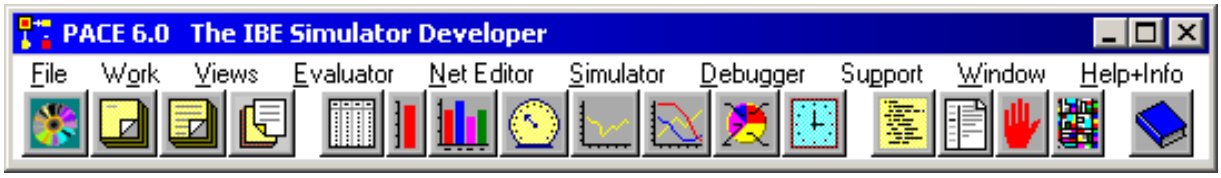
Essential new features of PACE, from Version 6.0 on

PACE 6.0 (May 2006)

Pace 6.0 is deliverable since May 2006. Special attention was put in this version on a better access to external data and on improved possibilities for the development documentation of models. Besides other planned PACE extentions which concern particularly the optimization of models both topics will also be expanded further in future versions.

1. Portation of PACE to VisualWorks
To overcome the restrictions of the previous implementation environment ObjectWorks 4.1 and to make certain future extensions possible PACE was moved to VisualWorks and was partly revised during the portation. PACE 6.0 now offers also the usual mouse and keyboard conventions of MS Windows.

The new PACE bar is represented in the following picture. Important menu functions to be frequently used can now be invoked also directly via icons.

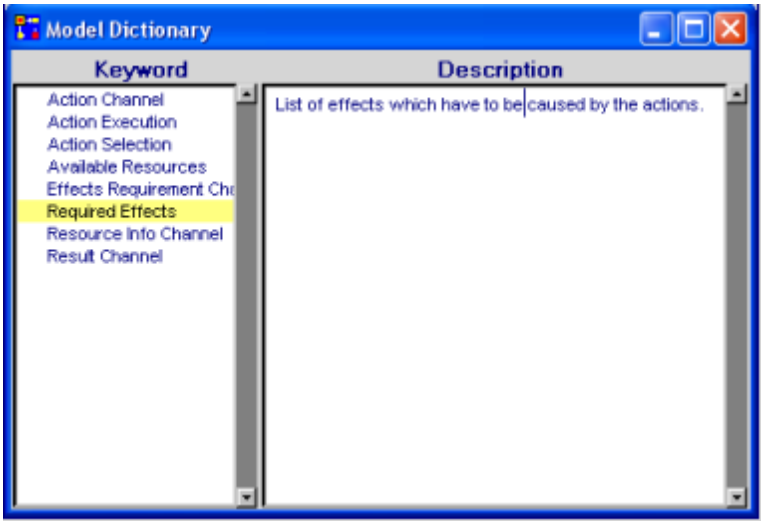


2. Comments for all net elements
For the documentation of the net nodes a purpose description in which the user can lay down reasons for the introduction of the node and can give further design information may be appended to every net node. These comments are of great importance for the later understanding of the nets particularly of the modules. The purpose descriptions are inserted together with the other attributes of the net nodes into the model documentation.

3. Complete documentation of the model
With the print function in the file menu a complete documentation of the model can be generated and printed. The documentation contains all data of the model and list the modules in the sequence in which they appear in the net list. For each module the corresponding net is drawn and his attributes and the attributes of the elementary net elements of the module (places and transitions) are listed.

