

ETW Business Solutions

Interfaces for company specific requests

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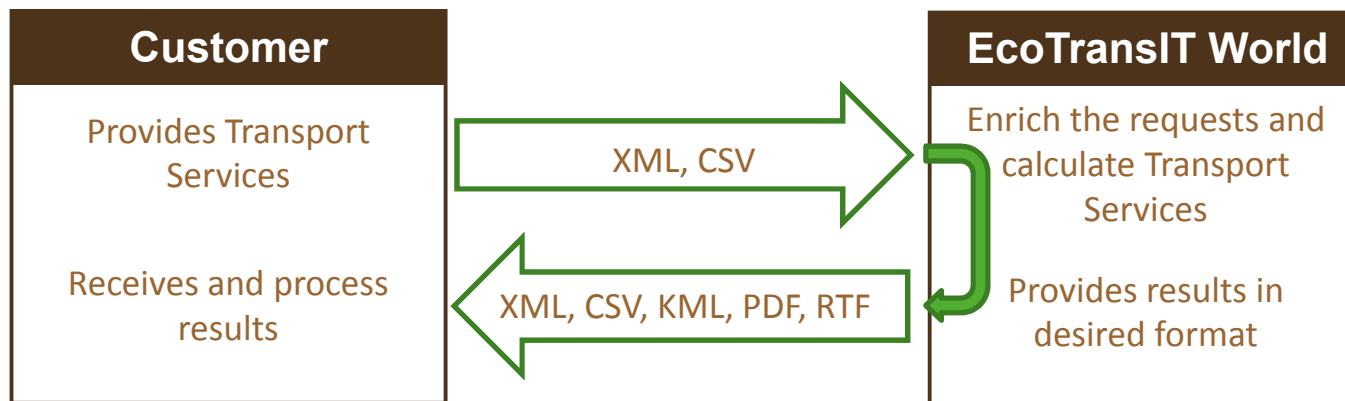
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Principle

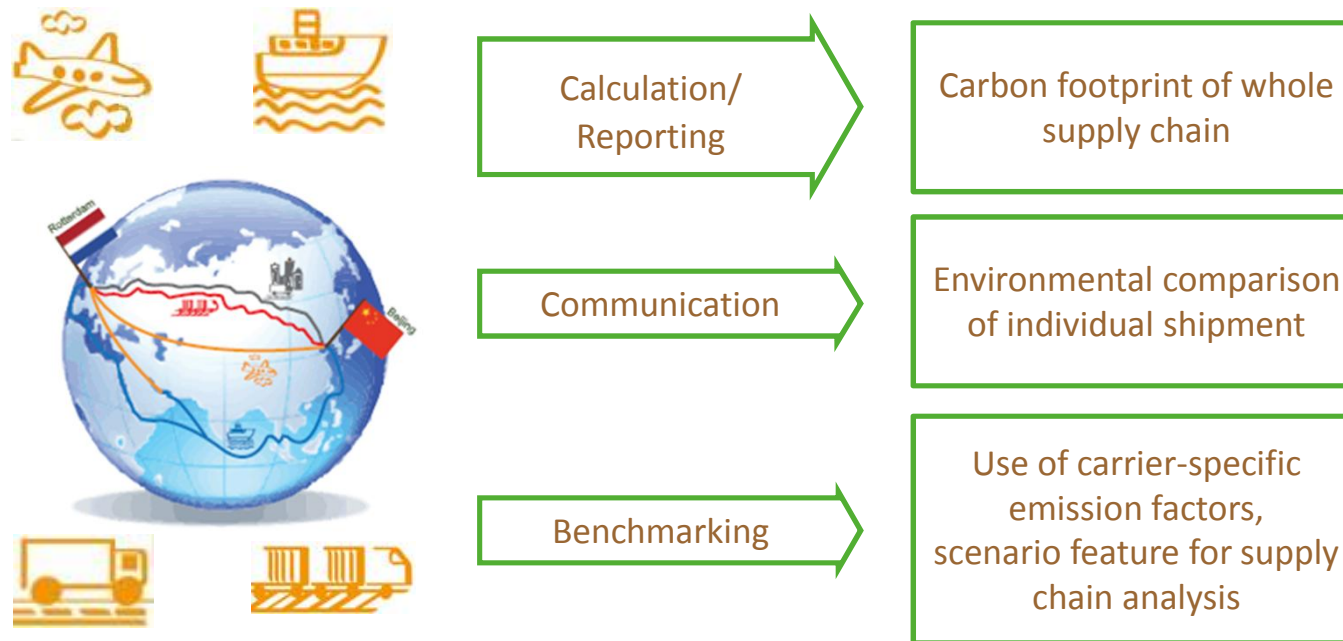
The Business Solution of EcoTransIT World provides customer interfaces to calculate their individual transport services



