



OSCADY PRO goes from strength to strength – Version 1.1 now released

OSCADY PRO was launched successfully in October 2006 as our next-generation product for the optimisation of traffic signals at isolated junctions. The product is the result of a very successful ongoing collaboration between TRL and the Centre for Transport Studies at UCL (University College London). Since the release of version 1.0 we have been listening to user feedback and working hard to add a number of new useful features. We are pleased to announce that a new release, OSCADY PRO v1.1, is now available.



OSCADY PRO is a program to optimise and analyse traffic signals at isolated junctions. It integrates with TRANSYT via an Export option, allowing OSCADY PRO to facilitate the optimisation of networks of signals. OSCADY PRO is capable of automatically generating optimised sets of phase timings given an initial intergreen matrix; there is no need for the user to spend time manually inputting stages and sequences. (Of course, if you do have desired stage sequences, you can enter them directly and hold them fixed, using one of the program's many modes.) OSCADY PRO uses the concept of optional **phase constraints** to restrict the use of

phases relative to each other, controlled by the user. In this way, the optimiser can be easily constrained by the user if necessary, to reflect particular site conditions; however, the performance difference in terms of capacity or delay between the optimal solution and the constrained solution (which can be significant) will always be transparent to the user. In this way, the traffic engineer can make informed choices throughout the design process.

OSCADY PRO v1.1 will be sent automatically to all OSCADY PRO licence holders, and a demonstration package can be downloaded from www.trlsoftware.co.uk. The main

program improvements are summarised below.

Double Green Sequences

Although the capability was present in version 1.0, we have now improved the functionality of the Sequence Generator when double greens are involved. Each phase can be nominated by the user as 'potentially' having two green periods by ticking its Double Green option, and the Sequence Generator takes these into account when generating sequences. If no phases are nominated in such a way, then only single green sequences are generated. Conversely at large junctions, if all phases are nominated as

potentially double green, then a large number of sequences may be generated, depending on the local circumstances. The generated sequences therefore can contain a mix of single and double greens, and the signal optimiser automatically picks out the best sequences. As an illustration of this capability, see the article on double greens below.

Queue Animation improvements

The Queue Animation feature in OSCADY PRO has proved particularly popular with users, and is extremely useful when wishing to visualise junction performance, or demonstrate the operation of a junction to



...from strength to strength

colleagues or clients. It comes into its own when combined with the display of signal states and turning movements, as illustrated below.

There is now an animation **speed control**, allowing the queue animation to be viewed either slower or faster than real time (useful when reviewing the results over an extended time period). You can of course also view in real time and step through second by second by clicking the 'Next' control.

There are now two different traffic queue animation modes:

1. Each queue shows the number of queuing vehicles, including both uniform and random queuing components.
2. Each queue shows the position of the back of queue (uniform component only). In this new mode, illustrated below, the green bars represent moving traffic and the red bars represent stationary traffic.

In the example screenshot, the western arm is oversaturated. The queue of stationary traffic is added to during each cycle, but the stream never receives enough green time for the queue to

dissipate; therefore the back of queue recedes further from the stopline over time. Gaining this spatial dimension to the results, particularly when combined with aerial photographs, helps to put the impact of queue location into context. It therefore helps the traffic engineer to contextualise the design process.

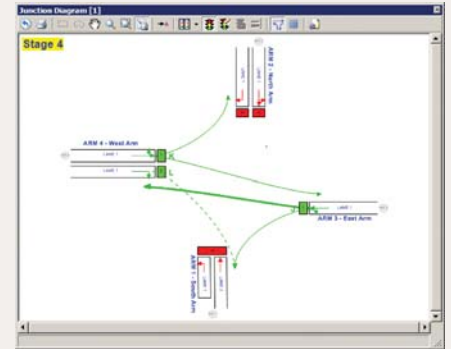
Modelling improvements

Several situations which could not previously be modelled are now handled. These are:

- **Mutually opposed streams** can now be modelled.
- **Opposed short lanes.** A new model is used for opposed short lane situations, reflecting the extra capacity available until the short lane discharges.
- A phase can now control both an opposed and unopposed stream at the same time.