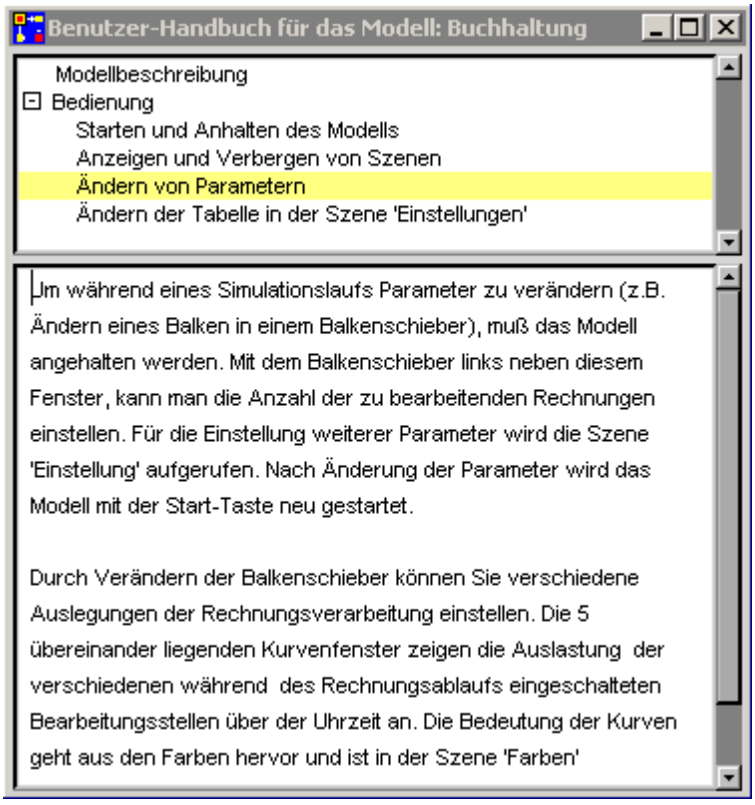
4. Model dictionary
During the work with models it was often found adverse that a description of the meaning of single names chosen during the modeling is not available. At bigger models the effort for the training of new developers who should further develop a model was therefore often substantially bigger than necessary.

This situation can be improved with a model dictionary that is connected inseparably with the model and can be called alternatively from the 'NetEditor' menu of the PACE bar shown above or from an arbitrary text processing menu. Highlighted texts are included in the dictionary on a mouse click and the user can start immediately with the insertion of an accompanying description.



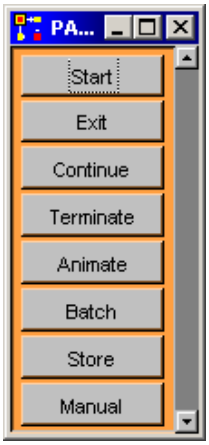
5. Model User Manual

For the description of a model and its handling a user manual can inseparably be connected with a model. The manual can be called by the support menu of the PACE bar and can also be displayed in frozen models with a function of the PACE executive.



6. Executives

4 horizontal and 4 vertical executives have been provided with mostly identical functions. The functions known of earlier versions were complemented by the store function and by a function to call the model user manual.

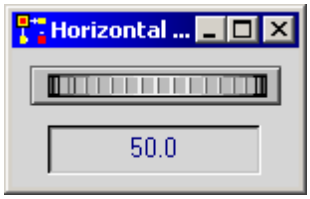


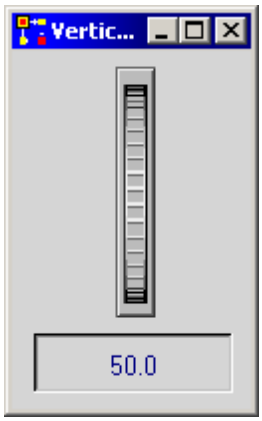
7. ODBC Support

Databases for which an ODBC interface is available can directly accessed via ODBC resp. SQL commands. For trying out the ODBC interface and SQL-commands a SQL-Query function has been provided in the Evaluator menu.