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3 possible ways to utilize the results

Customers of the Business Solution can utilize EcoTransIT World in any desired and individualized form.



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Needed data for a calculation

At least the **cargo weight**, the **origin and destination location** and the **transport type** is needed to start a calculation

CALCULATION PARAMETERS

Input mode: Standard

Freight: Amount: 5, Unit: Container (TEU)

Origin: UN/LOCODE: DEHAM, Name: [de] Hamburg

Choose transport modes: Multiple choice possible. Truck, Train, Airplane, Sea ship, Barge.

Destination: UN/LOCODE: CNSHA, Name: [cn] Shanghai

CALCULATE RESET

Cargo weight
Origin, destination
Transport type

Missing information
will be filled up
with ETW or company
specific pre-defined
default values

CALCULATION PARAMETERS

Weight: 5 Container (TEU)
t/TEU: 10

Transport service: Sea ship

Origin: Hamburg

Class: Dry
Freight type: CC Suez trade (4,7-7k TEU)
Speed: 25.0%
LF: 67.0%

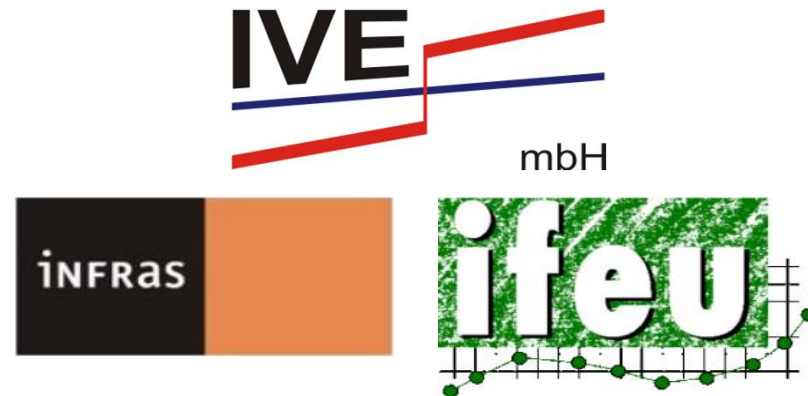
Destination: Shanghai

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Scientific support included

ETW is an emission calculator. To support companies every project has included the support of a scientific partners to assure a high calculation level.

- Support of getting more transport information out of the available data
- More detailed input data increases the accuracy of the result



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Different kinds of interfaces

All kinds of business solutions using the same calculation module including the same methodology and routing data

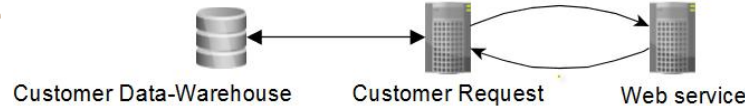
Individual on companies website



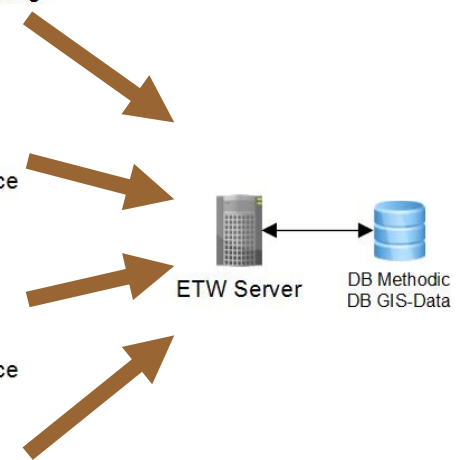
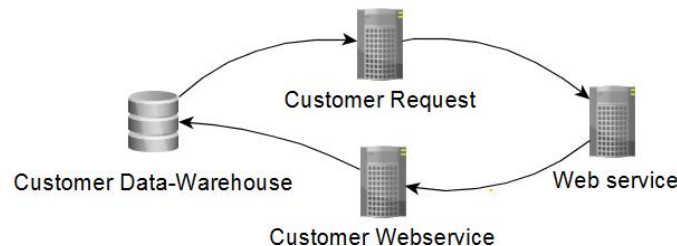
CSV-File upload via website (manual)



