PcVue Solutions

TECHNICAL HIGHLIGHTS

www.pcvuesolutions.com

FRANCE　　CHINA　　GERMANY　　ITALY　　JAPAN　　MALAYSIA　　SINGAPORE　　SWITZERLAND　　UK　　USA

Summary

Application Architect ● Variable Selector ● Application Explorer ● Smart Generator ...
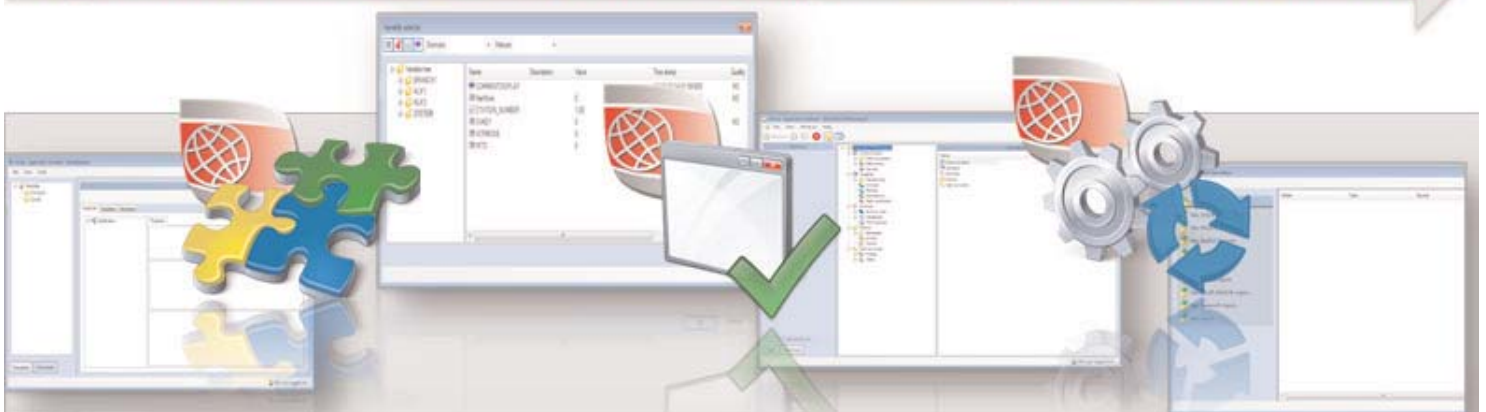
▶ 1. SYSTEM ARCHITECTURE

• Supported on Windows 7, XP, Vista, Server 2003 & 2008, 2008 R2 & virtual machine (VMWare® / hyperV®)

• **Portability of applications from previous versions**

• Open architecture

• Alarm processing

• Archive processing

• Client/server architecture

• Real time multi-tasking kernel

• Bilingual facility for menus and application

• Optimized data sharing among PcVue network stations

• **Native, optimized redundancy of data acquisition & historical data**

• Product structure facilitating integration of vertical approach

• **Full Object Oriented technology**

• Versions in English, French, German, Italian, Spanish ,Russian, Japanese, Chinese, Latvian

▶ 2. DEVELOPMENT

• Windows ease of use: an intuitive environment for development

• The same mimic may be opened simultaneously in design and run modes

• **Single, integral development studio for all aspects of the software**

• Entire project data contained in one folder and its sub-folders

• **Powerful Object library factory : Application Architect**

• Tool for simulating values of PLC variables

• **Project design based on Built-in Configuration & Parameter**

• Wizards to assist configuration

• Multiple undo and redo

• On line help available in XX languages
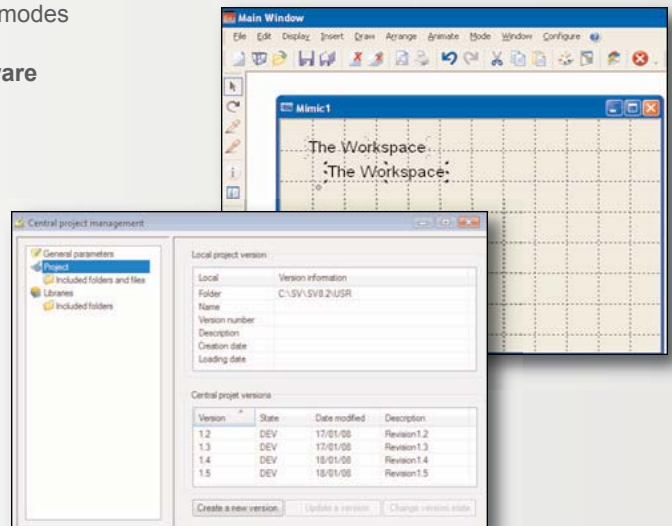
• **Project Versioning Management**

