cctp user manual

Introduction

cctp (that stands for Communication Channel Transfer Protocol) is the client program that allows to use the VALab remote execution. The aim of the remote execution is to enable a user to use particular routines, which we will call *modules*, without having to resort to executables or source codes. This can be done by executing the routine by remote access on the VALab server. *cctp* is the executable that allows the user to send to the VALab server the parameters and the input file(s), containing the data that a particular module requires, and to receive the output file(s), containing the results. *cctp* can also be used by the user to check and manage the status of the requested modules executions.

cctp can be used directly by command line or can be recalled through a SYSTEM from within any program created by the user. This way, the module will seem like any other subroutine of the program created by the user; the only difference is that the data processing does not take place on the local system, but on a remote access system (another difference is that the user must "prepare" the input file requested by the module, and recover the data produced from the output file).
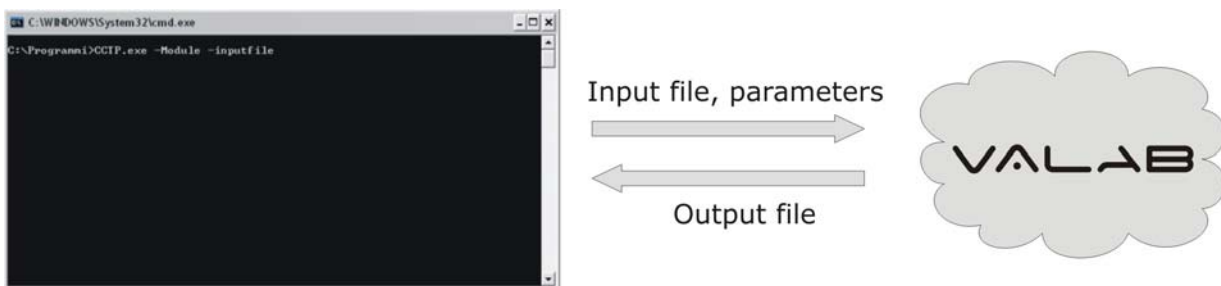

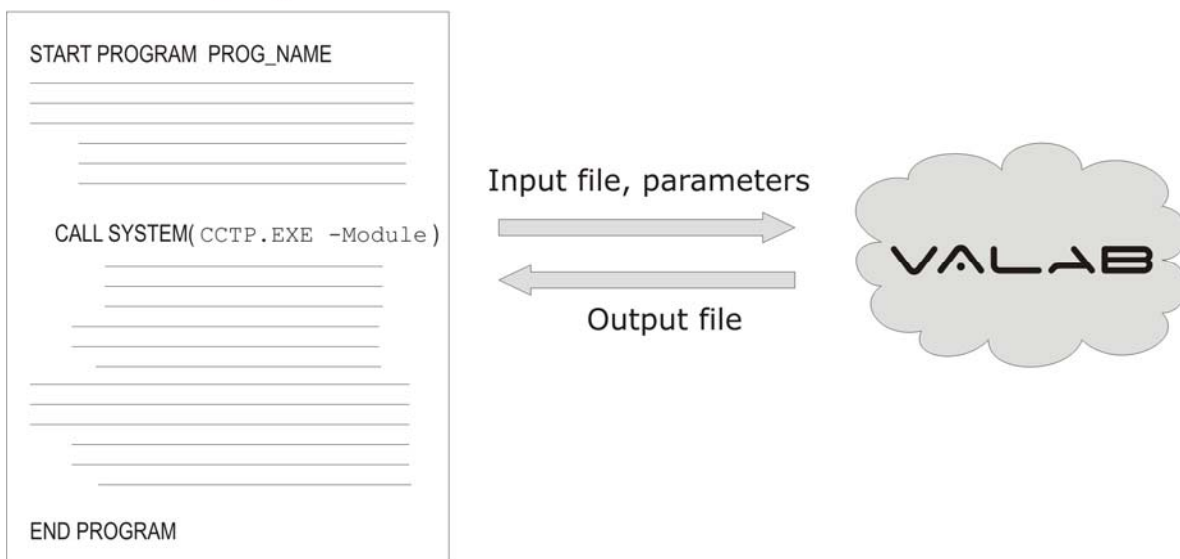Figure 1 – Using *cctp* from command prompt.

Figure 1 – Using *cctp* from within user program.

