VISUM Release Notes

Version 9.1

Version 9.15-08

Last modified: 2005-07-05

traffic mobility logistics.

Version	Corrections, Bugfix and Extended functionality (DB ID)
9.15-08	**Procedures** • *PrT assignment*: • *Tribut*: VISUM will no longer crash, if the Tribut assignment procdure is calculated after splitting a link (**3089**) • *Traffix*: Data errors sometimes occurred due to overflows caused by overloading while calculating turn capacities (TurnCap). These are now intercepted. (**3107**) • *Traffix*: The capacity of turns with zero volume via 4-way-stop nodes was not calculated correctly, but multiplied by 10. VISUM results were not concerned. This bug has been fixed. (**3017**) • *Traffix/NEMA*: By mistake, the pure *prot* share was calculated for NEMA controllers in case of *Prot+perm*. This bug was fixed (**2966**) • *Traffix*: Signalized nodes (only relevant to stages and signal groups): In case of *prot/perm* or *perm/prot*, Traffix does not expect the total Green time, but the Green time of the protected flow. (**2930**) • *Traffix*: (**3107**) • *MultiPoint Assignment*: In some cases, incorrect path structures were saved during PrT assignments in MPA mode, thus, subsequent e.g. flow bundle calculations might return inconsistent results, whereas volumes resulting from MPA assignment were always correct. This bug has been fixed (**2956**) • *Cali:* Also AddVal3 data can be used for matrix calibration based on count data; previously, the procedure could only use AddVal1 and AddVal2 data (**3637**)
9.15-08	**Matrix Editor** • *Matrix division:* Correct division by element, even if a Muuli-LOG file is used; previously, data were multiplied instead (**3274**)
9.15-08	**VISSIM Export** • Correct export of line routes of the "train" category (running on fixed tracks) even if traversing nodes modelled with lanes. (**2917**)
9.15-08	**Miscellaneous** • *Open Version file:* • Versions, that a) contain detailed (by vehicle journey item) results of assignment or line-costing calculations AND b) were saved with 9.15003 or before can now be read from file without errors. (**2857**) • *Node flow bundle*: Flow bundles regarding nodes will no longer be ignored (**2760**) • *License size*: Licenses limited to 50,000 time profiles were upgraded to 64,000 objects (**2931**)
9.15-07	**Discarded program crashes** • *Delete / merge multiple nodes*: no more crash in case of link number overflow (Numbers > 2^31). (**2839**) • *Integrate isolated nodes*: When nodes are inserted as link stop points, the test for existing objects now operates with a correct tolerance radius, excluding the possibility of crashes. (**2844**)
9.15-07	**Network Editor** *Running times of links from running times of lines*: Dwell times wer erroneously included in the calculation of line running times. Now, only travel times will be considered. (**2809**)
9.15-07	**Attributes** The link attributes *FromNode Orientation* and *ToNode Orientation* will always be calculated correctly in cas of three-leg nodes. (**2843**)
9.15-07	**Menu EXTRAS – *Program status*** The tag *Base network* is also displayed when the PrT add-on is not active (**2858**)
9.15-07	**PrT assignment – *Traffix*** • VISUM **with** dongle: access to Traffix add-on now possible via COM. (**2596**) • VISUM **without** dongle: a single message is displayed when accessing via COM. (**1888**) • In case of AllWayStop, Traffix-calculated "Delay" will be exported to t0, tCur at turns (not "SharedDelay"). (**2840**)

Version	Corrections, Bugfix and Extended functionality
9.15-06	**PrT assignments** See tag *Functions – PrT functions - Impedance:* Info displayed within dialog box has been corrected: Length unit for impedances is [m] (or [miles/1000], if applicable) instead of km/mi. (**2790**)
9.15-06	**VISSIM Export** Neither invalid nor overlapping Vissim priority rules No. are exported. (**2795**)
9.15-05	**Discarded program crashes** • *TFlowFuzzy*: Italian version is up-to-date now (outdated dll caused crash). (**2763**) • *Edit line route* caused a program crash, if a new route point was defined right after run and dwell times editing (*Time profiles* tag). (**2690**) • *Subnetwork generator*: Can handle stop areas without allocated nodes now. (**2646**)
9.15-05	**PrT assignment** • *Indicator calculation*: new user-defined file extensions consisting of 3 characters were cut to 2 characters automatically. This bug could be fixed. (**2436**) • *Read network / tCur of connectors*: After reading network, tCur of destination connectors was not updated (connectors remained closed); to solve this problem, the version had to be read from file and the procedure parameters needed to be edited. This bug could be fixed. (**2639**)
9.15-05	**Lists** • *PrT route list*: correct list output, even in case of different TSys saved with Layout file. (**2777**) • *Path list – PrT Flow bundle*: Instead of selected paths, the first n paths per OD were listed with n = number of paths selected for this OD pair. (**2774**)
9.15-05	**Specify line route polygon** Line routes without items (if OK is confirmed immediately) are ignored to avoid future program crashes caused by "empty" line routes (assignment and others). (**2634**)
9.15-05	**Attributes of type time period** Now, attribute values are rounded instead of cutting; internal 1.6s becomes 2s now. (**2668**)
9.15-05	**COM Interface** Any access via COM regards the current *Unit* settings {*imperial/metric*} for returned data. (**2647**)
9.15-05	**Read VISUM8 data files** • Reading *.ver files containing node geometry data runs much faster now. (**2191**) • Min/MaxValue of UDAs of *time(moment)* data type are now read correctly. (**2602**)
9.15-05	**Database export of the network file** Also data of table $TurnToSignalGroup is exported in sorted order. (**2493**)
9.15-05	**Background add-on** Backgrounds/Objects are now drawn correctly and only once after rotating, shifting, resizing etc. via handle. (**347**)
9.15-04	**PrT Assignments** • *Stochastic*: Great β values specified for the distribution function (*Choice* tag) will no longer cause an overflow (especially in case of Logit and Box-Cox). • *DynStochastic*: • Now, route volumes per time interval are now distributed correctly to network objects. This bug became obvious especially in case of heavy overloads, sometimes volumes were shifted to subsequent time intervals. • For calculation of the minimum impedance per OD pair, now the "time factor" (Input data, see *Estimated impedance* tag: *Imp of a connection = Factor * estimated impedances of network objects*) is regarded for calculation of Rmin by connection; hitherto, 1.0 (=default) has been used instead. • *Traffix*: Also one-way roads are now handled correctly (turning lanes and control types).
9.15-04	**COM Interface** • *Call TFlowFuzzy*: Program crash discarded, which used to occur, if any language apart from German was used. • *Call Cali* (Lohse): Program crash discarded.

