SOCKS instruction

For using the DICE, you must have unhindered SMTP/IMAP access to *your own* email-server (no firewall "usually" on ports SMTP 25, 465, 587, IMAP 143, 993). Access to the Web (ports 80 & 443) is not strictly required but would greatly facilitate your work, and for reading documentation.

In case of firewalls, you can access SMTP/IMAP through SOCKS Proxy:
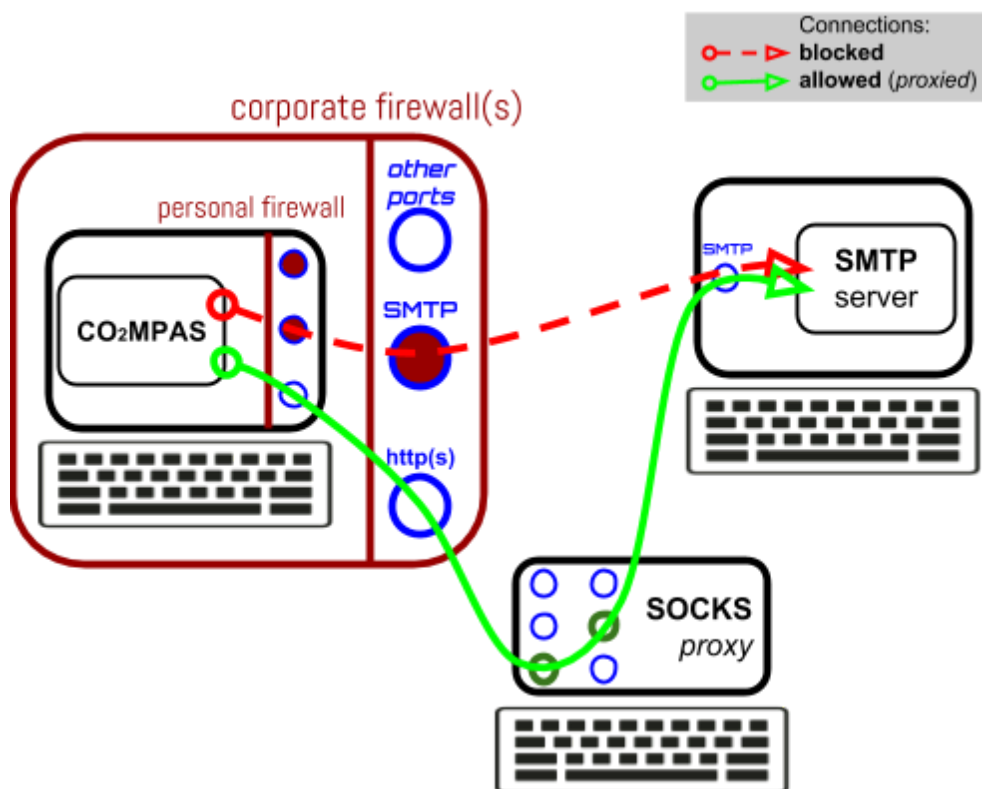
What is SOCKS: **Socket Secure** (**SOCKS**) is an Internet protocol that exchanges network packets between a client and server through a proxy server.

Note that there may be multiple firewalls between co2mpas and the email-server, and one may be installed on your PC.

Procedure to follow:

1. Check if there are firewalls.
   In order to check if your PC is firewalled, and see if you need SOCKS settings,
   follow the instructions bellow:
    a. Connect your computer where you want to work with co2mpas and DICE to the Internet.

b. Open the console of CO2MPAS, and type the following command for all these ports: (25, 465, 587, 143, 993)

Example:
```
> telnet portquiz.net 80
```

- If you are not facing any firewalls you should see this:

```
C:\Apps\co2mpas_AIO-v1.5.7\co2mpas_AIO-v1.5.5\CO2MPAS>telnet portquiz.net 80
Trying 178.33.250.62...
Connected to portquiz.net.
Escape character is '^]'.
```

- In case of firewalls, it will not be able to connect, and your console hangs at this line:

```
C:\Apps\co2mpas_AIO-v1.5.7\co2mpas_AIO-v1.5.5\CO2MPAS>telnet portquiz.net 445
Trying 178.33.250.62...
telnet: Unable to connect to remote host: Connection timed out
```

2. **If firewalls exist, ask your IT department, for a SOCKS Proxy.**

To see all the option you have in order to specify all the parameters for setting up the SOCKS configurations, type the following command in the CO2MPAS console:

```
> co2dice config desc socks
```

A list with all the configurations of SOCKS will appear.

