

New TOPKAPI V5.0

SUMMARY OF MAIN ENHANCEMENTS BROUGHT TO VERSION 5 OF TOPKAPI

- DBMS Interface with SQL.NET
- Graph trends: calculation and summarizing functions, with customizing scripts
- Active Directory / LDAP directory interface
- Descending compatibility server -> client
- Automatic adaptation to the screen resolution
- Locking Windows
- WMS (Web Map Services) - GIS Interface
- DB Object Search Interface
- OPC Server
- GMT Timestamp
- Incremental Backup
- Redundancy: background synchronization at takeover
- WebServer: optimization of display, zoom management
- Calculation on time-stamped data
- New Protocol drivers: IEC60870-5-10X, SNMP
- Summary reports: automatic closing, direct presentation of results as graphs
- HMI scripts evolutions
- Miscellaneous:
 - Sampling files named by tagname
 - Spreadsheet and alarms view colors
 - Improvements to Softlink sorting functions
 - Import of several controllers
 - New spreadsheet functions
 - Increased number of events groups
 - Zoom Management with keyboard and mouse
 - Mimics: rotate all objects and groups
 - Simplified edition of formulas
 - Tooltips

DBMS Interface

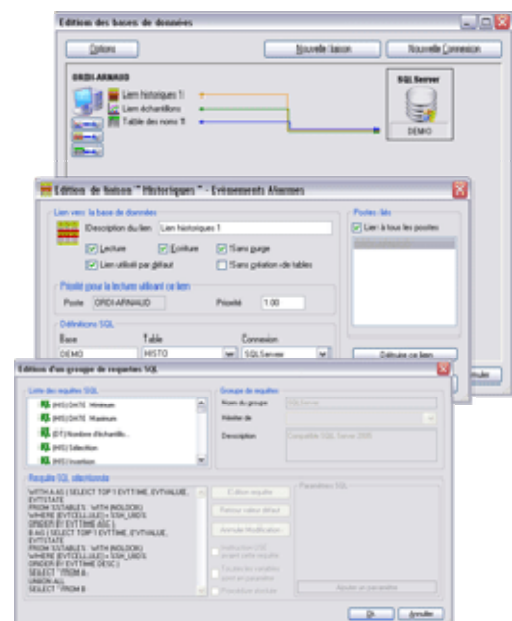
TOPKAPI can now write/read historical data to/from the DBMS you chose.

For this it relies on the **SQL language** and the latest Microsoft's data access technologies **ADO.net**. Any database management system (DBSM) having an ADO.NET connector can be used (**ORACLE, SQL Server, MySQL**, etc.).

The implementation of data links can be done without writing SQL code, sets of preset queries being provided with Topkapi. For advanced use, **SQL code is open and modifiable**.

Reading the historical data from the DBMS brings **extended functions to select/sort** data displayed in alarm views.

The proprietary historical files (HIS and DT) are used in the classic version, and are kept for backward compatibility in the DB version.



Graph trends

Multi-variables calculation functions were incorporated: this provides direct display of graph trends "calculated" from elementary variables recorded, such a sum of flow rates, maximum and mean of different magnitudes recorded independently. (1)

The **summary functions** have been integrated, which enables the display of a summary calculation directly as a graph without creating a specific report. (1)



Modes of representation have been extended, including the **management of bargraphs** and the ability to handle **graphs featuring targets in the future**.

Finally the use of scripts allows **customizing the control interface**.

(1) Summary Option needed to have these functions.

Interfacing with the Active Directory / LDAP

TOPKAPI can connect to a LDAP directory to allow **centralized management of users and passwords**.

The result is a new management of operators (configuration, access control, ...). The number of categories remains unchanged (A-Z).

In the case of an Active Directory LDAP, it is possible to make **imports by groups or users**. For a standard LDAP, only the importation by user is possible.

The synchronization between the LDAP directory and TOPKAPI is performed automatically and by default once per day. A restart of LTS can force it.



Descending compatibility

In network applications, according to the ascending compatibility principle, a recent version of TOPKAPI (the client) is able to log onto a server running an older version. In practice, when upgrading an application, one installs the new version first on client stations, then onto server stations.

However, in many cases, unlike other supervisors with less advanced client/server functions, many TOPKAPI server stations are interconnected, and clients between each other.

In large distributed architectures, updating networked stations can become delicate. From V5, AREAL has introduced **descending compatibility**; a TOPKAPI client running an earlier version can connect to a server version 5 or later. It is the server station which adapts to supply data in a form recognized by earlier versions.

Automatic adaptation to screen resolution

In client/server applications, using operating stations with different screen resolutions is frequent.

In its screens, TOPKAPI displays diagrams combining bitmap and vector objects.

Resizing bitmap objects when rescaling has been broadly improved in version 5; zooming in and out can now be widely used with diagrams using bitmap objects.

The synoptic pages displayed on a screen can now **automatically adjust in size** if the original resolution of the application is different from that of the screen used.



Locking Windows

Although TOPKAPI requires a Windows user session to operate (an administrator session is not required), thus limiting the risk of mishandling, a **new utility** is provided with Topkapi; it enables easy **locking management of the Windows session** which runs Topkapi.



WMS: Web Map Services

To meet the needs related to the use of geographic information systems, the support for **WMS capabilities (Web Map Services)** standard published by the OGC Open Geospatial Consortium was implemented.

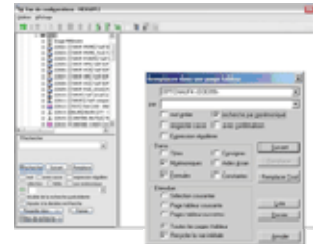
This allows TOPKAPI to interface with **GIS** (geographic information systems) through WMS to **dynamically display maps or diagrams** from the GIS into the synoptic screens.



