CO5 Uploader
Command Line Interface User Guide

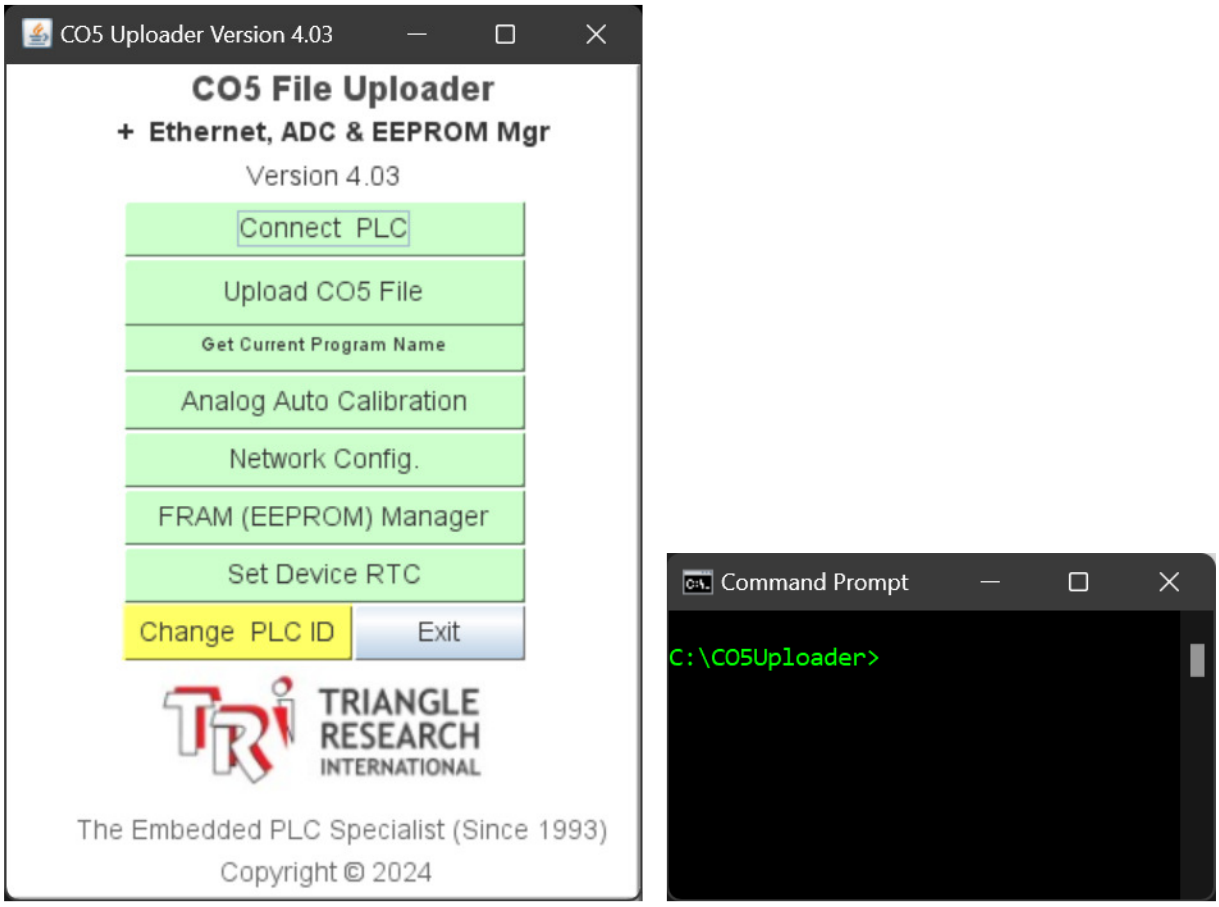


Figure 1 - CO5 Uploader Main Window and Cmd Prompt Directory

Document Version	Rev 1.0
Revision Date	6/17/2024
CO5 Uploader Version	4.03

CO5 Uploader Version Notes

Version 4.03

Added a way to configure PLC network parameters from the command line (directly or with a batch file) via a configuration file. One file can be used for multiple PLCs or each PLC can have its own configuration file that is specified from the command line/batch file.

The user can create a parameter file that contains all the parameters in the Ethernet configuration page and the CO5uploader can be instructed from command line (as an option) to open the file automatically and transfer all these parameters to the PLC after the CO5 file has been uploaded.

Version 3.3

Adds a transfer log file that is auto generated in the C:\CO5Uploader\CO5TransferLog directory.

Version 3.2

CO5 Uploader can be called from the command line or a batch file to upgrade multiple PLCs in sequence with a fully automated process.

Use a .bat file to list all of the target PLCs and their associated instructions (which program, login credentials, auto reset/reboot selection) and then run the .bat file from a command line.

Each target PLC can be included in the bat file as a line with 7 items. Eg:

CO5Uploader Demo.CO5 192.168.1.6:9080 01 samples 1234 2

Parameter 1 = Directory/Program (CO5Uploader)
Parameter 2 = File Name (Demo.CO5)
Parameter 3 = IP:Port (192.168.1.6:9080)
Parameter 4 = PLC ID (01)
Parameter 5 = Username (samples)
Parameter 6 = Password (1234)
Parameter 7 = Auto Reset/Reboot (2 = reboot)

Version 2.3

CO5 Uploader GUI can be called from the command line using Java with the necessary arguments separated by space characters as follows:

java -jar CO5uploader.jar arg1 arg2 arg3 arg4 arg5

1st Argument (arg1) - file name (located in the same folder as the CO5uploader.jar)
2nd Argument (arg2) - the IP address:port of the PLC
3rd Argument (arg3) - the ID (01 to FF) of the PLC
4th Argument (arg4) - the username (if configured for network login)
5th Argument (arg5) - the password (if configured for network login)

Press Enter to run the command and start the upload process.