Version	Corrections, Bugfix and Extended functionality
9.15-04	**Network Editor** • *Delete vehicle journey items*: Now, this MULTISELECT *Special function* for vehicle journeys works correctly (did not work before). • NETWORK – *PuT Vehicles*: For Code and Name of VehUnits and VehCombinations, the number of characters is no longer limited.
9.15-04	**Save network/version** No vehicle journey items data losses, even if vehicle journey data items are missing for one or several vehicle journeys.
9.15-04	**Junction Editor – Left-hand traffic** • Node entries with several lanes to be converted into separate Vissim links are now connected correctly to node-external links (hitherto: inverted). • Lane connectors for right-turning flows from multi-lane node exits are now connected correctly to destination lanes.
9.15-04	**User-defined link attributes** For output of undirected values, internal settings have been changed from "Ignore" to "Sum", thus the UDA values by link direction will be summed up for output.
9.15-04	**Import from database** The database is closed immediately as soon as database import is finished.
9.15-04	**„Find" dialog box and other selection grids** Even if the very last entry is selected, the user-selected line is regarded now instead of any other data line above selected randomly before.
9.15-04	**Menu FILE – *File info*** In case of extensive text entries, the program used to crash. Program crash discarded.
9.15-03	**PrT Assignments** • Tribute: After "Split link", the program does not crash during assignment. • Traffix: Now, correct *prot/perm* values from stages/signal groups (NEMA was not concerned).
9.15-03	**Network Editor** *Create node*: The program does not crash if the Node Filter is active while a node is created but this operation is terminated via *Cancel* in the Node dialog box.
9.15-03	**COM Interface / TFlowFuzzy** Program crash discarded, parameter file is read correctly.
9.15-03	**Timetable Editor** Edit vehicle journeys in fixed rthythm display mode • A negative departure time is no longer stored in case of toggling between normal display mode and fixed rhythm display mode. • Now the data of the recent state BEFORE any invalid data entry is stored in case of invalid data entries in fixed rthythm display mode (e.g. negative departure time) and confirmation via OK or ⊠.
9.15-03	**Graphic parameters *Flow bundle*** Default settings for Flow bundle display: Blue, Violet, Red (instead of White for all 3 of them).
9.15-03	**Difference network / Count locations** Count location co-ordinates will no longer get lost during Difference network calculation.
9.15-02	**Network Editor** • *Generate connectors*: performed as a SINGLE transaction (instead of one transaction per origin zone). • *Aggregate nodes*: Sometimes, the program used to crash in case of active node filter. • *Delete node(s)*: Sometimes, the program used to crash in case of active turn volume display. • *Aggregate lines*: To save RAM, option "*Calculate without Undo option*" is provided.
9.15-02	**Timetable Editor** Even in the „Edit regular vehicle journeys" display mode, journeys marked by ⊠ in line *Markings* remain in the selected state during scrolling.

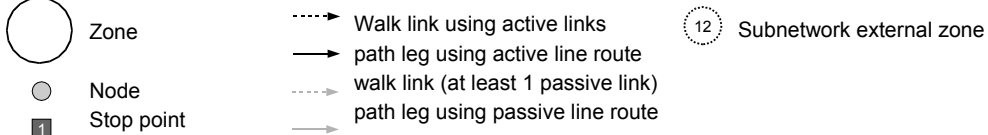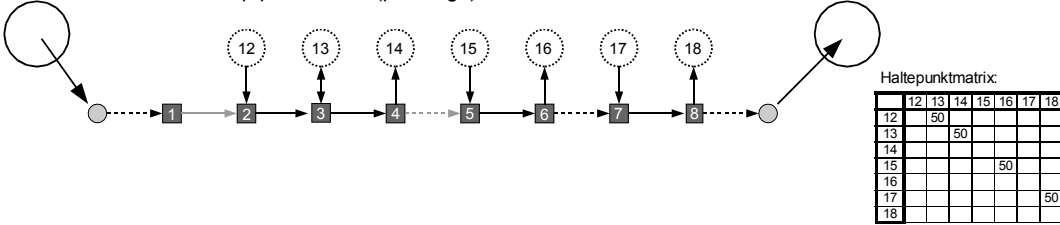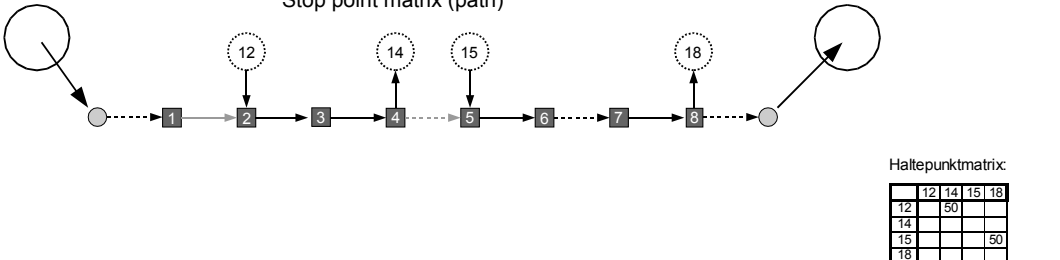| Version	Corrections, Bugfix and Extended functionality
9.15-02	**Filters** Discarded: Program crash in case of "Open Filter file" containing a filter criterion with invalid values (e.g. undefined transport systems) selected for value range via ... button. The program also used to crash if one of the currently used objects selected from a discrete value range (= via ... button) was deleted (OperatorNo., VehCombNo, ..)
9.15-02	**Open network file** In case of network files with incorrect $Blocks or $BlockItems data only the particular line block is ignored instead of the entire block version.
9.15-02	**PrT Assignment – *Traffix*** • Traffix can also be used for Left-hand traffic. • Permitted U-Turns are handled like Turns to the left. • NEMA uses the particular permitted time share (Traffix) for ProtPerm and PermProt. • Additionally to *UsePresetCriticalGap* also *CriticalGap* is now provided as absolute value. • Traffix parameters: Method "unknown" was removed from dialog box. • For open turns, now volume 0.0001 is used instead of volume = 0; thus Traffix can calculate both Delay as well as Sat for all Turns now.
9.15-02	**TFlowFuzzy** Discarded: Program crash caused by Option ⊙ "Replace current O-D matrix".
9.15-01	**Open VISUM8 version file** According to *Types of traffic* specifications in VISUM8, the *O-D pairs filter* is now set to the passive state if VISUM8 version files are read with the following filter settings: All possible relations are active (AA,AB,BA,BB).
9.15-01	**Edit/Open Matrix (ASCII)** All line and column totals are recalculated from current matrix data, when the entire matrix is set to a constant value or if a matrix is read from ASCII file.
9.15-01	**PrT Assignment** • Menu CALCULATE – *Procedures – Functions – PrT functions*: *Critical time gaps* and *Move-up times* tags have been removed. • Learning procedure using option *Connector weights apply to "each O-D pair (MPA ON)"*: Subsequently, temporary zones are deleted .
9.15-01	**PuT Assignment** Transfer wait times: • Correct calculation of *Extended TWT* even for connections with more than only one transfer. • *Extended TWT* has been redefined as follows: If a user-defined *Transfer walk time* is regarded for the passenger transfer, then *ExtTWT = TWT*. • Correct calculation of TWT for transfers into a circle line, if the passenger then traverses the circle line´s Destination/Start Terminal. Example: Line B = circle line, Line A = no circle line; Connection with "circle line transfer" from B´s final route section to its first route section: Transfer from A to final B section, then (only virtual) to first B section. For Transfer A->B, VISUM used to calculate TWT = 0 by mistake, but for preceeding transfers the correct TWT was calculated.
9.15-01	**Aggregate Lines** Correct aggregation even if function is applied several times in a row.
9.15-01	**2-D Display** Program crash discarded, which used to occur if aggregate zone attributes such as e.g. "mean journey time PuT" were selected.
9.15-01	**Lists** Even in case of a blank in the network object code, the attribute will be listed with the appropriate sub-attribute.
9.15-01	**COM Interface** All functions regarding container classes effect the container objects only, they do not regard all network objects (e.g. ItemByKey, CComLinks::Remove).