• **Central Project Management** with automatic loading of the latest available version on a server or local station

• **No compilation required – On-line modification for all project aspecsts**

• **Plain text and XML configuration files that are opened to 3rd party editor : Excel, XML Editor, etc.**

• Network key as a token to control development rights across the network of supervisory stations

 Powerful scripting language for managing built-in objects & functionnalties

▶ 3. DISTRIBUTED APPLICATIONS
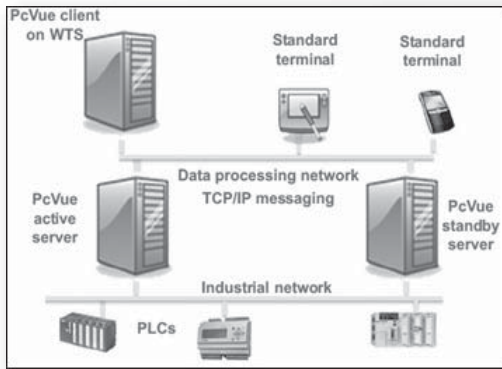
• Inter-station messaging using TCP/IP

• Exchanging values of variables in real time: internal, equipment and historical

• Single configuration of the data base for distributed architectures

• Concentrator station and archive server

• Administration of network users' access rights

• System variables to indicate the status of network stations and of the connections between them

• **Deployement of variables** modification or creation across the network at RunTime
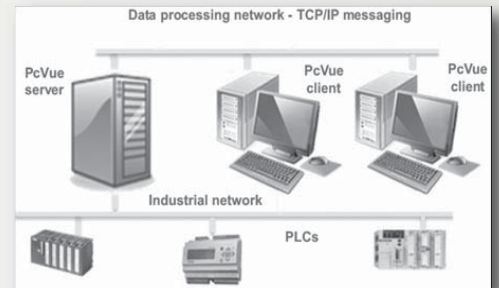
▶ 4. DATA ACQUISITION

• Communication supported to PLCs, controllers, fieldbus I/O and other industrial equipment

   • Communication via serial port, Ethernet card, manufacturer-specific, Hilscher and Applicom boards

      • **Native support of many serial and TCP/IP protocol.**
      See White Paper 'Communication Protocols' on www.pcvuesolutions.com

         • **Kepware OPC Server bundle**

         • Native **BACnet®** driver

         • Native **LonWorks** driver supporting LNS-TE

      • Native IEC 60870-5-104 client driver

   • Native IEC 61850 client driver - includes support for Windfarming and DER extensions

   • Modbus TCP/IP slave (supprimer Modbus, ajouter IEC voir WebSite IEC pour les regles)

• **OPC & XML data client and server**

• Event-driven exchange with PcVue kernel

• Polling interval is configurable for each data frame

• Prioritized queuing of user command

• Supports **time-stamping at field device level**

• **Time-stamping of data with millisecond accuracy**

• Sorting of time-stamped data before logging

• Display and recording of the time- stamping origin (field device or PcVue)

• **SDK for custom protocols**

•Built-in Tools for diagnostics & data flow auditing

▶ 5. REALTIME DATA

• **Object-oriented DataBase**

• **Hierarchical variable name structure**

• Variable types: bits, registers, texts, and alarms

• Conversion to physical values

• Deadband

• Discrepancy checking

• Expressions and formula calculations

• Chronometer and counter variables

• Level threshold detection system plus hysteresis on analog variables

• Associated labels for variables to describe them explicitly in mimics, alarm lists and events logs

• **Multiple boolean & text user attributes** associated with variables.

• **Filter-Search-Sort** can be done on alarm,historical,trend viewers depending on those attributes.