Table of Contents

1 INTRODUCTION

The CO5Uploader program is used to transfer compiled PLC programs in .CO5 file format to the PLC. This allows the user to generate a compiled code file and provide it downstream to the end user without exposing the source code or needing to provide the programming software.

The GUI version instructions are covered in the "CO5 Uploader - User Guide.pdf" document available for download here:

https://triplc.com/documents/CO5 Uploader - User Guide.pdf

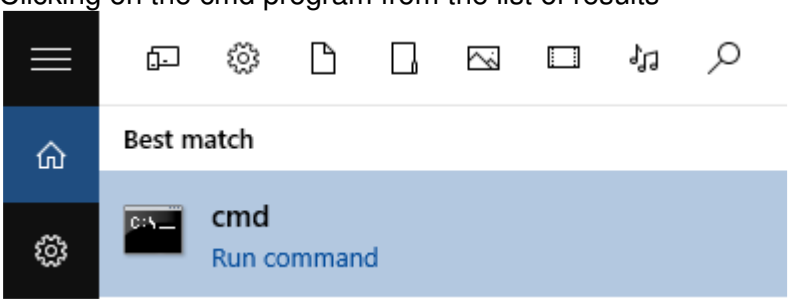
The command line interface is included with the main CO5 Uploader program and will call the CO5Uploader GUI to automate the connection and compiled file transfer process as well as the completion option to 'Reboot', 'Reset', or 'Close'.

The following sections provide instructions for using the command line interface. It is assumed that the .CO5 file has already been generated as per the procedure in the main user guide.

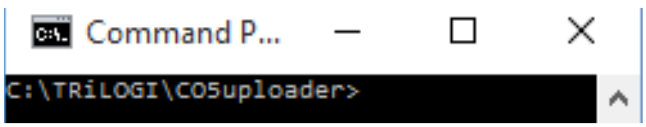
2 PREPARING TO USE THE COMMAND LINE INTERFACE

Before running the CO5 Uploader file transfer process from the command line, you will need to do the following:

1. Install the CO5 Uploader as described in the CO5 Uploader - User Guide.pdf" document
2. Generate the .CO5 file as described in the CO5 Uploader - User Guide.pdf" document
3. Store the .CO5 file in the CO5 Uploader installation directory (default is C:\TRiLOGI\CO5uploader)
4. Start a Windows command prompt by
   a. Searching for 'cmd' in the Windows or Start Menu search bar.
   b. Clicking on the cmd program from the list of results



5. Navigate to the installation folder by typing 'cd C:\TRiLOGI\CO5uploader' and pressing 'Enter'. You should then see the CO5uploader directory as shown on page 1.



3 NETWORK CONFIGURATION USING A PARAMETER FILE

CO5 Uploader version 4 and above now supports the configuration of network parameters using a file that can be uploaded to the PLC through the command line. This allows you to configure the full set of PLC network parameters as can be done with the “Network Config.” Tool included with the CO5 Uploader GUI (and the “Ethernet & WiFi Configuration” tool built into the i-TRiLOGI programming software).

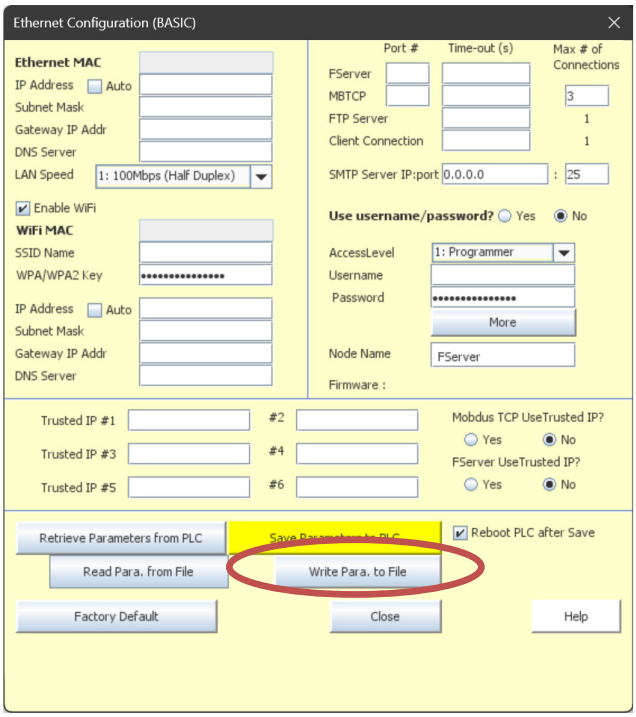
3.1 Parameter File Type and Naming

The parameter file(s) must be saved in pure ASCII text format and can be created/edited with any text editor software.

