

PTV VISUM

the mind of movement

PTV VISUM

FIRST STEPS TUTORIAL

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About this tutorial

Welcome and thank you for your interest in PTV Visum. Before you begin please note the following regarding this tutorial:

This tutorial's goal is to provide guidance regarding PTV Visum so you have a successful first impression of the software. For this reason the technical descriptions in the tutorial are reduced to a minimum and the example provided are accessible to any user. Like any introduction, the included topics only cover a small portion Visum functionality and power. Primarily this guide will cover the basic functions of network editing including graphical display and the execution of procedures.



Using PTV Visum at a professional standard requires a sound theoretical background in transport modelling. To aid in this, pertinent background theory is covered in the user manual for your reference. Study of industry publications, the user manual and PTV Visum training will aid in using this product in the most efficient and complete manner. Please check our website for more details regarding PTV Visum training.



The example used in this tutorial is also available as a video. Follow this link: <https://www.youtube.com/watch?v=t5deCVvei-k>



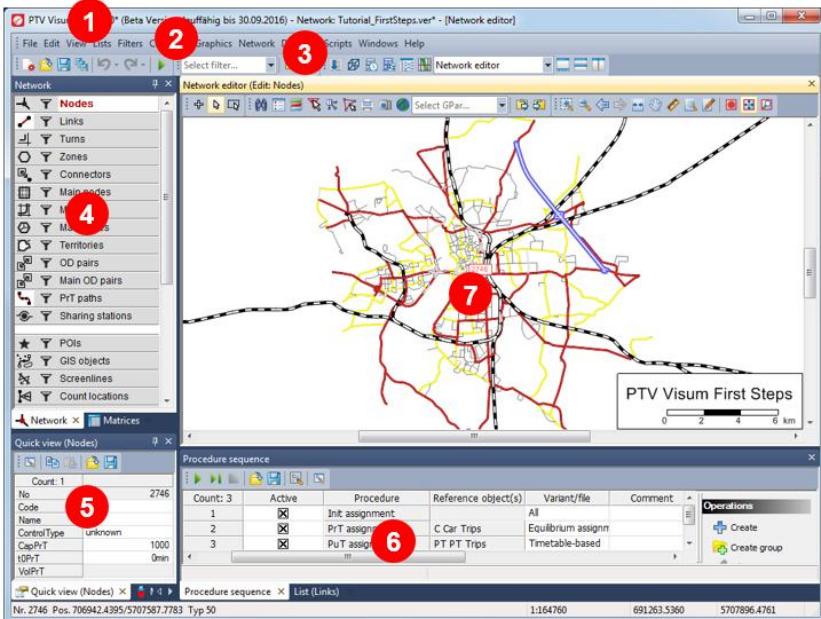
If you want to start this tutorial not with the autostart function in the demo version, but manually, please proceed as described in paragraph **Examples and Tutorials** on page 17.

Introduction

The example in this tutorial is based on a previously developed network of a medium-size city. This existing network is further used in additional examples included with the PTV Visum installation.

After starting the PTV Visum demo version and selecting the example titled "PTV Visum First Steps" Visum will open with a loaded version file.

The various screen elements are explained below:



(1) Title bar

The name and version number of the program are displayed as well as the name of the opened file. The currently active Visum window will be displayed in [brackets].

(2) Menu bar

Via the menus, you can access the various program functions. The menus provided in the menu bar depends on the currently active window.

(3) Toolbars

The toolbar highlights important program functions and depend on the window that is currently active.

(4) Overview window

Here you can select a work mode and object type, enable or disable the graphical display of network or graphics object types, set filters per network object type or from the shortcut menu, choose additional functions. Additionally, you can access network objects with a relation to currently highlighted network

objects. A tab on the bottom of the overview window allows you to view and edit matrices.

(5) Quick view window

This window allows for quick viewing and editing of attributes for the currently highlighted network object(s).

(6) View procedure sequence

List view of the operations included in the procedure sequence. Operations such as demand calculations or assignments are defined and executed sequentially.

(7) Network window

Displays the currently opened network. Here you can adjust the display and edit the network graphically. Using the scroll bars and zoom features you can focus on the desired portion of the network.



The window configuration can be customized as needed. Using the “View” menu various views can be switched on and off. The elements of the user interface can also be moved and rearranged. This functionality supports multiple monitors.