SOAP-XML web service (synchronous)



Connection via sFtp or simple Socket connection (asynchronous)





Business Solutions Interfaces

CSV-FILE UPLOAD VIA WEBSITE

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CSV-File upload in detail

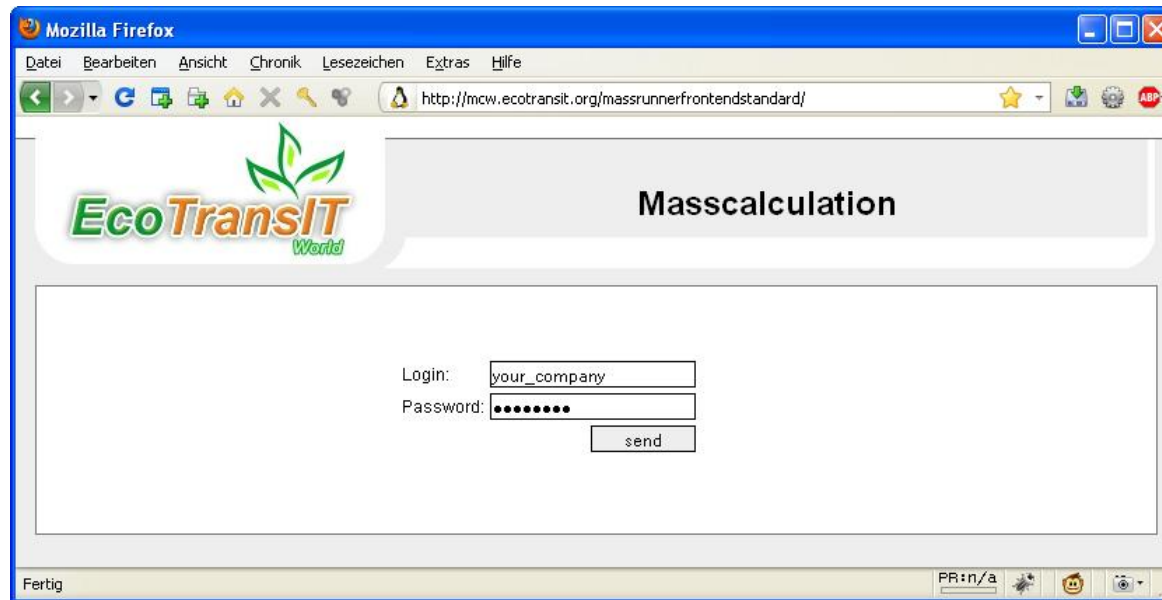
Interface for manual upload via website of CSV files (Excel).
One row equals to one transport service.

- Format is column-based and includes in the standard version the principle pre-, main carriage and post carriage.
- One file (job) can have up to 30.000 rows
- Output can be e.g. csv, kml (routes), pdf (documents) per job

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CSV-File upload login screen

Password secured user login, different user logins are possible.



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CSV-File upload Create Job

The **Create Job** screen enables the upload of a csv file and the definition of default values.

