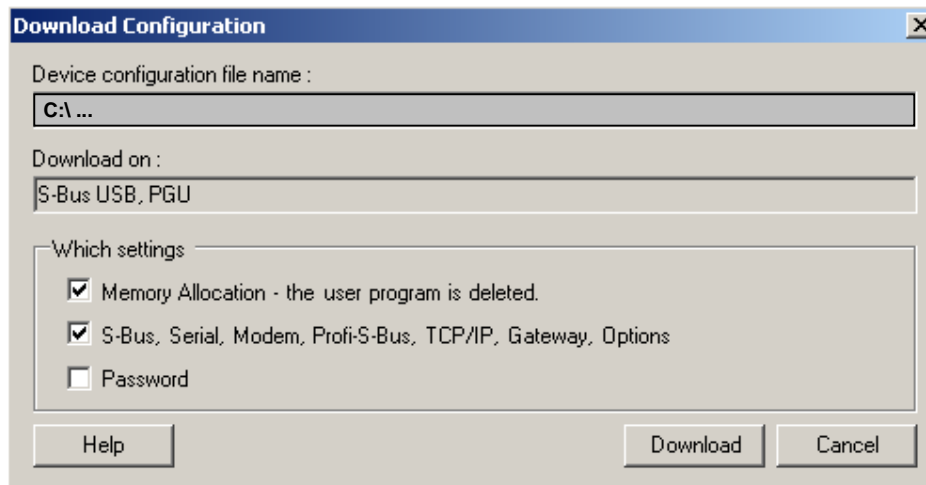
After these settings, the Online Configurator  can be used to check whether communication is working.

Configure hardware


The “Device Configurator” is used to configure such settings as the IP address, memory use and activation of the PCD Run/Stop switches. The PCD “Device Configurator” can also be found in the PG5 project tree, directly under “Online Settings”.

To load the configuration into the controller, just click on the Download Configuration button  in the Device Configurator window.

When asked what is to be loaded into the controller, for an initial download it is also necessary to select the “Memory Allocation” option, so that memory is configured correctly.





If the precise type of PCD is not known, or if the existing hardware configuration is not to be changed, the “Upload” button  in the “Device Configurator” can also be used. This will transfer the current PCD configuration to the PG5 project.

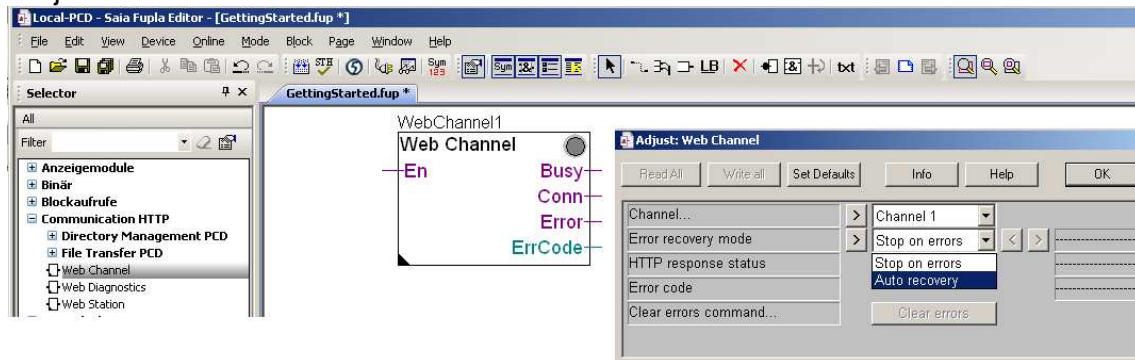
Hardware settings must be adjusted accordingly on all PCDs used.

4.2 Program the PCD

The following shows step-by-step the initial creation of a small Fupla project with the HTTP Client Library. It indicates some of the most important steps and instructions. This small project demonstrates how a file can be loaded from one PCD to another.

Step 1:

Put the “Web Channel” FBox in place and set the appropriate parameters in the “Adjust Parameters” window.



Channels 1-10 are now available. Select the one you require. In “Error recovery mode” it is possible to select either “Stop on errors” or “Auto Recovery”.