Other improvements

- The Summary Results screen has a number of new options, including functions to sort results by delay/capacity, to remove all sequences except the current one, and to help set up reports. The best performing sequences can now be shown automatically at the top of the list, rather than simply being highlighted in blue;
- Opposed streams can now be specified in more detail, in terms of the opposing movements on the opposing traffic stream;



REVISED BOLD LINES IN THE JUNCTION DIAGRAM NOW HIGHLIGHT OPPOSING STREAMS

- Visualisation of opposed and opposing streams has been improved, with the Junction Diagram screen now using bold lines to depict opposing streams. (see illustration above).
- The Junction Diagram screen has new options to manually split and combine lanes and traffic streams;
- The Data Editor, Traffic Flows and some other screens can now be resized horizontally in order to show more data;
- Queue animations are now more refined in situations involving short lanes and opposed streams;
- More example files are now included with the software.

For more information about OSCADY PRO, please visit www.trlsoftware.co.uk and browse to the OSCADY PRO page. This page includes links to a [screenshots page](#) and [dates for training courses in July 2007](#).

OSCADY PRO training courses running across the UK and Ireland during July 2007. Book early to ensure you reserve a place. See back page for dates and venues.

ILLUSTRATION OF TRAFFIC QUEUE ANIMATION AND SIGNAL STATES

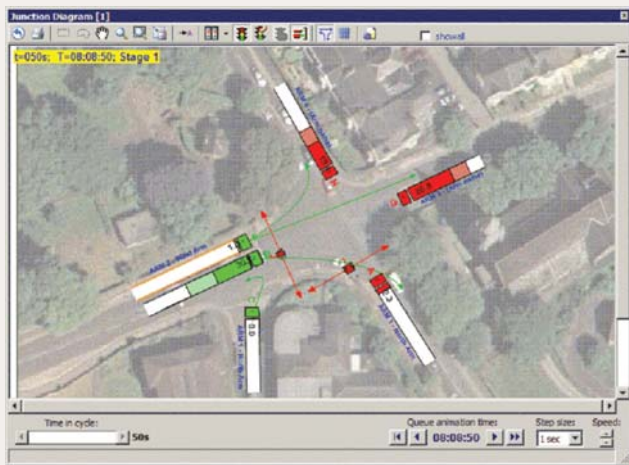
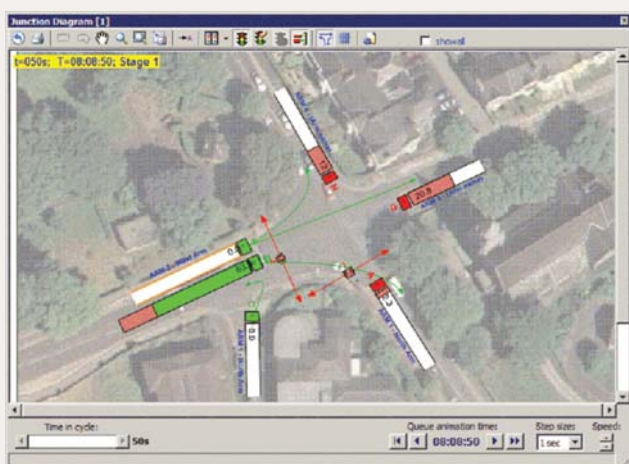


ILLUSTRATION OF ANIMATION OF BACK OF TRAFFIC QUEUE





Lingley Mere Business Park to use CarShare Online



TRL is to help businesses at the new Lingley Mere Business Park in Warrington, with the introduction of a web based software programme from CarShare Online.

To avoid congestion at peak times, Lingley Mere Business Park is committed to keeping traffic flows within a threshold agreed with the local highway authority. Single person car occupancy and unnecessary car trips will be minimised and alternative travel modes promoted through their Travel Plan. The adoption of CarShare Online will provide one of the solutions to manage traffic to and from Lingley Mere, whilst helping staff with their commute to work, and businesses with

their travel needs. It will help to reduce polluting emissions, ease congestion and lessen overall demand for parking spaces.

Anthony Setter, Director with Cole Easdon Consultants who is acting as the Travel Plan Coordinator for Lingley Mere, said: "We looked at a number of Carshare providers and chose CarShare Online because it was an easy to use system with high quality mapping and good value for money. Whilst offering users the opportunity to share commuting journeys it also includes provision for pedestrians, cyclists and business travel, expanding the scope of the scheme beyond simple car commuting."

