SEVENTH FRAMEWORK PROGRAMME

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Content

List of abbreviations

The following table shows the abbreviations used throughout the deliverable with the meaning of the abbreviation.

Abbreviation	Explanation
Calc	Calculation, used as name for the temporary data used during model calculation.
FGDB	File Geodatabase, a format for storing spatial and tabular data.
GB	Gigabyte
.gdb	File system extension for File Geodatabase.
GP	Geoprocessing, name of the system for building the calculation models.
LTM	National Danish transport model (in Danish: “Landstrafikmodellen”)
MDF	Master Database File, a Microsoft SQL Server file type.
PDF	Portable Document Format
RC	Route Choice
SCN	Scenario, used as prefix in table names.
SQL	Structured Query Language
SQL Server	Database product from Microsoft.
SQL Server Express	Database product from Microsoft.
TT	Transtools
TT3	Transtools version 3
WP	Work package

List of figures

List of tables

Summary

Scope

The scope of this deliverable is to document the data structure in TT3. The objective is not to document specific table schemas, or the content of tables.

Methodology

The methodology for the data structure in Transtools 3, has been applying the data structure principles of master and calculation data, from the national Danish model to Transtools.

Results

The results of the data structure effort, is a system of master and calculation data. The master data supports easy scenario management and editing. The calculation data supports a fixed structure for the model calculation. The data structure is now defined and organised, so specific model implementation can adhere to the structure in building the remaining parts of the model.

Next Step

The defined data structure is now being used for structured model implementation. This documentation deliverable will be used by other deliverables for reference.

1. Introduction

This deliverable is produced under WP3: Architecture and configuration. The note describes the structure of data used in operation of the Transtools 3 (TT3) model.

This note builds on the design sketched in the Transtools 3 Description of Work, Work Package 3. (Transtools Consortium, 2010) and (Brun, Transtools 3 Deliverable 3.2 User Interface Design, 2012).

Already at the stage of application for the TT3 project, it was realised that some changes to the overall structure of the Transtools modelling system were needed in order to ensure a modular and flexible model implementation. Improvements were foreseen within four areas:

- Model configuration
- User interface design
- Software architecture and data structure, and
- Documentation of process and results

This deliverable describes the data structure.

1.1 Objective of the deliverable

The objective of this deliverable is to document the data structure in the TT3 model. The deliverable will not discuss using the model or the structure of the model calculations.

The deliverable will not document specific table schemas and table contents. This information is not fully determined for a majority of the datasets at the time of preparation for this deliverable.

This deliverable will be used as reference for future deliveries.

1.2 Methodology and results

The process followed in preparation for this deliverable has been applying the data structure principles of master and calculation data, from the national Danish model to Transtools, as described in the Description of Work (Transtools Consortium, 2010).

The results of the data structure effort, is a system of master and calculation data. The master data supports easy scenario management and editing. The calculation data supports a fixed structure for the model calculation.

1.3 Perspective of the deliverable

The perspective of this deliverable is to enable users to understand the data structure used in the Transtools 3 model.

The defined data structure is now being used for structured model implementation. Tables are being added to the databases or altered to fit changing needs, the data structure ensures that model implementers can follow naming scheme and determine correct location for placing new tables.

1.4 Reading guidance

Chapter 2 describes the overall Transtools 3 data structure.

Chapter 3 describes the Master data containing scenarios and results.

Chapter 4 describes the Calc data containing the current scenario being calculated and the result of that calculation.

2. Overall Structure

The data structure in the Transtools 3 model is primarily defined by the separation of calculation data from scenario data and results. The design of the data structure is inspired by the data structure in the National Danish Transportation Model (Brun, LTM Manger User Guide, LTM 1.0.6, 2013).

The data structure can basically be sketched as:

- Master data, containing data the user sees and edits:
  - Scenarios
  - Results
- Calc data, containing temp data for the scenario being calculated

The databases divided by Master and Calc can be seen in Figure 1.