• **SmartGenerators : Automatic generation of the database from a 3rd party applications such as : Unity® – Schneider Electric, LonDB – LonWorks Technology , AutoCAD, Siemens Step7®, ISaGRAF, WAGO, Stardom - Yokogawa, Factory Link**

• Manager tool kit (SDK) for variables to let a 3rd party application subscribe (locally or on TCP/IP) to the PcVue data
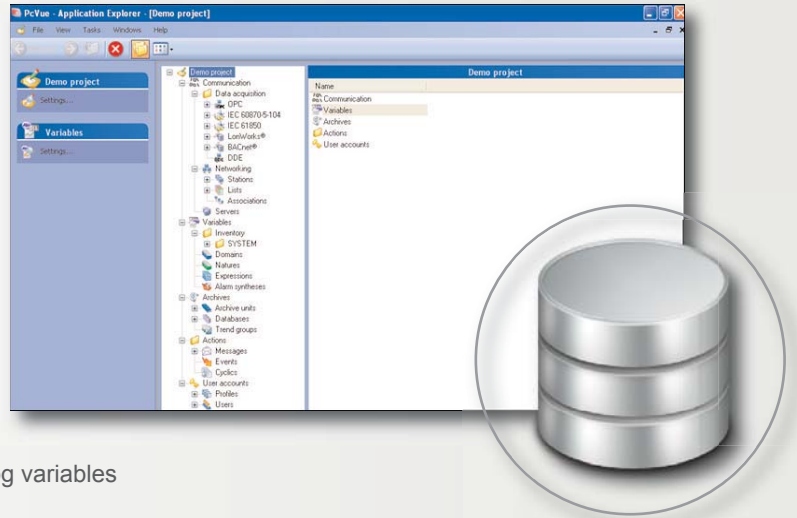
▶ 6. ARCHIVING DATA

• **HDS – Historical Data Server records in, and replays from Microsoft SQL Server 2008. Microsoft's freely distributable SQL Server 2008 Express edition included**

• Native - records in, and replays from, PcVue's own native data storage system. Highly optimised data recording for maximum performance

• **Database Creation Wizard** guides you through the process of configuring data recording using the Historic Data Server

• System variables to monitor data archiving

• Log lists allow recording & displaying events, alarms and user actions in the same event log.

• **Back-up/restore mechanism from archive unit folder to the back-up folder**

• **Redundant SQL Server databases and replication management**

• Viewing and maintaining SQL database properties and contests

• **Built-in database maintenance for non SQL Server specialist**

▶ 7. ACTIONS

- Sending recipes and commands according to a weekly **timetable**, managing exception periods for public holidays

- Event-driven actions on variable & alarm changes

- Cyclical actions : Run periodic script

- Web based **Scheduler**

- **Send EMail and SMS on event** with template & automatic fill-in

- Upload and download files on FTP
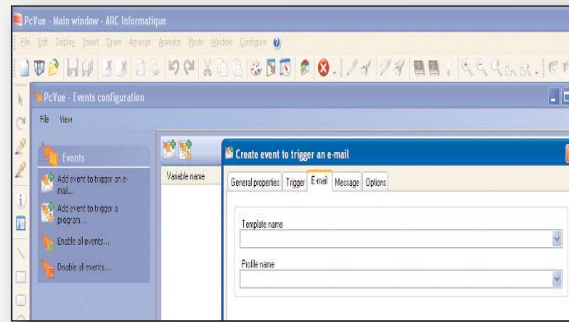
▶ 8. GRAPHICAL INTERFACE

- Graphical interface based on ARC Informatique's FrontVue software

- **Object oriented graphical Interface**

- Color selection by color picker

    - Color palette of up to 16 million colors

        - Color gradients for 3D effects

            - Blinking and transparent colors

            - **Microsoft VBA included in the graphical interface**

            - **Integration and manipulation of ActiveX components by VBA**

            - Support images format: WMF, EMF, GIF (static and animated), BMP, JPEG, PNG, and AVI formats

   - **Animation of real 3D embedding objects using DirectX technology**

            - Mimics can be automaticly re-sized if the display resolution changes

    - **Vector drawing tool**

- Versatile graphical representation on loss of communication with equipment

- **Visual browser to display and change object properties without ungrouping them : Graphic Explorer**

- Totally configurable appearance of windows, plus child and parent windows into another

- 16 design layers with locking according to user's access level

- Declutering support to hide or display graphic elements according to layers of zoom

- Zooming on-the-fly to enlarge an area of a mimic on a separate display

- Object visibility dependent on zoom level

- **Over 60 animations including text, color, position, send command and hypertext link**

- Use of expressions and substitution strings in animations

- **Built-in support for multi-screen applications**

- **Template mimics for consistent look and feel across a project**

• Grid macro animation: a facility for displaying and modifying database variables in cells, managing cell selection

• Use of memory cache to load the main mimics fast

• Ability to associate mimic animations with shortcut keys

• **Display of tool-tip text on control zones**

• **Ready for use on touch screen** : virtual keyboard, large tool bar, large scroll bar.