Car sharing has obvious advantages for companies by way of assisting with the recruitment and retention of staff. It can also help companies to reduce their environmental impact on their local community and can often become the cornerstone of a sustainable transport policy for the area.

Car sharing can also lead to a healthier work force as sharing car travel can reduce stress levels and also allows for cyclists and walkers to team up and travel together. On a personal level, car sharing will reduce an individual's motoring costs.

Chris Edge, TRL's CarShare Business Development Manager, said "We are delighted that we have been able to

provide this green travel option to Lingley Mere Business Park. It is a tangible example of how businesses operating out of the one location, can join together to mutual advantage, as well as help their local area environmentally."

CarShare Online can be provided either as a managed service or as a standalone application. Organisations can join existing schemes or TRL can create a branded scheme especially for them.

TRL is currently offering a no obligation free trial of CarShare Online. **For further details, please contact the TRL Software Bureau on +44 (0) 1344 770758 or email softwarebureau@trl.co.uk**

Successful TRL software exhibition at Traffex 2007



TRL had a very successful exhibition stand at Traffex 2007. The new releases of OSCADY PRO and PCMOVA generated a great deal of interest amongst existing and potential clients, and TRL staff were kept very busy giving demonstrations and answering questions. OSCADY PRO is a 'state of the art' traffic signal optimisation tool with a number of unique technical features. PCMOVA facilitates the representation

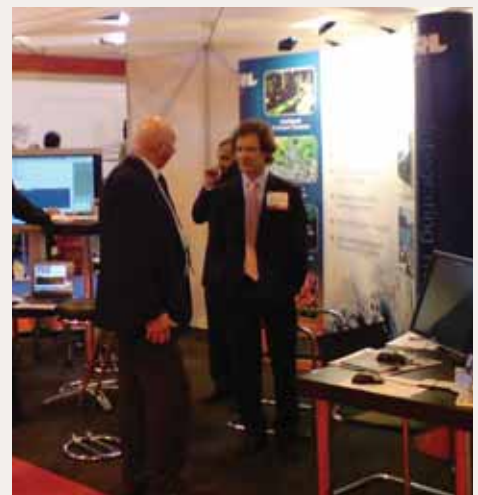
and modelling of MOVA traffic signal control within traffic micro-simulation models, and is now compatible with both PTV VISSIM and S-PARAMICS.

Glyn Rhys-Tyler, Programme Development Director at TRL, said "TRL is extremely pleased with the level of positive feedback received from our customers during the Traffex event. Clearly, the level of investment in new product development at TRL in recent

years is being well received by our clients, and our customers can look forward to a number of additional new product upgrades and new releases as they become available over the coming months".

TRL STAFF DISCUSS THE LATEST SOFTWARE PRODUCT DEVELOPMENTS WITH VISITORS AT TRAFFEX 2007

Glyn Rhys-Tyler
grhys-tyler@trl.co.uk





Using OSCADY PRO to find double green sequences

This example shows a simple staggered junction where the side roads are offset from each other by around 20 metres. There are no internal stop-lines. Phases B and D control the main road and Phases A and C control the north and south side roads respectively.

For the sake of this example, assume that the staging sequence is as yet unknown but that the intergreens are set as follows. To allow the traffic to clear the potential collision points there are large intergreens between:

- A to C
- B to C
- C to A
- D to A

Only short intergreens are required for:

- A to D
- C to B

The Intergreen Matrix in OSCADY PRO is set as shown below. The intergreens are based upon the guidelines given in Traffic Advisory Leaflet 1/06 'General Principles of Traffic Control by Light Signals (Part 4)'.

Intergreen Matrix		To			
		A	B	C	D
From	A		5	8	1
	B	5		7	
	C	8	1		5
	D	7		5	

All four phases have their Double Green property set. (This does not mean they will be double greened, it simply sets them as being potentially double greened when the signal optimiser runs.)