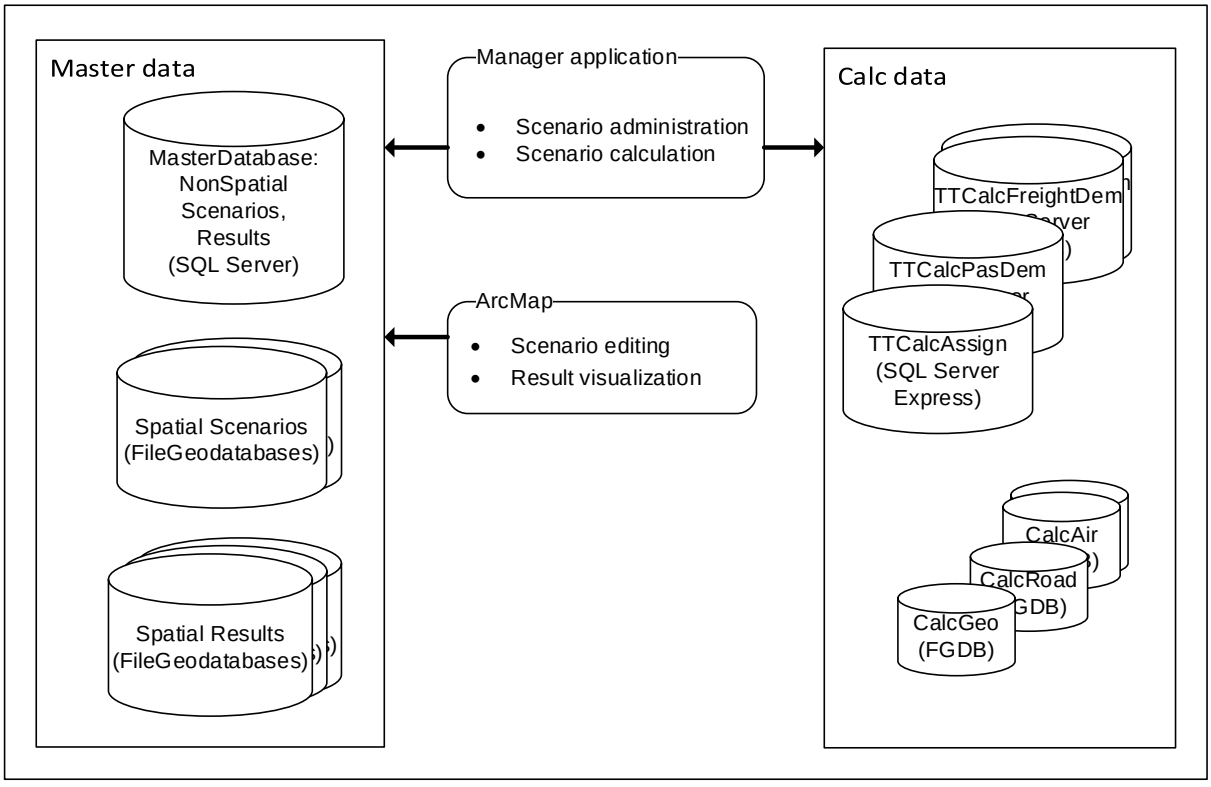

Figure 1 Databases in Master and Calc

The figure shows different databases used in the TT3 data structure, and also the different database types.

- SQL Server, containing non-spatial master data
- SQL server Express, containing non-spatial calc data.
- FileGeodatabase (FGDB), containing spatial data for both master and calc

Chapters 3 and 4 will describe which data is placed in the specific types of databases.

The new simple user interface in Transtools 3 will create scenarios in master data, and start calculations, which will include importing calculation scenario from master to calc, running the model, and exporting results to master. The new user interface is described in (Brun, Transtools 3 Deliverable 3.2 User Interface Design, 2012). The user interface will also manage configurations, described in (Brun, Transtools 3 Deliverable 3.3 Model Configurations, 2016).

2.1 Installation on separate computers

Master and Calc can be installed on separate computers or on the same computer.

Using separate computers, multiple computers with the Calc structure can share the same master data, this is illustrated in Figure 2.