Under VIEW -> GUI there is the option “Restore all windows”. This can be used to restore the files interface to its initial state. For this tutorial it is recommended to use the pre-configuration view and change it **only** when instructed to.

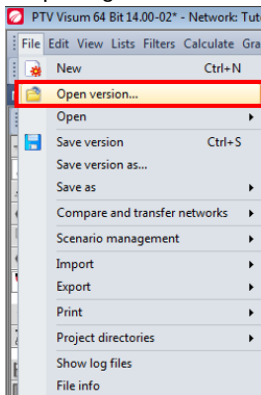
In the following sections various basic functions are covered and include: execution of procedures, network editing in PrT (Private Transport) and PT (Public Transport), and working with graphical settings.

Modelling steps

1. Procedure sequence and assignment

Using the View menu, select “*Procedure sequence*”. Underneath the Network editor a list will be displayed which shows several previously defined operations. These operations perform the assignments of the PrT and PT demand matrices. Run the procedure sequence by hitting the play button . After a short run time the assignments will be calculated. To make the results visible you can use a predefined graphic parameter set. This is done through the Drop-Down-Menu  located in the upper bar of the network editor. Select “*01_Assignment*”. Link bars, both for PrT and PT, should now be visible.

Reopening of version file: If you want to restart the tutorial from the beginning, you can reopen the version file using the menu FILE -> OPEN VERSION... and selecting the file TUTORIAL_FIRSTSTEPS.VER by double-clicking.

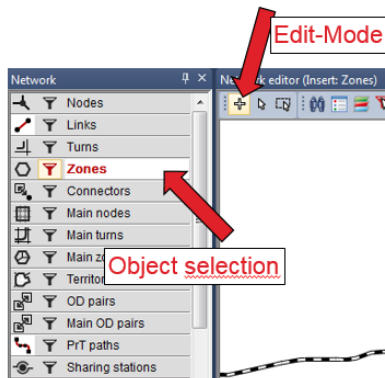


2. Viewing and editing objects

To have a closer look at results you can zoom in and out in the network editor. Along the top of the Network editor there are two buttons for zooming . Alternatively you can use the mouse scroll wheel. Panning the entire network is possible by either using the button  or by pressing and holding the mouse scroll wheel. Zoom to a random location near the center of the network.

Undo-functionality: It is possible to undo any actions in the network editor. This can be done by using the Undo and Redo buttons .

The attributes of a network object (such as a link) can be viewed and



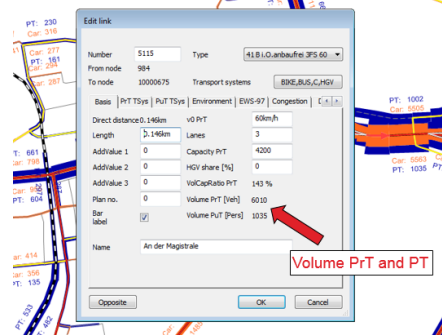
edited when it is selected. To do this Visum must be in editing mode. This is done by selecting the cursor icon in the editor window. Additionally, only a single object type can be selected at a time. To distinguish which object can be interacted with select it in the overview window. The image to the left highlights how to edit existing links in the network editor.

Activate the object "Links" in edit-mode and select any link in the network editor. When double-clicked a dialog box opens which contains attributes of the selected link.

Links have a direction. This means there exists one link per direction. You open the corresponding link when you double-click next to the link in the direction of travel.

In the dialog box some attributes can be altered. Others can only be viewed, such as volumes from assignments (In this case the volumes for PrT and PT).

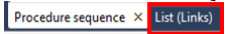
By hitting the button in the bottom left called "Opposite"



you can switch between directions. Close dialog with Cancel.

3. Use of lists

Another way of viewing and editing network objects is the use of lists. Switch to the already opened link list, next to the *Procedure sequence view*

. In the links list you can edit the white fields while the grey fields can only be viewed. The list and network editor are synchronized. When you select a row or a field in the list, it automatically shows in the network editor and vice versa. The synchronisation mode is selected with these buttons .

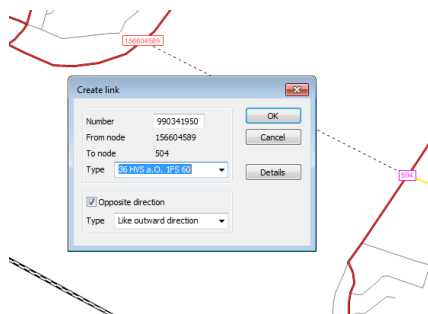
More lists can be opened via menu “*List*”, then the desired object can be selected from a submenu.