Version	Corrections, Bugfix and Extended functionality
9.15-00	**Read Network** Now, a network is read from file as fast as before VISUM version 9.14.
9.15-00	**Nework Editor** • *Edit connector:* Navigation (via < button) between several connectors of a zone will not cause a program crash. • *Edit line route*: Program crash discarded, which used to occur when dwell and run times were edited immediately after deleting another time profile in this dialog.
9.15-00	**Node Editor** Node templates: Only templates that match the particular node are provided for selection.
9.15-00	**Graphics Parameters – Link bars** Selected sub-attributes are not reset to default when the dialog box is closed.
9.15-00	**COM Interface** Read network: Now, SetForAllTSys (Set parameters for line route completion) works correct now.
9.15-00	**EWS add-on** • Amortization time interval 20 years has been added. • Annuity factor corrected from 0.00 to 0.03 for infinite.
9.15-00	**Timetable Editor** • Stop sequence: Program crash discarded. The program used to crash if the user • had selected two lines with very long line routes and • scrolled down to the end of the stop sequence in one of the line routes then and • selected only one of the two formerly active lines via *Lines* button subsequently. • Correct results after editing a vehicle journey´s line route even if the vehicle journey (section) does not cover the entire time profile. • Selected columns in child-window (bottom left): Now, the user may scroll to the right for display of hitherto invisible columns (e.g. StopName) even after clicking "Select all stop points" or "Select no stop point".
9.15-00	**PrT assignment: TRAFFIX** New turn attribute: *UsePresetTraffixSat* {yes/no}. Both, Traffix and VISUM can calculate *TraffixSat* [veh/h] per turn. In case of *UsePresetTraffixSat* {yes} the value calculated in VISUM is transfered to Traffix.
9.15-00	**NEMA Interface** Correct Nema-Update during assignment.
9.14-00	**PrT assignment: TRAFFIX** • New turn attribute: *CriticalGap* (Input: Delta value) is transfered to Traffix as *CriticalGapAdj* (Adjustment) . • Also lanes at 3-leg nodes are transfered correctly to Traffix, the angle of node legs does not cause errors.
9.14-00	**Filter** Now, Lines/Stops Filter settings regard changes to network object attributes; the status of edited network objects is adjusted immediately (active -> passive).
9.14-00	**Network Editor** Newly created stop points on links are now added correctly to line routes passing these links.
9.14-00	**Save network file** Network data files are now saved correctly (Sometimes, function was not executed in previous versions).
9.14-00	***Search* dialog** The pointer is placed in the Edit box for immediate key data input, when the dialog is called up..
9.14-00	**Licence size** Now, max. 100,000 time profiles are provided with size version J, K, L.
9.13-01	**Edit time profiles** Results (assignment/line costing) are no longer reset if irrelevant attributes (e.g. AddValues or user-defined attributes) of a time profile item are edited.

Version	Corrections, Bugfix and Extended functionality
9.13-01	**OD pair filter** Only after activating or editing the active OD pair filter filtered volumes will be calculated and line costing results will be deleted.
9.13-01	**Junction Editor** VISSIM Export of two-way stop nodes: For left-hand traffic, priority at two-way stop nodes is no longer given to right turning flow from superior direction but to straight traffic.
9.13-01	**Timetable Editor** Program crash discarded which had been caused by • selecting a new line route with several time profiles for a vehicle journey, • activating "Copy to clipboard" in "Regular vehicle journeys" display mode.
9.13-01	**Assignment parameters from VISUM 8** VDFs of Turns specified with VISUM8 are read correctly now.
9.13-01	**Menu EXTRAS – MULTISELECT – *Check link symmetry*** Both link directions are set to the active state now (previously only 'FromNodeNr < ToNodeNr').
9.13-01	**Attributes from clipboard** Program crash discarded which used to occur, if clipboard data had been exported to Excel and copied again before.
9.13-01	**TModel Import** • Correct import in case of more than 100 lines in LDC file. • Inconsistent internal state after reading Node VDFs and resulting program crash when opening the procedures parameters dialog has been fixed.
9.13-00	**Read network//version** • Read network: • Detectors without count locations (attribute COUNTLOCATIONNO = 0) can be read from file. • Block $VERSION may not be deselected. • After reading surfaces additionally to the current network via "overwrite" now all links are "cut" correctly for line costing calculation. • Read version: Time profile items with descending times of arrival/departure are corrected during reading.
9.13-00	**Network Editor** • *Generate connectors*: only for active zones. • Menu NETWORK – PUT VALID DAYS – *Create holidays*: Program crash discarded. • Menu NETWORK – PUT TICKET TYPES – "Define fare levels" window: "Fare" entry is stored (no longer reset to 0 if pointer is placed on other control). • MULTISELECT – *Edit line routes*: Calculated results (assignment, indicators) are initialized, if the operator is changed for selected vehicle journeys (similar to *Edit* in Singleselect mode). • MULTISELECT – *Edit links – Special functions – Generate Link_AddVal from Turn_AddVal*: only numerical link attributes can be selected (alphanumerical attributes caused program crash).
9.13-00	**PrT procedures** • Tribut procedure and Stochastic assignment: Several demand segments with identical transport system can be assigned simultaneously now. • VISUM will not crash during PrT assignment after editing zone numbers; connectors are adjusted accordingly. • PrT indicator calculation: Returns correct results even if option "only active zones" is checked. • Menu CALCULATE – PROCEDURES... – *Functions – PrT functions – Node control*: LOS update using *tCur Turns from Junction control (TRAFFIX)* provides new option "Update only active nodes" (Note: is not regarded for *LOS Update* via MULTISELECT).

Version	Corrections, Bugfix and Extended functionality
9.13-00	**PuT output** • Lists: . • PuT paths: Fares are calculated correctly even for paths using zone-based ticket types (previously = 0). • PuT path legs: Correct calculation of direct distance length and direct distance speed (*PDV/PDD*) of PuT-Walk path legs. • Flow bundles: • Flow bundles over stops or stop points: "PassThroughWithNoStop" value includes passengers of time profiles not having this stop point as a profile point. • Correct calculation of flow bundle volumes of network objects even in case of stop points on links (previously calculated volume values > real volume values).
9.13-00	**Timetable Editor** • Create vehicle journey sections: If a vehicle journey section is added and edited subsequently, the edited data will not get lost, even if another vehicle journey section is created without confirming OK or toggling to another vehicle journey in the meantime. • *Sequence of Stop points* display: Column selection and arrangement is stored, columns will be displayed accordingly when the timetable editor is called up again. • *Regular services* display mode: For regular services containing only a single vehicle journey, the *Headway Start* entry can be edited now.
9.13-00	**Attributes** • Vehicle-hours (PrT): This attribute (*time period* type) returns the vehicle time in [seconds] (*VehHourTravPrT; VehHourTravt0; VehHourTravt0_DSeg; VehHourTravtCur; VehHourTravtCur_DSeg*) • New attribute *NumServiceTripsProportional* (Line costing) per Line route item and per Time profile item: for coupled trips proportional shares are returned.
9.13-00	**Matrix Editor** Split matrix: Even if a huge number of zones is selected for splitting the program will not crash.
9.13-00	**Node Editor** • Left-hand traffic: The number of lanes is displayed correctly (*Edit node* dialog – *Lanes* tag*).* • Default node topology: For *Straight* turns blocked for all PrTSys in VISUM no VISSIM connectors are created.
9.13-00	**VISSIM Export** Correct export of blocked VISUM turns (U-Turns: FromLink = ToLink).
9.13-00	**Interfaces to external programs** • Hafas: For parameter files, file extension .* is no longer used. • Nema: Blocked turns are not assigned to any signal group. • Traffix: Signal times from Traffix optimization are rounded to 2 decimal places (previously 0). • TModel Import: • References to invalid link types (in *.llx file) are handled correctly. • Import of VDFs for links: Parameter d and d' are now multiplied by 0.01 (instead of incorrect factor 0.6).
9.13-00	**Miscellaneous** • Program start: If one of the program files *std.zsk* or *std.zgi* is missing during program start, an error message is displayed and VISUM is closed (previously: program crash). • Delete network: Detectors refering to count location will not cause a program crash. • TFlowFuzzy: For trace file records, the current TFlowFuzzy language is used. • Background Compiler: Warnings and error messages are displayed in English.
9.12-01	**Timetable-based PuT assignment** • Parameters: If option "*Do not delete any connection*" (Preselection tag) was selected and option "*Independence*" (Choice tag) was checked VISUM did not calculate correctly for o-d pairs with *connections using PuT* and also *connections without PuT* in previous versions. This bug has been fixed. • The paths specified for *Save skim matrices* may now also be entered as relative path containing ... .

