OpenSCADA 0.6.1

Оглавление

Introduction

The release of open SCADA(Supervisory control and data acquisition) system of version 0.6.1 is the first stabilizing release of a branch 0.6.0. Within the limits of this version big work on stabilization and adaptation to practical tasks is done. As the result, a way to formation of base library of patterns of traditional SCADA system has been passed and the demonstration interface of the user is constructed. The demonstration interface contains the staff with full-value mnemonic panel, the stereotyped frames of groups of graphs, groups of contours and survey frames. As a result of the done work the task of construction of complex interfaces of the user of SCADA-system already became practicable.

The given document is processing (compilation) of the document <ChangeLog> of OpenSCADA system versions 0.6.1 which is called to cover briefly and obviously new opportunities of OpenSCADA system. In details to familiarize with changes in OpenSCADA system it is possible in the file ChangeLog from the distribution kit of system or here: http://diyaorg.dp.ua/oscadawiki/Works/ChangeLog (RU).

Key features of the given version are:

- Increasing of stability, durability and productivity of system.
- General-system expansions and expansions of user API.
- The mechanism of construction of graphs reconsidering and improving.
- EVM improving and stabilizing.
- Expansion of the list of files of resources and building system.
- The part of modules of a subsystem "Data acquisition" is improved.
- The part of modules of a subsystem "DB" is improved.

The new and updated modules:

- *Archive.FSArch (0.9.6)* — Stabilization.
- *Archive.DBArch (0.6.0)* — Optimization and stabilization.
- *DB.MySQL (1.3.1)* — Stabilization.
- *DB.SQLite (1.3.1)* — The opportunity of control of amount of queries in transaction is added.
- *DB.FireBird (0.7.0)* — Support of unification of transaction for commands of modification is added.
- *DAQ.BlockCalc (1.0.1)* — The mechanism of the link of parameters of the controller is changed to attributes of blocks.
- *DAQ.DiamondBoards (1.0.1)* — Stabilization.
- *DAQ.JavaLikeCalc (1.0.1)* — Stabilization and addition of support of special symbols ('\

n' and '\t').
- *DAQ.SNMP (0.3.1)* — Stabilization.
- *DAQ.ModBus (0.8.0)* — Addition of support of protocols RTU and ASCII, and also of the block mechanism of acquisition.
- *DAQ.Transporter (0.3.1)* — Stabilization.
- *DAQ.System (1.6.0)* — Addition of data acquisition of sensors through library libsensors. Stabilization.
- *Transport.Sockets (1.3.1)* — Stabilization.
- *Protocol.HTTP (1.3.1)* — Stabilization.
- *Special.FLibComplex1 (1.0.1)* — Stabilization.
- *Special.FLibSYS (0.6.0)* — Addition of functions for work with strings.
- *UI.QTCfg (1.5.1)* — Small improvements.
- *UI.VCAEngine (0.6.0)* — Significant stabilization and expansion of functional.
- *UI.Vision (0.6.0)* — Significant stabilization and expansion of functional.
- *UI.WebVision (0.3.0)* — Stabilization and expansion of functional.

1. Increasing of stability, durability and productivity of system.

During works under the given version, and also under its practical adaptation, it was revealed and corrected something about hundred errors. About half from them it was revealed owing to persevering studying and adaptation of Popkov Alexey. The overwhelming majority of errors was revealed in components of the environment of visualization and management. Many efforts have been directed on increasing of productivity of system as a whole and of visual control area (VCA) in particular.

2. General-system expansions and expansions of user API.

To the kernel of OpenSCADA system some changes of expanding character have been made. We will list them:

- For expansion of functional characteristics of standard attribute of value of the subsystem "Data acquisition", the type of its reserve parameter has been changed from the integer to the string. It has allowed modules of the subsystem "Data acquisition" to store more complex data directly with attribute, simplifying internal processing.
- With the purpose of granting of the mechanism of the unified deletion of units from a dynamic tree of objects of OpenSCADA system on its full way the function TCntrNode::nodeDel() has been added.
- For expansion of opportunities of API of the user programming by functions of working with strings in library of system API of the user programming had been added six functions for working with strings: strSize(), strSubstr(), strInsert(), strReplace(), strParse(), strParsePath().
- System function of a rounding of real values up to the specified sign after comma TSYS::realRound() is added.

3. The mechanism of construction of graphs is reconsidered and improved.

With a purpose of increasing of readability, and also in a in view of detection of some problems in mechanisms of construction of graphs of different units of OpenSCADA system unification of the mechanism of construction of graphs for all mechanisms has been made, notably: in the plotter of graphs of values of the subsystem "Archives" (QTCfg), in the visualizer of trends of primitive "Diagram" of modules Vision and WebVision.

During these actions the plotter of graphs of values of a subsystem "Archives" has been complemented by following opportunities:

- the indication of the sizes of a window of construction of the graph;
- the indication of the right scale of values of parameter;
- restriction of the top limit of time by current time, and also by tracking the current time.

4. The visual control area (VCA) is improved and stabilized.

The most significant changes have been made within the limits of the visual control area (VCA), namely in modules of slider of VCA – VCAEngine, a visualizer on the basis of library QT – Vision and a visualizer on the basis of WEB-technologies – WebVision. Introduced changes were directed on the stabilization and improvement of user properties of VCA.