3. **Apply the configurations for the SOCKS in the co2dice_file.py**

SOCKS Configurations

➤ The hostname/ip of the SOCKS-proxy server for send/recv emails. If not set, SOCKS-proxying is disabled.
   Tip: Prefer a real IP and set `socks_skip_resolve=True`, or else, hostnames may resolve to _unsupported_ IPv6.
   Default: None

```
c.TstampSpec.socks_host = "my.corporate.socks.com"
```

➤ The port of the SOCKS-proxy server for send/recv emails. If not set, defaults to 1080 for SOCKS-v4/5 proxies, 8080 for HTTP-proxy.
   Default: None

```
c.TstampSpec.socks_port = 2215
```

➤ The password of the SOCKS-v5-proxy server for send/recv emails.
   Default: None

```
c.TstampSpec.socks_pswd = "socks_pswd_here"
```

➤ Whether to skip DNS resolve of `socks_host` value.
   Default: False

```
c.TstampSpec.socks_skip_resolve = False
```

➤ The SOCKS-proxy protocol to use for send/recv emails (case-insensitive). If not set, becomes 'SOCKS5' if `socks_user` is defined, 'SOCKS4' otherwise. Choices: ['SOCKS4', 'SOCKS5', 'HTTP', 'disabled']
   Default: None

```
c.TstampSpec.socks_type = "SOCKS4"
```

➤ The username of the SOCKS-v5-proxy server for send/recv emails.
   Default: None

```
c.TstampSpec.socks_user = "socks_user_name"
```

Email Configurations:

➤ The e-mail from the person sending the request for random sampling (used to identify who sends the request for random sampling) and the The Name of the person sending the request for random sampling (used to identify who sends the request for random sampling)

```
c.DiceSpec.user_email = "user_mail@mail.com"
c.DiceSpec.user_name = "user_name"
```

➤ The e-mail user, and host configurations from the person sending the request for random sampling (used to actually send the e-mail for random sampling)

```
c.TstampSender.user_email = "user_mail@gmail.com"
c.TstampSender.user_name = "user_name"
c.TstampSender.host = "smtp.gmail.com"
c.TstampSender.port = 465          ## Used by default
c.TstampSender.ssl = 'SSL/TLS'     ## Used by default
```

➤ The e-mail user, and host configurations from the person receiving the response for random sampling (used to actually to receive the e-mail for random sampling)

```
c.TstampReceiver.user_email = "user_mail@gmail.com"
c.TstampReceiver.user_name = "user_name"
c.TstampReceiver.host = "imap.gmail.com"
c.TstampReceiver.port = 993
c.TstampReceiver.ssl = 'SSL/TLS'
```

➤ The subject of the e-mail sent to the time-stamp server and the e-mail address of the TimeStamp Server.

```
c.TstampSender.subject_prefix= "[dice test]"
c.TstampSender.tstamper_address="post@stamper.itconsult.co.uk"
```

➤ The e-mail of the receivers of the time-stamp response. These e-mail addresses will receive the sampling-flag (TEST / NO TEST).

```
c.TstampSender.tstamp_recipients = [
     "JRC-CO2MPAS@ec.europa.eu",
     "CLIMA-LDV-CO2-CORRELATION@ec.europa.eu",
     ]
```

The e-mail addresses provided in this item will receive a copy [CC] of the DICE-request e-mail BEFORE it is sent to the time-stamp server. This is important to verify that the request e-mail was indeed sent. Note that this is NOT the DICE-response e-mail, and it will not be possible to derive the decision flag out of it.

```
c.TstampSender.cc_addresses = [
    "mymail@foo.bar",# EMAIL (QUOTED)
]
```

INSTRUCTIONS for the Workshop

Ispra 15/05/2017

1. You will be given a USB pen with some dependencies you need to install in the CO2MPAS ALL-IN-ONE 1.5.5.post0 (the STAMP release).