EcoTransIT World Masscalculation

Joblist Create job Logout

Calculation count: 7
Relation count: 0

Additional calculation parameters:

Type of goods: average goods
Intermodal transfer type: -

Leg 1

	Transport type	Emission type	Load factor	Empty trip factor	Consideration of ferries
Road:	26-40 t	EURO 5	60.0	20	normal
Rail:	1000 t	electrified	60	50	normal

Airplane: Belly Freight Passage Utilization: 80
Sea ship: Speed reduction: 25 Container ship

Leg 2 (Mainhaul)

	Transport type	Emission type	Load factor	Empty trip factor	Consideration of ferries
Road:	26-40 t	EURO 5	60.0	20	normal
Rail:	1000 t	electrified	60	50	normal

Airplane: Belly Freight Passage Utilization: 80
Sea ship: Speed reduction: 25 Container ship

Leg 3

	Transport type	Emission type	Load factor	Empty trip factor	Consideration of ferries
Road:	26-40 t	EURO 5	60.0	20	normal
Rail:	1000 t	electrified	60	50	normal

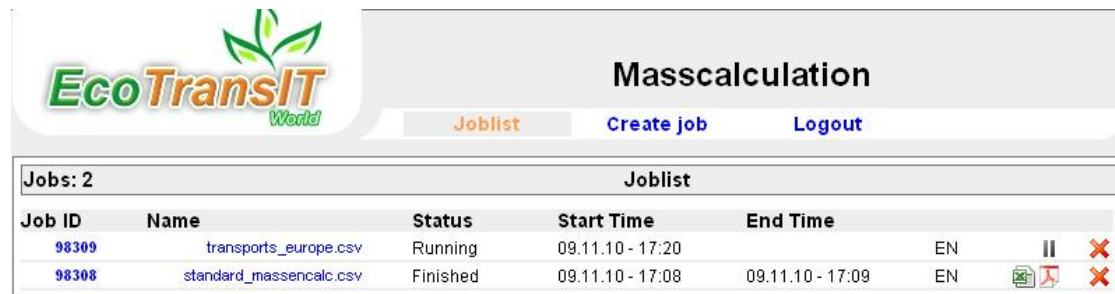
Airplane: Belly Freight Passage Utilization: 80
Sea ship: Speed reduction: 25 Container ship

File: Keine Datei ausgewählt.

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CSV-File upload Job list

At the screen **Joblist** the user gets access to the status and results of his uploaded calculation jobs.



Jobs: 2		Joblist				
Job ID	Name	Status	Start Time	End Time		
98309	transports_europe.csv	Running	09.11.10 - 17:20	EN	✕	
98308	standard_massencalc.csv	Finished	09.11.10 - 17:08	09.11.10 - 17:09	EN 📄 ✕	

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CSV-File upload Calculation Status

A click on the Job ID shows the actual calculation status.

The screenshot shows the EcoTransIT World 'Masscalculation' interface. At the top, there are navigation links: 'Joblist', 'Create job', and 'Logout'. Below this is a 'Jobs: 2' summary and a 'Joblist' table. A red arrow points from the 'Job ID' 98308 in the joblist to a detailed view of job 98310.

Job ID	Name	Status	Start Time	End Time
98309	transports_europe.csv	Running	09	
98308	standard_massencalc.csv	Finished	09	

State of processing:						
Job: 98310	Blocked	Pending	Running	Skipped	Failed	Finished
Start						1
Parsing CSV file						1
Preparation						7
Ecotransit calculation			4			
Data Collector	7					
Ecotransit accumulation	1					
Creating CSV output	1					
Creating PDF output	1					
End	1					

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CSV-File upload Job Summary

A click on the Name shows the job summary including calculation time and possible error messages.

The screenshot shows the EcoTransIT World 'Masscalculation' interface. At the top, there is a navigation bar with 'Joblist', 'Create job', and 'Logout' buttons. Below this, a 'Jobs: 2' summary is shown. The main 'Joblist' table contains two entries:

Job ID	Name	Status	Start Time	End Time	EN			
98309	transports_europe.csv	Running	09.11.10 - 17:20		EN		✗	
98308	standard_massencalc.csv	Finished	09.11.10 - 17:08	09.11.10 - 17:09	EN	📄	📄	✗

A red arrow points from the 'transports_europe.csv' name in the job list to the 'Job: 98309 Jobsummary' window. This window displays the following data:

Job: 98309 Jobsummary

Filename: transports_europe.csv

Calculation time	Start Time	End Time	Duration
	17:20:36	17:21:03	00:00:27

Tons	Total [t]	calculated [t]	not calculated [t]
	248,45	198,45	50,00

Lines	Total	calculated	not calculated
	7	6	1

Distances [km]	Transport type	calculated [km]
	Road	3.578,38
	Rail	3.702,37
	Sea ship	0,00
	Airplane	0,00

Extended view of error messages

Error: CSV line 4(Road) - No Route found.
Error: CSV line 4(Rail) - No Route found.