4. Inserting a link

The next step of this example is to edit the network by inserting a new link. A predefined graphic parameter indicates the location where the new link is to be inserted. Select the file 02_BRIDGE in the drop down menu

 above the network editor. The blue circles represent the start and end of a new link, in this case a bridge. In order to insert a link you need to switch to the insert mode above the object selection in the network editor .

The object selection is still Links. Click now on one and then the other blue highlighted node. The order is not relevant. Intermediate points can also be inserted in case the road has curvature.



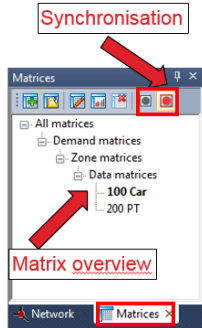
When finished a dialog box comes up where you must select a link type. Chose type 36 and confirm with *OK*. The new link has now been inserted. A dialog box will appear when you click *OK* which informs that assignment results are deleted, click yes and confirm.

Switch to the Procedure sequence list and execute it (as in step 1). In order to view results select graphic parameter 01_ASSIGNMENT. You now see the volume for PrT on the new link. It can now be analyzed as before. If you want to open the dialog box for a link you must switch back to the Edit mode.

When an internet connection exists you can add a live map from Openstreetmap in to the background. It can be used to get more details of your modeled system. For example, you can use the map to get the shape of link polygons. To activate and deactivate the map click the button  in the upper bar of the network editor.

5. Use of matrix editor

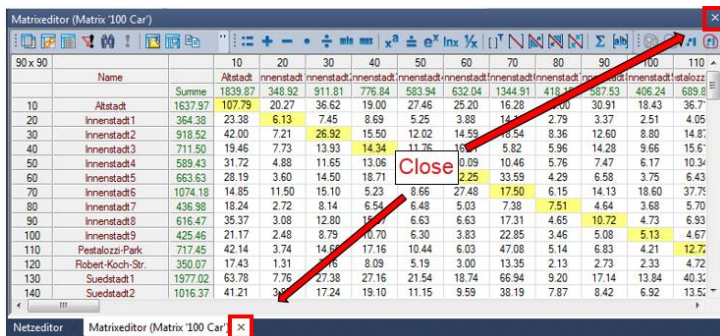
In this example there are two demand matrices for PrT and PT already included. In the network overview box there is a second tab that gives an overview of all matrices  . Switch to this tab and open the tree structure.



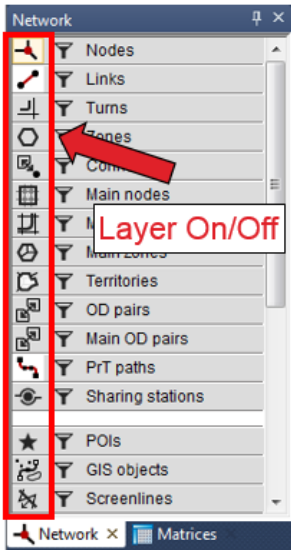
Open matrix 100 by double-clicking on it. The matrix is opened in a new view called Matrix editor, under the Network editor. The different views can be varied in size. When you move your mouse cursor between the views Matrix editor and Network editor, it appears a little symbol with two parallel lines. When this symbol is visible you can click and move the views up and down. Move the Matrix editor up until it covers about half of the screen.

The matrix entries can be edited by hand if required. When you click on a matrix field it synchronizes with the corresponding zone-pair in the network editor. The synchronization mode again depends on the setting at the upper end of the matrix editor.

Close the matrix editor by clicking on the close-symbol either on the upper right corner or on the tab.



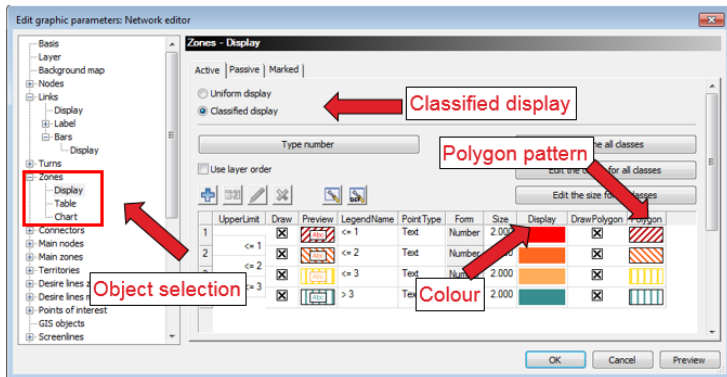
6. Graphical layer and graphical editing