Options and configuration file

cctp is a program that support several command-line options. To see all available options use `cctp -?` or `cctp -h` at command line.

The same options can also be set in the configuration file *cctp.ini*. This is a required file and must be present in the program's directory. If a same option is specified in both command line and *cctp.ini* file only the command line option will take effect. In other words the command line options always have the precedence on the options specified in the *ini* file.

Each option in the configuration file has to be specify by inserting a line with the following syntax:

option_keyword = option_value

All *option_keywords* and command-line option are case insensitive.
Just to give an example, here is reported the content of a typical *cctp.ini* configuration file.

```
#
#       cctp.ini configuration file
#

Username        = your_user
Password        = your_pass

op_mode         = sr

module_name     = mie
user_id         = 12345
process_id      =
input_file      = file1.in, file2.in
output_file     = file3.out
parameters      =
wait_time       = 20
```

From the previous example can be noted several features of the *cctp.ini* file. Let's proceed to analyze all of them.

Initially we can see how to put comments in the *ini* file. Lines beginning with the hash character "#", as well as blank lines, are ignored, so that you can put comments and format the option lines as desired.

The first two options specify your *Username* and your *Password* (these are not properly "options", these are more like program settings). These two settings are compulsory and are the only ones that you cannot specify on command line. Remember that the registration on VALab server is required in order to use the remote execution. After the registration process a *Username* a *Password* and a *User_ID* will be assigned to you.

You can put any number of space before and after the equal sign "=".
If an option is not to be specified, you can remove the whole option line or put nothing after the equal sign "=".

If an option_keyword supports more than option_value (e.g. `input_file`), the values are separated by commas. You can put any number of space between values and commas.

How to use cctp

There are three main modes of operation: *Send and Receive*, *Send*, *Receive*. Plus there are other three operation modes, to be used to manage and check the requested module executions: *Status, Clear, Reset.*

The desired operation mode can be choose by setting the right command line option. It's compulsory to specify at least one operation mode when you run *cctp*, i.e. there is no default operation mode.

Send and Receive
command-line option: `-sr`
configuration file option: `op_mode = sr`

This operation mode can be set with the option `-sr` or by placing the line `op_mode = sr` in the *cctp.ini* file.

In this mode *cctp* send the input file(s), the parameters and all the necessary information to VALab, waits for the output file(s) and return the prompt only when the output file(s) is successfully downloaded or when some errors occur.

In this operation mode the following options are compulsory:

- User_ID
  command-line option: `-u your_user_id`
  configuration file option: `user_id = your_user_id`

  This option set the *User_ID* that you received after the registration process on VALab server. `your_user_id` is a number between 1 and 99999999.

- Module Name
  command-line option: `-m chosen_module_name`
  configuration file option: `module_name = chosen_module_name`

  This option set the Module Name that you have want to execute by remote execution. `chosen_module_name` is the name provided in the web site module instructions.

The followings are optionals:

- Process_ID
  command-line option: `-p process_id`
  configuration file option: `process_id = chosen_process_id`

  This option set the Process_ID. `process_id` must be a number between 1 and 99999999. The Process_ID, together with the User_ID, is a number that entirely identifies on server the running process you requested. To set the Process_ID, can be useful to subsequently retrieve module execution information.

- Input file(s)
  command-line option: `-i filename_1 filename_2 …`
  configuration file option: `input_file = filename_1, filename_2, …`

  This option specify one or more input files to send to the module. These contain all the input information necessary to the proper execution of module itself. You (or your program) must create the appropriate input file for the chosen module. All necessary instruction can be found in the website. If more than one input file name need to be specified, separate the names with spaces in command-line and with commas in the *ini* configuration file.

- Output file(s)
  command-line option: `-o filename_1 filename_2 …`
  configuration file option: `output_file = filename_1, filename_2, …`

  This option specify one or more output files to retrieve from VALab server when the module execution will successful terminate. These files contain all the output information. All necessary explanation on the data contained in these file can be found

in the website. If more than one output file name need to be specified, separate the names with spaces in command-line and with commas in the *ini* configuration file.

- Parameters
  command-line option: `-x (string of parameters)`
  configuration file option: `parameters = string of parameters`

  This option specify some command line parameters that are passed directly to the module executable. These parameters are not interpreted by *cctp* and are treated as a character string, so you must write these parameters exactly as you want that they will appear after the module executables. The parameters string must be enclosed between brackets in the command line option (please note the space between the x and the open bracket). In the *ini* configuration file, simply write the parameters string after the equal sign "=".