Version	Corrections, Bugfix and Extended functionality
9.12-01	**PrT assignment** • Dynamic and stochastic assignment is much faster now, as VISUM now ignores all o-d pairs with a total demand being too small for graphical display though it is greater 0. • Design hourly volume of a node can now be calculated without taking the node´s control type into consideration. • *PrT functions - Node control* tag - "*tCur Turns* from Node VD-function (TModel)" mode: *tCur* is now updated as soon as a new *TModel anchor link* is selected for a node.
9.12-01	**O-D matrices** • Reading a *binary* demand matrix additionally to an open matrix will no longer fill the last row with 0. • For *Open/Save O-D matrix*, a demand segment does not have to be selected necessarily.
9.12-01	**Network Editor** • Current "only active" settings in selection lists of lines and line/system routes are now stored. • Faster access to zone attributes *Origin/Destination demand*. • VISUM deletes vehicle journeys starting/ending at identical stop point which might be generated automatically during *Edit line route shape*. • Even after editing a filter condition´s value range the user may open another tag in hierarchical filter dialogs (stops, lines).
9.12-01	**Timetable Editor** • Adding numerous journey sections to a vehicle journey will no longer cause a program crash. • Create vehicle journey: Departure time can be defined in hh:mm:ss format even if font size is too big for departure time display in the Edit control.
9.12-01	**Open network** • ENum data (e.g. "211g") are now read from file without regard to capital or small letters (g/G). • Time profiles with *Boarding not permitted* at origin stop are regarded as being invalid. • More than 255 valid days can be read from file.
9.12-01	**Lists** • Now a pointer is displayed and the size of the Edit control is adjusted for editing string-type attribute data in lists. • Correct output of transfer volumes in transfer lists. Previously, the value was multiplied by 10^N by mistake in case of assignment calculation with *N* decimal places. • Now arrival and departure times are output correctly in PuT path lists even if analysis period and global calendar start from different days.
9.12-01	**Multiselect - Special function "Link run times from line run times"** • Correct results even if a link is not completely traversed by a line route (stop point on link). • Calculation for line routes terminating at a stop point on a link will no longer cause a program crash.
9.12-01	**EWS add-on** Also AddVal2 and AddVal3 can be selected for data source and will no longer be reset to AddVal1.
9.12-01	**VISSIM Export** For all *2-way stop*-controlled nodes now priority rules are created correctly to ensure correct vehicle behaviour in VISSIM.
9.12-01	**TModel Import** • For user-defined attributes generated during TModel import now the aggregate functions *Sum*, *Min*, *Max, Avg* are provided in lists. • Turns missing in the network but listed in the turn penalties file will no longer cause a program crash during import.
9.12-01	**Discarded program crashes caused by *Undo* functionality** • The menu bar was not completely disabled (grey-shaded) during *Edit link shape*, clicking *Undo* caused a program crash. • Executing operation "Updating time profiles" caused an invalid state of the *Undo* stack. Subsequent program crash discarded. • VISUM will no longer crash if *Undo* containing "Delete network object with polygon" is executed and a version or network file has been saved in the mean time. • Converting the global calendar deletes existing line blocks. VISUM used to crash if *Undo* was called for this action.

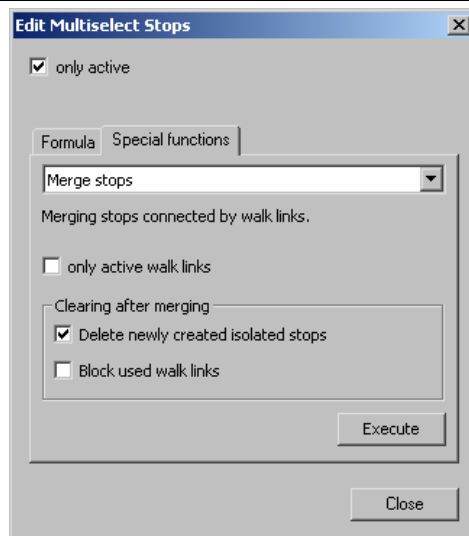| Version	Corrections, Bugfix and Extended functionality
9.12-01	**TFlowFuzzy** • Now a share matrix can also be calculated if AddValues of turns are used. • For trace file recording now the currently selected language is used.
9.12-00	**Program crashes discarded** • Reset calendar to "no calendar" caused abnormal program termination in case of existing block versions with system valid days. • Filter dialogs: the program crashed if <Tab> or <Return> was used to finish user-entry in the 'value range' column of a filter condition line only if no interval was required, but a string. • Save attributes to database: lists may contain the same column twice now. • Subnetwork Generator version is saved to file without crash even if the network contains main nodes.
9.12-00	**PuT assignments** *Headway-based* New *Choice* option provided for co-ordination on route shared sections: *"Assume coordinated time profiles to be undistinguishable"*. In case of identical headways, coordination is easy. Since coordination groups can be defined for arbitrary time profiles in VISUM, however, there is no natural definition of the aggregate headway. The existing approach mimics the manner of proceeding in the software VIPS, from which the core of the choice model described in VISUM Manual Chapter 2.5.5.4 was borrowed. As will be pointed out below, this concept is based on the assumption that passengers can still differentiate between the time profiles contained in a coordinated bundle and make their choice based on the single TP's attributes. This coordination strategy has been useful in various projects. Alternatively, the approach presented below is added as a new option in the search & choice parameters of the headway-based assignment. Then, it is for the user to decide which of the two model assumptions fits his application better. The new approach is based on the following algorithm: T_i = headways of coordinated time profiles. • In a first step, the aggregate headway T for the bundle is set to **T := 1 / (1 / T_1 + ... + 1 / T_m)**. This is the harmonic mean of the given T_i. In this way, the number of services corresponding to this headway is equal to the sum of the number of services of the single TPs. Example: $T\_1 = 6'$, $T\_2 = 7.5$ (i.e. 10 plus 8 services per hour) yields an aggregate of T = 10/3 which also corresponds to 18 services per hour. • For each time profile, the proportion of the total number of services is given by **β_i = T / T_i**. This fraction is also used as the relative share of the demand within the bundle, i.e. we let **p_i := β_i**. The aggregate impedance is again set to **C := c_1 p_1 + ... + c_m p_m** where C_i = impedances of the TPs. • The virtual aggregate option m* with headway T and impedance C is compared against the other time profiles using the standard algorithm, cf. Chapter 2.5.5.4. **Model approach** Here, the general assumption is that the TPs inside the coordinated TP bundle are not distinguishable. This is reflected in the definition of the aggregate headway where a TP's own attributes (headway and impedance) do not come into play. Instead, the aggregate headway is calculated with the focus on the number of services represented by the TP bundle. Taking this point of view, it should be natural to simply use each TP's proportion of the total number of services as the demand share of that TP. When passengers really cannot differentiate between the TPs within the TP bundle, they must board the first service that will arrive. In this way, the passenger volume of each contained TP is proportional to its number of services. Furthermore, the aggregate impedance is defined as the weighted mean of the single TPs' impedances, this time using the service shares β_i as weights. This makes sense, because the resulting aggregate is the mean impedance of all services. To the passenger, this is the expected impedance when boarding the first available service of the TP bundle. **Example:** This example shows the difference between the existing and the new approach: <table><tr><td>Time Profile</td><td>Impedance</td><td>Headway</td><td>*distinguishable* (Default)</td><td>*undistinguishable*</td></tr><tr><td>1</td><td>24'</td><td>1'</td><td>0.0166</td><td>0.7692</td></tr><tr><td>2</td><td>20'</td><td>5'</td><td>0.3366</td><td>0.1538</td></tr><tr><td>3</td><td>16'</td><td>10'</td><td>0.6466</td><td>0.0769</td></tr></table>For the *undistinguishable* approach, the aggregate headway T is equal to 6/7, i.e. about only 46 seconds. The aggregate impedance is given by C = 22.77. This is much larger than before since the high-impedance time profile 1 plays a more significant role now.