• **Unlimited number of mimics**

• **Multiple-animation supported for object and window**

• Mimics up to 10,000 x 10,000 pixels in size

• Dynamic switching between languages

• Iconising of mimics

• **Mimics can be produced and changed with a plain text editor**
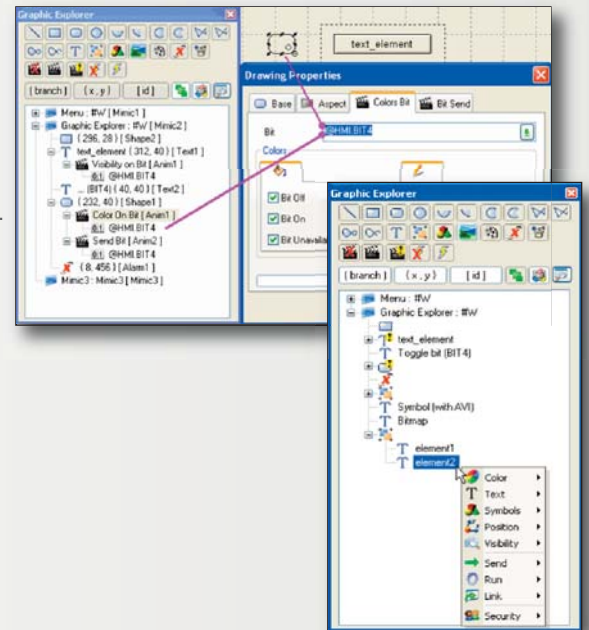
▶ 9. ALARM

• Up to **30 alarm levels available with 5 alarm states**

• **Filter, Search, Sort on alarms by state, level, attributes - modifiable online**

• Filtering the processing of alarms by station

• Alarm summary variables by value, level, attributes….

• **Automatic Masking by dependency and manually by user action**

• **Alarms & Log Viewers with column based sorting**

• **Customizable Alarms viewer**

• User masking of insignificant alarms with password locking (30 levels of masking)

• **Actions / help information associated with each alarm**

• **Colors associated with alarm values, fully configurable**

• Logging of alarms to disk and/or continuous printing
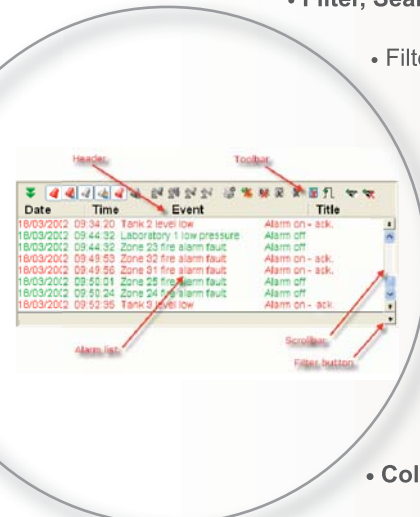
• Automatic acknowledgement transmision to PLCs

• **Optimized Alarm states shared among** PcVue network stations
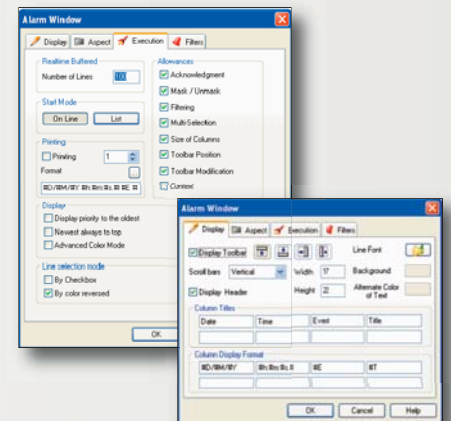
▶ 10. EVENT LOG

• **Client/Server event log access**

• Facility to type comments into event logs

• Dynamically modifiable filters by attribute

• **Customizable Event viewer**

• Recording of data to one or more archive units

• Recording of data in binary, ASCII or SQL Server formats

• Formats for historical logging are configurable for easy export to 3rd party software
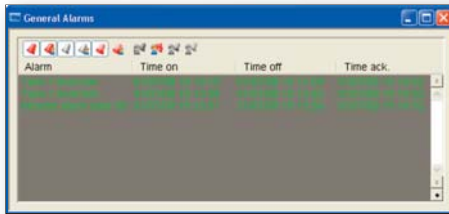
• Logging of alarm values, user login/logout, program execution, alarm masking, changes to variable states etc.