The parameter file can have any name made up of standard alpha-numeric, dash ‘-‘ and underscore ‘_’ characters. Spaces are NOT permitted in the filename unless it is referenced in quotations “” from the command line. However, it is not recommended since it will fail without quotations. Examples:

Valid Filenames	Invalid Filenames
NetConfig1.txt	NetConfig1.csv
PLC_Parameters-Station-1.txt	PLC Parameters Station 1.txt
“Name with Spaces in Quotes.txt”	Name with Spaces.txt

3.2 Create parameter file

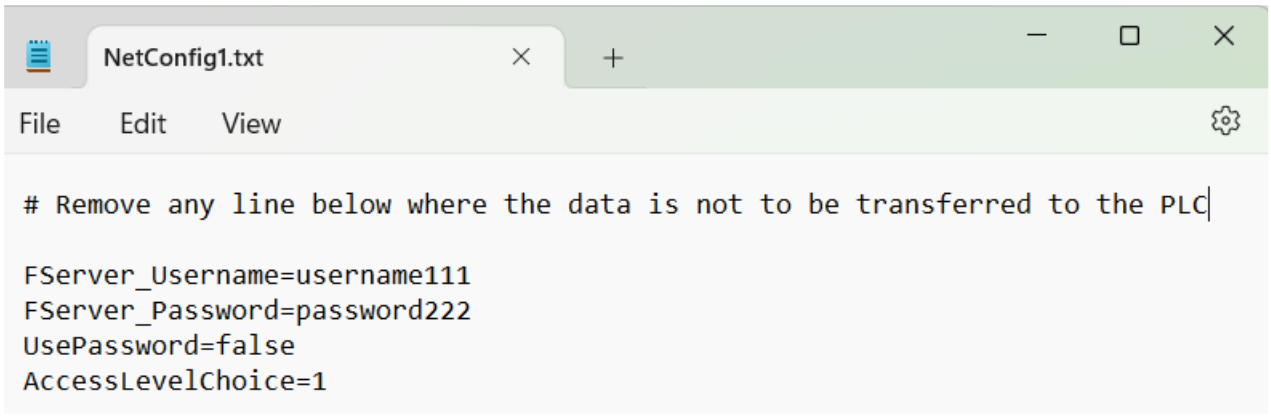


The simplest way to create the parameter file is to open the “Network Config.” window on the CO5Uploader 4.03 and fill in all the default parameters (or retrieve these data from a PLC that has all the “standard” parameters), then click on the “Write Para. To File” button to write all the parameters into a text file. The keyword for each parameter and the defined value will be properly formatted and written into the parameter file.

You can then selectively remove unneeded parameter lines from the parameter file, save a production copy for use by the command line batch file to transfer into new PLC.

3.3 Parameter File Formatting

The list of parameters must be stored in a text file (.txt) with one parameter and value per line.



Each parameter has a label name and a value that is assigned with a single equal ‘=’ sign. The format to input parameters in a file is:

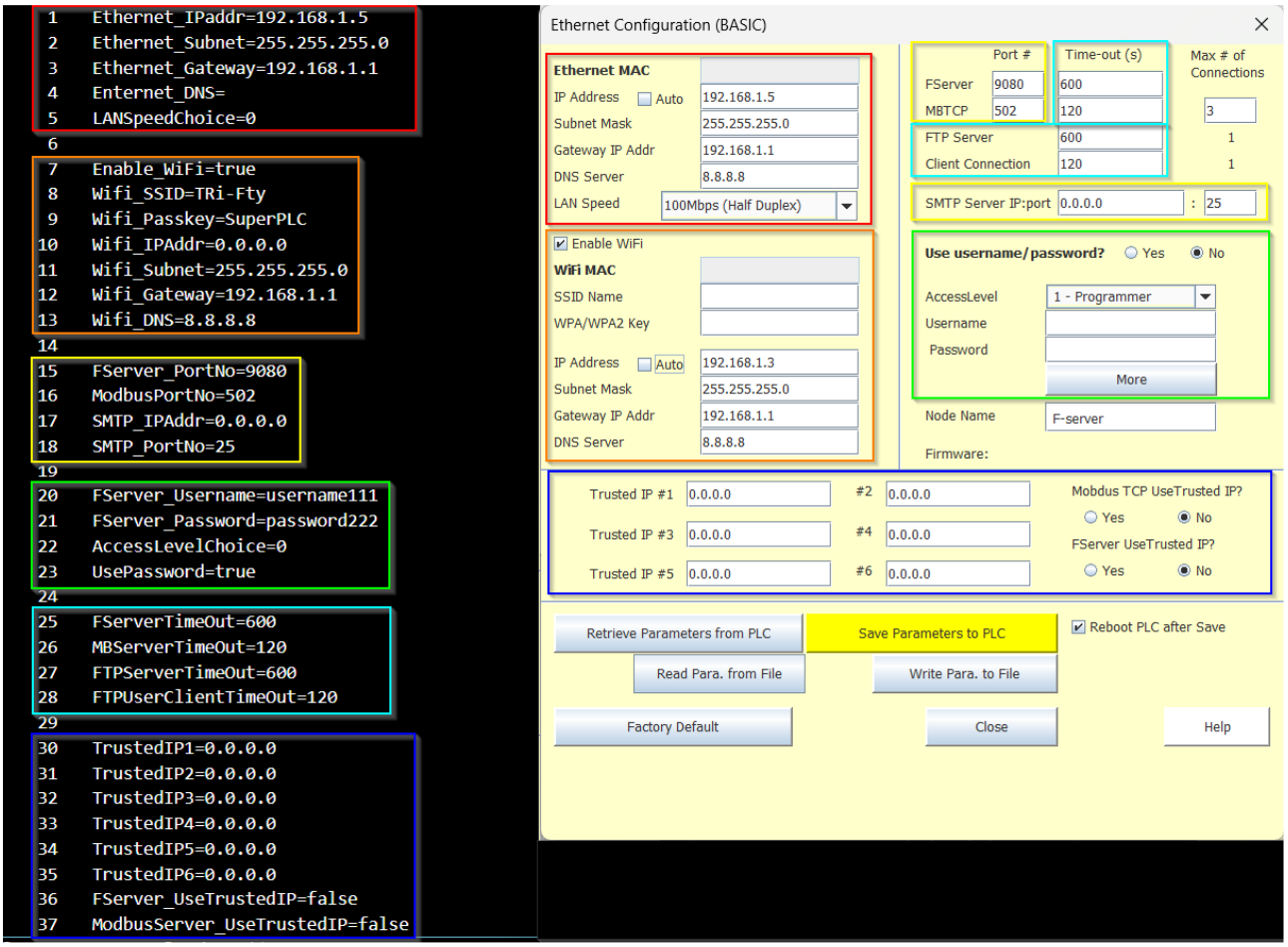
Parameter1=value
Parameter2=value
Parameter3=value
…

Parameters can be entered in any order, and they are all optional, so they can be included or excluded depending on what is needed. If a parameter is not included or the value is not set, then it will NOT be changed in the PLC. Only parameters with valid values will be updated in the PLC when the file is transferred.