Version	Corrections, Bugfix and Extended functionality
	Timetable-based • Parameters – *Impedance* tag*,* • *Extended* button Select operator attribute to be compared (UDA may also be selected). In case of transfers with operator changes, transfers between FromOperator and ToOperator having the same attribute value are regarded as being no operator change. Default: *Number* (each operator change is charged with the specified penalty). ***Timetable-based*** **with** *Shortest path search* **option** Calculating correct assignment result even if both, connections WITH and WITHOUT PuT remain available for an O-D pair AFTER pre-selection. In recent versions, pure walk link connections have been stored repeatedly (for each start time used) by mistake.
9.12-00	**Shortest path search PuT** • As first/final path leg of a short path**, trivial** walk links (transfers within a stop area) are not listed. • If a connection includes a **non-trivial** (permitted) walk link leading to the destination stop area, both tabular and graphical display will contain this walk link path leg. Also for transfers between stop area and node as well as between two stop areas, connection lines are drawn and listed.
9.12-00	**Subnetwork Generator** With the version file, also current unit (*imperial/metric*), main nodes, active areas data is saved now. Two types of stop point matrices provided: • By path leg (VISUM 9.0): For each single path leg whose line route is active, a subnetwork external zone is generated at the origin and at the destination stop point. The path volume is stored as demand between these zones; thus, the new matrix will contain the volume for each path leg per O-D pair. • By path (VISUM 9.1, similar to VISUM 8): For each route, a subnetwork external zone is generated at the first stop point of an active line route (origin). If the route leaves from active line routes or if a path leg is followed by a walk link traversing a passive link, a subnetwork external zone is generated at the last stop point of the last active path leg (destination). Demand is stored between origin and destination. As soon as the route returns to (and uses) active line routes, a subnetwork external zone will be generated at the first stop point of the first active path leg (etc.). If all line routes or links respectively are active: Stop point matrix total = Demand matrix total. **Example:** Option *"Use stop point offset for zone numbers"* (here = 10) illustrates this method.

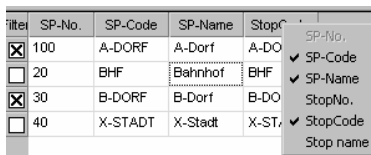| Version	Corrections, Bugfix and Extended functionality
9.12-00	**"Valid days" dialog** • Complete display of the month for date selection even in case of so-called 6-week months (e.g. August 2004; starting on a Sunday & with > 29 days). • Check/Uncheck day: Date remains visible now (instead of white/white display).
9.12-00	**TModel Import** • Turns are blocked correctly now (Edit field on *Parameters* tag had not been regarded). • Layout is read correctly (*Block turns for* t0 > had always been set to 1h40min).
9.12-00	**Traffix** Blockings in network due to incorrect data management: Turn-Cap and t_Cur had not been read correctly for 2-way-stop controlled nodes. Bug has been fixed.

9.12-00	**Attributes**
	• Stop areas do not mandatorily have to assigned to a node. In recent VISUM versions, a stop area without an assigned node could not be read from network file.
	• New: *LinkBarTextPosition* is stored and can be edited interactively like any other link attribute (cf. census point text position).
	• *Link lengths:* Option *Recalculate link lengths* provides correct results now for
	  • *Aggregate nodes* and
	  • *Shift node*.

9.12-00	**Difference network** *Save network* and FILE – *Export – Database* functionality now also available in the Difference network mode.

9.12-00	**COM Interface**
	• New: *Active block version* can now be specified via COM.
	• *SetTerritoryActive*.
	  • Bugs/Crash occured only if the No. of an area differed from its internal index number.
	  • Area key can be used as parameter as usual, not only Area COM object.

9.12-00	**TFlowFuzzy – *Input* tag** *Alpha parameter* now uses full stop as decimal point (instead of comma).
9.11-03	**Headway-based assignment** • Correct share calculation for coordinated time profiles. • Open assignment parameters file: *Search* parameters are read correctly.
9.11-03	**Difference network** Also in the super-network state, *Turn volumes* can be displayed.
9.11-03	**PrT assignment procedures** • *Multi-Point Assignment* (PrT assignment with demand distribution by shares): The destination connector weight is regarded correctly (no longer taken from origin connector weight). • *Erased Flow*: Parameters dialog removed from menu CALCULATE – PROCEDURES – *Functions* , since the procedure has not been implemented yet.

9.11-03	**Program crashes discarded**
	• *Edit connector*: the program used to crash when the dialog was opened again after closing and leaving the dialog NOT from the "Basis" tag.
	• Editing *System route* caused a program crash if
	  • the *System route* dialog was closed via *Cancel* (not if OK was confirmed!) after adding times for further vehicle combinations.
	  • a system route was renamed to an existing system route name.
	  • *Create system route – Undo – Recreate system route* with VehComb time data.
	• *Read VISUM8 version file*: The program used to crash in case of files with signal controls assigned to unsignalized nodes.
	• *Multiselect-Edit*: In case of empty selection lists (no target attributes, e.g. Difference network state), the program used to crash if button *Constant, Factor*, etc. was clicked.