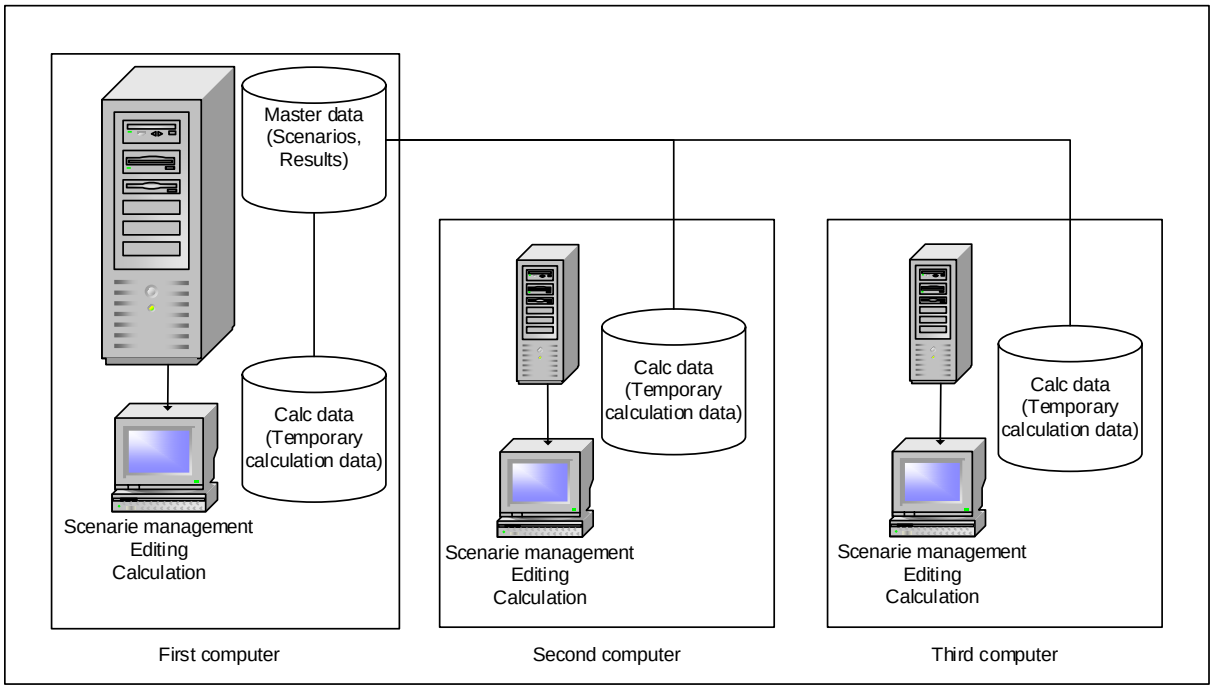

Figure 2 Multiple calculation computers

In the following, it is assumed that Transtools has been installed in “C:\TT”, both Calc and Master data.

2.2 File system folder structure

The Transtools 3 file system structure allows Calc and Master to be installed on same or separate computers.

Calc data folder structure under C:\TT has the following subfolders:

- Connections [Contains ArcGIS connection files to the databases]
- Data
  - Calc
    - DB [Contains SQL Express MDF database files]
    - CalcAir.gdb
    - CalcGeo.gdb
    - CalcIww.gdb
    - CalcOutput.gdb
    - CalcRailFreight.gdb
    - CalcRailPas.gdb
    - CalcRoad.gdb
    - CalcRoro.gdb
    - CalcSea.gdb
- Maps [PDF files produced during scenario runs]
- Mxds
  - Editing [map documents for editing]
  - Templates [map documents for PDF maps]
- Programs
  - DemandModels
  - Install
  - MapExport
  - MxdDataSourceUtility
- Toolbox
  - Scripts
- User Guide

Master data folder structure under C: \TT contains the following sub folders:

- Data
  - Master
    - DB
    - Scenarios
      - Air001.gdb
      - Geo001.gdb
      - Iww001.gdb
      - Rail001.gdb
      - Rail002.gdb
      - Road001.gdb
      - RoRo001.gdb
      - Sea001.gdb
    - ScenarioRunResults
      - ScenarioRun10001
        - Maps [PDF map files produced during scenario runs]
        - Mxds [map documents for viewing results in ArcMap]
        - OutputData [output features from scenario run]
      - ScenarioRun10002
        - Maps [PDF map files produced during scenario runs]
        - Mxds [map documents for viewing results in ArcMap]
        - OutputData [output features from scenario run]
- Programs
  - Install

The file geodatabases under C:\TT\Data\Master\Scenarios has a numbering scheme which allows creating and delivering additional data, without merging changes to existing scenario data. This will be further described in Deliverable 6.1 Scenario Generation (Rich & Cochrane, 2016), (Brun & Cochrane, Forthcoming: Deliverable 4.1 A technical documentation of the model structure and operation, 2016), Deliverable 12.1 TT3 User Guide (Cochrane).

2.3 Naming scheme

Tables and FeatureClasses are as much as possible named according to the following naming scheme: “Prefix_ModelName_DataName”.

2.3.1 Prefix

First part of the name gives the type, it must be one (and only one) of the following abbreviations:

- in: Input data from users, i.e. data that users can edit.
- cfg: configuration tables for defining the model.
- sys: model system parameters, set by model developers, should not be edited by users.
- out: Output data from model. Data that at the end of scenario runs are exported from Calc to Master.
- tmp: Temporary data, that never are exported from Calc to Master. Tmp data are cleared before each scenario run.
- scn: Tables for scenario management on master database.
- inout: Tables, where output from one scenario run can be used as input for a later scenario runs.
- man: Tables used by the user interface to organize and display the structure of the model and scenarios.
- ver: versioning of databases.

2.3.2 ModelName

Second part of the name is the submodel that the data belongs to. Often data will be used in more than one model, e.g. as output from one model and input of another mode. In that case the data should be named by the model that produces the data.