OSCADY PRO is next used to automatically generate stages and sequences, and the signal optimiser run. There are 13 sequences

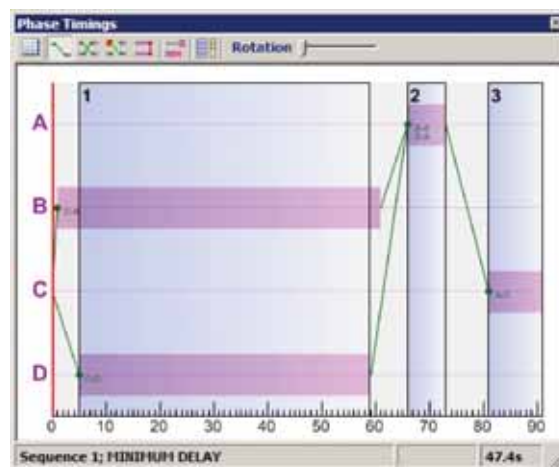
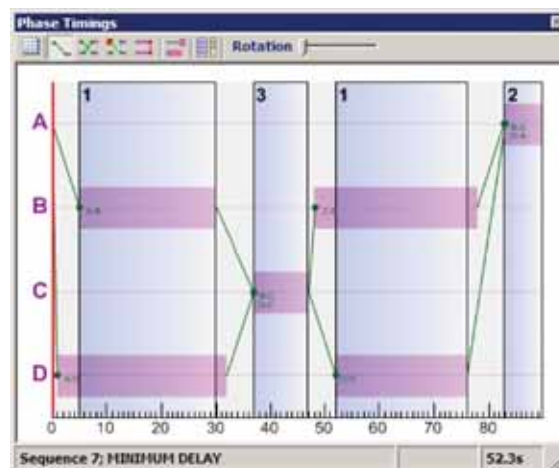
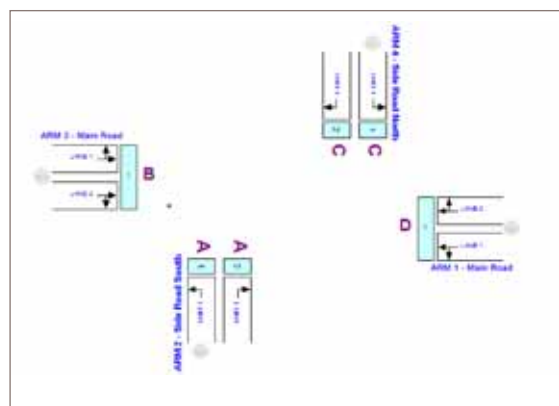
generated, and OSCADY PRO can be used to quickly identify the best performing sequence in terms of delay. In this case, the best solution consists of four stages, with two green periods for the main road.

This type of arrangement benefits from double greening the main road by avoiding the largest intergreens (A-C and C-A) whilst taking full advantage of the shortest intergreens (A-D) and (C-B). The total rate of delay is 12.91 PCU. (Rate of delay as used in OSCADY PRO can also be expressed as PCU-sec per sec, and represents the average number of vehicles queuing at any time.) Additionally, because the effective green time tends to be one second longer than the actual green time, double-cycling gives an extra one-second effective green to the main road stages.

OSCADY PRO automatically finds this arrangement without the user having to specify the original stage sequence or which phases should be double greened.

Of course, the traffic engineer can use their judgement to specify in advance which phases are most likely to benefit from double greening; this will reduce the number of possible sequences and speed up the signal optimiser. However, at complex junctions it may not always be obvious where double greening should be applied, and OSCADY PRO can be invaluable in these circumstances.

For comparison, the best single-green arrangement is shown below. The total rate of delay here is 15.96 PCU.





Modelling MOVA Junctions in PTV VISSIM using PCMOVA

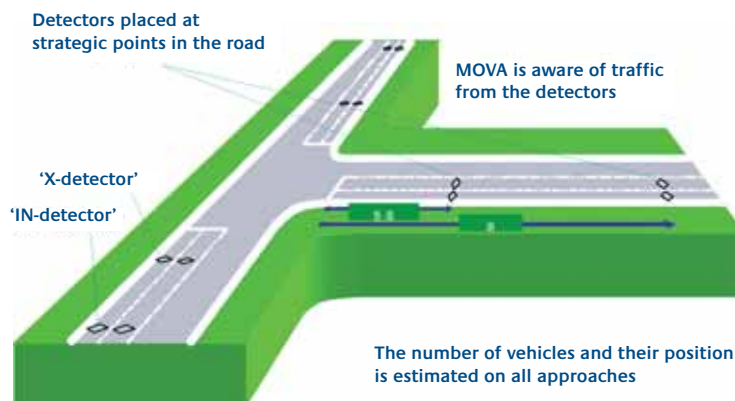
MOVA is the Microprocessor Optimised Vehicle Actuation software programme which efficiently controls many of the UK's traffic lights. It is installed at around 1400 of the UK's isolated junctions, with more than 250 new sites being installed each year. Initially, MOVA calculates a minimum green to run to clear vehicles between the stop line and the X-detector. MOVA decides when to change signals by working out the balance of delay to stopped vehicles versus the potential delay and cost of stopping those vehicles currently on green. In congested conditions, MOVA detects the over-saturation and automatically maximises capacity for the junction.