8. Thumbwheel

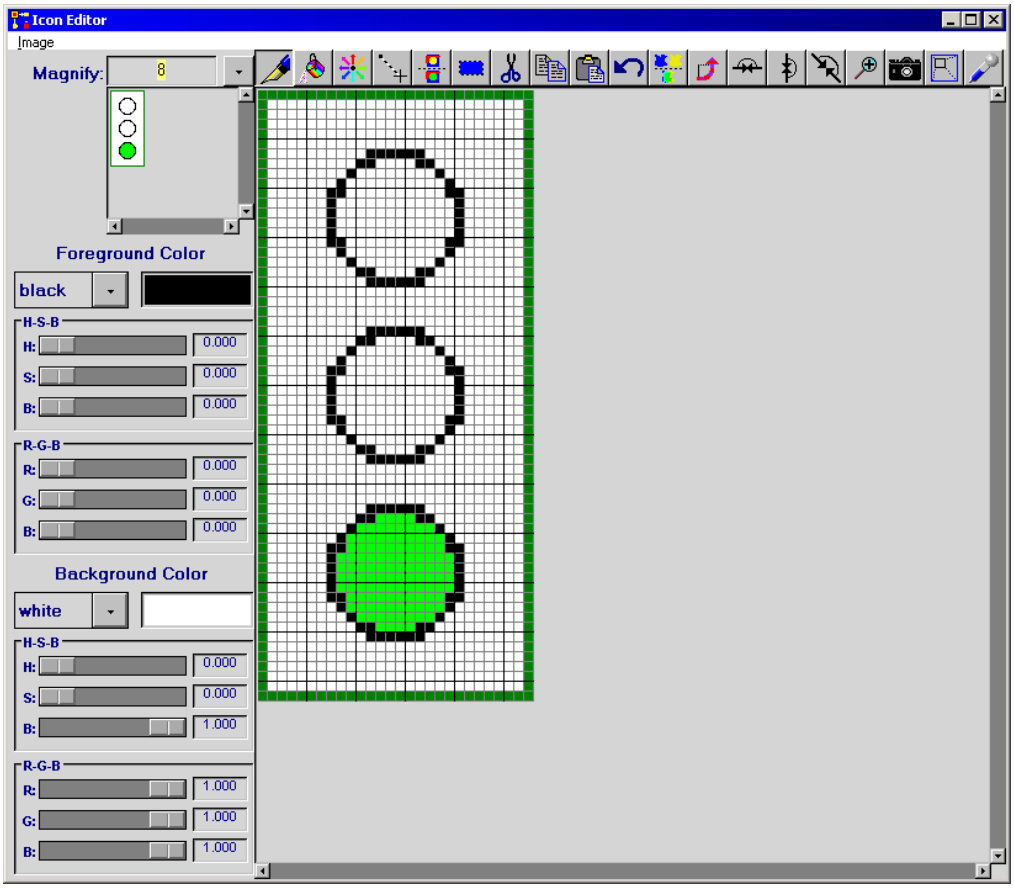
As a further possibility for the input of user data the horizontal and the vertical thumbwheel has been introduced. The value of a wheel can be changed by messages in inscriptions or with the mouse.





9. Icon Editor

Under the numerous smaller improvements and expansions the direct input of bitmaps (bmp-files) and the icon editor integrated in the icon management should be mentioned. The icon editor has been made available by Travis Griggs kindly. With it icons can be developed or changed for the respective needs.


Icon Editor
Image
Magnify:
8
Foreground Color
black
H-S-B
H:
S:
B:
0.000
0.000
0.000
R-G-B
R:
G:
B:
0.000
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Background Color
white
H-S-B
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PACE2008 (March 2008)

1. Numerous Improvements and Extensions

Again numerous smaller improvements and extensions. The most important are:

- For the improvement of readability it is possible from this version on to work with paths which contain blanks. Module names also from this version on may contain blanks. This expansion brings a considerable simplification of the modeling. E.g. visualization window whose header lines contain blanks can be stored and loaded without changing the name.

- Initialization and execution of a model with one single command.

- To make the iconization of models easier icon files .icn which are part of other models can be loaded into a model resp. added to existing icons.

2. Characteristic Histogram Values

For general histograms the calculation of the three characteristic parameters: mean average value, variance and standard deviation have been added.

With that, as an alternative to the empirical distributions, the characteristic parameters of a distribution diagram can be calculated und used to draw a mathematical distribution function. Whether the statistical source of the histogram can be adapted by a mathematical distribution function has to be decided visually.

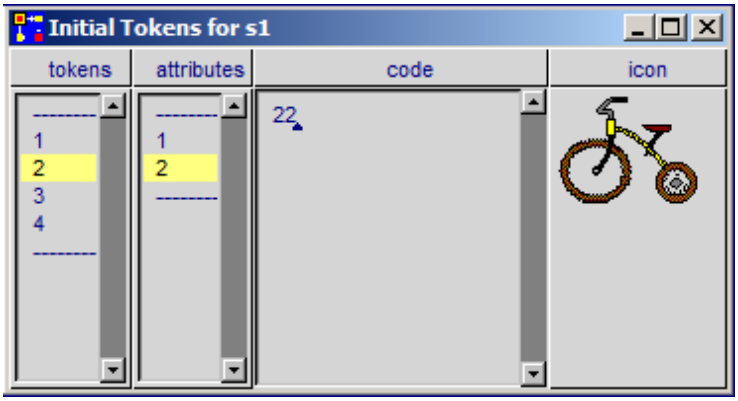
3. Optimization Methods

To be able to treat certain optimization problems (e.g. sequence problems) adequately another heuristic optimization method (Threshold Accepting) particularly suitable for it has been added. It can be used for the optimization of mathematical functions and for the PACE net functions both like the methods provided in earlier versions of PACE.