- AirRC: Air Route Choice
- RailFreightRC: Rail Freight Route Choice
- RailPasRC: Rail Passenger Route Choice
- RoadRC: Road Route Choice
- SeaRC: Sea Route Choice
- IwwRC: Inland waterways Route Choice
- TradeDem: Trade Demand and logistics model
- ChainChoiceSet: Chain Choice Set Generator
- PasDem: Passenger Demand Model
- KF: Key Figures,
- Map: Maps

Some data sets will be generic and cannot be attributed to a single model. In that case the can be named by “Prefix_DataName”, (e.g. in_Zones).

2.3.3 DataName

The third and last part of the table name is a descriptive name for the data set.

2.3.4 Views

Views are in principle named as tables in the form of “Prefix_ModelName_DataName”. For views the Prefix can only be one of the following values:

- out: Output data, results that will be copied to the master database.
- view: All other views.

2.3.5 Stored procedures and functions

All stored procedures have prefix “proc_”, All functions have prefix “func_”.

3. Master data

The master data contains data, that the user edits to create scenarios, installed scenario data, and the results of calculations.

Technically, the master data is stored in a SQL Server and a series of File Geodatabases.

3.1 SQL Server database

The SQL Server database belonging to Master data contains non-spatial data; input tables, output tables and scenario management tables.

Location of MDF file: C:\TT\Data\Master\DB\MSSQL12.TTMASTER\MSSQL\DATA\TTmaster.mdf

Location of ArcGIS Connection file: C:\TT\Connections\TTMaster.odc

Tables currently in TTMaster database at time of preparation of this deliverable, can be seen below in Table 1. More input and output tables will be added during the model development.

Table 1 Tables in Master database

Table Name	Type	Explanation	Model	Data
scn_Configurations	scn	Configurations		
inout_RoadRC_CarTripMatrix	inout	User input, output data	RoadRC	car trip matrix
scn_MainScenarios	scn	MainScenarios		
scn_ScenarioRuns	scn	Finished ScenarioRuns		
in_RoadRC_FilterDefinition	in	User input data	RoadRC	Road filters
inout_RoadRC_FreightTripMatrix	inout	User input, output data	RoadRC	Freight trip matrix
cfg_ScenarioManagerConfigTable	cfg	Configuration tables		
cfg_TreeViewHeaders	cfg	Configuration tables		
cfg_DataScenarioTypes	cfg	Configuration tables		
cfg_DataScenarioInstances	cfg	Configuration tables		
cfg_ConfigurationParameters	cfg	Configuration tables		
cfg_GpModelDefinitions	cfg	Configuration tables		
cfg_DataScenarioTypeTableDefinitions	cfg	Configuration tables		
scn_RoadRC_CarTripMatrixScenarios	scn	Scenario management	RoadRC	Road trip matrices

3.2 Scenario file geodatabases

Spatial scenario data is stored in file geodatabases.

3.2.1 Air001.gdb

Primary use: Input feature classes with scenarios for Air Assignment.

Location of file Geodatabase: C:\TT\Data\Master\Scenarios\Air001.gdb

Tables in the file geodatabase for air can be seen in Table 2. The spatial data is in a feature dataset. There is also a scenario management table to describe the scenarios.

Table 2 Tables in scenario data for Air

TableName	Feature-Dataset	Type	Explanation	Model	Data
scn_AirNetworkScenarios		Scn	Scenario management	AirRC	
in_AirRC_Links	AirFDS	In	Input data	AirRC	Air links
in_AirRC_Airports	AirFDS	In	Input data	AirRC	Airports
in_AirRC_Connectors	AirFDS	In	Input data	AirRC	Zone to airport connectors

3.2.2 Geo001.gdb

Primary use: Input feature classes with scenarios that are not mode specific, e.g. zones and terminals.

Location of file Geodatabase: C:\TT\Data\Master\Scenarios\Geo001.gdb

Tables in this file geodatabase can be seen in Table 3. The spatial data is in a feature dataset. There are also scenario management tables to describe the scenarios.

Table 3 Tables in scenario data for zones and terminals

TableName	Feature-Dataset	Type	Explanation	Model	Data
scn_ZoneScenarios		scn	Scenario management		
scn_FreightTerminalScenarios		scn	Scenario management		
in_Zones	ZoneFDS	in	Input data		Zones
in_Freight_Terminals	ZoneFDS	in	Input data		Freight terminals

3.2.3 Iww001.gdb

Primary use: Input feature classes with scenarios for Inland water ways Assignment.

Location of file Geodatabase: C:\TT\Data\Master\Scenarios\Iww001.gdb

Tables in the file geodatabase for IWW can be seen in Table 4. The spatial data is in a feature dataset. There is also a scenario management table to describe the scenarios.

