

Transport Emission Client App

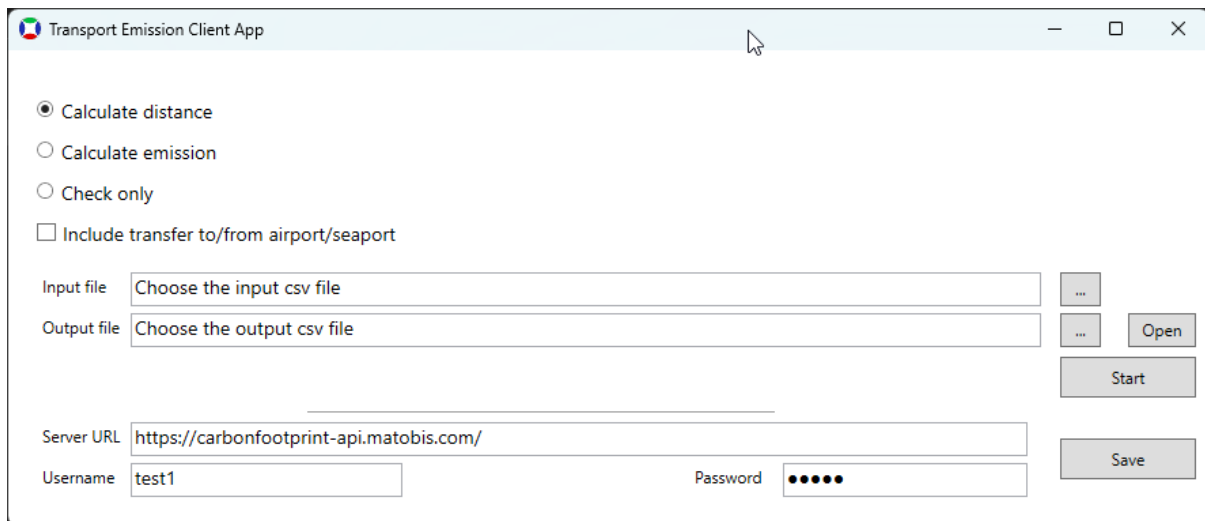
The transport emission client is a client application to use with the Carbon Footprint API to calculate the distances and the CO2 emission from the transport of goods using sea ships, airplanes, trains, and heavy good vehicles (HGV). For the transport using ships and airplanes it is also possible (optional) to calculate the distance and emission between the start/end location and the airport or seaport.

The application is using the csv format as input of the calculation and writes the results to a csv file.

Package contents

TransportEmission.WpfClient

The program (TransportEmission.WpfClient.exe) is a client starter for the actual application (TransportEmission.ClientApp) to ease the use of the client tool. It supports only Microsoft Windows based operating systems (Windows 11, Windows 10 with dotnet 6.0 installed).



The screenshot shows the 'Transport Emission Client App' window. It features a settings panel on the left with radio buttons for 'Calculate distance' (selected), 'Calculate emission', and 'Check only'. There is also a checkbox for 'Include transfer to/from airport/seaport'. Below these are fields for 'Input file' and 'Output file', each with a 'Choose the input/output csv file' button. At the bottom of the settings panel are fields for 'Server URL' (pre-filled with 'https://carbonfootprint-api.matobis.com/'), 'Username' (pre-filled with 'test1'), and 'Password' (masked with dots). On the right side of the window are three buttons: 'Open' (next to the output file field), 'Start' (below the 'Include transfer' checkbox), and 'Save' (below the 'Username' and 'Password' fields).

Settings:

Enter your username (field Username) and password (Field Password) and then click the Save button to save the entered Data, so you do not need to enter them each time you start the program. If you change your password, please re-enter the new password and press Save to save the new password. Please note that the password will be saved as an encrypted text and is not identical with the password you entered.

How to use the tool:

- Choose what to do: "Calculate Distance", "Calculate emission" or "Check only".
- Insert or select the input csv file.
- Insert or select the output csv file.
- Set the option "Include transfer to/from airport/seaport" as needed. If checked it also calculates the distance/emission between the origin and the origin airport/seaport as well as the distance/emission between the destination airport/seaport and the destination. If the option is not checked, it calculates the distance between the airports/seaports only. The option has no effect for transport using "Street" or "Rail".

- Click the button “Start” to start the calculation by calling the actual application “TransportEmission.ClientApp.exe” passing the given data and options. See below for more information about “TransportEmission.ClientApp.exe”.

TransportEmission.ClientApp

The application is a console application that may be used in any environment for which the dotnet 6 is installed (Windows, Linux, Mac, ...).