Let's examine more detailed the general changes for modules VCA:

- During practical adaptation have been revealed serious restrictions in the mechanism of processing of events of the interface. These restrictions did not allow to create scripts of processing of events of enclosed widgets. The given restriction has been eliminated by addition of the address of a source of event in event.
- With the purpose of granting of an opportunity of identification of quality of target values, and also presence of connections, and in a consequence for an opportunity of the analysis of these values in scripts of the interface, complete support of erroneous value – EVAL has been realized. It has allowed to make a decision on hiding or displaying of elements of the interface in the universal frames/images of parameters of the subsystem "Data acquisition", and also in the frames of other assignment.
- The mechanism of the indication of fill of the closed contour of primitive "ElFigure" is changed. Now fill is indicated by coordinates of a point inside of the closed contour. It is made with the purpose of unification of mechanisms of representation for QT and WEB technologies.
- With the purpose of make like of texts on pages of VCA to a uniform kind on various visualizers the opportunity of the indication of a font of texts of primitive "FormEl" has been added, and the unit of measure of the size of fonts of all elements is indicated in pixels.
- The support of the mechanism of dynamic linking of pages is added. The given mechanism is very convenient at formation of the pages serving set of parameters of a subsystem "Data acquisition" or supplementing group of the same pages by only one frame in a tree of the project.
- The mechanism of loading of Mime-data from a DB is unified. Also, function of storage of Mime-data in a DB under the project is added.
- The support of the user attributes for widgets, enclosed into the frame is added.

Directly into the module of visualization on library QT (Vision) following significant changes have been made:

- For expansion of a spectrum of supported styles of borders in primitives, forming borders, has been added the attribute of style corresponding the standard styles of WEB-interfaces.
- For granting an opportunity of the indication of active areas on images with an opportunity of formation of events on their activation at performance of the project the mechanism of formation of

active areas (map) of images has been added.

• With the purpose of adequate processing property of scaling the type of attributes of geometry has been changed to real. Attributes of coordinates of points of primitive "ElFigure" for the same reason have been changed to real.

• The support of representation of sliders and strips of scrolling in primitive "FormEl" is added.

• The support of attributes of scale, together with real scaling of contents of primitive "ElFigure" is added.

• The support of focus and change of focus process of active elements is added. The opportunity of the indication of the order of reception of keyboard focus is also realized.

In VCA editor of the module of visualization on library QT (Vision) following significant changes have been made:

• The support of change of the size and scale of widget from the keyboard is added.

• The contextual menu to elements of the frame with support of own menu for different types of widgets, including the mode of editing of widgets in the frame is added.

• The function of copying/moving of visual elements is added.

• Operations of an insert, updating and deletion under child widgets of the frames are optimized.

• The generator of identifiers for again created widgets, proceeding from the identifier of a basic widget and already present widgets, is added.

• It is rewrited and significantly improved the function of group change of the sizes of selected widgets .

• The opportunity of selection of group of widgets by drawing a visual rectangular is added.

• The support of set of combinations of keys of a fast call of functions is added.

Directly into the module of visualization on Web-technology (WebVision) following significant changes have been made:

• The support of WEB-browser MS Internet Explorer is added.

• The support of primitive "Diagram" is added. I.e. within the limits of the Web-interface graphs can be formed.

• The first realization of support of primitive "ElFigure" is added.

• The support of scaling of elements of the interface is added.

5. Expansion of the list of files of resources and building system.

For assurance of building of the project on distribution kit Mandriva 2008 it has been added in the script of a configuration of building system processing of a special location of library QT4 in this distribution kit.

In the project tree new files of the kit of the basic documentation have been added. Translations of the basic kit of the documentation into the Ukrainian and English languages are included in number of these files: FAQ.pdf, AboutOpenSCADA.pdf, release_0.6.0_uk.pdf, release_0.6.0.pdf and FAQ_uk.pdf.

For granting an opportunity of starting of system from the menu of a desktop in the project tree corresponding configuration files and icons have been added.

6. The part of modules of a subsystem "Data acquisition" is improved.

Part of modules of a subsystem "Data acquisition" have been significantly updated:

• In the module of data acquisition by means of the protocol ModBus (/DAQ/ModBus) the support of protocols ModBus/RTU and ModBus/ASCII has been added. Also the support of a block mode of data acquisition has been realized.
• In the module of acquisition of system data (/DAQ/System) the support of library of sensor of system cards – libsensors has been realized.
• In the module of parameters of a logic level (/DAQ/LogicLev) installation of values of attributes, which connections are destroyed, in EVAL is provided.
• In the module of the block calculator (/DAQ/BlockCalc) the mechanism of addressing of the reflected attributes of parameters is changed to attributes of blocks.

7. The part of modules of a subsystem DB is improved.

The basic changes are connected with improvement of the module of DBMS "FireBird" support. From the most significant changes it is necessary to note addition of management by transactions and as consequence the some increasing of productivity. For the purpose of increase of productivity of work with DBMS "FireBird" in the module of archiving on a DB (/Archive/DBArch) procedure of dump of the block of data in a DB has been reconsidered.

In the module of support of DB SQLite the opportunity of the indication of amount of queries, through which it is necessary to close transaction, is added.

8. Plans of the further development.

To release of the next version decisions of such tasks are planned:

• Creation the forum of the OpenSCADA project.
• Development and realization of the concept of the specialized notice and the signal system.
• Completion of the module of visualization VCA WebVision up to a level of full-value functionality, within the limits of base elements of module Vision.
• Expansion of functions of OpenSCADA system: realization of the module of sampling of controllers Siemens by means of library Libnodave; realization of the control of access rights in VCA.
• Check of functioning of components of OpenSCADA system by means of the program "Valgrind".