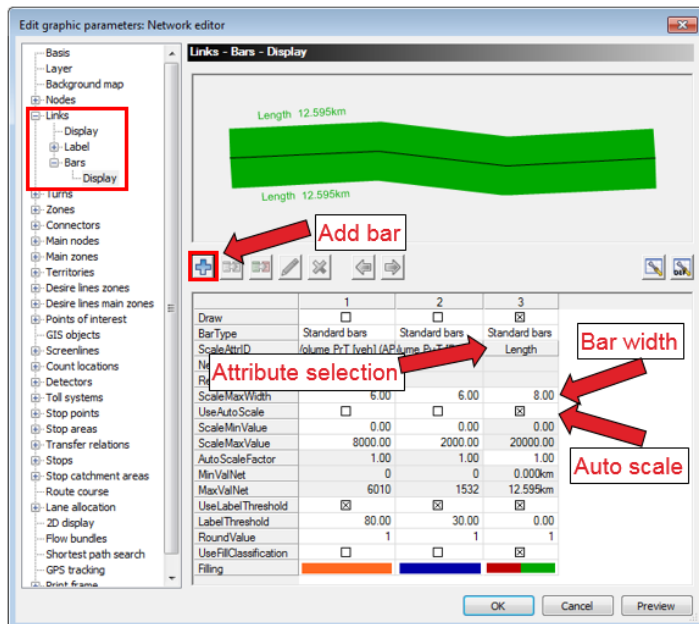
Switch from the matrix overview back to the Network overview tab. The graphical layer can be switched on and off individually for each object type. This is done by clicking on the layer symbol of each object. Activate the layer for zones. The zone centroids and boundaries become visible in the network editor. The polygon areas are transparent.

In the next step the graphic parameter settings are edited. Right-click on the layer symbol for zones. The setting at the moment is a uniform display. Switch to the “*Classified display*” option. There are 4 predefined classes in the presetting. For this example the zone type number is being used as the classification criteria. You can now make changes. When clicking in the “*Display*” column the color of the label can be changed. The scheme used to fix the zone shape can be altered by editing the “*Polygon*” column.

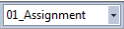
In order to make the changes visible in the Network editor you can click on the preview button in the bottom right corner. The changed settings can now be viewed in the network. Click on *OK* to confirm the settings.



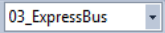
Now click on the graphic layer icon “Zones” to switch it off and right click on graphic layer icon “Links” . The graphic parameter dialog opens for Links. Click on submenu “Bars”. Here the bars can be switched on and off, and other settings can be changed. Open the submenu for bars by clicking on the “+” Symbol. Click on the submenu “Display”. Here an unlimited number of bars can be defined, representing the corresponding link attributes. At the moment the settings are *Volume PrT* in bar 1 and *PT* in bar 2. Deactivate the bars by unchecking the boxes in row “Draw”. Add a new column by clicking on *Plus* symbol .

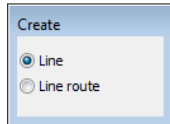


Click on row “ScaleAttrID” in column 3, which is “Type number” as default. It opens an attribute selection dialog where you chose the attribute “Length”

by double-clicking it. Increase the number in row “*ScaleMaxWidth*” to 8. Activate the “*UseAutoScale*” checkbox and confirm with OK. The network editor now displays the bar width according to the link length. Zoom into the network so that you can see the length as label. This way you can use any attribute for display purposes in the network editor. You should now try some more graphic parameter settings. In order to restore the initial state chose file 01_ASSIGNMENT in the Drop-Down-Menu  on the upper bar of the network editor.

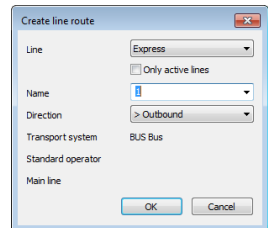
7. PT: Inserting a new PT line

In the next step the PT supply will be extended. For this a new bus line including line route and timetable will be inserted. The new bus line, an Express bus, will go over the new link from step number 4. There is a graphic parameter set which can be used as template. Choose the graphic parameter 03_EXPRESSBUS . It shows the object stop points as yellow triangles. Red circles indicate the start and end of the new bus line.



