TopKapi Newsletter

#14 – September 2005

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Edito

TOPKAPI maintains its regular growth in the supervision market. Although it lacks the glamour of products supported by intense marketing, it is praised by the users who know it. Its comprehensive features, easy use, the quality of its client/server architectures (10 times less bandwidth consumption than all products using the Terminal Services technology), its simple and effective redundancy (one of the very few products offering perfect unicity of historical data with automatic hot merge) all ensure it is an outstanding product.

Today, with **SOFTLINK** and recent developments on structured data (including integration with **Schneider Electric's Unity-Pro** workshop), **TOPKAPI** benefits from technological advance in automating application creation.

Versatile, it adapts to all types of applications and reduces cost of ownership: limiting its use to the fields where it is best referenced deprives you from part of the benefits it can offer. So why not make actual technical choices, and extend its use? All those who have tell us how satisfied they are after having improved quality of their products.

News

Events

After participating to the **Initi@tives 2005 exhibitions** as a **Schneider Electric** partner (Seville from 9 to 13 May, and Istanbul from 22 to 23 June 2005), **AREAL** invite you to discover the latest developments in **TOPKAPI** during the next events.

Automation Optimation Europe
Sept. 27-29, 2005 - PARIS EXPO
Porte de Versailles (France)
AREAL: Booth L15

ISA EXPO 2005 AUTOMATION + CONTROL
October 25-27, 2005
CHICAGO (USA)
Booth: SCADALLIANCE

ISA SHOW SOUTH AMERICA 2005
November 22-24, 2005
SAO PAULO (Brasil)
Booth: EPLAN

More info on www.areal.fr

Pollutec Capitale environnement
Nov. 29 - Dec. 2, 2005
PARIS Nord - Villepinte (France)
AREAL: Booth N103

interclima +elec home&building
Jan. 17-20, 2006 - PARIS EXPO
Porte de Versailles (France)
AREAL: Booth D49

Partners

We are pleased to announce two new international distributors:
- **SCADALLIANCE** (www.scadalliance.com) for North America
- **ELECTRO E.E.** (www.electro.gr) for Greece.

SMS Protocols

Data acquisition through SMS messages is developing fast. Isolated, energy self-sufficient or mobile equipment can now transmit data to a central site. **Go to www.areal.fr/protocols-E.html for a list of hardware supported**, or contact us if you wish to use other equipment: TOPKAPI's SMS acquisition core adapts easily to new message formats.

Operating...

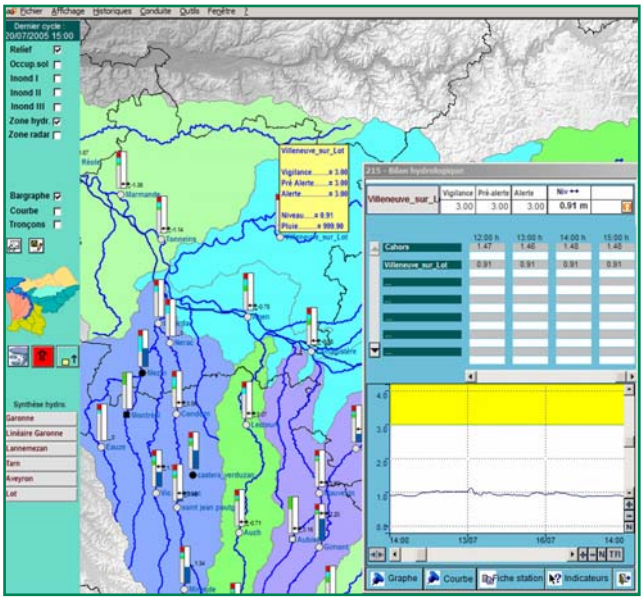
A control centre supervising 55,000 points, fire detection in a 120,000 m² building in Beijing, hot redundancy with 10 operating stations and 36,000 variables, 4 servers for 50 control/command stations, etc... these are but a few TOPKAPI applications recently implemented or upgraded.
They can be found on our Web site.

TopKapi Version 4.0

TOPKAPI V4.0 will be unveiled for the first time at the **AUTOMATION exhibition** (27-29 Sept. – see above).