Usage (Windows): TransportEmission.ClientApp.exe [Options] <input file> <output file>

Usage (Unix based): dotnet TransportEmission.ClientApp.dll [Options] <input file> <output file>

Options:

- --DistanceOnly or -d: Calculate distances only
- --IncludeTransfer or -t: The program also calculates the distance/emission between the origin and the origin airport/seaport as well as the distance/emission between the destination airport/seaport and the destination. If the option is not used, it calculates only the distance between the airports/seaports only. The option has no effect for transports using “Street” or “Rail”.
- --CheckOnly or -c: Check only if the data is sufficient for the calculation

Input file (CSV):

The input file must have the following columns to use the CheckOnly and DistanceOnly options:

Column name	Description
TransportType	The type of transport to use and may be one of: Sea, Flight, Rail or Street
Id	any string; may be empty (not recommended)
Label	any string; may be empty
OriginCountry	The origin country name, ISO-3166-2 or ISO-3166-3. The field is mandatory and can not be empty
OriginLocation	The name of the origin location (city/village name). If the field left empty (not recommended), the capital city will be used
OriginPostalCode	The postal code of the origin, may be empty
OriginSeaport/OriginAirport	Optional. In case of the transport type Sea the field may contain the Seaport (name or UN/LOCODE). In case of Flight (name or IATA code of the airport). If the field is empty, the nearest airport/seaport will be considered.
DestinationCountry	The destination country name, ISO-3166-2 or ISO-3166-3. The field is mandatory and can not be empty
DestinationLocation	The name of the destination location (city/village name). If the field left empty (not recommended), the capital city will be used
DestinationPostalCode	The postal code of the destination, may be empty
DestinationSeaport/DestinationAirport	Optional. In case of the transport type Sea the field may contain the Seaport (name or

UN/LOCODE). In case of Flight (name or IATA code of the airport). If the field is empty, the nearest airport/seaport will be considered.

For the emission calculation, the following columns are also needed:

Column name	Description
Transporter type	In case of TransportType=Sea The ship type*. In case of TransportType=Street the type of HGV**. For other transport types may left empty
Refrigerated	is applicable only for transport type Sea and Street. Set to TRUE for refrigerated goods otherwise FALSE or empty
Weight	Weight in metric tons

Notes:

- The csv columns must be separated by semi-colon.
- The order of columns cannot be changed.
- The number of columns must be 11 for CheckOnly and DistanceOnly and 14 for emission calculation.
- Using the column Id is recommended and may just be a sequence number.
- Rows begin with # and empty rows will be ignored.

Ship types

Bulk carrier

Ship type and size	Description
BulkCarrierAverage	Average of all Bulk carrier
BulkCarrier0	Bulk carrier with deed weight tonnage 0-9,999
BulkCarrier10000	Bulk carrier with deed weight tonnage 10,000 - 34,999
BulkCarrier35000	Bulk carrier with deed weight tonnage 35,000 - 60,000
BulkCarrier60000	Bulk carrier with deed weight tonnage 60,000 - 99,999
BulkCarrier100000	Bulk carrier with deed weight tonnage 100,000 - 199,999
BulkCarrier200000	Bulk carrier with deed weight tonnage 200,000+

General cargo

Ship type and size	Description
GeneralCargoAverage	Average of all general cargo
GeneralCargo0	General cargo with deed weight tonnage 0-4,999
GeneralCargo5000	General cargo with deed weight tonnage 5,000 - 9,999
GeneralCargo10000	General cargo with deed weight tonnage 10,000+

Container ships

Ship type and size	Description
ContainerShipAverage	Average of all container ship
ContainerShip0	Container ship with Twenty-foot Equivalent Unit 0-9,999
SmallFeeder	The same as ContainerShip0
ContainerShip1000	Container ship with Twenty-foot Equivalent Unit 1,000 - 1,999
Feeder	The same as ContainerShip1000
ContainerShip2000	Container ship with Twenty-foot Equivalent Unit 2,000 - 2,999

Feedermax	The same as ContainerShip2000
ContainerShip3000	Container ship with Twenty-foot Equivalent Unit 3,000 - 4,999
Panamax	The same as ContainerShip3000
ContainerShip5000	Container ship with Twenty-foot Equivalent Unit 5,000 - 7,999
PostPanamax	The same as ContainerShip5000
ContainerShip8000	Container ship with Twenty-foot Equivalent Unit 8,000+
Neopanamax	The same as ContainerShip8000

Vehicle transport ship

Ship type and size	Description
VehicleTransportAverage	Average of all vehicle transport ships
VehicleTransport0	Vehicle transport with Car Equivalent Unit (CEU) 0 - 3,999
VehicleTransport4000	Vehicle transport with Car Equivalent Unit (CEU) 4,000+