Table 4 Tables in scenario data for inland waterways

TableName	Feature-Dataset	Type	Explanation	Model	Data
scn_IwwNetworkScenarios		scn	Scenario management	IwwRC	
in_IwwRC_Links	IwwFDS	in	Input data	IwwRC	Inland waterway links
in_IwwRC_TerminalConnectors	IwwFDS	in	Input data	IwwRC	Inland waterway terminal connectors

3.2.4 Rail001.gdb

Primary use: Input feature classes with scenarios for Rail freight and Rail Passenger Assignment.

Location of file Geodatabase: C:\TT\Data\Master\Scenarios\Rail001.gdb

Tables in the file geodatabase for rail can be seen in Table 5. The spatial data is in a feature dataset. There is also a scenario management table to describe the scenarios.

Table 5 Tables in scenario data for rail

TableName	Feature-Dataset	Type	Explanation	Model	Data
scn_RailNetworkScenarios		scn	Scenario management	RailRC	
in_RailRC_Links	RailFDS	in	Input data	RailRC	Rail links
in_RailRC_AirConnectors	RailFDS	in	Input data	RailRC	Ariport to Rail connectors
in_RailRC_Nodes	RailFDS	in	Input data	RailRC	Rail stations
in_RailRC_TerminalConnectors	RailFDS	in	Input data	RailRC	Terminal to Rail connectors
in_RailRC_ZoneConnectors	RailFDS	in	Input data	RailRC	zone to Rail connectors

3.2.5 Road001.gdb

Primary use: Input feature classes with scenarios for Road Assignment.

Location of file Geodatabase: C:\TT\Data\Master\Scenarios\Road001.gdb

Tables in the file geodatabase for road can be seen in Table 6. The spatial data is in a feature dataset. There is also a scenario management table to describe the scenarios.

Table 6 Tables in scenario data for road

TableName	Feature-Dataset	Type	Explanation	Model	Data
scn_RoadNetworkScenarios		scn	Scenario management	RoadRC	
in_RoadRC_Links	RoadFDS	in	Input data	RoadRC	Road links
in_RoadRC_TerminalConnectors	RoadFDS	in	Input data	RoadRC	Terminal to Road connectors
in_RoadRC_ZoneConnectors	RoadFDS	in	Input data	RoadRC	Zone to Road connectors
in_RoadRC_AirConnectors	RoadFDS	in	Input data	RoadRC	Airport to Road connectors

3.2.6 RoRo001.gdb

Primary use: Input feature classes with scenarios for Roro.

Location of file Geodatabase: C:\TT\Data\Master\Scenarios\RoRo001.gdb

Tables in the file geodatabase for Roro can be seen in Table 7. The spatial data is in a feature dataset. There is also a scenario management table to describe the scenarios.

Table 7 Tables in scenario data for RoRo

TableName	Feature-Dataset	Type	Explanation	Model	Data
scn_RoRoNetworkScenarios		scn	Scenario management	RoRo	
in_RoRo_Links	RoRoFDS	in	Input data	RoRo	Roro links

3.2.7 Sea001.gdb

Primary use: Input feature classes with scenarios for Sea Assignment.

Location of file Geodatabase: C:\TT\Data\Master\Scenarios\Sea001.gdb

Tables in the file geodatabase for sea transport can be seen in Table 8. The spatial data is in a feature dataset. There is also a scenario management table to describe the scenarios.

Table 8 Tables in scenario data for sea

TableName	Feature-Dataset	Type	Explanation	Model	Data
scn_SeaNetworkScenarios		scn	Scenario management	SeaRC	
in_SeaRC_Links	SeaFDS	in	Input data	SeaRC	Sea links

in_SeaRC_TerminalConnectors	SeaFDS	in	Input data	SeaRC	Terminal to sea connectors
in_SeaRC_RestrictedLinks	SeaFDS	in	Input data	SeaRC	Sea links with restrictions

3.3 Result file geodatabases

The results from a scenario run contains both spatial FeatureClasses and non-spatial tables. The spatial data are stored in file geodatabases organized in folders.

Location of output spatial data (in this example for scenario run number 2):
C:\TT\Data\Master\Results\ScenarioRun002\OutputData\CalcOutput.gdb

Each CalcOutput.gdb contains the same featureclasses, links and connectors for various modes, with added attributes containing flow values resulting from the scenario run. Table 9 shows the output flow tables currently being produced. More tables will be added during model development.