9.11-03	**Graphic parameters** Correct network object labeling, even in case of rounded attribute data.
9.11-03	**Network Editor** Correct calculation of percentages for connectors by shares

Version	Corrections, Bugfix and Extended functionality
9.11-03	**_Progession_ message box** _Enter_ can no longer be used to confirm _Cancel._ Thus a procedure cannot be terminated accidently.
9.11-03	**Subnetwork Generator** Even value ranges and Min/Max values of UDAs from TEAPAC networks are checked during reading.
9.11-03	**Timetable Editor** • _Regular vehicle journey display_ type with sorted display according to departure from stop point (if _Departure_ and _Stop point_ have been selected). • _Shift vehicle journeys_: Entered time data stored correctly.
9.11-03	**Attribute interface** _Line costing:_ NumServiceTrips, Seats etc. are now also calculated for line route items.
9.11-03	**Error file** Errors from assignments or any other procedure are flushed to file immediately.
9.11-02	**Program crashs discarded** • _Set objects in territory to the active state_: Program crash in case of territories without polygon discarded. • _Multi-Point Assignment_ (PrT assisgnment with distribution of demand as percentages): If _by relation_ was selected for weighting, the program used to crash in case of networks with 1 connector per zone. • _Time profiles: Set times from system routes_: The program used to crash, if a system route started with the last item of a time profile and TSys of the system route = TSys of the time profile. • _SVG Export_: If _Cancel_ was clicked in the second dialog in the "optimized for Adobe" mode, the internal device type SVG was not modified; the program used to crash when drawing the next time.
9.11-02	**Menu CALCULATE – PROCEDURES – FUNCTIONS – PRT FUNCTIONS – _Volume-delay functions_ tab** • Only defined VDF numbers can be specified for cells. • A VDF cannot be deleted as long as it is used.
9.11-02	**Network Editor** • _Link sequence from shortest path_: Now _Cancel_ works correctly, even when clicked right after activating this function. • _Traffix_: Now the _Edit Node_ dialog tag _Performance_ contains the Report button for _4-Way-Stop_ nodes. • _"Edit Line route" dialog_: Even when scrolling to the bottom, the lines in both tags, Time profiles and Line route, are displayed appropriately.
9.11-02	**Node Editor / VISSIM Export** Correct handling of the dynamic attribute VISSIM_STOP (relevant for changing the VISUM converter for VISSIM Teapac Import from 8.1 to 9.x).
9.11-02	**Attribute interface** _EWS:_ The add-on based on German guidelines has been renamed. Now also EWS attributes can be selected in link lists.
9.11-02	**Procedures** • _Metropolis_: The VISUM Trace file contains the path for the Metropolis log file. • _Dynamic assignment_: In case of several Demand segments per Transport system, volumes by time interval are now distributed correctly to the DSegs.
9.11-02	**COM interface** The VisumConverter has been adjusted; old network files can be read.
9.11-02	**Graphic parameters** • In the _Tree View_ section, POI category names are displayed correctly. • _Read selected parameters_: Old backgrounds/Objects can be ignored without problems.
9.11-02	**Network display** Even in case of negative attribute values, attribute bars of Links and Turning volumes are labelled correctly.
9.11-02	**Lists** The height of lines depends on the selected font size.

Version	Corrections, Bugfix and Extended functionality
9.11-01	**Line costing** • Correct calculation of PTripsUnlinked, even if only the last item of a line route belongs to a territory. • Seats, TotalCap: neither for time profile items nor for vehicle journey items one item too much is saved with the data at the end of the particular items list, if a time period has been defined for the last line route item of the time profile item (e.g. if the vehicle journey is shorter than the time profile).
9.11-01	**Network Editor** • Speed increased in special network editing cases like this: Changing the highest ID used within a category of network objects to a smaller value (e.g. NodeNo. 10000000 -> 10) took a certain time, especially if this ID was near to the max. value permitted AND in case of a significant gap between this highest value and the next ID (e.g. all other NodeNo. data < 100). • *Edit line route shape*: Now, VISUM will always permit *Alighting* at the former start terminal and *Boarding* at the former destination terminal when a line route is lengthened. • *Edit link* dialog (Noise tag): Also *Type* data deviating by direction are highlighted in yellow. • *Edit connector* dialog: • "PrT share" is grey-shaded, if shares are not regarded for the zone. • Also *Type* and *TSys* data deviating by direction are highlighted in yellow . • *Delete stop area*: *Undo* be executed, as transfer walk time matrices are stored. • *Create stop point*: after creating a stop point automatically with stop and stop area, not only the stop point is drawn on screen, but also stop and stop area. • *Edit time profile* in case of line couplings: Output of queries/warnings only if run or dwell times were changed.
9.11-01	**COM Interface** • Iterator speed over all lines of a TSys has been increased. • Correct access to *Visum.Net.VehJourneySections.SetActive* and *SetPassive*.
9.11-01	**Open network** Now, network files created with versions before VISUM 9.11 can be read even if they contain UDAs with Min/Max unlimited.
9.11-01	**Program crashs discarded** The program used to crash: • if the VISUM session was terminated while the Shortest Path search was still running. • during *Open network* if the network file contained the line route items data block and the time profile items data block repeatedly. • in case of type changes from "OD-pairs of zone types" to "time series of matrix numbers" during *Edit Standard time series* of a demand time series. • if <Enter> was pressed in the "Turns" dialog.
9.11-01	**Time (no duration!) format hh:mm** Now 11 – 17 can be entered instead of e.g. 11:00 - 17:00; VISUM will add 00 automatically.
9.11-01	**Memory leak discarded** Memory leaks occured in case of *Open Version* files created with VISUM 8.
9.11-01	**Menu CALCULATE – PROCEDURES** • Speed of PrT assignment with distribution of demand to connectors as percentages increased. • Dynamic assignment PrT: Correct weighting of route volumes even if *Number of decimal places > 0* • The dialog is closed completely even if the user leaves from the *Functions* tag.
9.11-01	**Volume delay functions** • VDFs for turns are provided even if the *Junction Editor/Control* add-on is not active. • Dialog texts have been corrected: a -> a' f -> f' • Output of the correct formula for the *TModel Links* function in the dialog window.

Version	Corrections, Bugfix and Extended functionality
9.11-00	**Converting networks** *Merge Stops* in the EDIT MULTISELECT STOPS dialog • creates a single stop from stops connected by walk links and • stores the given walk link time data as transfer walk link matrix of the new stop. For each Walk-TSys defined in the network, all directed pairs (a,b) of stop areas connected by walk links permitted for WalkTSys F are determined. Option: *only active walk links* can be regarded during path search. For each of the pairs found, let t(a,b) be the walking time on the links. Then the following applies: • If s(a) and s(b) denote the stops allocated to the stop areas a and b and if s(a) <> s(b), then the stops are merged as outlined below: • Area b is allocated to stop s(a). • All other stop areas b' also belonging to s(b) are assigned to s(a) as well. • All previously defined walk link times between areas within s(a) and s(b) are kept. • Subsequently, s(b) is an isolated stop without stop areas. Option: s(b) can be deleted automatically. • t(a,b) is stored as the transport system-specific TransferWalkTime between a and b within the enlarged stop s(a). This step is dropped, if area a and area b had aready been allocated to the same stop before (i.e. s(a) = s(b)) with a predefined transfer walk time between a and b which is < t(a,b). Option: The walk links used for stop merging can be blocked for Walk-TSys F.
9.11-01	**Metropolis** • Additional Metropolis parameters can be set via parameter file. • Even for DSeg with purely numerical code a parameter file is created which can be read without XML warnings. • For simulation of larger networks, the memory allocation to Java has been increased.
9.11-01	**Trace output** • Traces from assignments or any other procedure are flushed to file immediately. • Now entries regarding *timetable*-based assignment parameters contain DSeg entries in alphabetical order.
9.11-01	**Difference display of link attributes** Now the difference bar is also displayed if a non-numerical attribute is selected for the first "normal" link bar.
9.11-00	**Program crashes discarded** The program used to crash • after clicking the ? button in the list of vehicle journey sections in case of an empty network; • during Line route shortening at the beginning of the route, if *Cancel* was clicked when the user has to choose *Keep* or *Solve couplings*; • after certain clicks in the menu bar (e.g. *Undo*), if the number of recently opened files shown in the menu was = 0.
9.11-00	**Required memory** Memory requirements for TSys-dependent link data and UDAs could be shrinked, this is especially advantageous in networks with a huge number of defined TSys.
9.11-00	**Attribute value ranges** Defined value ranges have been checked; Min/Max values have been corrected, if applicable (e.g. for AddValues).
9.11-00	**Stop hierarchy: new attribute** The new attribute „*on active line routes*" is available on any level (Stop, Stop area, Stop point) (in recent versions only for nodes).
9.11-00	**Open o-d matrix** Correct reading of $O-matrices. In recent versions, old values were kept for missing relations.