Here are the main developments:

- Database structured objects' editor
- Active-X component providing access to data for connectivity to external applications, DBMS, MES, etc.
- HMI macros and scripts
- New graphic functions
- Web server optimized for PDA
- Native backup of remote links (ADSL, VPN ...) through PSTN
- Time-stamping down to a millisecond
- Configuration by TS Client (Terminal Services) available in standard version
- SIG interface (Geographical information system)



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Database structured objects' editor

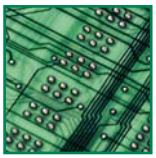
A database structured object represents items such as a motor with 4 logical values, including one alarm and one remote control, and two analog values, speed and set point. **TOPKAPI** Version 4.0 extends the familiar concept of generic synoptic objects to data processing: only one object is handled (motor) instead of basic variables, and modifications made to the basic object are applied to the entire application by heritage.

The principle of the editor is simple: it is used to assemble basic objects, in a way similar to Lego bricks, without resorting to complex scripting.

In addition, embedding objects allows defining, for example, a dual running direction motor as an object comprising a basic motor object and two basic variables, authorising the creation of variants without adding many options to the basic object.

A new application explorer was included to TOPKAPI to facilitate this approach.

With **Unity-Pro**, **Schneider Electric**'s software workshop for PLCs, integration goes further as we use the **SOFTLINK** wizard to implement a bidirectional link between automation and supervision objects (see Topkapi Letter N°13). In general terms, **SOFTLINK's** rather open design allows producing your own application generator without intense development (applications are already running in fields such as fire detection or water treatment).



Data access Active-X component

To meet the increasing needs of supervision interconnection with the database management systems and MES, **AREAL** has developed a new Active-X component, providing access from any application developed in VB, ASP, JavaScript, .net, etc. to data from TOPKAPI supervision or constructing answers to SQL queries.

Integrated to the basic version, it completes the functions of DDE server and DLL data access.

HMI macros and scripts

Thanks to these new functions, the user interface can now be fully customised with increasing flexibility. The principle consists in associating to a graphic object complex commands including remote commands, actions on views (zoom and page change), layer display, calculation and entry processing scripts, use of local or global variables, single or sequenced menu actions, etc.

This allows for example to run a remote command and open a window with a single click, customise commands for displaying layers, use local working variables within the operating station.

New graphic functions

The graphic editor is enriched with new functions, such as object transparency, shading, rounding, orientable bar graphs, etc.

The copy/paste process has been improved: copy of properties between objects of different nature, copy between applications of objects referring to library elements.

The Graphs module includes various improvements related with presentation, self-adapting of axes, processing of X-Y graphs, etc.

ADSL/LL backup by PSTN

The use of ADSL high speed links for data acquisition is growing (see article on networks), but usually access providers do not guarantee availability at acceptable price levels. The use of a standard telephone line as a backup can resolve this problem, but two communication channels usually required using two different devices with specific data.

TOPKAPI Version 4 provides a solution and allows, without double setting, to manage automatically the acquisition of a single set of data by one or the other channel. Please contact us for your projects as, beyond TOPKAPI as such, communication drivers must be adapted.

Miscellaneous

Web optimized for PDAs and mobile phones:
The web server now adapts its interface to the web client it supplies; browsing is much faster and easier for small size screens. For more detail, ask our update of the **WEBSERV** technical sheet or read it on our web site.

Configuration in TS mode:
Tost of the time, remote setting requires to remotely control the TOPKAPI computer. It is now possible to open (standard, no specific option) a remote Terminal Services setting session without interference on the operating station; the rights of the remote station can be restricted to a TOPKAPI's setting session.

Environment backup:
Each user can save his own working environment.

Time-stamping down to a millisecond:
When devices connected provide events dated with a precision down to a millisecond, this information is saved in event logs.

SIG interface:
TOPKAPI allows importing map files in the MapInfo .mid/.mif format (other formats will be included according to requirements), used in fields such as networks, environment, geolocalisation, remote metering, etc.