There are three ways to exclude parameters and maintain the existing parameter value in the PLC.

1. Comment out the parameter using a hashtag #. Example: # Parameter1=value
2. Remove the parameter from the file.
3. Remove the value after the = sign. Example: Parameter1=

The below screenshot and table show and describe the full set of network parameters and their associated parameter field in the GUI network configuration tool. These can be stored in a .txt file and transferred to one or more PLCs via serial or TCP.



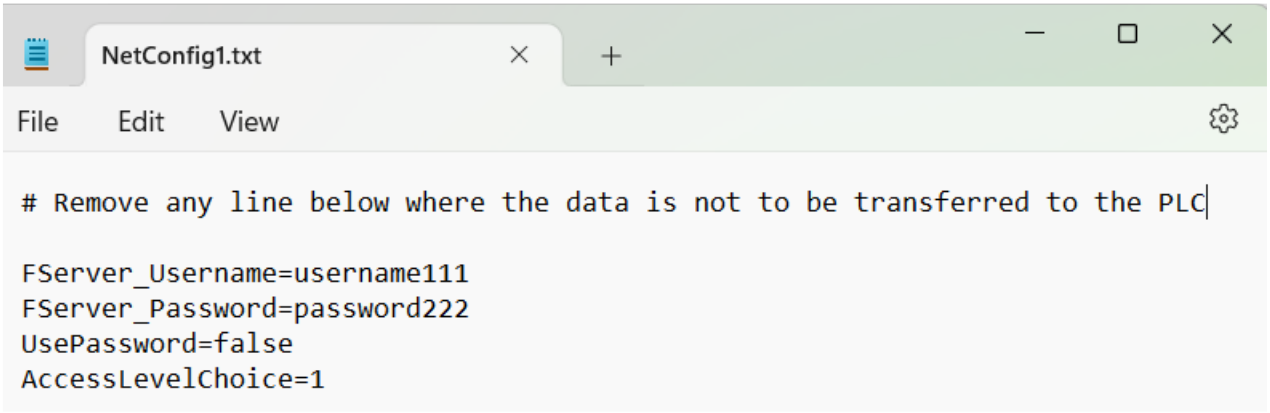
3.4 Parameter File Table of Keys and Values

Parameter Key	Parameter Description	Parameter Value Format	Example
Ethernet_IPaddr	Ethernet IP Address	aaa.bbb.ccc.ddd	Ethernet_IPaddr=192.168.1.5
Ethernet_Subnet	Ethernet SUBNET Address	aaa.bbb.ccc.ddd	Ethernet_Subnet=255.255.255.0
Ethernet_Gateway	Ethernet Gateway Address	aaa.bbb.ccc.ddd	Ethernet_Gateway=192.168.1.1
Enternet_DNS	Ethernet DNS Address	aaa.bbb.ccc.ddd	Enternet_DNS=8.8.8.8
LANSpeedChoice	LAN Speed and Duplex	Whole Number (1-4)	LANSpeedChoice=1
Enable_WiFi	Enable/Disable WiFi	Boolean (true/false)	Enable_WiFi=false
Wifi_SSID	WiFi Network SSID	Alpha-numeric string	Wifi_SSID=your_wifi_ssid
Wifi_Passkey	WiFi Network Password	Alpha-numeric string	Wifi_Passkey=your_wifi_password
Wifi_IPAddr	WiFi IP Address	aaa.bbb.ccc.ddd	Wifi_IPAddr=0.0.0.0
Wifi_Subnet	WiFi SUBNET Address	aaa.bbb.ccc.ddd	Wifi_Subnet=255.255.255.0
Wifi_Gateway	WiFi Gateway Address	aaa.bbb.ccc.ddd	Wifi_Gateway=192.168.1.1
Wifi_DNS	WiFi DNS Address	aaa.bbb.ccc.ddd	Wifi_DNS=8.8.8.8
FServer_PortNo	PLC Web Server Port	Whole Number	FServer_PortNo=9080
ModbusPortNo	PLC Modbus Server Port	Whole Number	ModbusPortNo=502