▶ 11. TREND

• Dynamic configuration of window appearance and behaviour in design and run modes, with optional locking

• Y=f(t) trends

• Logarithmic trends

• **Customizable Trend viewer**

• **Simultaneous display of real time and historical data**

• **Zoom in and zoom out in time axis or both time and value axes**

• Cursor for reading selected values

• Multiple dynamic and scrolling scales

• **Dynamic addition, deletion and substitution of variables by operator at RunTime**
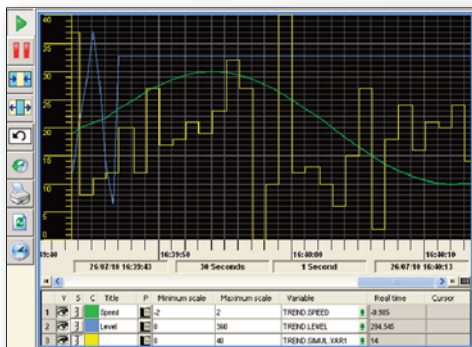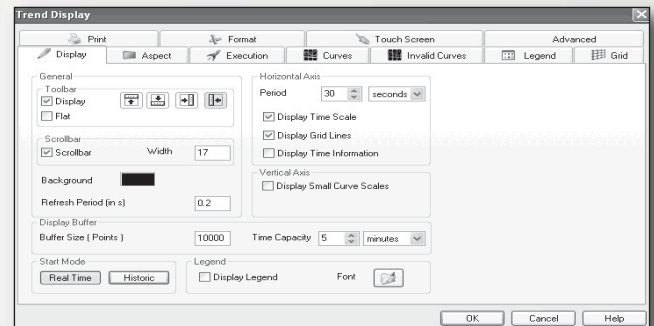
• Event-driven recording to minimize use of disk storage

• Data recording onto one or more archiving units

• Recording of data in binary, ASCII or SQL Server formats

• Data export to Excel using DataVue software or HDS module

• Printing of displayed trends on graphical printers

▶ 12. ADVANCED VCR FUNCTION

• **Replay mimics at a different rate to the events associated with a set of variables**

• Facility for data recording for several weeks

• Replay information event by event to analyze incident sequences
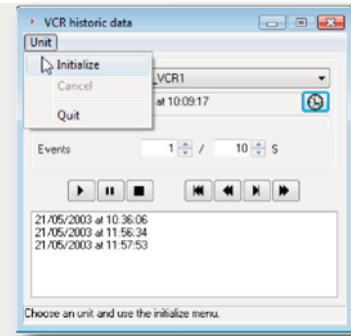
▶ 13. RECIPES

• **Sending of recipes by event or on request**

• Up to thousand register and text variables per recipe

• Option to create a recipe based on real time values

• Inspection and modification of values before sending

• Management of recipes from a relational DBMS

• **Use recipes to retrive and save process setpoints.**

• Facility for logging to use a product batch index to ease extraction of historical data by batch number
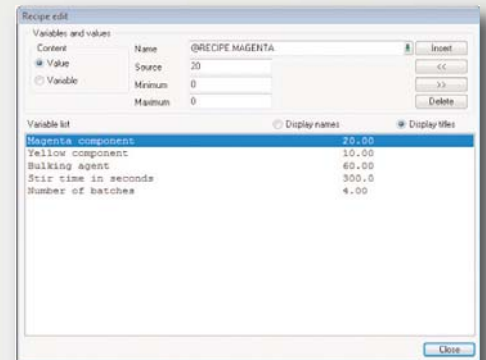
▶ 14. ACCESS RIGHTS

• **Unlimited number of users**

• **Single-Sign On Support: Simpler management of user rights**

• Management by profile for maximum flexibility

• Password strength control

• 10 levels of hierarchical profiles.

• Facility for locking access to particular mimics, command variables, log variables, acknowledgements and alarm masking of, access to various levels of model etc.

• Control of reading, creation, changing and sending of recipes

• Configuring different access profiles for a user according the station logged onto, in a multi-station architecture

• Local rights on the client as standard plus rights for Web-based remote access
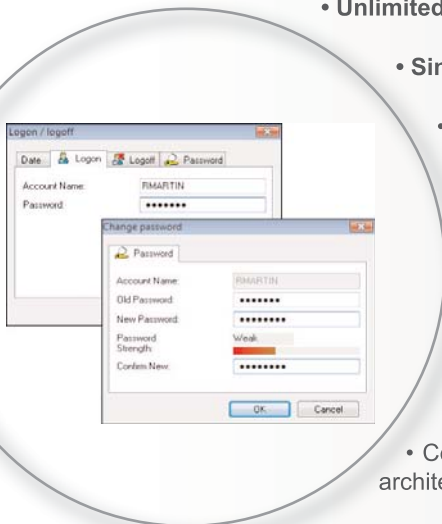
• Password validity limited by date