Version	Corrections, Bugfix and Extended functionality
9.11-00	**Units: *metric* or *imperial*** • Create Tsys: The displayed unit of the default speed by link type depends on the current settings under NETWORK – NETWORK PARAMETERS – *Units* tag. • Open VISUM8 version file: VISUM will globally change to *imperial* , if "*imperial*" is selected for length reference.
9.11-00	**MULTISELECT – EDIT LINE ROUTES** New special function button for **vehicle journeys**: *Delete all (active) vehicle journeys.* *(Edit Multiselect: Line routes dialog shown — Network object: Vehicle journeys, only active; buttons: delete service trips, Delete items. Attribute of network object: Name; buttons: Constant, Factor, Attribute, Formula, Round; OK, Cancel)*
9.11-00	**Link labels** MULTISELECT – EDIT LINKS provides *Special functions* for display of link *Labels,* which can be reset via *Undo.*
9.11-00	**Listings** • Node list: • Correct sorting if attribute *LSCJType* is chosen, display of correct values in the *ControlType* column. • Block list – *Block items*: • Button "*only active vehicle journey sections*" has been implemented (GUI and COM) • Column selection (all list types): • One or multiple selected columns are always inserted on top of the currently marked attribute entry in the selection list and will accordingly be displayed to the left of this column.
9.11-00	**Subnetwork Generator** • List layouts for attribute selection per network object type can be read. • Data formats of the attributes selected per network object type are now regarded.
9.11-00	**Edit vehicle journeys** Correct adjustment of departure times if vehicle journeys are shortened or lengthened in the beginning during Time profile shortening. The temporal position of service trips will no longer be modified mistakenly.
9.11-00	**Line route** • *Edit shape*: Even if a line route is shortened (from any end) to a "no route point" network object time profile run times are adjusted correctly. • *Edit*: VISUM stores the recently active dialog tag, even "User" tags.
9.11-00	**Graphics parameters: Classification of objects according to value ranges of a selected attribute** • The first character entered used to be ignored, if no blank was entered after '<='. • The selected subattribute is stored now (e.g. AP was reset to default entry AH in recent versions). • Correct classification now also for node attribute *ControlType.*
9.11-00	**Delete multiple nodes** Correct adjustment of run and dwell times, even if multiple 2-leg nodes are deleted simultaneously.
9.11-00	**Link attribute *VehHoursPrT*** Correct data type: Duration (instead of seconds as integer).
9.11-00	**Matrix Editor : Classification** The rounding error producing an unwanted final interval with length next to zero could be discarded.

Version	Corrections, Bugfix and Extended functionality
9.11-00	**Timetable Editor** Stop point sequence: Layout files store the selected columns in the correct order ((bottom/left section of the timetable window).
9.11-00	**Filters** Even in case of filter settings via selection list (e.g. TSys) the particular tag name is highlighted in red now.
9.11-00	**COM Interface** • Numerical attributes are returned as Double data type for LineRouteItems and TimeProfileItems (like for any other class). • Correct network window drawing/display, if a VB script being executed in VISUM is stopped for user actions.
9.11-00	**Reading SCJ data additionally** No SCJ can be assigned to a non-signalized node.
9.11-00	**Valid days** To so-called system valid days created during line blocking vehicle journey sections may not be assigned. In recent versions this could be done mistakenly via Listings, Multiselect or *Read network*.
9.11-00	**Junction Editor** Create geometry: Identical reading routine for pocket lengths regardless whether they are based on node templates or on leg templates.
9.11-00	**Standard timetable** This option has been removed, since it is no longer useful for the sophisticated PuT data model.
9.11-00	**SVG Export** ID of FromNode and ToNode of links were corrected.
9.11-00	**TModel Import** • Layout (*.tla) can be used for the TModel project file. • User-defined link types are regarded when VDFs are assigned. • Use number of zones from *.ttb or *.ond file. *Edit Node* dialog box –*TModel* tag: Text corrected to "*Links WITH turn impedance ...*".
9.11-00	**Metropolis** Correct calculation of the Standard deviation for arrival time distribution.
9.11-00	**TFlowFuzzy** • Polish version of the Add-on available. • Correct default values preset on any tag.
9.11-00	*"Find ..."* **dialog boxes <F3>** User-defined scaling of the dialog boxes permitted; recent size is stored.
9.11-00	**Messages containing wildcards** Messages consisting of several components were redesigned for translation into foreign languages.

9.10-05	**Filters**
	• The filter logic has been corrected as follows:
	An element can only be active, if one of the following restraints applies on any level below:
	  • either no condition is defined
	  • or at least one element exists, which does fulfil this condition.
	• Bug discarded: Modified min/max values of a filter condition can now be re-edited subsequently.

9.10-05	**Menu CALCULATE – PROCEDURES –** *Operations* **tag – Operation** *Territory indicators* Attribute *VehicleHoursTravelledPrT* does also include turning times, not only travel times on links.
9.10-05	**Menu FILE –** *Export – Database* Even in case of export to an SQL Server database, columns in date format are created correctly.

Version	Corrections, Bugfix and Extended functionality
9.10-05	**Subnetwork Generator** • Program crash discarded which used to occur in case of networks containing PrT demand segments whose demand had been stored as a time series of matrix numbers. • Path volumes are calculated correctly now. In recent versions, incorrect values were calculated, as path volumes were multiplied by factor 10, 100 or 1000 (from procedure parameters) during conversion of PrT demand matrices. • Copying Points of Interest: All active POIs and all possible references in the subnetwork are copied.
9.10-05	**Network Editor** • *Create stop point*: This operation is supported by status bar prompts. • *Edit polygon shape* bug discarded: In recent versions, the entire polygon was removed instead of the selected polygon point. • Program crash during *Edit route shape* discarded, which used to occur if a start (or destination) stop point was selected that was not permitted for the transport system.
9.10-05	**Junction control: TRAFFIX / NEMA interface** • TRAFFIX/NEMA: Transfer of optimized Signal time plans from TRAFFIX as rounded data for further work (NEMA). • TRAFFIX: Correct results for 2-Way Stops now (see *Performance* tag), max was not regarded. • 1) Use NEMA feature RightTurnOverlap only for TRAFFIX input 2) VISUM feature TurnOnRed also on NEMA controller 3) SignalGroup-Turn assignment is not subject to changes on NEMA controller • Program crash discarded, which was caused by missing log/output file name input for TRAFFIX.
9.10-05	**Read network from file** Indices of line route items still need to be ascending, but do not have to be consecutively ascending.
9.10-05	**Line costing** Storage leaks removed (e.g.in case of option ☑ *only active veh. journey sections* or during territory cost calculation).
9.10-05	**Junction Editor** Also in case of 3-leg nodes, the appropriate points of the compass are assigned.
9.10-05	**Matrix Editor** *Save matrix?* is also prompted after Log files execution, when the edited matrix is closed.
9.10-05	**COM Interface** • *Set line route item lengths*: Bug fixed (and program crash in case of passive line routes discarded). • *TerritoryPuTDetails* corrected: This container did not contain any objects, only empty references.
9.10-05	**PrT assignment: *Dynamic assignment*** Program crashes discarded, which used to occur • during *Initialize* in case of o-d pairs without demand, • during simultaneous assignment of several transport systems, as VISUM used the impedances of the last TSys for the search.
9.10-05	**PrT assignment: *Equilibrium*** Program crash discarded, which was caused by an impedance data overflow.
9.10-05	**PuT assignment: *Timetable-based*** Program crash discarded, which used to occur when assignment was computed in a network without PuT lines.
9.10-05	**Valid days** • Network file – Block *Valid days*: The attribute *FromSystem* is mandatory now. • *"Initialize all block versions"* will also delete all valid days created for the calculated line blockings.
9.10-04	**Attribute interface** Turns: *VolumePrT* and *VolumeTSys* are now calculated and stored per analysis horizon, analysis period and time interval. Thus, *VehKm* and *VehHours* can be computed correctly for PrT.
9.10-04	**Undo functionality** The *Undo* Stack dialog has been made available again on screen. In the recent version, *Undo* had to be called step by step.