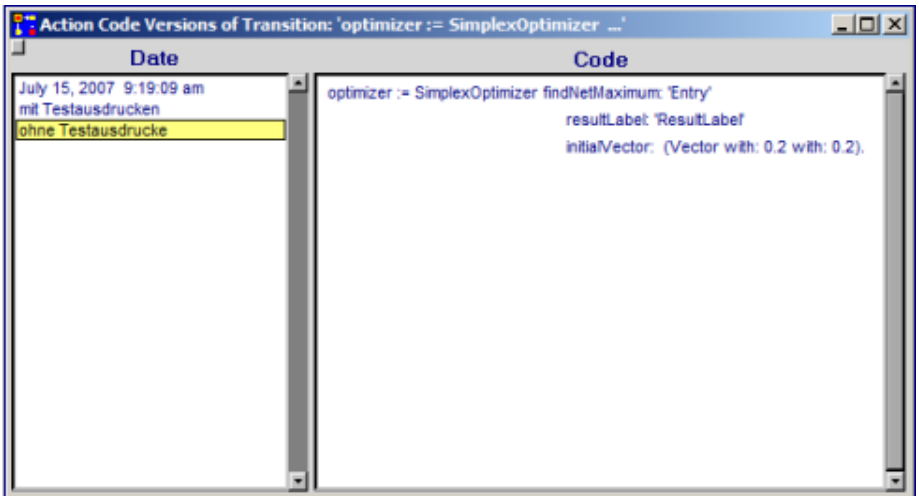
The other optimization methods which occasionally showed defects with the use of the scaling have been revised.

4. Icons for Initial Tokens

During the animation of nets it was disturbing that initial tokens have to run up to the first transition in standard representation (as a point) and could not be represented by an individual icon. There is the possibility now of assigning an individual icon to every initial token on its way from the initial place to the first transition.



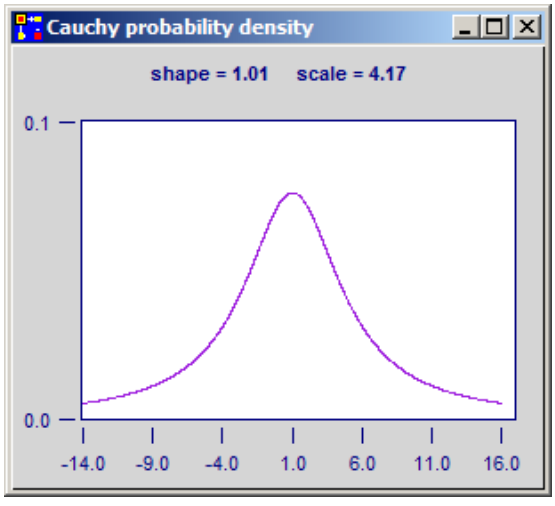
5. Version Control for Transition and Model Codes