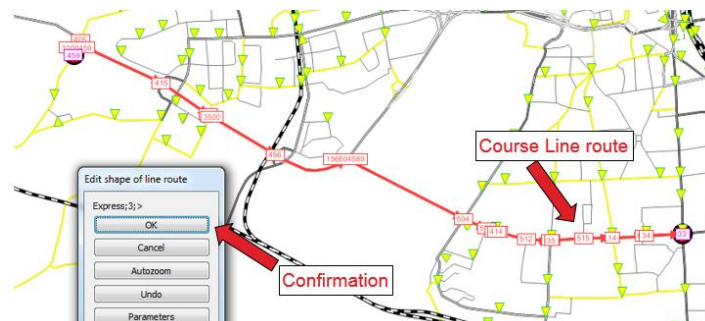
Select object *"Lines"* in the network overview and make sure that you are in Insert mode . A dialog will appear asking to specify which type of line to create. Choose the *"Line"* option and click anywhere in the network editor. In the

following dialog give the line the Name *"Express"*. Additionally, select the Transport System so it is set to *"Bus"*. Perform a new insertion and this time select *"Line route"* and click anywhere in the network. Chose in the following dialog line *"Express"* and insert a name, e.g. 1. Confirm with OK. You are now in the mode where you can define the line route.

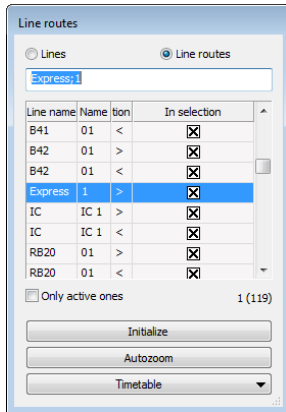


The dialog remains open. Chose the stop point at the left red circle and move the mouse cursor with pressed left mouse button to the stop point in the right circle. While moving mouse cursor the chosen route is displayed according to settings so that line route can be checked.

When you have made your final selection at the last stop point you can release the mouse button.

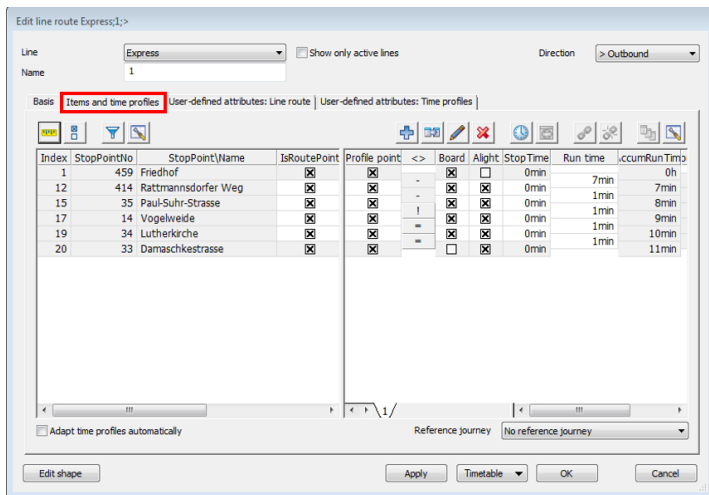


The course of the line route is defined now and can be confirmed with **OK**. Confirm also the dialog about deleting assignment results with **Yes**. The inserted line runs from left to right now over the new bridge. The line route in the reverse direction can be created automatically. Switch to the edit mode  .



. It opens a window listing all lines and line routes. Scroll down until Line name “Express” appears and select it. By right-clicking a context menu opens. Select menu “Create opposite direction...”. Confirm the following dialog with **OK**. The line now has two line routes, the different directions become apparent when selected.

The run times between stop points are generated automatically according to link run times for buses. Double-click on first *Express* line route. Switch to tab “Items and time profiles”. The column “Run time” contains the travel times between stop points. Round them to full minutes.

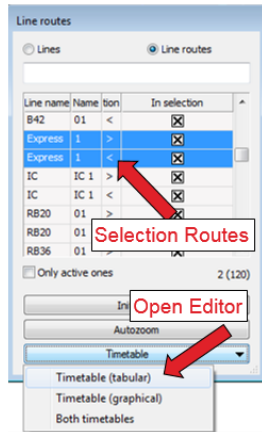


Confirm with **OK** and proceed the same way for the other direction of the Express line.