Table 9 Tables in output file geodatabase

TableName	Feature-Dataset	Type	Explanation	Model	Data
out_IwwRC_ConnectorsWithFlows	OutputFDS	out	output data	IwwRC	Connectors with flows
out_IwwRC_TerminalsWithVolumes	OutputFDS	out	output data	IwwRC	Terminals with volumes
out_IwwRC_LinksWithFlows	OutputFDS	out	output data	IwwRC	Links with flows
out_RailFreightRC_LinksWithFlows	OutputFDS	out	output data	RailFreightRC	Links with flows
out_RailFreightRC_ConnectorsWithFlows	OutputFDS	out	output data	RailFreightRC	Connectors with flows
out_SeaRC_LinksWithFlows	OutputFDS	out	output data	SeaRC	Links with flows
out_SeaRC_ConnectorsWithFlows	OutputFDS	out	output data	SeaRC	Connectors with flows
out_RoadRC_LinksWithFlows	OutputFDS	out	output data	RoadRC	Links with flows
out_RoadRC_ConnectorsWithFlows	OutputFDS	out	output data	RoadRC	Connectors with flows

Next to the output file geodatabase are located automatically generated map PDF's in C:\TT\Data\Master\Results\ScenarioRun002\Maps and mxd files for viewing results in ArcMap located in C:\TT\Data\Master\Results\ScenarioRun002\Mxds.

4. Calc data

The calc (calculation) data contains temporary data used during model calculations, users will not need to access the calc database. Users will use the new simple user interface which is installed on calculation computers. The user interface handles the data import and export between master and calc data.

As the calculation data is only temporary, only the broad structure will be described here.

Technically the calc data are stored in a SQL Server Express instance containing a number of SQL Server Express databases and a series of File Geodatabases.

4.1 SQL Server Express database

The SQL server instance uses multiple databases because the free Express version has a size limit of 10 GB for each database. A database is a MDF attached to the instance. Since pitting the data in databases is necessary, some organization of the tables in the databases has been instigated. This is more a convenience since data can easily be accessed across databases.

4.1.1 TTCalcAssign

Primary use: input and temporary tables used in assignment models.

Location of MDF file: C:\TT\Data\Calc\DB\MSSQL12.TTCALC\MSSQL\DATA\TTCalcAssign.mdf

Location of ArcGIS Connection file: C:\TT\Connections\TTCalcAssign.odc

The initial design for tables is described in deliverable 9.1 (Nielsen, Rasmussen, & Pedersen, 2016).

4.1.2 TTCalcBase

Primary use: system tables of base values used in pivoting and growth factor models. Values are set during model calibration. Users should not edit the data.

Location of MDF file: C:\TT\Data\Calc\DB\MSSQL12.TTCALC\MSSQL\DATA\TTCalcBase.mdf

4.1.3 TTCalcChainChoice

Primary use: input, output and temporary tables used in freight chain choice model.

Location of MDF file: C:\TT\Data\Calc\DB\MSSQL12.TTCALC\MSSQL\DATA\TTCalcChainChoice.mdf

Location of ArcGIS Connection file: C:\TT\Connections\TTCalcChainChoice.odc

4.1.4 TTCalcChainChoiceOut

Primary use: temporary tables used in freight chain choice model. The Chain Choice model produced more data than the 10 GB, that can be stored in a single SQL Server Express database, forcing the data related to that model be split over several databases.

Location of MDF file:
C:\TT\Data\Calc\DB\MSSQL12.TTCALC\MSSQL\DATA\TTCalcChainChoiceOut.mdf

Location of ArcGIS Connection file: C:\TT\Connections\TTCalcChainChoiceOut.odc

4.1.5 TTCalcChainChoicePath

Primary use: output table from freight chain choice model. The Chain Choice model produced more data than the 10 GB, that can be stored in a single SQL Server Express database, forcing the data related to that model be split over several databases.

Location of MDF file:
C:\TT\Data\Calc\DB\MSSQL12.TTCALC\MSSQL\DATA\TTCalcChainChoicePath.mdf

Location of ArcGIS Connection file: C:\TT\Connections\TTCalcChainChoicePath.odc

4.1.6 TTCalcSys

Primary use: Transtools system tables containing parameters for model calculation. These tables are set by model developers. Users should not edit these tables.

Location of MDF file: C:\TT\Data\Calc\DB\MSSQL12.TTCALC\MSSQL\DATA\TTCalcSys.mdf

Location of ArcGIS Connection file: C:\TT\Connections\TTCalcSys.odc

4.1.7 TTCalcFreightDem

Primary use: input, output and temporary tables used in freight demand model.

Location of MDF file: C:\TT\Data\Calc\DB\MSSQL12.TTCALC\MSSQL\DATA\TTCalcFreightDem.mdf

Location of ArcGIS Connection file: C:\TT\Connections\TTCalcFreightDem.odc

4.1.8 TTCalcPasDem

Primary use: input, output and temporary tables used in passenger demand model.