• Ability to require password change on first login
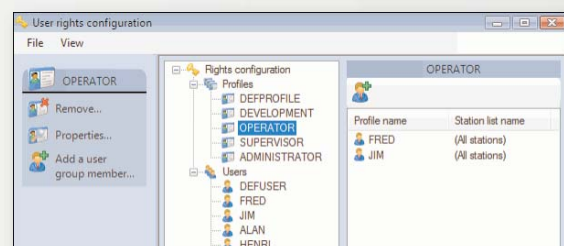
▶ 15. REPORTS AND SUMMARIES WITH DATAVUE

• Summary generation to export historical data using DataVue developed by ARC Informatique

• Data export as text files or into Excel

• Facility to export all archived bit and register data, from event logs and log lists

• Data extraction using criteria by date and/or batch number etc.

• Extract request built using a graphical editor

• Sampling period from 1 second to several days

• Facility to extract data from PcVue or ODBC archive units

• Automatic running of requests for PcVue to generate summaries, at end of each batch production, change of team, day, week, month etc.

• Automatic starting of an Excel macro after data extraction for report formatting

• DataVue can be used on a different station from the Supervisor and to access historical data on the local network

• **Advanced and powerful reporting functionalities using Dream Report Software**
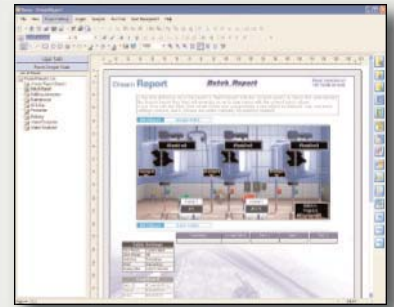
▶ 16. PROGRAMMING LANGUAGE : SCADA BASIC & VBA

• **Specially created to work within the PcVue system to extend its features**

• **Advanced functions dedicated to supervision**

• Modular structure

• Arithmetic and Boolean operators

• Triggering on event

• Access to DLLs

• Access to the real-time database, historical data and alarms

• Control of multimedia peripherals

• SQL support

• **Comphensive editor with synthax highlighting, autocompletion and code snippet insertion**

• Contextual help for language instructions

• Code snippets to automate insertion of all usual pieces of code : program and function comments, loop, conditional statements, new sub

• **Microsoft VBA Scripting**

• Trend, Alarms, Mimics…can be scripted using VBA
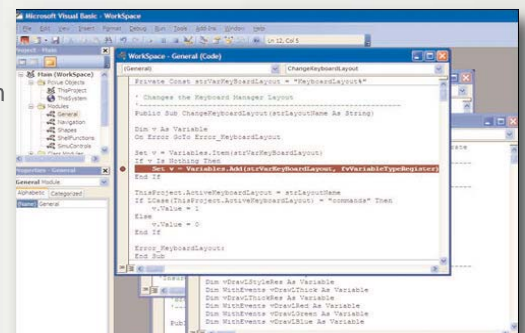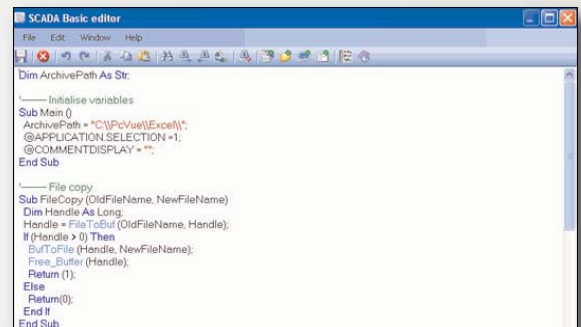
▶ 17. SURVEILLANCE MANAGEMENT

• **Surveillance management by Alert software**

    • User management and organizing the surveillance

      • Message transmission to fixed and mobile, GSM, radio message, beep, fax, email and Internet browser

        • Facility to acknowledge remote alarms according to the terminal used

        • Facility for voice synthesis to generate audio messages

        • Interfacing with OPC servers

        • Monitoring the supervisory application and sending an alarm if failure occurs

      • Managing redundant Alert stations

• Logging / history of events arising on the Alert system
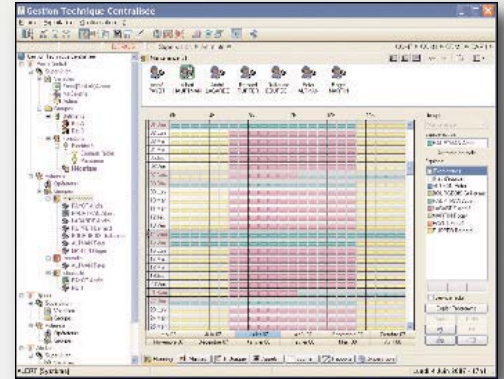
▶ 18. DBMS DATA EXCHANGE