Change to “Auto Recovery” for normal operating conditions. Use “Stop on errors” (standard default) mainly during development, debugging and commissioning, then switch back to “Auto Recovery”.

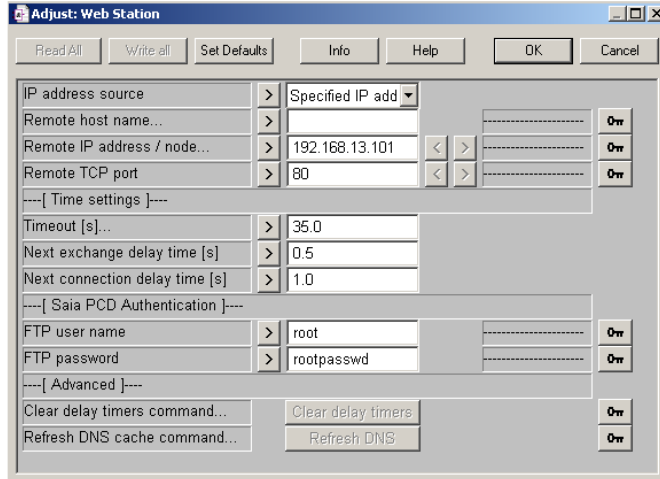
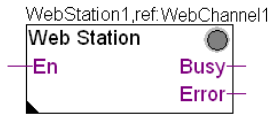


A degree of organization can be produced by dividing up the channels. Individual channels are independent of each other. One of the advantages of this is that, if a fault occurs, it will be contained. The other channels will still remain operational.

Step 2:

The “Web Station” FBox is now put in place. First check that the reference is for the right channel. The FBox properties can then be defined in the “Adjust Parameters” window.

Set the IP address (of the remote PCD) and at “IP address source” select “Specified IP address”. For this adjustment, the “Remote host name” setting can be left blank.



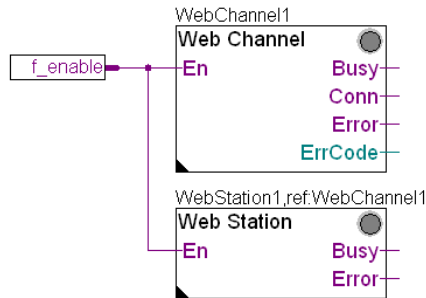
The other parameters can be adjusted if necessary. Check with the Help file when doing this.



Please note:
 Password and user name are for Ftp-CGI operations. They are used to access the file system of the other PCD.

Step 3:

Define an “f_enable” flag symbol. Connect the “f_enable” flag with both En inputs on the “Web Channel” and “Web Station” FBoxes.



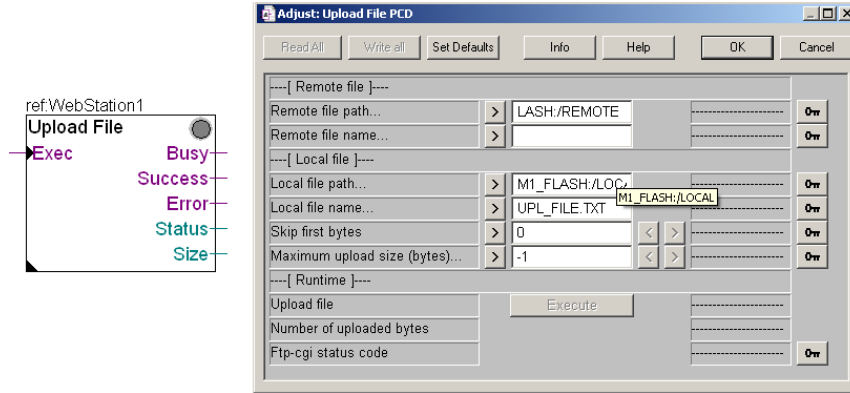
Symbol Editor						
Symbol Name	Type	Address/Value	Comment	Tags	Scope	
GettingStarted.fup	ROOT					
COB_0	COB				Local	
f_enable	F				Local	

Step 4:

Put the “Upload File” FBox in place. The FBox properties can then be defined in the “Adjust Parameters” window. In this example, the settings used are: “Remote file path” (M1_FLASH: / REMOTE), “Remote file name” (data.txt), “Local file path” (M1_FLASH: / LOCAL) and “Local file name” (UPL_FILE.TXT).