Location of MDF file: C:\TT\Data\Calc\DB\MSSQL12.TTCALC\MSSQL\DATA\TTCalcPasDem.mdf

Location of ArcGIS Connection file: C:\TT\Connections\TTCalcPasDem.odc

4.2 File Geodatabases

The Calc File geodatabases contains spatial data pertaining to the current scenario. The import process imports “in_” - featureclasses from Master. Data in “tmp_” featureclasses is created during the import process or the calculation. Data in “out_” - featureclasses is created at the end of the calculation process, it contains output featureclasses for displaying results in maps.

4.2.1 CalcAir.gdb

Primary use: Featureclasses and network for Air Assignment.

Location of file Geodatabase: C:\TT\Data\Calc\CalcAir.gdb

The initial design for tables is described in deliverable 9.1 (Nielsen, Rasmussen, & Pedersen, 2016), tables in the file geodatabase at time of preparation of this deliverable can be seen in Table 10.

Table 10 Tables in Calc file geodatabase for Air

TableName	Feature-Dataset	Type	Explanation	Model	Data
in_AirRC_Airports	AirFDS	in	Input data	AirRC	Airports
in_AirRC_Connectors	AirFDS	in	Input data	AirRC	Connectors
in_AirRC_Links	AirFDS	in	Input data	AirRC	Links
tmp_AirRC_Centroids	AirFDS	tmp	Temporary data	AirRC	Centroids

4.2.2 CalcGeo.gdb

Primary use: Featureclasses that are not mode specific, e.g. zones and terminals.

Location of file Geodatabase: C:\TT\Data\Calc\CalcGeo.gdb

Tables in the file geodatabase at time of preparation of this deliverable can be seen in Table 11.

Table 11 Tables in Calc file geodatabase for Zones and Terminals

TableName	Feature-Dataset	Type	Explanation	Model	Data
in_Zones	ZoneFDS	in	Input data		Zones
sys_Zone_Centroids	ZoneFDS	sys	Input and output data	Zone	Centroids
sys_AirRC_Centroids	ZoneFDS	sys	Input and output data	AirRC	Centroids
in_Freight_Terminals	ZoneFDS	in	Input data	Freight	Terminals

4.2.3 CalcIww.gdb

Primary use: Featureclasses and network for Inland waterways assignment.

Location of file Geodatabase: C:\TT\Data\Calc\CalcIww.gdb

The initial design for tables is described in deliverable 9.1 (Nielsen, Rasmussen, & Pedersen, 2016), tables in the file geodatabase at time of preparation of this deliverable can be seen in Table 12.

Table 12 Tables in Calc file geodatabase for inland waterways

TableName	Feature-Dataset	Type	Explanation	Model	Data
in_IwwRC_Links	IwwFDS	in	Input data	IwwRC	Links
in_IwwRC_TerminalConnectors	IwwFDS	in	Input data	IwwRC	TerminalConnectors
tmp_IwwRC_TerminalCentroids	IwwFDS	tmp	Temporary data	IwwRC	TerminalCentroids
tmp_Iww_ND	IwwFDS	tmp	Temporary Network	Iww	ND
tmp_Iww_ND_Junctions	IwwFDS	tmp	Temporary data	Iww	Network Junctions

4.2.4 CalcOutput.gdb

Primary use: Featureclass results from scenario run, e.g. flows on links and connectors.

Location of file Geodatabase: C:\TT\Data\Calc\CalcOutput.gdb.

This is the temporary version of spatial data described in section 3.3. when the calculation of a scenario is finished, this file geodatabase is copied to a folder in master data containing results for the scenario run.

Tables in the file geodatabase at time of preparation of this deliverable can be seen in Table 9.

4.2.5 CalcRailFreight.gdb

Primary use: Featureclasses and network for Rail freight Assignment.

Location of file Geodatabase: C:\TT\Data\Calc\CalcRailFreight.gdb

The initial design for tables is described in deliverable 9.1 (Nielsen, Rasmussen, & Pedersen, 2016), tables in the file geodatabase at time of preparation of this deliverable can be seen in Table 13.

Table 13 Tables in Calc file geodatabase for rail freight

TableName	Feature-Dataset	Type	Explanation	Model	Data
in_RailRC_Links		in	Input data	RailRC	Input common rail links
in_RailFreightRC_TerminalConnectors	RailFreightFDS	in	Input data	RailFreightRC	TerminalConnectors
tmp_RailFreightRC_Links	RailFreightFDS	tmp	Temporary data	RailFreightRC	RailFreight Links
tmp_RailFreightRC_TerminalCentroids	RailFreightFDS	tmp	Temporary data	RailFreightRC	TerminalCentroids
tmp_RailFreight_ND	RailFreightFDS	tmp	Temporary Network	RailFreight	ND
tmp_RailFreight_ND_Junctions	RailFreightFDS	tmp	Temporary data	RailFreight	Network Junctions

4.2.6 CalcRailPas.gdb

Primary use: Featureclasses and network for Rail Passenger Assignment.