Version	Corrections, Bugfix and Extended functionality
9.10-04	**Program crashes discarded** • PuT assignment: *Timetable-based* with option • *ShortestPathSearch* During *Reverse correction,* the program used to crash if there are faster alternatives available for PuTSys which are not open to the assigned demand segment. • Delete PrT assignment: The program used to crash if several PrT demand segments of a transport system were assigned simultaneously first and deleted subsequently • caused by *Cancel* in the "*Edit shape of link sequence*" dialog (MULTISELECT – *Link sequence from Shortest path search*). Furthermore, the program used to crash after the following "chains" of processing steps: • Editing data in the Timetable Editor – Toggling to the network window – Editing graphics parameters and clicking OK. • Initialize assignment – Edit link types – Edit UDAs.
9.10-04	**Menu LISTINGS** • *Connectors list*: The *Find connection* dialog does not contain the Autozoom button. VISUM will automatically place the network section with the selected connection in the current network window when the dialog is closed. • *Any open list*: The buttons for toggling between the data line of the network object selected in the list and the graphical display of the selected network object in the network window on screen are no longer provided on top of lists, since this functionality has not been implemented yet.
9.10-04	**Menu GRAPHICS - PARAMETERS** – *Stops – Display – Active tag* Correct display, if attribute *PassBoard(AP)* is selected for *Classification* of attribute values now. In recent versions, only *PassBoard(AH)* was displayed.
9.10-04	**Menu CALCULATE – PROCEDURES - *Operations* tag – Operation *O-D matrix calibration*** Correct computation. In recent versions, invalid matrices were created and VISUM used to crash when those versions were saved to file.
9.10-04	**Menu EDIT - *Aggregate*** This functionality is only provided for selected network objects (e.g. *Nodes - Multiselect*).
9.10-04	**Menu FILE – *Import – Shapefile*** Start this EXE from the FILE menu now (from EXTRAS menu in recent versions).
9.10-04	***Paste attributes from clipboard*** This functionality is not available as long as the timetable editor is open.
9.10-04	**Subnetwork Generator** Also during computation, messages are displayed in the currently selected foreign language.
9.10-04	**Edit turn** Turns can also be defined without mandatory assignment of a signal group.
9.10-04	**Junction Editor** *Create link*: Lane data are set to default values.
9.10-04	**Metropolis** Reading time data from the parameter file will regard the currently active local time of the PC.
9.10-03	**Open network** The *Read lane data additionally to the network* functionality has been made available again.
9.10-03	**Open version** Select *imperial* units for correct and complete conversion of lane data (Junction Editor) and VISSIM Export parameters.
9.10-03	**VISSIM Export** • For VISSIM Export, also NEMA detectors and NEMA pedestrian crossings are provided now. • Parameter *Offset (sideways) for VISSIM links* is taken into account correctly. • Correct export of stop points located on links and stop points as VISSIM bus bays.
9.10-03	**COM Interface** AreaPuTDetailType was renamed to *TerritoryPuTDetailType*, also for Enum variants.

Version	Corrections, Bugfix and Extended functionality
9.10-03	**Database Export** Correct export of decimal places in case of attributes of the "long length" type even if *comma* has been selected as seperator.
9.10-03	**Line route course** The length starting from the last line route item has to be = 0; it is not subject to further interactive changes.
9.10-03	**Menu CALCULATE – PROCEDURES – *Functions – PrT Functions – Volume-delay functions / Junction control* tags** Correct dialog display if a foreign language (1) has been selected under *Licence* in the EXTRAS menu.
9.10-03	**PuT assignment** • *Headway-based*: • New option: *Coordination everywhere*: For **each** stop area: all time profiles that depart from this stop area (boarding permitted) and with identical next stop area (alighting permitted) are regarded as being coordinated. Thus, coordination groups do not necessarily have to be defined one by one throughout the network. Individually defined coordination groups are ignored. • Correct transfer waiting time calculation if coordination groups are used. • Correct distribution if large coordination groups are used. • *Timetable-based*: correct connection choice even if the "Lohse" model is used for distribution.
9.10-03	**Menu CALCULATE – PROCEDURES – *Functions – Analysis time intervals* tag** Program crash discarded (used to occur in case of changing to another tag while the *Valid day* selection list remained open).
9.10-03	**Line costing** Program crash discarded (used to occur during computation of demand-based territory indicators if only a single line route item was located inside a territory).
9.10-03	**Menu CALCULATE – PROCEDURES – Operation *PuT Operating indicators*** Rounding error during interpolation of time profile run times on links discarded, (minimal) deviations may still occur during indicator calculation for time intervals.
9.10-03	**Network Editor** • *Delete stops, stop points, stop areas*: Program crash discarded. In recent versions, deleted objects were provided for selection and editing by mistake. • Setting the current window to the entire network will also regard stops and stop areas outside of the current window. • *Edit links* in MULTISELECT mode: *Special functions* tag – *Labels* regards option "*only active*" correctly
9.10-03	**Lists** Correct preselection of demand segments in lists providing DSeg selection: When the list is opened, VISUM will display the first DSeg with data available.
9.10-03	**Coupling** Vehicle journeys not starting from the beginning of the respective line route are also shifted correctly during coupling.
9.10-03	**Timetable Editor** • The context-sensitive MULTISELECT MODE menu is now provided as soon as the Timetable Editor is closed. • Correct display of the *VehComb* entry in the *Regular veh. journeys* display type. • Program crash discarded which was caused by editing the *Lineroute* entry of a vehicle journey. • Correct display in the window selection list after clicking anywhere in the timetable window and toggling to another window subsequently.
9.10-03	**Edit shape of polygons** Intermediate points are deleted correctly; Program crash caused by using the *Undo* function subsequently discarded.
9.10-03	**Menu CALCULATE – DEMAND DATA – *Demand segments* tag** The user may no longer select a Start day outside the curretn calendar period. Inconsistent data was not subject to subsequent changes.

Version	Corrections, Bugfix and Extended functionality
9.10-03	**Filters** • Program crash caused by *Initialize Filters* discarded. • Filter restraints without lower limits: Objects with negative attribute values are taken into account correctly.
9.10-03	**Toolbars** Current size/shape/position of toolbars is kept even if • VISUM remains open over a long time, • a Matrix (Editor) window is opened AND the window is either minimized or maximized.