    • Exchange of data with DBMS via SQL requests

      • **Microsoft SQL Server 2005 & 2008 native driver**

      • Bi-directional data exchange to let manufacturing orders be sent to the supervision system and PLCs

      • Cyclic or event-based operation

      • ODBC / OLE DB interface for data exchange with the most common DBMSs

    • Configuration by clicking, no programming required

   • Data analysis by software for DBMS reporting.

▶ 19. SECURITY DEVICES

• Automatic swapping of data server stations

• **Redundancy of the communication network among stations**

• Field processes – subscription between clients and servers to minimize switch-over times

• **Redundancy of field communication network**

• Redundancy of data acquisition stations on single-master communication networks

• **Redundancy of historical data server on Microsoft SQL Server 2005 & 2008**

• Monitoring of frame, equipment and network condition, using individual status indicators

• Monitoring by the equipment of correct working of the supervisor

• Tool to control event flows at the heart of the system

• Log file of system incidents for diagnostic analysis if failure occurs

• Locking of access to Windows Desktop and option of locking 'Ctrl+Alt+Del'

• OPC-Security specification is implemented

▶ 20. CFR PART 11 FUNCTIONS

• **Audit trail**

• Individual **electronic signature** for each user

• Option for double signature on sending commands

• Each name/password combination is unique

• Automatic logout either programmable or after a period of inactivity

• Locking after a number of unsuccessful attempts

• Recording of failed attempts to log in, with option to notify the system administrator

• Guarantee of integrity of historical data by CRC

• Logging of previous value when a value is changed
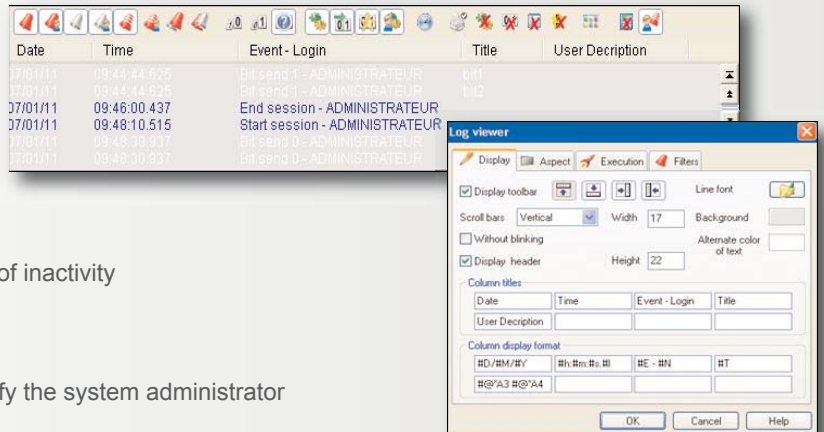
▶ 21. INTERNET BROWSER ACCESS

• ARC Informatique's WebVue, a light supervisory client accessed through a web browser

• Based on Sun's JAVA technology available on Microsoft Windows, Linux, Unix, Macintosh etc.

• **Enables display of real-time data and access to historical data, trends and events**

• Facilities for remote commands, logging and acknowledgement of alarms according to user rights

• No software installation necessary on the remote station

• Optimized data exchange for mimic updates

• Encrypted data exchange to prevent problems of hacking

• Access to PcVue data server via IIS in XML SOAP

• Station for production maintenance staff, or for all occasional users

• Several users connected simultaneously to the supervisory application managed by the Web server station

• No license required on the client station
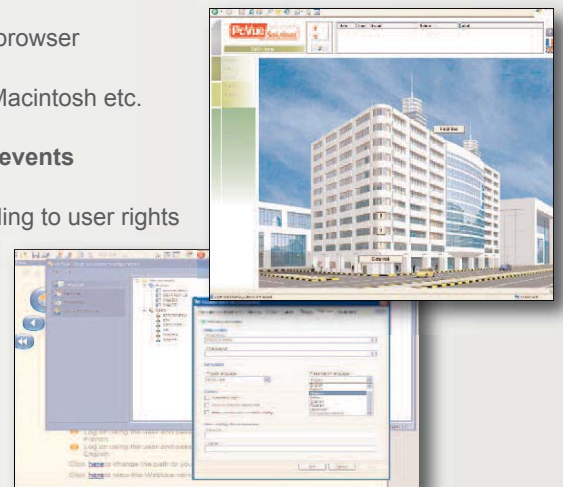
▶ 22. WEB SERVICES