Location of file Geodatabase: C:\TT\Data\Calc\CalcRailPas.gdb

The initial design for tables is described in deliverable 9.1 (Nielsen, Rasmussen, & Pedersen, 2016), tables in the file geodatabase at time of preparation of this deliverable can be seen in Table 14.

Table 14 Tables in Calc file geodatabase for rail passenger

TableName	Feature-Dataset	Type	Explanation	Model	Data
in_RailRC_Links		in	Input data	RailRC	Input common rail links
in_RailPasRC_ZoneConnectors	RailPasFDS	in	Input data	RailPasRC	ZoneConnectors
in_RailPasRC_AirConnectors	RailPasFDS	in	Input data	RailPasRC	AirConnectors
tmp_RailPasRC_AllCentroids	RailPasFDS	tmp	Temporary data	RailPasRC	AllCentroids
tmp_RailPasRC_AllConnectors	RailPasFDS	tmp	Temporary data	RailPasRC	AllConnectors
in_AirRC_Airports	RailPasFDS	in	Input data	AirRC	Airports

in_RailPasRC_Nodes	RailPasFDS	in	Input data	RailPasRC	Nodes
tmp_RailPasRC_Links	RailPasFDS	tmp	Temporary data	RailPasRC	Rail Passenger Links
tmp_RailPas_ND	RailPasFDS	tmp	Temporary Network	RailPas	ND
tmp_RailPas_ND_Junctions	RailPasFDS	tmp	Temporary data	RailPas	Network Junctions

4.2.7 CalcRoad.gdb

Primary use: Featureclasses and network for Road Assignment.

Location of file Geodatabase: C:\TT\Data\Calc\CalcRoad.gdb

The initial design for tables is described in deliverable 9.1 (Nielsen, Rasmussen, & Pedersen, 2016), tables in the file geodatabase at time of preparation of this deliverable can be seen in Table 15.

Table 15 Tables in Calc file geodatabase for road

TableName	Feature-Dataset	Type	Explanation	Model	Data
in_AirRC_Airports	RoadFDS	in	Input data	AirRC	Airports
in_RoadRC_AirConnectors	RoadFDS	in	Input data	RoadRC	AirConnectors
in_RoadRC_Links	RoadFDS	in	Input data	RoadRC	Links
in_RoadRC_TerminalConnectors	RoadFDS	in	Input data	RoadRC	TerminalConnectors
in_RoadRC_ZoneConnectors	RoadFDS	in	Input data	RoadRC	ZoneConnectors
tmp_RoadRC_AllCentroids	RoadFDS	tmp	Temporary data	RoadRC	AllCentroids
tmp_RoadRC_AllConnectors	RoadFDS	tmp	Temporary data	RoadRC	AllConnectors
tmp_RoadFDS_ND_Junctions	RoadFDS	tmp	Temporary data	RoadFDS	Network Junctions
tmp_RoadFDS_ND	RoadFDS	tmp	Temporary Network	RoadFDS	ND

4.2.8 CalcRoro.gdb

Primary use: Featureclasses for Roro freight.

Location of file Geodatabase: C:\TT\Data\Calc\CalcRoro.gdb

Tables in the file geodatabase at time of preparation of this deliverable can be seen in Table 16.

Table 16 Tables in Calc file geodatabase for RoRo

TableName	Feature-Dataset	Type	Explanation	Model	Data
in_RoRo_Links	RoRoFDS	in	Input data	RoRo	Links

4.2.9 CalcSea.gdb

Primary use: Featureclasses and network for Sea Freight Assignment.

Location of file Geodatabase: C:\TT\Data\Calc\CalcSea.gdb

The initial design for tables is described in deliverable 9.1 (Nielsen, Rasmussen, & Pedersen, 2016), tables in the file geodatabase at time of preparation of this deliverable can be seen in Table 17.

Table 17 Tables in Calc file geodatabase for Sea

TableName	Feature-Dataset	Type	Explanation	Model	Data
in_SeaRC_Links	SeaFDS	in	Input data	SeaRC	Links
in_SeaRC_TerminalConnectors	SeaFDS	in	Input data	SeaRC	TerminalConnectors
tmp_SeaRC_LinkFlows	SeaFDS	tmp	Temporary data	SeaRC	LinkFlows
tmp_SeaRC_TerminalCentroids	SeaFDS	tmp	Temporary data	SeaRC	TerminalCentroids
tmp_SeaFDS_ND	SeaFDS	tmp	Temporary Network	SeaFDS	
tmp_SeaFDS_ND_Junctions	SeaFDS	tmp	Temporary data	SeaFDS	Network Junctions

5. References

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