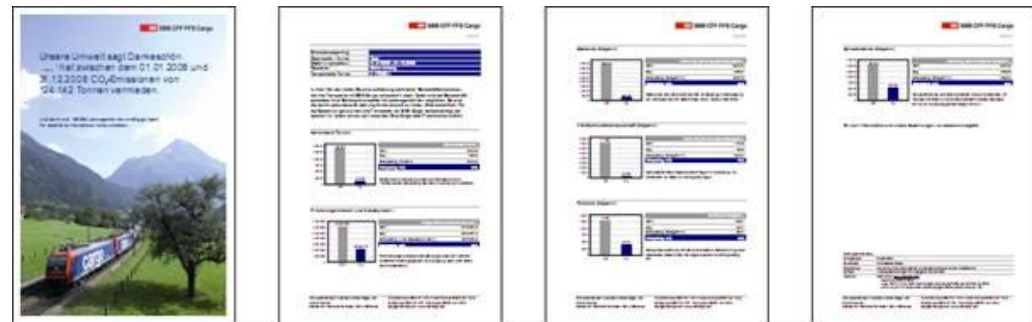
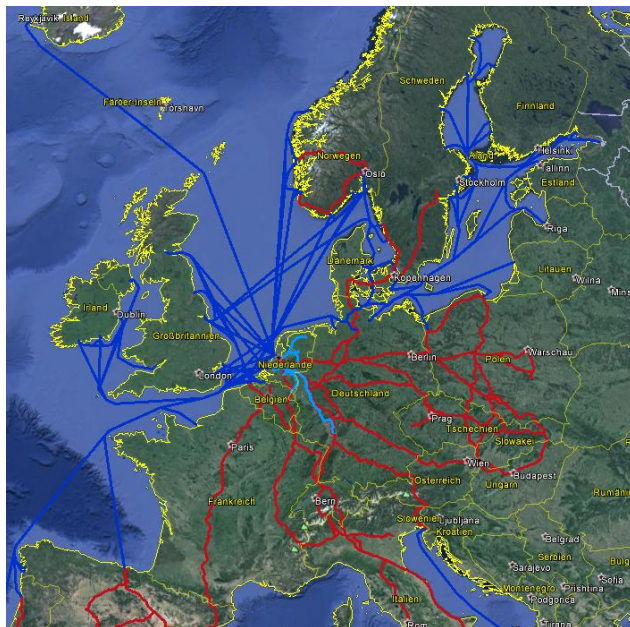
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CSV-File upload Results

The calculation result can be e.g. csv, pdf, kml (Google Earth).

Summerized Values (whole transport chain)

Primary Energy [MJ]		CO2-Aquivalent [t]		CO2 [t]		NOx [kg]		NMHC [kg]		SO2 [kg]		Particeles PM10 [kg]		Distances [km]	
WTW	TTW	WTW	TTW	WTW	TTW	WTW	TTW	WTW	TTW	WTW	TTW	WTW	TTW	Main	Truck part
477160,911	376592,389	32,2393719	27,6666302	31,4646451	27,4249672	124,361389	108,529621	21,4497828	8,23722529	44,9727451	7,34564688	4,06263622	2,04447449	2376,35488	2063,36713
6419826,78	5083696,05	435,8119	375,754036	426,133714	372,193465	1443,01415	1233,26093	283,005883	104,459258	622,748934	114,084259	53,3839946	26,5104357	2551,04685	39,9876061
7150441,22	5658722,69	495,177039	418,188895	474,362561	414,337659	1594,88968	1360,9339	289,708492	91,0044884	818,08039	252,567216	73,7151915	43,8661057	6842,97568	1365,30918
3236951,99	2564182,28	219,872296	189,670233	215,014275	187,839335	710,380655	604,797758	143,991854	53,9239394	314,96043	58,3537831	24,3921123	10,9132339	1186,65217	457,866366
3687406,61	2811840,11	240,645452	203,00818	234,878204	201,062337	817,96853	696,726618	157,304629	60,0743779	343,511635	59,5481644	27,5115467	12,2883093	2866,37337	730,510201



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Business Solutions Interfaces

SOAP-XML WEBSERVICE

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SOAP-XML Web service Principle

The SOAP-XML web service is a standardized and the state-of-the-art method how computer exchanges information automatically.