- Wait time
  command-line option: `-w n`
  configuration file option: `wait_time = n`

  This option set the time between the forwarding of the input information to VALab and the first attempt to retrieve the output file. `n` is the number of seconds. The default value is 5 seconds.

Send
command-line option: `-send`
configuration file option: `op_mode = send`

This operation mode can be set with the option `-send` or by placing the line `op_mode = send` in the *cctp.ini* file.
In this mode *cctp* only send the input file(s), the parameters and all the necessary information to VALab and return the prompt only when VALab server confirms the module execution or when some errors occur. It is necessary to use *cctp* in *receive* mode to download the output file(s).

In this operation mode the following options are compulsory:

- User_ID
  command-line option: `-u your_user_id`
  configuration file option: `user_id = your_user_id`

  This option set the *User_ID* that you received after the registration process on VALab server. `your_user_id` is a number between 1 and 99999999.

- Process_ID
  command-line option: `-p process_id`
  configuration file option: `process_id = chosen_process_id`

  This option set the Process_ID. `process_id` must be a number between 1 and 99999999. The Process_ID, together with the User_ID, is a number that entirely identifies on server the running process you requested. In *send* operation mode, it is compulsory to specify the Process_ID number, because it must be used later to retrieve the output file(s) using *cctp* in *receive* mode.

- Module Name
  command-line option: `-m chosen_module_name`
  configuration file option: `module_name = chosen_module_name`

This option set the Module Name that you have want to execute by remote execution. `chosen_module_name` is the name provided in the web site module instructions.

The followings are optionals:

- Input file(s)
  command-line option: `-i filename_1 filename_2 …`
  configuration file option: `input_file = filename_1, filename_2, …`

  This option specify one or more input files to send to the module. These contain all the input information necessary to the proper execution of module itself. You (or your program) must create the appropriate input file for the chosen module. All necessary instruction can be found in the website. If more than one input file name need to be specified, separate the names with spaces in command-line and with commas in the *ini* configuration file.

- Output file(s)
  command-line option: `-o filename_1 filename_2 …`
  configuration file option: `output_file = filename_1, filename_2, …`

  This option specify one or more output files to retrieve from VALab server when the module execution will successful terminate. These files contain all the output information. All necessary explanation on the data contained in these file can be found in the website. If more than one output file name need to be specified, separate the names with spaces in command-line and with commas in the *ini* configuration file.

- Parameters
  command-line option: `-x (string of parameters)`
  configuration file option: `parameters = string of parameters`

  This option specify some command line parameters that are passed directly to the module executable. These parameters are not interpreted by *cctp* and are treated as a character string, so you must write these parameters exactly as you want that they will appear after the module executables. The parameters string must be enclosed between brackets in the command line option (please note the space between the x and the open bracket). In the *ini* configuration file, simply write the parameters string after the equal sign "=".

Receive
command-line option: `-receive`
configuration file option: `op_mode = receive`

This operation mode can be set with the option `-receive` or by placing the line `op_mode = receive` in the *cctp.ini* file.
In this mode *cctp* only download the output file(s). It return the prompt only when the file(s) is successfully downloaded or when some errors occur.

In this operation mode the following options are compulsory:

- User_ID
  command-line option: `-u your_user_id`
  configuration file option: `user_id = your_user_id`

  This option set the *User_ID* that you received after the registration process on VALab server. `your_user_id` is a number between 1 and 99999999.

- Process_ID

command-line option: `-p process_id`
configuration file option: `process_id = chosen_process_id`

This option set the Process_ID. `process_id` must be a number between 1 and 99999999. The Process_ID, together with the User_ID, is a number that entirely identifies on server the running process you requested. Specify the Process_ID number you used before to run the remote execution process with *cctp* in *send* mode.

The following is optionals:

- Module Name
  command-line option: `-m chosen_module_name`
  configuration file option: `module_name = chosen_module_name`

  This option set the Module Name that you have executed by remote execution. `chosen_module_name` is the name provided in the web site module instructions. This option is not necessary in *receive* operation mode, because your process is already entirely identified by User_ID and Process_ID, but, if specified, it will provide a further control on your executed processes.