SMTP_IPAddr	SMTP IP Address	aaa.bbb.ccc.ddd	SMTP_IPAddr=0.0.0.0
SMTP_PortNo	SMTP Port Number	Whole Number	SMTP_PortNo=25
FServer_Username	Web Server Login Username	Alpha-numeric string	FServer_Username=username111
FServer_Password	Web Server Login Password	Alpha-numeric string	FServer_Password=password222
AccessLevelChoice	Web Server Access Level	Whole Number (1-3)	AccessLevelChoice=1
UsePassword	Enable/Disable Server Login	Boolean (true/false)	UsePassword=false
FServerTimeOut	Web Server Timeout	Whole Number	FServerTimeOut=600
MBServerTimeOut	Modbus Server Timeout	Whole Number	MBServerTimeOut=120
FTPServerTimeOut	FTP Server Timeout	Whole Number	FTPServerTimeOut=600
FTPUserClientTimeOut	FTP Client Timeout	Whole Number	FTPUserClientTimeOut=120
TrustedIP1	Trusted IP Address #1	aaa.bbb.ccc.ddd	TrustedIP1=0.0.0.0
TrustedIP2	Trusted IP Address #2	aaa.bbb.ccc.ddd	TrustedIP2=0.0.0.0
TrustedIP3	Trusted IP Address #3	aaa.bbb.ccc.ddd	TrustedIP3=0.0.0.0
TrustedIP4	Trusted IP Address #4	aaa.bbb.ccc.ddd	TrustedIP4=0.0.0.0
TrustedIP5	Trusted IP Address #5	aaa.bbb.ccc.ddd	TrustedIP5=0.0.0.0
TrustedIP6	Trusted IP Address #6	aaa.bbb.ccc.ddd	TrustedIP6=0.0.0.0
FServer_UseTrustedIP	Enable/Disable Web Trusted IP	Boolean (true/false)	FServer_UseTrustedIP=false
ModbusServer_UseTrustedIP	Enable/Disable Modbus Trusted IP	Boolean (true/false)	ModbusServer_UseTrustedIP=false

3.5 Parameter File Examples

3.5.1 Example 1: Update User Login Only



This will set the FServer login username (key: FServer_Username) to username111
The FServer login password (key: FServer_Password) password will be set to password222
The FServer login will be disabled by setting the key UsePassword to false.
The Access level will be set to Programmer (the top level of access) by setting the key AccessLevelChoice to 1.

3.5.2 Example 2: Mixed Updates

```
# Ethernet_IPaddr=192.168.1.5
# Ethernet_Subnet=255.255.255.0
Ethernet_Gateway=192.168.1.1
Enternet_DNS=8.8.8.8
LANSpeedChoice=1

# Enable_WiFi=true
# Wifi_SSID=TRi-Fty
# Wifi_Passkey=SuperPLC
# Wifi_IPAddr=0.0.0.0
# Wifi_Subnet=255.255.255.0
# Wifi_Gateway=192.168.1.1
# Wifi_DNS=8.8.8.8

FServer_PortNo=9080
ModbusPortNo=502
SMTP_IPAddr=0.0.0.0
SMTP_PortNo=25

FServer_Username=
FServer_Password=
AccessLevelChoice=
UsePassword=

FServerTimeOut=1200
MBServerTimeOut=1200
FTPServerTimeOut=1200
FTPUserClientTimeOut=1200

TrustedIP1=192.168.1.35
TrustedIP2=0.0.0.0
TrustedIP3=0.0.0.0
TrustedIP4=0.0.0.0
TrustedIP5=0.0.0.0
TrustedIP6=0.0.0.0
FServer_UseTrustedIP=false
ModbusServer_UseTrustedIP=true
```

Ethernet IP and Subnet commented out and won't be updated. Remaining Ethernet settings will be updated with assigned values.

All WiFi settings are commented out and won't be updated.

Server ports and SMTP settings will be updated.

All user login settings are left without values and won't be updated (existing values retained)

Client/Server timeouts will be updated.

Trusted IP settings will be updated.

3.6 Transferring Network Parameters

3.6.1 Prepare the Network Parameter Configuration File

Using the parameter file naming and formatting rules described above, edit or create a .txt file with the parameters being updated.

As shown in the above examples, the parameter file should only contain parameter keys and values separated by an equal = sign, and comments prefixed with a hashtag # symbol.

3.6.2 Transfer the Network Parameter Configuration File

Steps to transfer a parameter configuration file (.txt extension) from the command line:

1. Start the command line and set the prompt to the CO5 Uploader installation directory as described in the section Preparing to Use the Command Line Interface

2. Transfer the network parameters contained in the parameter file using the command line. All 6 arguments are required.

   CO5Uploader -p= Filename IP:Port ID Username Password Completion

   1st Argument (Filename) – parameter file name with .txt extension
   2nd Argument (IP:Port) - the IP address:port of the PLC
   3rd Argument (ID) - the ID (01 to FF) of the PLC
   4th Argument (Username) - the username (use quotes “” if login is disabled)
   5th Argument (Password) - the password (use quotes “” if login is disabled)
   6th Argument (Completion) – 1 for PLC reset or 2 for PLC reboot

   Press Enter to run the command and start the upload process.

Note: when you prefix the file name with "-p=" it tells CO5uploader that this is the parameter file that contains the network parameters to be transferred to the PLC. The remaining fields are the same as used for CO5 uploading from the command line.

3. Wait for the transfer to complete. After running the command successfully, the CO5 Uploader GUI program will automatically start and the transfer process will start. Look for the “SUCCESS!” message to verify the transfer success. The completion message will be last (Auto-Resetting PLC in this case).

```
C:\Windows\System32>cd C:\CO5Uploader

C:\CO5Uploader>CO5Uploader -p=NetConfig1.txt 192.168.1.98:9080 02 username111 password222 1
DPI Scaling = 1.25
Lib path=./lib
Lib path=./lib
Installation Directory = C:\CO5Uploader\
Transfering network parameters
Logging On using Socket Connection
HTTP/1.1 200 ok
FServer Version 1.0
Copyright 2007 - Triangle Research Int'l

OK-1
Access Level = 1

Network parameters transfer to 192.168.1.98:9080: SUCCESS!

Auto-Resetting PLC

C:\CO5Uploader>
```

3.7 Parameter File Transfer Examples

3.7.1 Example 1: No User Login

Here is the sequence of commands to transfer a parameter file from a command prompt for a target PLC with the following configuration:

File: NetConfig1.txt (stored in the default folder C:\CO5Uploader)
IP address: 192.168.1.98
Port: 9080
Network ID: 02
Username: “” (None has been configured)
Password: “” (None has been configured)
Completion: 1 (reset PLC after transfer)

```
cd C:\CO5Uploader

CO5Uploader -p=NetConfig1.txt 192.168.1.98:9080 02 “” “” 1
```

3.7.2 Example 2: Provide Directory Path to Parameter File

Here is the sequence of commands to transfer a parameter file from a command prompt for a target PLC with the following configuration:

File: “C:\CO5Uploader\Parameter Files\NetConfig1.txt” (quotes around path and filename)
IP address: 192.168.1.5
Port: 9080
Network ID: 02
Username: “” (None has been configured)
Password: “” (None has been configured)
Completion: 2 (reboot PLC after transfer)

```
cd C:\CO5Uploader

CO5Uploader -p=“C:\CO5Uploader\Parameter Files\NetConfig1.txt” 192.168.1.5:9080 02 “” “” 2
```

3.7.3 Example 3: User Login Required

Here is the sequence of commands to transfer a parameter file from a command prompt for a target PLC with the following configuration:

File: NetConfig1.txt (stored in the default folder C:\CO5Uploader)
IP address: 192.168.1.5
Port: 9080
Network ID: 01
Username: user
Password: 1234
Completion: 1 (reset PLC after transfer)

```
cd C:\CO5Uploader

CO5Uploader -p=NetConfig1.txt 192.168.1.5:9080 01 user 1234 1
```

4 UPLOADING A CO5 FILE FROM A COMMAND LINE

Transferring a CO5 file is done via the same process as for transferring a parameter file except that the '-p=' filename prefix is omitted. Below is a description of the process with examples. Other than the 'File' parameter, the Parameter File Transfer Examples are applicable to CO5 File transfers.

4.1 Transferring a .CO5 File

Take the following steps to transfer a .CO5 file from the command line:

1. Run the CO5Uploader program directly from the CO5Uploader installation directory with the necessary arguments separated by space characters as follows:

   CO5Uploader Filename IP:Port ID Username Password Completion

   1st Argument (Filename) – parameter file name with .txt extension
   2nd Argument (IP:Port) - the IP address:port of the PLC
   3rd Argument (ID) - the ID (01 to FF) of the PLC
   4th Argument (Username) - the username (use quotes "" if login is disabled)
   5th Argument (Password) - the password (use quotes "" if login is disabled)
   6th Argument (Completion) – 1 for PLC reset or 2 for PLC reboot

   Press Enter to run the command and start the upload process.

2. Wait for the transfer to complete. After running the command successfully, the CO5 Uploader GUI program will automatically start and the transfer process will start.

3. Auto Reset/Reboot the PLC upon completion. If the transfer is successful, the PLC will automatically reset or reboot depending on the completion argument provided as shown above.

4.2 CO5 File Transfer Examples

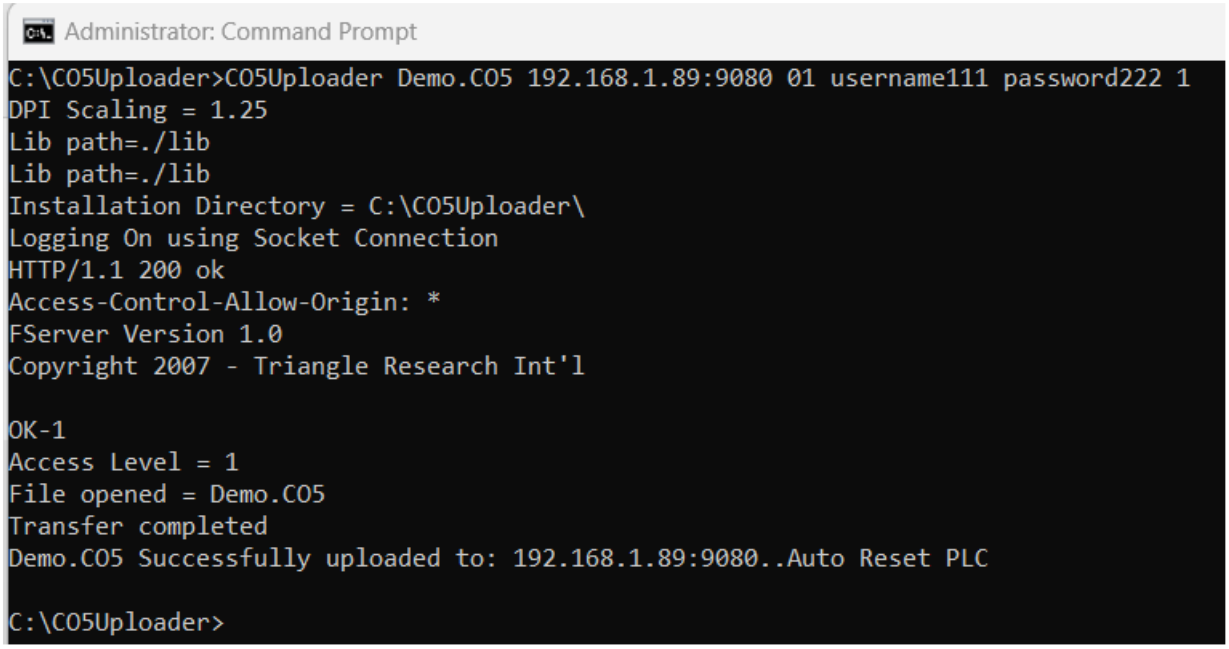
4.2.1 Example 1: CO5 File Transfer with User Login

Here is the sequence of commands to run from a command prompt for a target PLC with the following parameters:

File: Demo.CO5 (stored in the default folder C:\CO5uploader)
IP address: 192.168.1.89
Port: 9080
Network ID: 01
Username: username111
Password: password222
Completion: 1 (reset PLC after transfer)

```
cd C:\CO5uploader

CO5Uploader Demo.CO5 192.168.1.89:9080 01 username111 password222 1
```



4.3 Transferring via Serial Port

If your customer is connecting to the PLC via the serial port (either RS232 or RS485), they will need to run the TLServer software (run from the i-TRiLOGI install folder C:\TRiLOGI) and connect via localhost connection. The rest of the procedure is the same.