- Customer sends requests and get direct a response from ETW.
Synchronous direct communication, up to 40 calculations parallel
- Most flexible interface, including modelling any desired global transport chain due to easy and scalable XML format
- Flexible output request enable results per country or traction type

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SOAP-XML Web service Example

```
<ns:calculateComplexTransportRequest transportID="99" c
  <cargo weight="10" unit="ton" />
  <section>
    <route>
      <departure >
        <ns1:unLocode>DEHAM</ns1:unLocode>
      </departure>
      <destination>
        <ns1:unLocode>USNYC</ns1:unLocode>
      </destination>
    </route>
    <carriage>
      <mainCarriage>
        <ns1:sea />
      </mainCarriage>
    </carriage>
  </section>
</ns:calculateComplexTransportRequest>

<result>
  <section>
    <mainhaul parameterInfo="LF: 65.0% Speed utilisation:76% ship: cc-ta-a-47" transportMode="Sea">
      <ns3:information code="default" message="Using default seaship."/>
      <ns3:route>
        <ns3:startLocation countryChange="de" shortName="locode:DEHAM">
          <ns3:wgs84 latitude="53.539222" longitude="9.949114"/>
        </ns3:startLocation>
        <ns3:endLocation shortName="locode:USNYC">
          <ns3:wgs84 latitude="40.668199" longitude="-74.076317"/>
        </ns3:endLocation>
      </ns3:route>
      <ns3:emissions fromIndex="0" toIndex="22">
        <ns3:primaryEnergy unit="MegaJoule">
          <ns3:sea tankToWheel="18828.251" wellToTank="1673.62214">20501.8731</ns3:sea>
        </ns3:primaryEnergy>
        <ns3:carbonDioxide unit="Tons">
          <ns3:sea tankToWheel="1.4478925" wellToTank="0.124266457">1.57215896</ns3:sea>
        </ns3:carbonDioxide>
        <ns3:nitrogenOxides unit="Kilogramme">
          <ns3:sea tankToWheel="37.433055" wellToTank="0.747116108">38.1801711</ns3:sea>
        </ns3:nitrogenOxides>
        <ns3:sulfurDioxides unit="Kilogramme">
          <ns3:sea tankToWheel="21.4160137" wellToTank="1.77592639">23.1919401</ns3:sea>
        </ns3:sulfurDioxides>
        <ns3:nonMethanHydroCarbons unit="Kilogramme">
          <ns3:sea tankToWheel="1.50439894" wellToTank="0.654765382">2.15916432</ns3:sea>
        </ns3:nonMethanHydroCarbons>
        <ns3:particles unit="Kilogramme">
          <ns3:sea tankToWheel="3.26938972" wellToTank="0.09403631">3.36342603</ns3:sea>
        </ns3:particles>
        <ns3:co2Equivalents unit="Tons">
          <ns3:sea tankToWheel="1.4629551" wellToTank="0.124266457">1.58722156</ns3:sea>
        </ns3:co2Equivalents>
        <ns3:distances unit="Kilometers">
          <ns3:sea tankToWheel="6452.95513" wellToTank="0">6452.95513</ns3:sea>
        </ns3:distances>
      </ns3:emissions>
    </mainhaul>
  </section>
</result>
```

Send per http to
IVE web service

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Web service request types

The SOAP-XML web service has different request types for transport accounting or e.g. location identification.