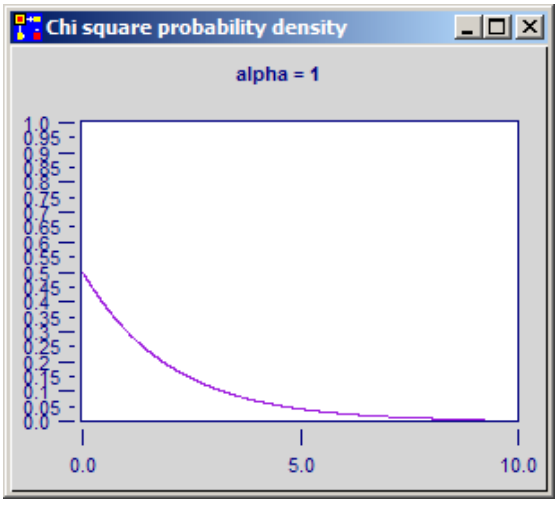


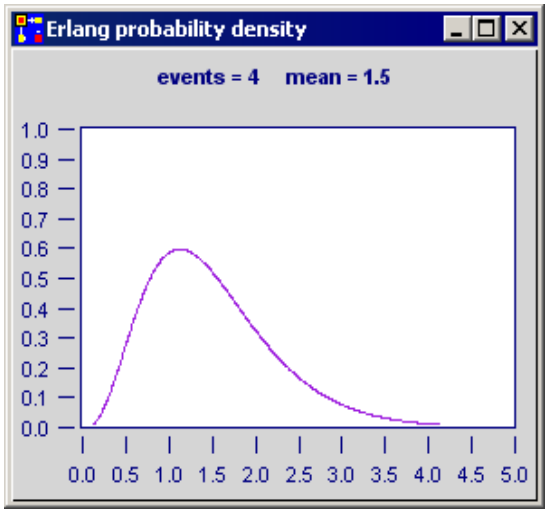
It occasionally is useful during the model development if one can return to earlier versions of an inscription or a model code in a simple way or can save alternative versions (e.g. with debugging code for the fault diagnosis). Therefore a simple version control was provided to store and restore transition and model codes.

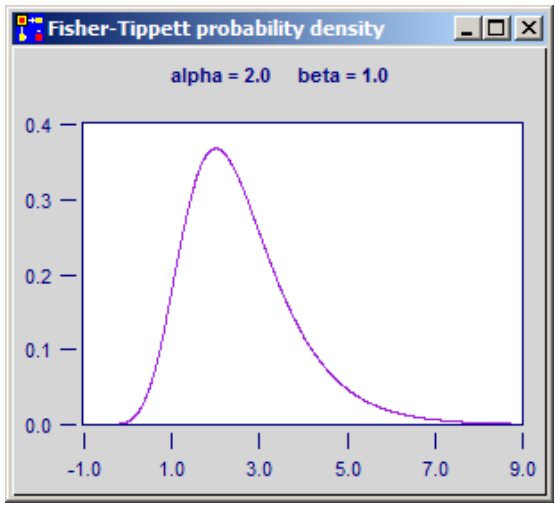
6. Six further mathematical probability densities

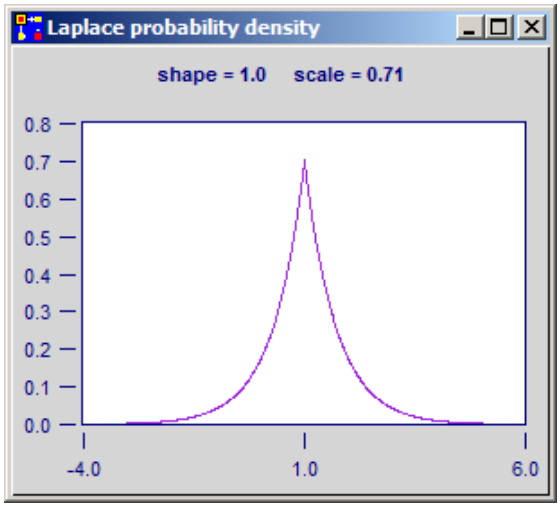
Six further probability distributions have been added to the ten distributions available in PACE till now. These are the Erlang distribution, the Cauchy distribution, the Chi Square distribution, the Fisher-Tippett distribution, the Laplace distribution and the logistical distribution.

