LAURA (**L**ahka **A**dministracija **U**porabnikov, **R**aziskav in **A**plikacij)
Easy Administration of Users, Surveys and Applications

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1. Introduction

Laura is system for administration of users and statistical surveys developed with Blaise. We got the first idea at the end of 1999, development started in the middle of 2000. Main reason for development was insufficient controls over interviewers work, their user rights, cumbersome administration of surveys and dynamic change of environment variable BlaiseUser in WinNT 4 operating system. Before all this problems were solved with unique applications developed with Microsoft VisualBasic, but with time and growing number of different surveys this was not long time solution.

2. Overview

Core of Laura system is Microsoft Access database where all data about users, surveys, user levels and their relationships is stored. With this data Laura can generate different user interfaces which are more user friendly because of their standardised looks and availability of only those functions that can be run on a certain user level. It also drastically decreases needed developers work because there is no need for several different user interfaces. If functionality of generated user interface is not good enough Laura can generate initialisation file with all relevant parameters, so it can be used with any other developed application. For use of this file to be as easy as possible we developed ActiveX DLL library with all needed functions. With use of WinVNC programme Laura enables remote control of all interviewer computers.

3. Database

Laura's database is developed in MS Access. It contains all information needed for system to work. The data is organised in seven main categories:

- user informations: user name, password, real name, default user level, BlaiseUser
- survey information: survey code, short name, long name, programmer ID, path to survey folder, Blaise version, parameters for generated user interface (font, color,...), optional path to external user interface
- user levels information
- informations of relations between users and surveys
- Blaise informations: all paths to Blaise programs
- log informations: all activities are logged
- informations needed by system

4. User groups

One of the main features in Laura are user groups because they can be used to activate advanced features in user interfaces. Laura differentiates between five user groups:

- interviewer: can run surveys which were assigned to him
- controller: interviewer rights + can add new users (interviewer level only), can assign users to surveys, can overview interviewers work with help of short statistics and remote control
- supervisor: controller rights + can archive data, can assign controller rights
- programmer: supervisor rights + can add/edit survey which he developed
- administrator: no restrictions

5. User Interface

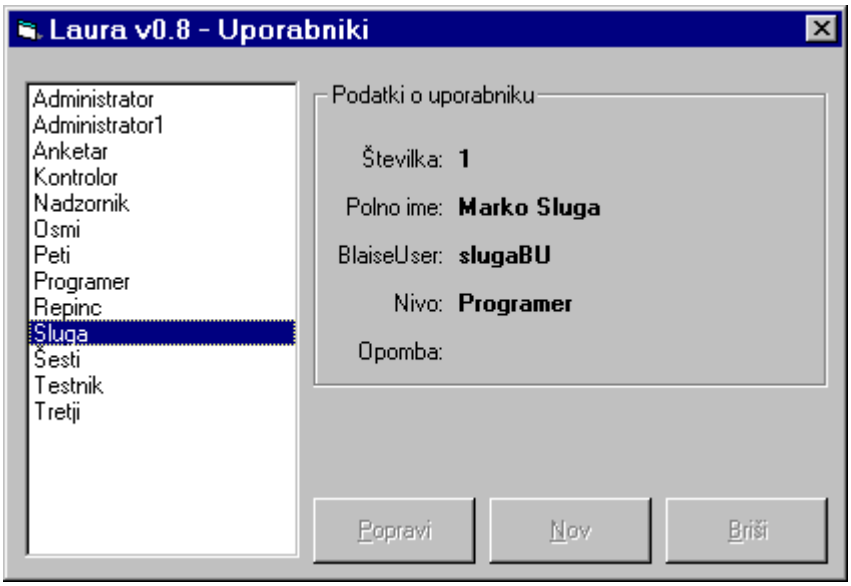
User Interface is developed with MS Visual Basic, standard SQL language is used for accessing database, more advanced features use WinAPI functions, for data crypting we used DES3 algorithm.
After starting Laura must every user login to system with user name and password. If login is successful Lauras main window openes and user data with start time is written to log. If user is in the administrators group then he gets the list of all surveys and all functions are enabled, otherwise only assigned surveys are. Main window contains list box with short survey names assigned to current user sorted alphabeticaly. Upon selecting survey more details are shown and based on survey user group equivalent advanced functions are enabled.

6. Administration

With buttons on main window you can administer users, surveys and their relations. These buttons are enabled only when current user is in specified group, so controller and supervisor can administer users, programmer can add and edit surveys wich he developed. Users from administrators group don't have any restrictions.