Request type	Abilities
Calculation Request	Calculates any global intermodal transport chain on the base of defined sections.
Flight Number Request	Response information of a flight number, like plane type, stop-overs inclusive emission accounting
Transfer point Request	Responses respective transfer points of a location pair and a transport type (e.g. harbors for two postal codes)
List location Request	Responses respective location option of a location type (e.g. city names of a postal code or locode)
List vehicle Request	Responses all available vehicle types of a transport type
Statistic Request	Responses number of send requests within a defined filter (e.g. requests per month)



Business Solutions Interfaces

ON COMPANIES WEBSITE

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Individual ETW websites via an iframe

Content of the iframe is provided from server at IVE mbH.

The image shows two screenshots of environmental calculators. The left screenshot is the Hapag-Lloyd EcoCalc interface, which includes a navigation menu, a search bar, and a form with fields for 'Start of Transport', 'Port of Loading', 'Port of Discharge', 'End of Transport', and 'Cargo Volume'. The right screenshot is the Kuehne+Nagel Global Seafreight Carbon Calculator (GSCC) interface, featuring a navigation menu, a search bar, and a form with fields for 'Start of transport', 'Port of Loading', 'Port of Discharge', 'End of Transport', and 'Amount'. Both calculators have a 'Calculate' button. Two brown arrows point from the word 'iframe' to the respective calculator forms.

iframe

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Individual websites via web service

Website developed by the customer using the web service.

The screenshot shows the MSC Carbon Calculator interface. At the top, there is a navigation bar with the MSC logo and the text 'MEDITERRANEAN SHIPPING COMPANY'. Below this, there are tabs for 'SENDUNGSVERFOLGUNG', 'FAHRLÄNE DURCHSUCHEN', and 'STANDORTSUCHE'. The main heading is 'CARBON CALCULATOR' with the subtext 'Accurate information on the carbon footprint of your cargo transportation.' The form includes fields for 'Freight' (Amount: 100, Unit: Tons), 'Origin' (Port, Name, UNLOCODE), and 'Destination' (Port, Name, UNLOCODE). There are radio buttons for 'Choose main transport mode' (Sea ship, Truck, Train, Barge). A 'CALCULATE' button is prominent. At the bottom, a table shows 'CO₂ emissions from' and 'TOTAL' results.

CO ₂ emissions from	Tons
1 TEU average goods from [de] Hamburg to [cn] Shanghai via sea ship (13,960 km)	1.42
TOTAL	1.42

The screenshot shows the DB Schenker Emission Calculator interface. At the top, there is a navigation bar with the DB Schenker logo and a language selection dropdown set to 'United States of America-English (US)'. The main heading is 'View Emissions'. The form includes fields for 'Weight *' (100, Unit: Ton), 'Departure *' (City, Co), and 'Destination *' (City, Co). There are checkboxes for 'Transport Modes *' (Land, Air, Ocean). A 'Calculate' button is present. At the bottom, there is a footer with '© DB Schenker Logistics' and 'eSchenker 1.2.7.8'.

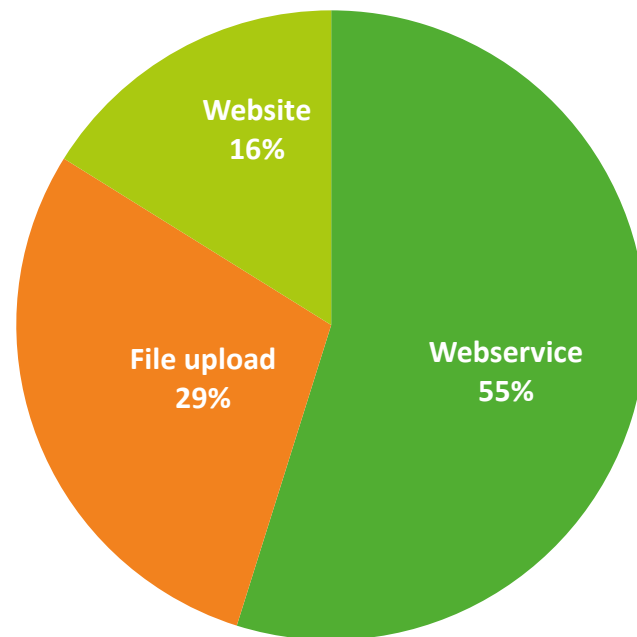
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Interface usage

Most of the customers using the web service as communication interface.