2. Insert the USB pendrive in a port on your computer. Open the folder. There you will see the bellow 5 files:

   ```
   -co2mpas-1.5.7b3-py2.py3-none-any.whl
   -parsedatetime-2.3-noPytest.tar.gz
   -PySocks-1.6.7-py3-none-any.whl
   -transitions-0.5.2.tar.gz
   ```

   - There is an executable file, telnet.exe, which needs to be placed in the path: CO2MPAS-AIO/Apps/Cygwin/bin

3. Make a folder inside the CO2MPAS ALL-IN-ONE, called "deps".

4. Copy the files included in the USB pen into the "deps" folder.

5. For the next steps, open the CO2MPAS console and press [Ctrl + F2], in order to open a window with the "Bash" console ("brown" background).

6. Uninstall CO2MPAS:
   ```
   $ pip uninstall co2mpas -y
   ```
   ```
   $ pip uninstall co2mpas -y
   D:\co2mpas_AIO-v1.5.5\CO2MPAS>pip uninstall co2mpas -y
   Uninstalling co2mpas-1.5.5.post0:
     Successfully uninstalled co2mpas-1.5.5.post0
   ```

7. In the "Bash" console, type the following command:
   ```
   $ cd deps
   ```
   The above command will guide you in the path of the folder "deps".

8. Then, type the following command:
   ```
   $ pip install *
   ```
   The above command will install all the dependencies required for running the DICE.

9. When it has finished, in order to ensure that everything worked fine, and you got the required version of CO2MPAS:

```
$ co2mpas -Vv
```

```
$ co2mpas -Vv
co2mpas_version: 1.5.7.b3
co2mpas_rel_date: 2017-05-14 08:16:03
```

The installation has finished. Now, you can open the CO2MPAS GUI.

10. Now you can proceed with CO2MPAS, as usual. Create a folder inside CO2MPAS called "DEMOS". There, create 2 more folders: "Input" and "Output".
First remember to return back to CO2MPAS folder:

```
$ cd ..
$ mkdir DEMOS
$ cd DEMOS
$ mkdir Input Output
```

11. Now, using the CO2MPAS GUI or the respective command, generate the demo files inside the "Input" folder:

```
$ co2mpas demo Input
```

12. Proceed with the simulation, either by using the GUI or by using TA command-line.
If you choose the GUI, **remember** to set the out Folder to be the "CO2MPAS/DEMOS/Output" and to select `co2mpas_demo-1.xlsx` as input.
The command to run the simulation is this:

```
$ co2mpas ta Input/co2mpas_demo-1.xlsx -O Output
```

When the simulation has finished, you are ready to proceed with the dice.

DICE work flow.

The next steps are on the CO2MPAS CONSOLE
Note that the list of commands below are just one possible "path" to arrive to the DICE decision. More commands are provided at the bottom of the instructions, to use in case of problems:

13. Initialize a project, append the input and the output files into the project and generate the contents for the Dice email with the command bellow:

```
$ co2dice project init -i Input\co2mpas_demo-1.xlsx -o
Output\20170514_215215-co2mpas_demo-1.xlsx --report
```

```
$ co2dice project init -i Input\co2mpas_demo-1.xlsx -o
Output\20170514_215215-co2mpas_demo-1.xlsx --report
D:\Apps\co2mpas_AIO-v1.5.5\CO2MPAS>co2dice project init -i
.\DEMOS\Input\co2mpas_demo-1.xlsx -o .\DEMOS\Output\20170514_215215-co2mpas_demo-1.xlsx
--report
23:25:37        : INFO:InitCmd:Project 'IP-10-AAA-2017-1002' derived from 'inp' file:
C:\Apps\co2mpas_AIO-v1.5.7_final\co2mpas_AIO-v1.5.5\CO2MPAS\DEMOS\Input\co2mpas_demo-1.xlsx
....


object 65a8c96ab6831d917287e95dff9b584dd3cfe5a8
type commit
tag dices/IP-10-AAA-2017-1002/0
tagger Dimitrios Komnos <dimitris.komnos@outlook.com> 1494797217 +0200


- {v: 1.0.0, a: drep 2 files, p: IP-10-AAA-2017-1002, s: tagged}
- file: co2mpas_demo-1.xlsx
  iokind: inp
  report: {report_type: input_report, vehicle_family_id: IP-10-AAA-2017-1002}
- file: 20170514_215215-co2mpas_demo-1.xlsx
  iokind: out
  report:
    0.vehicle_family_id: [IP-10-AAA-2017-1002, IP-10-AAA-2017-1002]
    1.CO2MPAS_version: [1.5.7.b3, 1.5.7.b3]
    2.report_type: [dice_report, dice_report]
    3.datetime: ['2017/05/14-21:53:45', '2017/05/14-21:53:45']
    4.TA_mode: ['True', 'True']
    5.CO2MPAS_deviation: [-1.006, .nan]
    6.Vehicle: [.nan, .nan]
    7.fuel_type: [gasoline, gasoline]
    8.engine_capacity: [1389.0, 1389.0]
    9.gear_box_type: [manual, manual]
    10.engine_is_turbo: [1.0, 1.0]
    11.Model_scores WLTP-H: [.nan, .nan]
    12.alternator_model (battery currents): [3.9386, .nan]
    13.alternator_model (alternator currents): [3.9798, .nan]
    14.at_model: [.nan, .nan]
    15.clutch_torque_converter_model: [0.0748, .nan]
    16.co2_params: [0.0064, .nan]
    17.engine_cold_start_speed_model: [0.1082, .nan]
    18.engine_coolant_temperature_model: [0.5845, .nan]
    19.engine_speed_model: [0.0, 87.1179]
    20.start_stop_model (engine starts): [-0.9922, .nan]
    21.start_stop_model (on engine): [-0.9961, .nan]
    22.Model_scores WLTP-L: [.nan, .nan]
    23.alternator_model (battery currents): [.nan, .nan]
    24.alternator_model (alternator currents): [.nan, .nan]
    25.at_model: [.nan, .nan]
    26.clutch_torque_converter_model: [.nan, .nan]
    27.co2_params: [.nan, .nan]
    28.engine_cold_start_speed_model: [.nan, .nan]
    29.engine_coolant_temperature_model: [.nan, .nan]
    30.engine_speed_model: [.nan, .nan]
    31.start_stop_model (engine starts): [.nan, .nan]
    32.start_stop_model (on engine): [.nan, .nan]
-----BEGIN PGP SIGNATURE-----
Version: GnuPG v2
```

iJwEAAEIAAYFAlkYy6IACgkQsSTJmcu7Uv+WWAP9FStpckpkBKHqS39x2E5y2xfu
KmSN6oAl01glfiL//VyqAfoI3GV4FUxMZn71torJG9SR+doIOptUwQxFiayj0t1U
1jCLJ90mOO3+yKad3hosuwDNoYl53RsvPM1ic+i9SgUaU+BQ0ZlEEsg2lYp7nk0i
nuU8b13h1/4MREAriSQ=
=bnBa
-----END PGP SIGNATURE-----

14. Now if you type again `co2dice project ls`, you will see that the state of the project is now tagged

```
$ co2dice project ls
D:\co2mpas_AIO-v1.5.5\CO2MPAS>co2dice project ls
22:26:31       : INFO:LsCmd:Listing all projects...
* IP-10-AAA-2017-1002: tagged
```

15. In order to see if your configurations are right and you can connect to the SMTP and IMAP, the server of the Sender and the Receiver, type the following command and you must receive a reponse roughly like this:

$ co2dice tstamp login

```
$ co2dice tstamp login
D:\co2mpas_AIO-v1.5.5\CO2MPAS>co2dice tstamp login
22:27:10       : INFO:TstampSender:Connecting to SMTP(STARTTLS):
dimitris.komnos@outlook.com@smtp-mail.outlook.com({'port': 587})...
22:27:14       : INFO:TstampSender:Connected to SMTP:
dimitris.komnos@outlook.com@<socket.socket [closed] fd=-1, family=AddressFamily.AF_INET,
type=SocketKind.SOCK_STREAM, proto=0>, ok? True
True
22:27:15       : INFO:TstampReceiver:Connecting to IMAP4_SSL:
dimitris.komnos@outlook.com@imap-mail.outlook.com()...
22:27:25       : INFO:TstampReceiver:Connected to IMAP4_SSL:
dimitris.komnos@outlook.com@<ssl.SSLSocket [closed] fd=-1, family=AddressFamily.AF_INET,
type=SocketKind.SOCK_STREAM, proto=0>, ok? True
True
```

16. Assuming everything worked, now you may send the e-mail to the timestamp server:

$ co2dice project tsend

```
$ co2dice project tsend
D:\co2mpas_AIO-v1.5.5\CO2MPAS>co2dice project tsend
22:29:49       : INFO:transitions.core:IP-10-AAA-2017-1002: Exited state tagged
22:29:49       : INFO:Project:Sending email for tstamping...
22:29:50       : INFO:TstampSender:Connecting to SMTP(STARTTLS):
dimitris.komnos@outlook.com@smtp-mail.outlook.com({'port': 587})...
22:29:54       : INFO:TstampSender:Timestamping 2458-char email from
'dimitris.komnos@outlook.com' to
['post@stamper.itconsult.co.uk']-->['dimitris_tom@hotmail.com',
'dimitriskomnos11@gmail.com', 'Dimitrios.KOMNOS@ext.ec.europa.eu',
'dimitriskomnos@yahoo.com', 'dimitris.komnos@outlook.com']
22:30:11       : INFO:transitions.core:IP-10-AAA-2017-1002: Entered state mailed
22:30:11       : INFO:Project:Committing Project(IP-10-AAA-2017-1002: mailed): sent
stamp-email
true
...
```

17. Check again the state of the current project:

$ co2dice project ls

```
$ co2dice project ls
D:\co2mpas_AIO-v1.5.5\CO2MPAS>co2dice project ls
22:46:16        : INFO:LsCmd:Listing all projects...
* IP-10-AAA-2017-1002: mailed
```

18. After 15-40 minutes you will receive in your e-mail the dice stamp that has to be decoded with this command:

$ co2dice tstamp recv

This command will parse the responce of the server automatically, and will produce the OK/SAMPLE decision-flag. This command will NOT change the state of the project.

```
$ co2dice tstamp recv
<0959340.a@stamper.itconsult.co.uk>:
  To: <dimitris.komnos@outlook.com>
  Subject: Proof of Posting Certificate 0959340:[dice test] dices/IP-10-AAA-2017-1002/0
  Date: Sun, 14 May 2017 21:35:00 +0100
  project: IP-10-AAA-2017-1002
  dice:
    decision: SAMPLE
    hexnum: 5E1DFE04154F1C3A8E43421359543ECB3847764A
    percent: 98
```

19. Type:

$ co2dice project ls

```
$ co2dice project ls
D:\co2mpas_AIO-v1.5.5\CO2MPAS>co2dice project ls
22:46:16        : INFO:LsCmd:Listing all projects...
* IP-10-AAA-2017-1002: mailed
```

20. Type in the console

$ co2dice project tparse.

Copy the e-mail received (from -----BEGIN PGP SIGNED MESSAGE----- to the end) and paste it in the console by pressing [Shift+INSERT], and send the end-stream character after a new-line, that is to say: press [Enter], [Ctrl+Z], [Enter], in a row. The dice stamp will be decoded showing at the end of the message the random sampling number [0 to 99], and the OK/SAMPLE decision-flag. In the case of the example, it is a SAMPLE code, and the state of the project become sample.