MOVA gives the traffic engineer a fully versatile system; it can be configured to work at virtually any isolated signal-controlled junction, it can be set up to give priority to public transport, it can be used in small signal-controlled networks such as signalised roundabouts, and it can provide safety benefits on high speed roads. It will also benefit pedestrians at PUFFIN crossings.

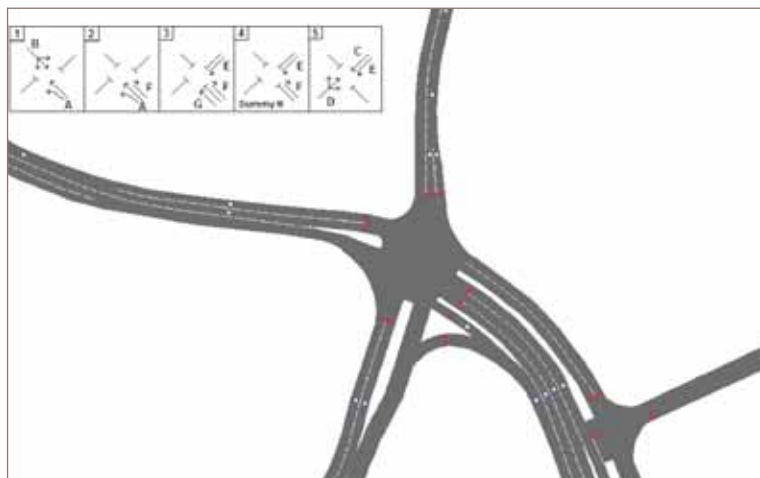
The effects of installing MOVA at a junction are hard to assess before the system is actually installed and running, often requiring a period of time to configure in the field. PCMOVA has been developed as an interface for MOVA to control junctions in PTV's VISSIM and other traffic microsimulation models. It enables users to assess the benefits of running MOVA and test out different configurations before the costly process of on-street installation, and increases the realism of traffic microsimulation models such as VISSIM by using PCMOVA to control the simulated junctions that would be controlled by MOVA in the real world.

To use PCMOVA with a model such as VISSIM, the user constructs a MOVA dataset. Stage and phase information, cruise speeds, detector locations, and saturation flows must be provided. Knowledge of MOVA is essential to accurately configure the junction. TRL can provide MOVA and PCMOVA training to transportation modellers who need to implement PCMOVA within traffic microsimulation.

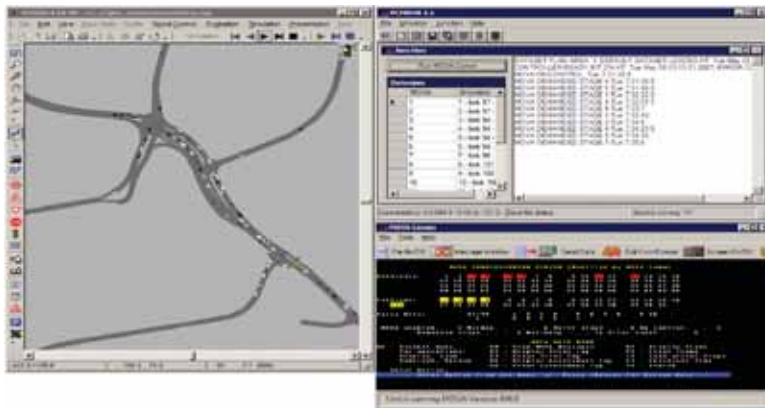
In conclusion, PCMOVA uses a real implementation of MOVA, not an emulation. It enables VISSIM models with MOVA junctions to be realistically represented and provides the traffic engineer with improved accuracy in modelling network performance. PCMOVA is also compatible with S-PARAMICS.



AN EXAMPLE JUNCTION MIGHT LOOK LIKE THIS.