6.1. User Management

When we start user management we get listbox with all usernames sorted alphabetically and buttons for adding, editing and deleting users. If we want to add new user, after clicking on button 'New', we get new window where we fill in specified fields. Default user group higher than interviewer can be set only by administrator. No one can edit user in higher or same user group unless they are in administrators group. The 'Delete' button in enabled only to administrators.

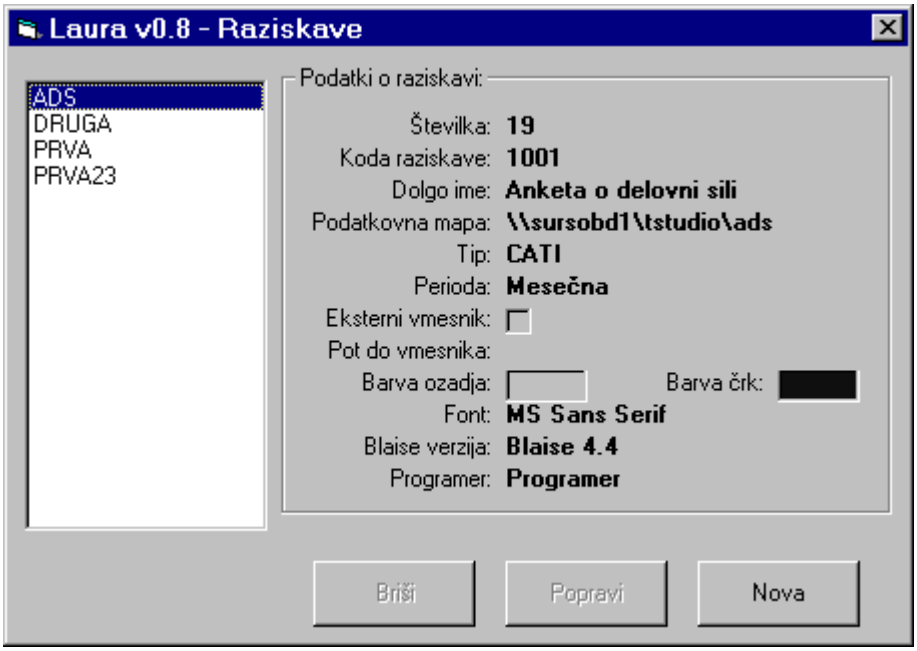


Picture 1: Main user management screen with user details and buttons for adding, editing or deletin users

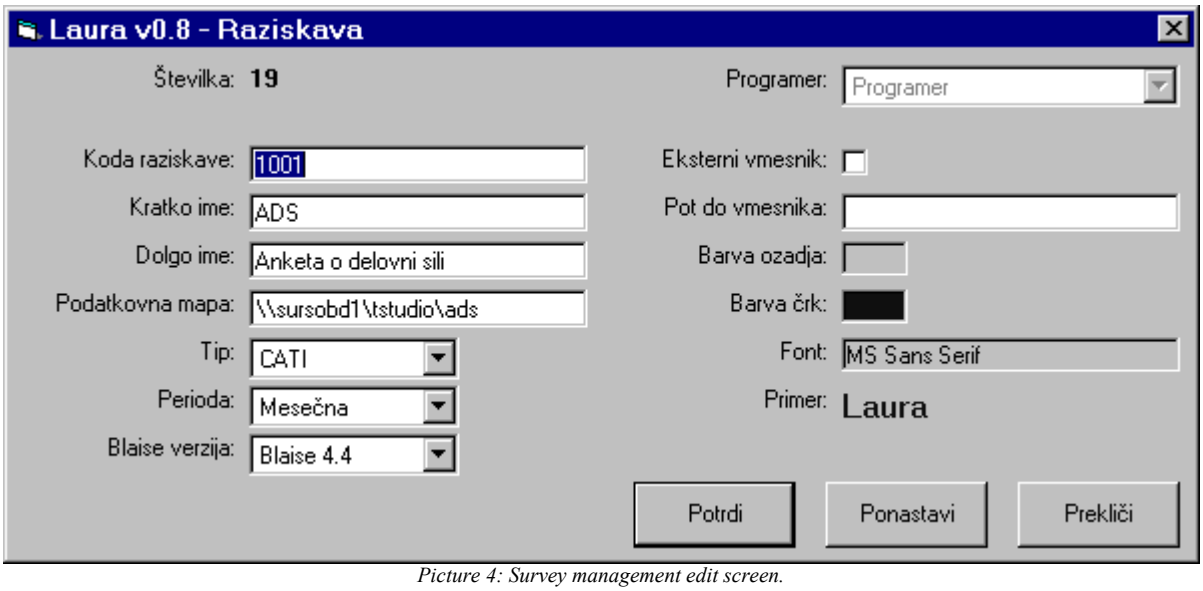
Picture 2: User management edit screen

6.2. Survey Management

Survey management is available only to programmers and administrators. In main survey management window we get listbox wih short survey names and buttons for adding, editing and deleting surveys. Each programmer can edit and delete only those surveys that he developed. If we want to add new survey we can clik on 'New' button and fill in all fields.