Achievements

We thank Mr. Dominique Bulle, in charge of energy issues in Les Mureaux city, and Mr. Pierre Sacareau, from Suez-Environnement's technical expertise centre, for their contribution to producing this section.

Our recent achievements involve users such as AIR FRANCE, CARREFOUR, PALL EXEKIA, POMONA, SETNE, THYSSEN, the towns of Lille, Brest, Strasbourg, Rouen, Cherbourg, Bar-Le-Duc, etc. , all major water operating or engineering companies, and many others we cannot mention here, more particularly installers. Thank you all for trusting us.

In the following examples, we chose to focus on the technical side of applications (building management and networks) rather than size. Some of these achievements are on **www.areal.fr, Applications section**.

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Building management in Les Mureaux

HQE, state of the art

The city hall in Les Mureaux is the first tertiary public building in France having been granted the HQE (High Quality Environment) certification issued by the CSTB. This achievement is a good illustration of the benefits provided by TOPKAPI in the field of Technical Building Management.

One of the major focuses of the HQE process is perfect energy control. In Les Mureaux, the 4,500 m² building housing the city hall consumes 15% energy less than an equivalent construction based on regular standards ; this is 40 tonnes per year CO2 less emitted in the atmosphere.

In Les Mureaux, the savings rely mainly on:

- A heat pump using the ground water
- A single exchanger passive A/C unit using the ground water table (15°C)
- Solar arrays covering 60% needs in hot sanitary water
- Reinforced insulation windows combining comfort and light
- A BMS (Building Management System) based on a **TOPKAPI** station

Beyond its recording and checking role, TOPKAPI's application installed by S3EB contributes to energy savings, by allowing:

- Piloting as close as possible to equipment
- Monitoring of temperature and consumption curves
- Fast detection and correction of faults and drifts.

Piloting consists mainly in applying the hourly programming per zone, for temperature, lighting and ventilation: this function is particularly intuitive and offers virtually limitless flexibility in TOPKAPI, by allocating operating modes to time ranges in the **Scheduler**; nothing is easier for example than extending the comfort mode in one zone of the building because the local council will meet in the evening.

Consumption monitoring, performed jointly with EDF, allows first to check that the energetic behaviour of the building complies with plans, and correct any background anomalies. Then, a basic analysis of trend curves allows the trained expert to monitor proper operation of the regulation process, fine-tune the heating system, and be warned at a glance of any anomalies or drift.

For its BMS, the town of Les Mureaux wanted a product it could master easily after the initial installation phase, without calling upon outside providers, and with features ensuring the high level of performance planned.

TOPKAPI was chosen because of:

- Its flexibility and easy implementation and operation.
- The independence of the designer, **AREAL**, in respect of suppliers of field equipment, regulators and controllers
- Openness and availability of many communication protocols specific to the building technical management system
- Features, particularly ergonomics and power of hourly programming, graphs, reporting module for summaries, Open Client and Web access.

The town wishes to share its experience as broadly as possible, and in this respect the Web server module is particularly important, as it allows to choose the BMS data which will be posted publicly over the Web, without any adaptation nor particular skills.

In its current state, the system is ready to receive new extensions: the town plans to connect to it other municipal buildings, such as schools, starting with the one offering the highest energy savings.

To summarise, the BMS, while contributing as such to energy savings, is the only effective way of ensuring we obtain the results predicted. It detects anomalies promptly, and is indispensable to maintain the levels of performance over time.

TOPKAPI in WAN

Tomorrow's architectures seen by Lyonnaise des Eaux

The fast evolution of telecommunication networks based on TCP/IP and generalisation of interconnected production sites leads companies to reorganise their data exchange models.

We asked Pierre Sacareau, who works within CIRSEE (Suez-Environnement's technical expertise centre), to explain Lyonnaise des Eaux's projects in terms of upgrading the telecommunication infrastructures and the constraints this imposes on supervision.

The main motivations leading the Lyonnaise des Eaux to upgrade the data transmission media are:

- High cost of leased lines, as well as that of subscription to the telephone network, growing increasingly.
- Wish to use common transmission media for different types of data (data, voice, video ...).
- Operational maturity of new communication solutions (ADSL, VPN, MPLS) and interconnection equipment, with more secured exchanges.
- New needs of broadcasting technical data (flow rates, water quality, operating reports, etc.).