DB Object Search

The configuration view is enriched by a **powerful search module**.

You can search any DB objects, cells and synoptic objects matching a variety of criteria (for example all alarms at any rank, all the variables recorded in a group, belonging to a section, generating an alarm notification to a call group, etc.).



The search process can be applied to the whole application or to the results of a previous search, or can complement the results of a previous search.

■ OPC Server

TOPKAPI is OPC server (TOPKAPI "DB" package). The data provided are all the spreadsheet variables with a tagname and some system data related to the controllers (status on / off, link status, etc.).



■ GMT Timestamp

TOPKAPI can now use the GMT as internal timestamp.

■ Incremental Backup

Several versions of the application under development can be **archived and restored**. A regular backup can be automatically proposed. A **new module** can manage the different restore points.

At each application save process, **the entire application is scrutinized** (except the folders and files belonging to the selected exclusions) and stored incrementally in a subfolder of the application.

A management interface allows to manage files and delete some restore points while preserving the integrity of the other files.



■ Redundancy: background synchronization at takeover

The **Synchronization** of historical data is performed now as a **Background task**. And it no longer has to be done before the complete start of the application when a server takes over after a failure. The workstations are thus ready for operational use much more quickly.

WEBSERVER

Graphics Optimization: all non-animated graphics for a mimic page are grouped to **reduce the display time**.

Zoom management: a zoom tool is now available in the mimic views.

Auto-adaptation to the screen resolution: as for display on normal workstations (see above), the mimic pages displayed on a **Web client can automatically adjust in size** if the screen size in pixels of the web client is different from that used on the server.



Calculations on time-stamped data

It is now possible to perform **complex calculations on data time-stamped at source**, even if they were originated from different remote units. For this it is necessary to have the Summary reporting option.

These calculations can be performed directly in a **spreadsheet cell** or in a **recorder** via a simple formula.

Free formulas and the summary functions can be used: sum, average, min, max, time and events counting, etc.

Example:

Electricity rates vary depending on the hour. If you want to calculate consumption between 6 and 22h per 1h, use a formula like: $VCON(MYBUILDING.CONSUMPTION) * VTIME(H, E, 6, 22)$ with hourly sampling. No value will be recorded between 22h and 6h.

IEC60870.5.10X driver

The IEC 60870-5-10x protocol is an international standard protocol that allows TOPKAPI to dialogue with any hardware featuring the 60870-5-101 (serial) or 60870-5-104 (TCP-IP connection) protocol, using an RS232 or Ethernet port, or a GPRS, PSTN or GSM modem.

The IEC 60870-5-10x protocol is an event driven protocol; it defines the messages and values that must be sent **spontaneously** from slave to master after a change; **so there is no polling procedure**. After establishing the connection, the master sends a "general request" to the slave to obtain the current status of all data points. From that moment, the slave only sends **the changes of data points**.

SNMP driver

SNMP is a standard protocol to **read** information from devices called **SNMP agents**, connected to a TCP / IP network such as printers, switches, routers, UPS systems, computers etc., and thereby monitor the status of the network devices.

TOPKAPI acts as an SNMP administrator (manager).



The **Softlink wizard** facilitates the configuration process by browsing the list of variables available in the devices **MIBs**(1), or by browsing the list of elements of the connected SNMP agents. TOPKAPI supports SNMP versions v1, v2c and V3, the latter being necessary to ensure a good level of security.

(1) Management Information Base. It can be generic (the main standard MIBs are provided with TOPKAPI) or custom relating to specific equipment.

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➤ SUMMARY REPORTS

Automatic closing: the Summary module now automatically closes a report, not at fixed date but once - and only after that - all data have been acquired, regardless of offsets due to the asynchronous transmission.

Direct presentation of results as graphs : See GRAPH TRENDS paragraph.

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➤ HMI SCRIPTS

Scripts on page load: scripts were previously played on activation by the operator. It is now possible to play a script on page load.

Scripts to control graphs display: new script functions allow controlling the display of graphs, which allows for example to customize the interface (EMC Pack, formulas, summary functions) or to better control the graphs display on a web client.

Accessing database variables: the current value of spreadsheet cells can now be used in scripts.



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➤ MISCELLANEOUS

Sampling files named by tagname: DT files containing sampled values of variables can now be named either by the cell reference, or by its tagname.

Colors in the spreadsheet and the alarms views: color display of cells and alarms lines can now be freely selected.

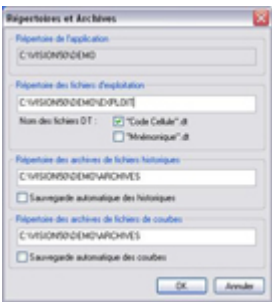
Improvements to Softlink sorting functions

Import of several controllers: it is now possible to import the configuration data of several controllers from a single file, to generate at once a complete application.

New spreadsheet functions: several new spreadsheet functions are available. Most important are the SUM (), MIN () and MAX () functions that can sum up or calculate the minimum or maximum of a range of cells.

Increased number of events groups: the number of events groups is increased from 36 to 186 groups. The size of each group increases from 65,000 to 1,000,000 lines. This increase is of course useless when the DBMS storage is enabled, in which case the storage capacity is much higher.

Zoom In/Out management with keyboard and mouse: The mouse wheel and keyboard shortcuts can be used to change the zoom factor or the current frame.



Mimics: rotation of objects and groups is extended - All groups and objects can be rotated (fixed configuration or dynamic property).

Simplified edition of formulas: an "Excel-like" input mode for formulas is now used to select members of a simple formula by clicking in the spreadsheet.

Tooltips: timing of appearance and visibility of tooltips are now configurable.