Picture 3: Main survey management screen with survey details and buttons for adding, editing or deletin users



Picture 4: Survey management edit screen.

6.3. User-Survey Management

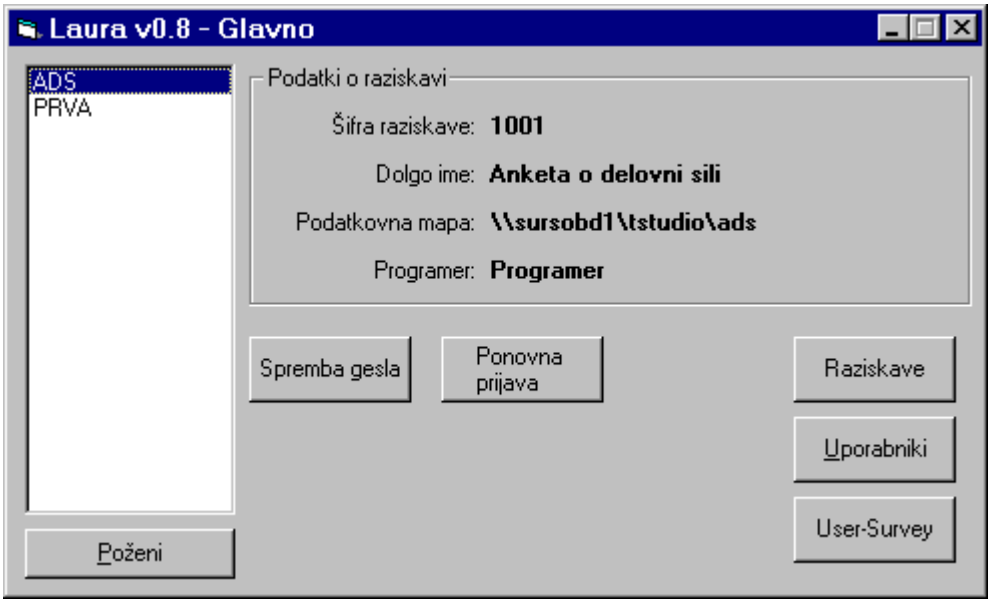
The button for user-survey management on main window is enabled to all users from controller group and higher. First asiggning of users to survey can only be done by programmer or administrators. If we want to assign new users or change their survey user group, we must select survey from listbox and after clicking 'User-Survey' button we get new window with four listboxes (one for all users and other three for users in different survey user groups). We can add or remove user simply by double-clicking his username. When we add user to survey his survey user group is the same as default user group. We can move user from one group to another with buttons on the interface.

7. Working with Laura

Picture 5: Login screen.

With double-click or click on 'Start' button we run selected survey. Depapending on parameters in survey definition we get on screen generated user interface for that survey or external user interface. If current user is in interviewer group, he gets only buttons for running DEP and help. Controller has added buttons

for daily backup, statistics, remote control and if survey is is CATI mode also buttons for history and CATI management. User interface for supervisor or higher has two additional buttons; for archiving and CATI specification. If survey uses external user interface, Laura generates initialization file with all needed user and survey data.



Picture 6: Main screen with all buttons for administration enabled.

8. Overviewing work

8.1. Statistics

All user activity is logged. For every survey can Laura show data for active users such as username, Windows login, computer name, computer IP, ethernet address, start time (when Laura was started), survey name, session time (when survey was started).

8.2. Remote control

Instead of developing our own application for remote control we decided to use WinVNC developed by AT&T Labs Cambridge which is available freely and with source code. For our needs the code was modified so that interviewers don't have any control over WinVNC server. We can run WinVNC client by clickling on user in statistics window. The client connects to specified server on user computer and new window opens with screen in real time.

9. Security Functions

Security features can be organized in three categories:

- system security: the database is password protected; all important data is crypted; also the application is crypted
- activity logging: data for every logged user is written to log table including data about computer from which login was successful (windows login, ethernet address, computer IP) and start and end date and time. All remote controle use is also logged to seperte table wit data about users and computers on both server and client side with start time.
- remote control security: to prevent possible misuse of remote control WinVNC server is run only when Laura starts. The password for remote control is changed dynamicaly and crypted with DES3 algorithm. When WinVNC client connects to server the use of local mouse and keyboard is disabled.

10. Conclusions

Because of constant development and implementing of new functions Laura is still in test phase and as such is not siutible for production use. We hope that first production version will be available in early 2002.