For Pierre Sacareau, the main data transmission media tomorrow will be VPNs[1] and ADSL, as well as GPRS and UMTS, but "we have a strong concern about backup solutions, as we need a solution to transmit alarms when the main network is faulty."

[1] *For non specialists, a VPN (Virtual Private Network) is a network securing information exchanges via Internet by sending coded data through a private channel.*

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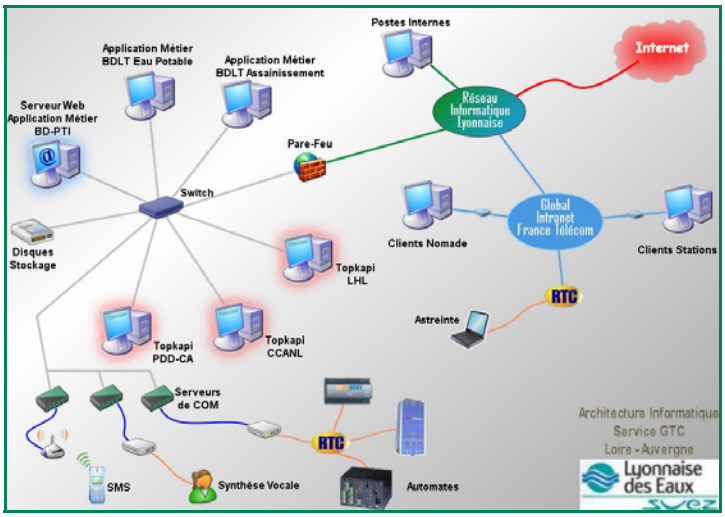
Is TOPKAPI well suited to these new architectures?

Regardless of the unavoidable basic client/server features, as although this does not go without saying for some supervisors, it seems natural for TOPKAPI, Pierre Sacareau points out that the latest upgrades of **AREAL's** flagship product meet most expectations, including transfer of interstation alarms for standby[2], development of TCP/IP and SMS acquisition protocols.

But he explains that easy shifting to a backup acquisition media if the primary channel is faulty should be possible[3]. In addition, operating station redundancy secures the most critical sites.



Architecture of Clermont-Ferrand centre

Finally, the wish to benefit from the best possible commercial conditions for combined use of the different forms of remote client access is expressed: **Open client** (TOPKAPI client), **Webserv** (client access using a web browser) and TS (Terminal Services, Microsoft technologies for remote viewing of applications hosted by another station).

Indeed, **AREAL** offers to choose the solution most suited to requirements, but the solutions are complementary and simultaneous use of several techniques is often required.

To finish, we asked Pierre Sacareau if Lyonnaise des Eaux already have architectures meeting these focuses: "Yes, we have already implemented integrated architectures in many regional centres of Lyonnaise des Eaux (e.g. Clermont-Ferrand, Mougins, Montgeron, Bordeaux, etc.) and we are currently interconnecting these architectures, more particularly in terms of technical and organisational aspects.

For example, in Clermont-Ferrand, we centralised technical data management for the entire Loire-Auvergne regional centre, covering seven areas. Three **TOPKAPI** servers are installed in the Clermont Ferrand dispatch centre, one per Branch, and access of intervention staff is ensured either through a secured RAS[4] server, or a nomad client VPN of the Lyonnaise des Eaux national PC network, which we mutualise for data consultation.

In addition, safety issues are always present, as in certain sites we implemented backup dispatching, as between Le Pecq and Montgeron, or connecting to the technical VPN in Bordeaux a secured TOPKAPI station located outside the drinkable water dispatching site[5].

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[2] *A Topkapi station ensures secured transmission of an alarm to another Topkapi station, which will handle it, allowing to design operating architectures centralised for standby.*

[3] *Upgrades to Version 4.0 meet this requirement (see above).*

[4] *Remote Access Service.*

[5] *The concern is to be able to ensure remote operation even when the control centre is physically inaccessible, as for example during a fire.*

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Your observations, suggestions, requirements for new functions:

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