The selection list for lines will be closed when another object is chosen, e.g. links.

8. PT: Inserting timetable

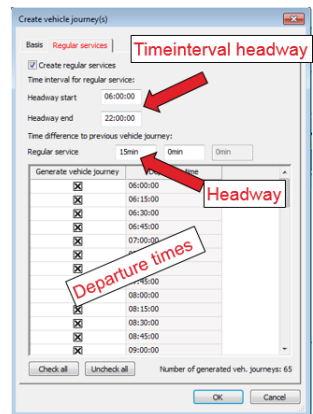
Before running a timetable-based assignment the new Express line needs timetable data. Activate the Object “Lines” select both *Express* line routes by pressing “Ctrl”. Afterwards open the tabular timetable editor.



It opens another view which initially only displays the stop sequence of the line routes.

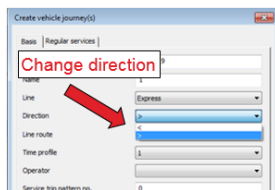
As a next step new vehicle journeys must be added. For this there is a button on the upper bar of the *Timetable editor*.

Click this button, it opens a dialog where vehicle journeys can be added. On the first tab there are no entries needed, so switch to tab “*Regular services*”. Activate the checkbox “*Create regular services*” and

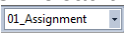


insert as Headway start “06:00:00” and as Headway end “22:00:00”. The headway is 15 minutes so entry 15min where it says “*Regular service*”. A click in the empty box below lists then the departure times. If you are happy with the departures you can confirm with OK. The vehicle journeys are transferred into the timetable editor in columns. Each column represents one vehicle journey. Next step is to define the vehicle journey in the opposite direction.

Click again on the button  on the upper bar of the timetable editor. Again it



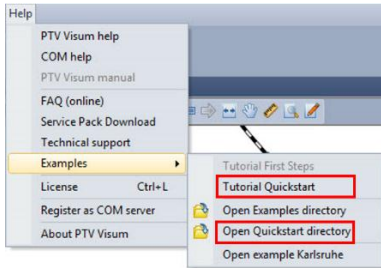
opens the dialog to insert the vehicle journeys. On the first tab you now have to change the direction. Then switch to tab “*Regular services*” and insert same time intervals and headway as before. Confirm with OK.

Then switch to view Procedure sequence and execute the operations. Reload the graphic parameter 01_ASSIGNMENT in the Drop-Down-Menu  on the upper bar of the network editor. As a result there is a (small) volume on the new bridge.

Further examples and support

Quickstart Tutorial

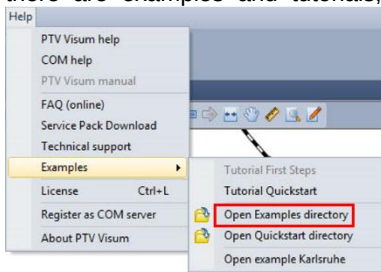
When you have learned the fundamentals of operating PTV Visum it is recommended to use the Visum Quickstart tutorial. This tutorial deals with all relevant basic steps in traffic modelling with PTV Visum. You find the Quickstart tutorial in menu HELP -> EXAMPLES. Under menu "Tutorial Quickstart" a pdf documents with instructions opens straight away. For access to all attached data and files you can open folder Quickstart.



Further instructions how to start the tutorial you can learn from the document.

Examples and Tutorials

For more specific topics, such as demand modelling or scenario manager, there are examples and tutorials, which consist of example files and an instruction with steps to be executed. You can get to the examples in menu HELP -> EXAMPLES. There you can open the directory Examples. When you decide for an example you can open the instruction file. In many cases the first step is to open a so called project directory file. For that purpose you open in Visum under menu FILE -> PROJECT DIRECTORIES -> OPEN PROJECT DIRECTORIES....In the following dialog you open the folder "Examples" and load the respective path file. Next steps are described in the document.



Webinars

For further topics you can watch videos of webinars. You find the webinars on our website under <http://vision-traffic.ptvgroup.com/de/community/webinare/>. At the bottom end there is the option to get access to previous webinars.

User manual and Online-help

Fundamentals in methodologies and user instructions can be found in the attached user manual. You can open it under menu HELP -> PTV VISUM MANUAL. In addition you can use the Online-help when questions about operating the program. You access the online-help with hitting the F1-key while working with Visum. It will open directly the chapter where you are in the program.



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