The default username and password to login to TLServer is shown below.

Example parameters:

IP address: 127.0.0.1
Port: 9080
Network ID: 02
Username: samples
Password: “” (No password for the samples user by default)
Completion: 2 (reboot PLC after transfer)

This is an example of a transfer via serial connection. Note that the TLServer software should be running already

CO5uploader Demo.CO5 127.0.0.1:9080 02 samples “” 2

```
C:\CO5Uploader>CO5Uploader Demo.CO5 127.0.0.1:9080 02 samples "" 2
DPI Scaling = 1.25
Lib path=./lib
Lib path=./lib
Installation Directory = C:\CO5Uploader\
Logging On using Socket Connection
HTTP/1.0 200 Ok
Date: Mon, 10 Jun 2024 18:28:06 GMT
Server: TLServer/Ver 3  Jan 2010
Connection: close

OK-1
Access Level = 1
File opened = Demo.CO5
Transfer completed
Demo.CO5 Successfully uploaded to: 127.0.0.1:9080..Auto Reboot PLC
```

4.3.1 Example 2: CO5 File Transfer with Directory Path

Here is the sequence of commands to transfer a parameter file from a command prompt for a target PLC with the following configuration:

File: "C:\CO5Uploader\Demo.CO5" (quotes around path and filename)
IP address: 192.168.1.89
Port: 9080
Network ID: 01
Username: “” (None has been configured)
Password: “” (None has been configured)
Completion: 1 (reset PLC after transfer)

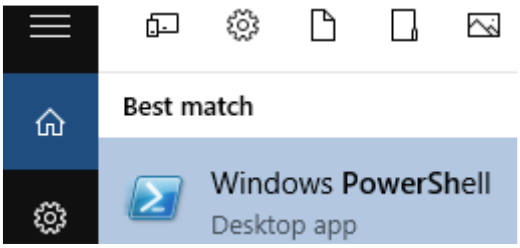
cd C:\CO5Uploader

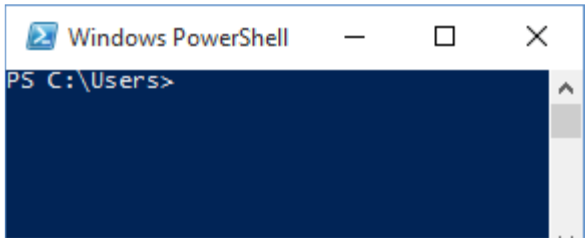
CO5Uploader "C:\CO5Uploader\Demo.CO5" 192.168.1.89:9080 01 “” “” 1

```
C:\CO5Uploader>CO5Uploader "C:\CO5Uploader\Demo.CO5" 192.168.1.89:9080 01 "" "" 1
DPI Scaling = 1.25
Lib path=./lib
Lib path=./lib
Installation Directory = C:\CO5Uploader\
Logging On using Socket Connection
HTTP/1.1 200 ok
Access-Control-Allow-Origin: *
FServer Version 1.0
Copyright 2007 - Triangle Research Int'l

OK-1
Access Level = 1
File opened = C:\CO5Uploader\Demo.CO5
Transfer completed
C:\CO5Uploader\Demo.CO5 Successfully uploaded to: 192.168.1.89:9080..Auto Reset PLC
```

4.4 Using Windows PowerShell





Windows 10/11 users can use the PowerShell interface instead of a command prompt, but the process will not be fully automated with PowerShell and user interaction is required to reset/reboot the PLC after the transfer completes. In addition, the full path is required when calling CO5Uploader. For Example:

C:\CO5Uploader\CO5Uploader.exe "C:\CO5Uploader\Demo.CO5" 192.168.1.89:9080 01 "" "" 1