ON SCREEN PCMOVA AND VISSIM WOULD YIELD



Anna Booth
a booth@trl.co.uk

CURRENT PROGRAM VERSIONS

ARCADY	v6.0	AD/4
PICADY	v5.0	AC/3
OSCADY PRO	v1.1	
OSCADY Classic	v5.0	AB/2
TRANSYT	v12.1	AE/5
Junction Plus (the latest for all the above)		

(All above have right/left capability)

BUNDLE 3	v3.1	Issue 4
PCMOVA	v1.1.4	
MOVA	M6.0.0	
MOVA Comm	M6.0.2	
MOVA SETUP	M6.0.0	
CONTRAM 8	v8.3a	
MAAP (for Windows)	v4.3.5	
SafeNET	v2.04	
PERS	v2.12	
MTV	v2.1	
STM	v4.6	

ARCADY / PICADY and TRANSYT User Groups June 12th – 13th 2007



Who's Who

Dr Helen Gibson

Helen joined TRL in November 2006 and has been closely involved in extending the functionality of TRL's Strategic Transport Model (STM). Her recent work has been concerned with using traffic assignment to model the road network in Strathclyde and integrate this with STM. She is also currently contributing to a TRL scoping study for the next generation of traffic control systems.

Helen gained her PhD in Physics from the University of Bath in April 2007. She is originally from Edinburgh, where she also completed her MPhys in Computational Physics. In her spare time Helen likes to keep active by cycling, hill walking, rock climbing, and running. She also enjoys socialising in the evenings.



This years ARCADY / PICADY (Tuesday 12th June) and TRANSYT (Wednesday 13th June) User Group Meetings are imminent and they're free for maintenance holders! They'll be held at TRL, Crowthorne House, Wokingham and will run from 10:00 until 15:00, with buffet lunch provided. Spend a day at TRL to make yourself more productive and take advantage of the opportunity to benefit from experienced TRL staff and others attending the User Group!

The ARCADY/PICADY User Group will include a discussion of the revised TD16 "Geometric Design of Roundabouts" which is due to be published in the Design Manual for Roads and Bridges later this year, discussion on point-to-

point journey times, and advice on saturation flow measurement and queues. The TRANSYT User Group will include discussion on wasted green due to blocking back, use of PICADY 5 give way coefficients in TRANSYT, comparative assessment of signalised and unsignalised junctions, and vehicle emissions.

The ARCADY/PICADY and TRANSYT User Groups will cover topics of interest and importance to traffic engineers and modellers. Advice on modelling both standard and complex situations will be available from TRL staff. You are encouraged to bring any junction modelling problems or any interesting junctions with you for discussion with

TRL experts (and other experienced practitioners) in the group.

For companies with a current ARCADY / PICADY or TRANSYT Maintenance Agreement, up to two places **FREE** per registered site are offered. Additional places can be provided at a modest £50 +VAT each. Non Maintenance Agreement holders £50 +VAT each. Corporate licence holders should fill in a form for each registered site sending delegates.

To reserve your place, please complete the online form at www.trlsoftware.co.uk, or phone the TRL Software Bureau on 01344 770558 or 770758.

COURSES, SEMINARS & USER GROUPS 2007

ARCADY / PICADY User Group
User Group at TRL,
12th June 2007

TRANSYT User Group
User Group at TRL,
13th June 2007

OSCADY PRO Training
Central London,
2nd July 2007

ARCADY / PICADY Training
2 day training course,
Dublin,
2nd – 3rd July 2007

OSCADY PRO Training
Dublin,
4th July 2007

TRANSYT Training
2 day training course,
Dublin,
5th – 6th July 2007

OSCADY PRO Training
Leeds,
10th July 2007

OSCADY PRO Training
Cardiff,
12th July 2007

OSCADY PRO Training
Newcastle,
17th July 2007

OSCADY PRO Training
Belfast,
19th July

OSCADY PRO Training
Edinburgh,
24th July 2007

OSCADY PRO Training
Birmingham,
31st July 2007

If you would like more information on any of the issues raised in this issue please contact us **email: softwarebureau@trl.co.uk** or visit us at **web: www.trlsoftware.co.uk**

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TRL Software Bureau
Crowthorne House, Nine Mile Ride,
Wokingham, Berkshire RG40 3GA
United Kingdom
Tel: +44 (0)1344 770758
Fax: +44 (0)1344 770864