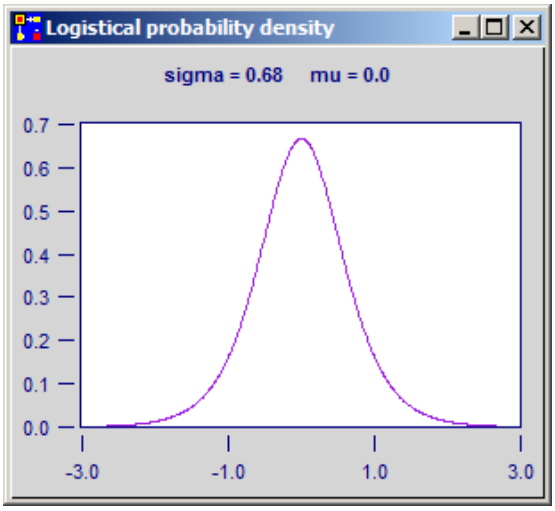








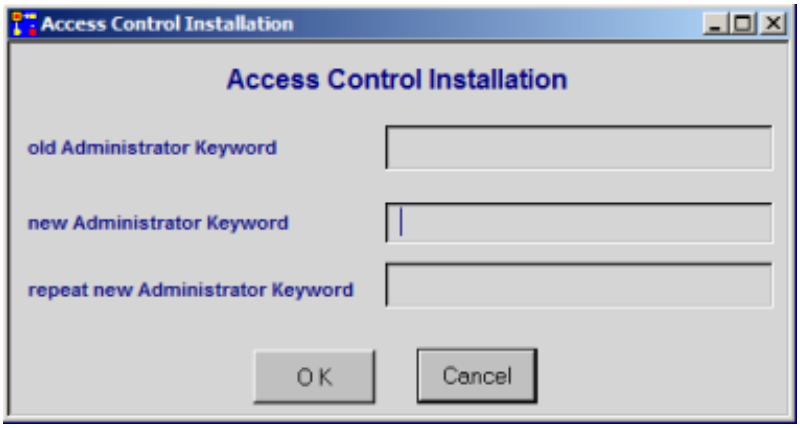


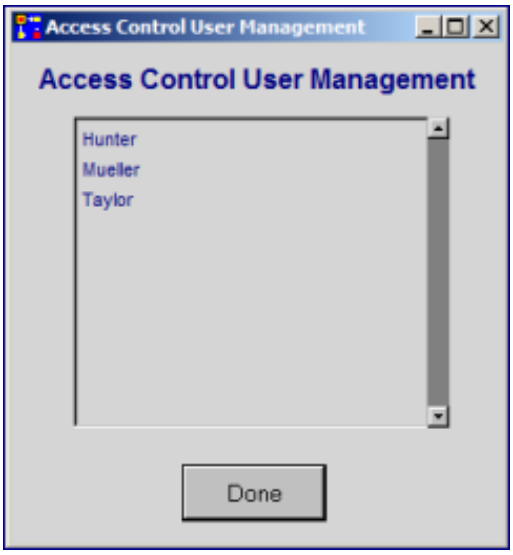


7. Access Control of PACE Models

PACE models are frequently developed for the planning and assessment of business processes and therefore include also internal and secrecy data and algorithms of the organization modeled. It is obvious that the access to such data shall only be possible for persons who have to develop or use the models.

To limit the access to PACE models, an access control which can be switched on when required was implemented. One single password for the entry to a model can be provided and additional a number of users can be authorized with passwords respectively of its own.

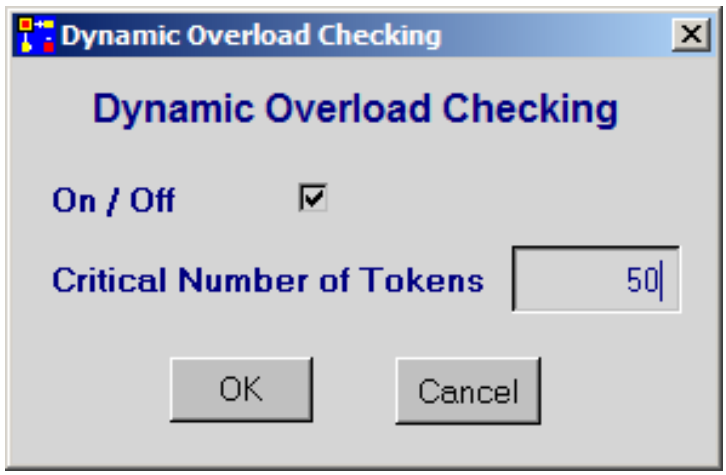




8. Discovery of Overloaded Places

During the development of larger models it happens occasional that numerous tokens accumulate in single places unplanned. Very often this indicates a model error. It is recognized by the fact that the model runs increasingly more slowly because of the extensive token administration of the strongly overloaded places.

To find the overloaded places either the online control of the model execution is switched on or an analysis of the complete model can be executed.


Dynamic Overload Checking
Dynamic Overload Checking
On / Off
Critical Number of Tokens
50
OK
Cancel

Find All Heavily Loaded Places
Critical Number of Tokens
3
Find
Cancel