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ADDITIONAL FEATURES

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Additional features

The business solution provides additional features compared to the website www.ecotransit.org.

Feature	Abilities
CCWG Methodology	Use CCWG trade lanes and emissions factors for container sea transports (whole GHG emissions)
Flight number lookup	Use OAG interface to identify the respective plane type on the base of a flight number (include belly/freighter)
Truckload consideration	Automatic load factor determination for FTL, LTL or LCL transports (Truck and train)
Zip Code Analyzer	Analyses not existing zip codes and identifies close alternatives
Alias map	Include company own location codes and map them to common locations or coordinates
Individual Defaults	Define company specific default values for any kind of transport type or country
Individual Electricity Mixes	Use company electricity mixes for railway transports

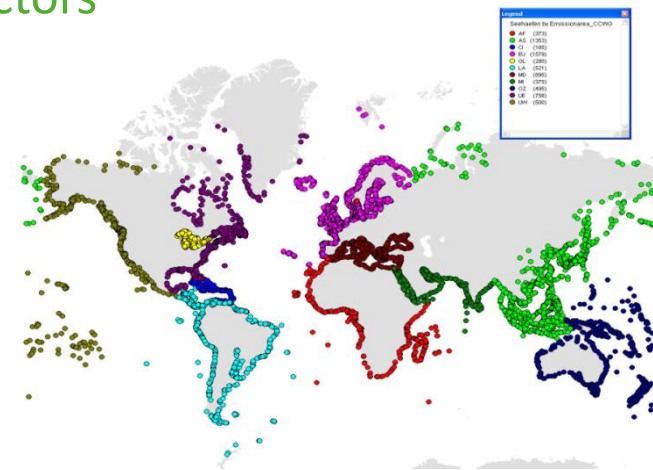
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CCWG Methodology



ETW Business Solutions enables the GHG calculation for transports of container sea ships on the base of the CCWG.

- Annually updated real measured emission factors aggregated per trade lane from CCWG/ BSR
- ETW Identifies the correct CCWG trade lane automatically on the base of a port pair
- Recalculates energy consumption, CO2 and CO2e as Well-to-wheel
- Air pollutants are calculated with ETW methodology



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OAG Flight number lookup



Via the OAG time tables identifies ETW plane types and stop-overs on the base of the flight number.

- Timetables updated twice a year including all aviation companies
- ETW selects the plane type with the highest flight frequency
- Stop-Over identification for better calculation results



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Truckload consideration

ETW Business Solutions enables the automatic load factor determination for FTL, LTL, FCL transports (truck and train)

- Load factor of a full truck load (FTL) is calculated on the base of the maximum vehicle payload and the freight weight
- Load factor of a full container load (FCL) is calculated on the base of the maximum vehicle payload and the tons per teu value
- Less than truck load (LTL) uses a default load factor



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Technical issues & Security aspects

Every customer has its Business Solutions modules on his own capsulated hardware.

- Default hardware is a virtualized server located at the calculation center at IVE mbH, Hannover
- Calculation speed is in the regular case between 0,2 to 0,5 seconds per transport service, which are **150.000 – 200.000 calculations per day** and server
- The capsulated server safeguard the customer data
- Secure communication (https, sftp or via a vpn)



Business Solutions

PROJECT WORKFLOW

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Example Workflow

The following work-flow shows the exemplary the realisation of an ETW Business Solution.

- First contact via email or phone
- Informational web or physical meetings
- Decision on customers side
 - If helpful test account
- Contractual issues
 - Outline contract including Proposal, EULA, C&C
 - Governance Rules of EWI
- Setup und supply of the hardware, modules
- Feedback and support phase

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Cost & Condition

The cost of a business solution is separated into the initial cost of the solution and the annual license fee.

- The cost of the annual license depends on the company turn-over and allows the usage of any EcoTransIT World module (flat rate)
- Initial cost (once-only) include hardware, setup cost of product, technical and methodology support
- IVE mbH is the single point for contracts and acts on behalf of the EcoTransIT World Initiative.

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Contact data

For further information do not hesitate to contact us:

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