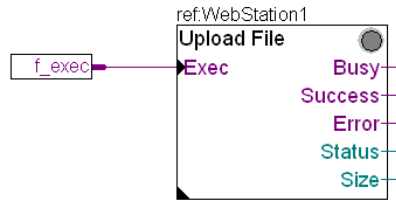


Please note:
 Specified directories and the local file must exist in the flash file system.



Step 5:

Define an “f_exec” flag symbol. Connect the “f_exec” flag with the “Exec” input on the “Upload File” FBox.





Symbol Editor


Symbol Name	Type	Address/Value	Comment	Tags	Scope
GettingStarted.fup	ROOT				
CDB_0	CDB				Local
f_enable	F				Local
f_exec	F				Local

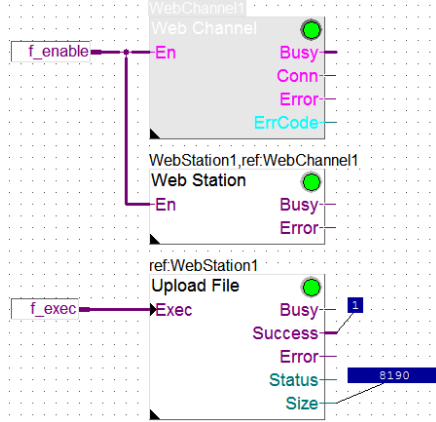
Step 6:

Compile and load the program into the local PCD.

To do this, the program must first be rebuilt using the “Rebuild All” button . Once the program build has been correctly executed, you can load the program into the PCD with the “Download Program”  button. The PCD is now ready. Depending on your PG5 setting, the controller will automatically go into RUN after the download. If this is not the case, set the controllers into RUN.

Step 7:

Start up the Fupla Editor in online mode . Set the “f_enable” flag to “1” and generate a pulse “0 , 1 , 0” with the “f_exec” flag.



Look at the “Success” and “Size” outputs in the “Upload File” FBox. You can now check whether the file has in fact been uploaded, for example with an FTP Client (FileZilla, Total Commander, ...).

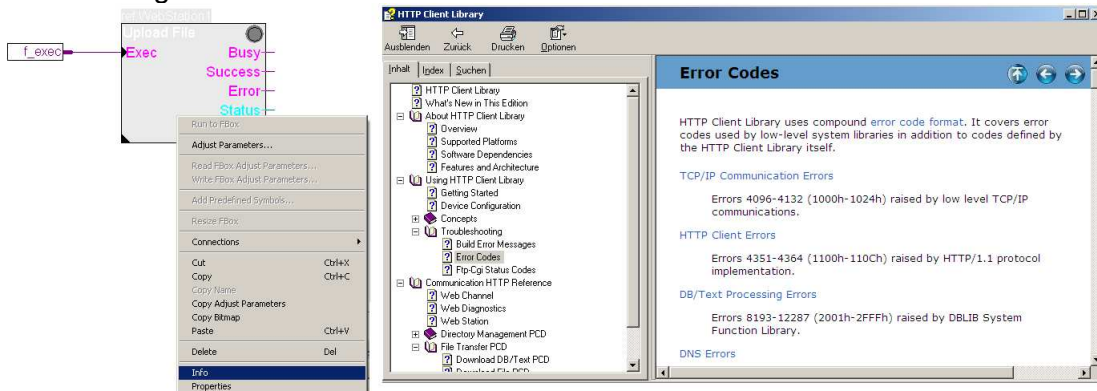


You can find the finished project example in the online Help under the header: “Getting started”. In this project, you only have to make a few adjustments, such as the IP addresses of the controllers and the file path. Further tests can now be applied with the program.

5 Error handling

Error codes are described precisely in the Help document of the HTTP Client Library.

Simply go to an existing FBox in the HTTP Client Library and right-click with the mouse to select “Info”. A window then opens with a description of the library, including error handling.



6 References

Topic	Document
Miscellaneous	Online Help for PG5