Ferries

Ship type and size	Description
RoRoFerryAverage	Average of RoRo (roll-on/roll-off) ferries
RoPaxFerryAverage	Average of Large RoPax (roll-on/roll-off passenger) ferries

Tanker

Ship type and size	Description
CrudeTankerAverage	Average of all crude tanker
CrudeTanker0	Crude oil tanker with deed weight tonnage 0 - 9,999
CrudeTanker10000	Crude oil tanker with deed weight tonnage 10,000 - 59,999
CrudeTanker60000	Crude oil tanker with deed weight tonnage 60,000 - 79,999
CrudeTanker80000	Crude oil tanker with deed weight tonnage 80,000 - 119,999
CrudeTanker120000	Crude oil tanker with deed weight tonnage 120,000 - 199,999
CrudeTanker200000	Crude oil tanker with deed weight tonnage 200,000+

Product Tanker

Ship type and size	Description
ProductsTankerAverage	Average of all products tanker
ProductsTanker0	Products tanker with deed weight tonnage 0 - 4,999
ProductsTanker5000	Products tanker with deed weight tonnage 5,000 - 9,999
ProductsTanker10000	Products tanker with deed weight tonnage 10,000 - 19,999
ProductsTanker20000	Products tanker with deed weight tonnage 20,000 - 59,999
ProductsTanker60000	Products tanker with deed weight tonnage 60,000+

Chemical Tanker

Ship type and size	Description
ChemicalTankerAverage	Average of all Chemical tanker
ChemicalTanker0	Chemical tanker with deed weight tonnage 0 - 4,999
ChemicalTanker5000	Chemical tanker with deed weight tonnage 5,000 - 9,999

ChemicalTanker10000	Chemical tanker with deed weight tonnage 10,000 - 19,999
ChemicalTanker20000	Chemical tanker with deed weight tonnage Unit 20,000+

LNG/LPG Tanker

Ship type and size	Description
LNGTankerAverage	Average of all LNG
LNGTanker0	LNG with 0 - 199,999 cubic meter
LNGTanker200000	LNG with 200,000+ cubic meter
LPGTankerAverage	Average of all LPG
LPGTanker0	LPG with 0 - 49,999 cubic meter
LPGTanker50000	LPG with 50,000+ cubic meter

Heavy Good Vehicle (HGV) types

** HGV Types:

Type	Description
HGVAverage	Average of all HGV
HGVRigidAverage	Average of Rigid HGV
HGVRigidClassI	Rigid (>3.5 - 7.5 t)
HGVRigidClassII	Rigid (>7.5 tonnes-17 t)
HGVRigidClassIII	Rigid (>17 t)
HGVArticulatedAverage	Average of all articulated
HGVArticulatedClassI	Articulated (3.5 – 33 t)
HGVArticulatedClassII	Articulated (33+ t)

Output file (CSV):

Output files contains the following columns:

Column name	Description
TransportType	Transport type
Id	Id
Label	Label
OriginCountry	Origin country
OriginName	Origin location
OriginPostalCode	Origin postal code
OriginCode	Origin code (airport/seaport code)
OriginLatitude	Origin latitude
OriginLongitude	Origin longitude
DestinationCountry	Destination country
DestinationName	Destination location
DestinationPostalCode	Destination postal code
DestinationCode	Destination code (airport/seaport code)
DestinationLatitude	Destination latitude

DestinationLongitude	Destination longitude
Distance [km]	The main distance (without transfer) in km
Weight [t]	The weight in metric tons
CO2Eq [kg]	The main CO2 equivalent emission (without transfer) in kg
Transfer 1 distance [km]	The distance between origin and origin airport/seaport
Transfer 1 CO2 [kg]	The CO2 equivalent emission between origin and origin airport/seaport
Transfer 2 distance [km]	The distance between destination airport/seaport and destination
Transfer 2 CO2 [kg]	The CO2 equivalent emission between destination airport/seaport and destination

Notes:

- The columns Weight, CO2Eq, Transfer 1 CO2 and Transfer 2 CO2 will be omitted when using "DistanceOnly".
- The columns Transfer 1 distance and Transfer 2 distance will be omitted if the option "Include transfer to/from airport/seaport" is not used.

Authentication

Besides the programs listed above and libraries you will find in your installation Folder of TransportEmission.ClientApp the file "appSettings.json" having the following content:

```
{
  "baseUrl": "https://localhost:5001/",
  "userName": "YOUR_USER_NAME",
  "password": "YOUR_PASSWPRD"
}
```

baseUrl : The URL of the server to use. Normally we will set this for you, before sending the client package

userName: The username to use with the application. If the username is empty ("userName": ""), you will be prompted to enter it.

password: The user password. If the password is empty ("password": ""), you will be prompted to enter it (will be shown as asterisks).

For more information about users/user management, please contact us.