• **Service descriptions accessible in WSDL language**

• XML / SOAP data transport

• Identification and connection sessions

• **Access to real time data, historical data and alarm lists**
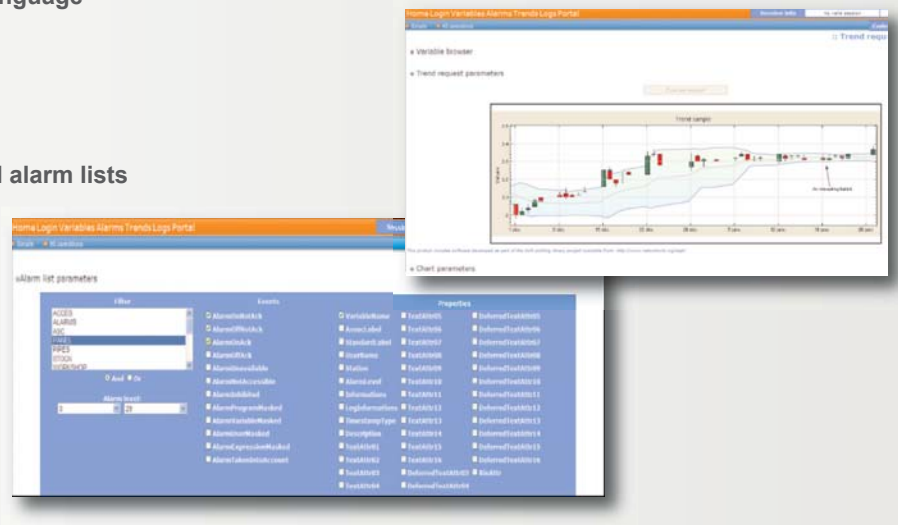
▶ 23. WINDOWS TERMINAL SERVER

• **Client / server architectures validated on Windows Terminal Server 2008**

• PcVue clients via Microsoft RCP on IPhone, Smarphone & other operating system (CE,XPE, Linux,..etc.)

• Assured redundancy of data acquisition servers
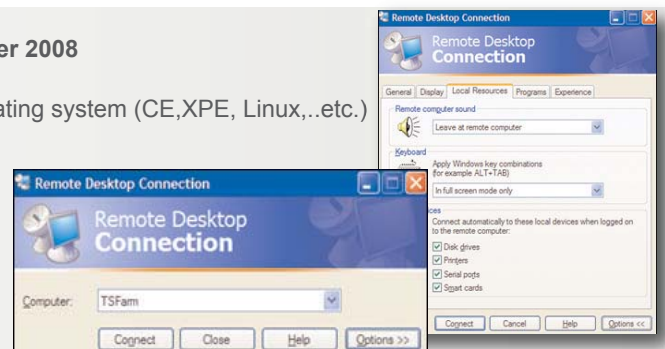
ABOUT US

Founded in 1981, **ARC Informatique** is a privately held company with its headquarters in Sevres, Paris area, France. The company develops and markets industrial software. Originally designed for the process and manufacturing industries, the software now also caters for infrastructures (tunnels and motorways), water (treatment stations, potable water distribution), transport (tramways, trains and airports), building management systems (BMS) and power generation & distribution. In 2008, **Arc Informatique** launched the **PcVue Solutions** offer of software, hardware and application support as a global service to the market.

Certified ISO 9001 and ISO 14001, the company has an international presence via direct sales offices in the USA, Europe and Asia plus a network of distributors as a sales channel. **Arc Informatique** has OEM agreements with Jumo, Veolia Water Division, Quantum Automation, Schneider Electric and Yokogawa that allow these companies to ship versions of the **PcVue Solutions** offer under their own brands.

To date, over **41,000** licenses have been installed worldwide.

> **PcVue Solutions** is a suite of software and hardware for visualisation, control, management and data analysis for industrial, building, infrastructure and utilities applications.

PcVue - HMI/SCADA software

WebVue - Web access solution

PlantVue - Stand alone HMI solution

FrontVue - Graphical user interface

Dream Report - Reporting tool

IntraVue - Industrial Ethernet diagnosis software

Alert - Industrial on call management system

Moxa - Industrial Ethernet switches

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