21. Finally, type:

$ codice project export IP-10-AAA-2017-1002

in order to store (in a compressed .zip file) all the files used in the Dice workflow (ie, the input file to CO2MPAS, the CO2MPAS-TA output file, and the Dice decision). This file has to be sent to the Type Approval authority that will keep it as part of the TA of the vehicle.
To remove a given project from the dice list of projects (and export it as a zip file), type

```
co2dice project export IP-10-AAA-2017-1002
--ExportCmd.erase_afterwards=True.
```

Dice commands

DICE commands	examples
project init project append project report project tsend project recv project tparse	co2dice project init XX-12-YYY-2017-0000 co2dice project append -i ~input_path/Input_file.xlsx -o ~output_path/Output_file.xlsx co2dice project report co2dice project tsent co2dice project trecv (not yet functional) co2dice project tparse
tstamp send tstamp recv tstamp login tstamp parse	co2dice tstamp send co2dice tstamp recv --raw co2dice tstamp login co2dice tstamp parse
files	
config paths config show Config write config desc	co2dice config paths co2dice config show -s file co2dice config write <~path/my_conf>

Response mail

-----BEGIN PGP SIGNED MESSAGE-----

##
#
This is a proof of posting certificate from
stamper.itconsult.co.uk certifying that a user
claiming to be:-
ankostis@gmail.com
requested that this message be sent to:-
anagniko@gmail.com
kostis.anagnostopoulos@ext.ec.europa.eu
#
This certificate was issued at 12:20 (GMT)
on Friday 12 May 2017 with reference 0958994
#
CAUTION: while the message may well be from the sender
indicated in the "From:" header, the sender
has NOT been authenticated by this service
#
For information about the Stamper service see
http://www.itconsult.co.uk/stamper.htm
#
##

object 2e5724112b98a8af6b234f345aef2f2506162334
type commit
tag dices/IP-10-AAA-2017-0012/12
tagger Kostis <ankostis@gmail.com> 1494589827 +0200

- - {v: 1.0.0, a: drep 2 files, p: IP-10-AAA-2017-0012, s: tagged}
- - file: co2mpas_demo-12.xlsx
  iokind: inp
  report: {report_type: input_report, vehicle_family_id: IP-10-AAA-2017-001=
2}
- - file: 20170511_164740-co2mpas_demo-12.xlsx
  iokind: out
  report:
    0.vehicle_family_id: [IP-10-AAA-2017-0012, IP-10-AAA-2017-0012]
    1.CO2MPAS_version: [1.6.0.b0, 1.6.0.b0]
    2.report_type: [dice_report, dice_report]
    3.datetime: ['2017/05/11-16:48:48', '2017/05/11-16:48:48']
    .....
    32.start_stop_model (on engine): [.nan, .nan]
-----BEGIN PGP SIGNATURE-----
Version: GnuPG v2

iJwEAAEIAAYFAlkVoYMACgkQsSTJmcu7Uv8TAwP8DD6ElhonBW1OIvOc6GGaxJB
imApRwF/+jH8cRRsVWxCm/pov7n2Mk2QeD2jAyDqwgysDt0cT2Ln13FrsknMJsqy
Mxldo/Tb8ByQ8NI+7D7/nqn2Tm24rKZGVD5MwOfnKOeMDg8LS1giRxFdA3eRUJc
10YgWUr+INUhTTwkg1k=3D
=3EldE
-----END PGP SIGNATURE-----

-----BEGIN PGP SIGNATURE-----
Version: 2.6.3i
Charset: noconv
Comment: Stamper Reference Id: 0958994

iQEVAgUBWRWocoGVnbVwth+BAQHNiAf7B3p6ZMhyG4OWuyYrgiWiONGYAdaAmp
31lTGei83u+BYBNtq0I4fDxloa7FEflgF/Z6wJ8nWBLE/GgjwzXtlA622dMRCcc
bsllzQm5ZA4YOX7PHwm96+72Dm4oQjxiXRhsmjAbibHycD/BtvVV6D/dcsKWQS
b3kkD72jK9YoKel+Tb9uX1wIJsPoYZnNfON7CaiaM9YpEE9FUXtQilwu9HZY+4P
wBVEit4jC38rHjU0b6bOhjA/mp+T5nKguGga4+Mcp76elpBnCNdHfxhc8PiPrB8C
TV7ewYi0XrwTw2Mt5LeypVRwV35e+EFRwDeXOq8bj4mgT80VI9c+8A==
=...
-----END PGP SIGNATURE-----

tstamp-email

stamper's standard header

tstamp-email

dice-report

dice-report's signature

tstamp's signature

ok

sample

Flow Diagram of DICE