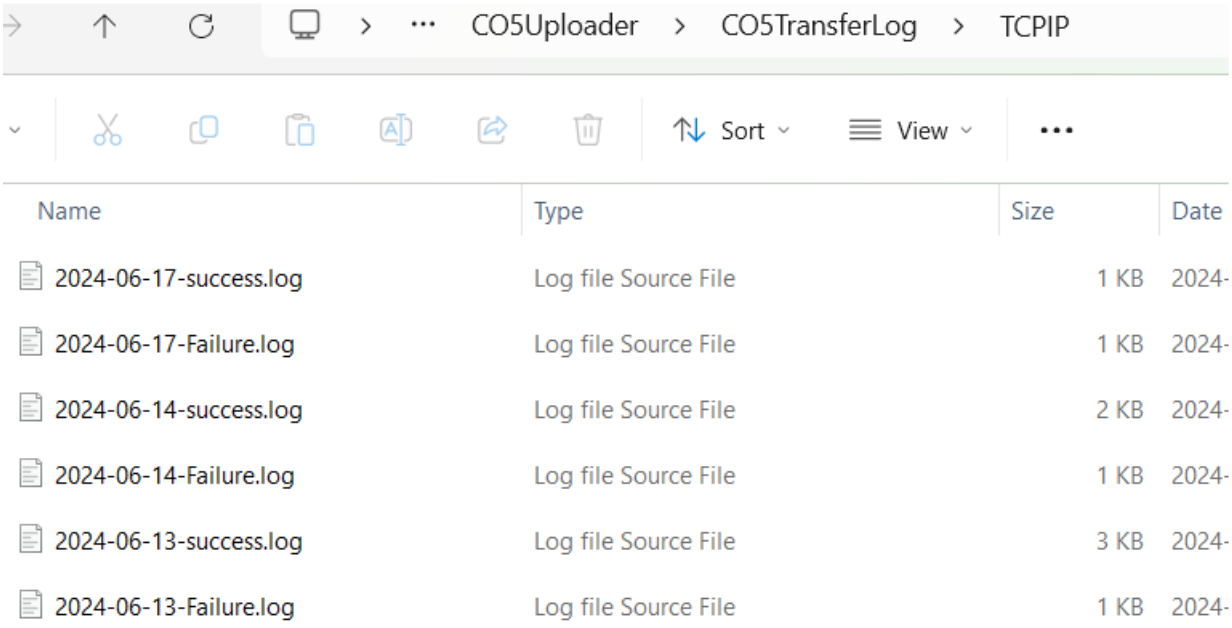
It is recommended to use the CMD prompt for command line use of CO5 Uploader.

5 FILE TRANSFER LOG

Each transfer is automatically logged into a .log file named by date, so a new file will be generated the first time a file is transferred on that day.

There are separate files for successful and failed transfers so that it is easy to verify if there were any failures when running a large batch file.

All log files are stored in the folder C:\CO5Uploader\CO5TransferLog\ with transfers done over TCP stored in the TCPIP subfolder as shown below.



5.1 Success Log File

Here is part of a real log file that was automatically generated and updated after multiple successful transfers.

```
10:28:12: Network parameters transfer to 192.168.1.85:9080: SUCCESS!
10:54:52: Network parameters transfer to 192.168.1.85:9080: SUCCESS!
10:58:12: Network parameters transfer to 192.168.1.85:9080: SUCCESS!
11:03:52: Network parameters transfer to 192.168.1.85:9080: SUCCESS!
```

5.2 Failure Log File

Here is part of a real log file that was automatically generated and updated after multiple failed transfers.

```
10:55:32: Filename: "NetConfig1-Test.txt"Not Found
10:59:13: Filename: "NetConfig1-Test.txt"Not Found
11:00:41: Filename: "NetConfig1-Test.txt"Not Found
11:10:18: Filename: "NetConfig1-Test.txt"Not Found
```

6 BATCH FILE TRANSFER

It is possible for the user to create a batch file to sequentially transfer both parameter files and CO5 files to multiple PLCs. This way the user only needs to call the batch file from the command line to execute multiple file transfers to any number of PLCs available over the network (local and/or remote).

Each line in the batch file contains the command line call to transfer a file (either Parameter or CO5) to a target PLC.

When the batch file is called, each transfer is completed automatically and there is no need for user interaction to complete a transfer or proceed with the next transfer.

If a transfer fails, it will be skipped and the failure will be recorded in a log file in the folder C:\CO5Uploader\CO5TransferLog\TCPIP

6.1 Batch File Naming and Formatting

Batch files must be saved in .bat format and can be created/edited with any text editor software.

Batch files can have any name made up of standard alpha-numeric, dash '-' and underscore '_' characters. Spaces are NOT permitted in the filename unless it is referenced in quotations "" from the command line. However, it is not recommended since it will fail without quotations. Examples:

Valid Filenames	Invalid Filenames
BatchConfig.bat	BatchConfig.csv
Batch-Upload_1.bat	Batch Upload 1.bat
"Name with Spaces in Quotes.bat"	Name with Spaces.bat

6.2 Batch File Example

This is a batch file example that will transfer both a parameter file and CO5 file to two PLCs. It is possible to create separate batch files for parameter file transfer and CO5 file transfer, or they can be handled in the same file. There is no requirement to transfer both a parameter file and CO5 file, so it is up to the user and the application requirements.

CO5Uploader > BatchUploadTest.bat

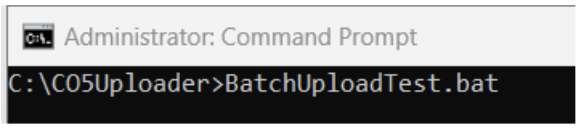
```
REM the following command will transfer parameters in "NetConfig.txt" file to a PLC with ID 01 and its login credentials and then reset
CO5Uploader -p=NetConfig1.txt 192.168.1.89:9080 01 username111 password222 1

REM the following command will transfer CO5 file to a PLC with ID 01 and its login credentialsand then reboot
CO5Uploader Demo.CO5 192.168.1.89:9080 01 username111 password222 2

REM the following command will transfer parameters in "NetConfig.txt" file to a PLC with ID 02 and no login credentials and then reset
CO5Uploader -p="C:\CO5Uploader\NetConfig1.txt" 192.168.1.15:9080 02 "" "" 1

REM the following command will transfer CO5 file to a PLC with ID 02 and no login credentials and then reboot
CO5Uploader "C:\CO5Uploader\Demo.CO5" 192.168.1.15:9080 02 "" "" 2
```

This file is named BatchUploadTest.bat and the batch upload process is started by either running it directly like any other .exe program or by calling it from the command line.



The batch file must be located in the same folder as CO5Uploader.exe, which is also the same folder where the .CO5 file being uploaded is located in this case.