The Remote Alarm Notification feature of TOPKAPI notifies alarms to remote operators on duty via SMS, text to speech, email, pager, etc. Operators can then access the application and carry out controls using the TOPKAPI clients : at client (Netview or Open Client), Web client (Webserv module), TSE (Terminal Server Edition / RDP).

DEVICES AND MEANS

OUTGOING CALLS

When a fault occurs it is notified by TOPKAPI to the operators on duty by:

SMS on smartphnones

Voice call TTS (text to speech, see further)

Email

Fax Simile

Pager/Beeper and various similar devices (parameterized by simple control strings)

Other TOPKAPI server station (Forwarding station or Alarms Control Center)

ASCERTAINED DELIVERY

Reliability of alarm notification is ensured by calling several operators on duty, by different means until the alarm is ACKNOWLEDGED, which means an operator will look after the problem.

Acknowledgement is usually performed by sending back a reply SMS, by sending DTMF control sequences with the telephone keypad (upon TTS reception) or by connection of remote clients as described further.

After having performed all the planned calls to all operators, if no acknowledgement was issued, a CALL FAILURE will occur; this event will be used to activate any new procedure (siren, watchdog, etc.).

A high reliability, suited to each application, will be ensured by using hot standby TOPKAPI stations and/ or independent devices activated on system failure. Please contact AREAL for assistance on safety analysis.

MEANS

One or several of the below devices will be required to send alarm messages:

→ GSM modem (to send SMS messages)
→ PSTN modem, standard (fax, pagers, text to speech with version 6 or later)

→ TTS Speech Unit Modem (changes TOPKAPI's text strings to voice messages). It is required if the transmission is on a GSM communication medium, otherwise, with version 6 or later, the use of a PSTN modem is sufficient.
→ Network (Intranet/Internet) connection

See the «**DEVICES AND ASSOCIATED FUNCTIONS**» sheet for more details.

REMOTE CONTROL

TOPKAPI was designed to offer top of the art remote access and control.

First, some of the devices used to receive alarm messages can be used to perform remote controls :
→ Cellular phone: can perform acknowledgement by sending SMS
→ Cellular or PSTN phone set used with the TTS option:
  • alarm reception
  • acknowledgement
  • information on real time values (TOPKAPI used as a voice TTS server)
 • remote controls

There are several ways to perform an extensive remote control of TOPKAPI applications, enabling not only acknowledgement, but also display and control of

the complete application. These ways are not directly attached to the Visiterm option :

→ **TOPKAPI fat client station (Netview or Open Client)** : control station with the same screens and functions as the TOPKAPI server station; provides fast display, even with low bandwidth access such as PSTN or GSM/GPRS modem connection.
→ **Web client** : remote control from any device equipped with a standard web browser.
→ **Terminal Services client station** : see TOPKAPI TS sheet
→ **Remote computer control** : Windows remote desktop, VNC, PC Anywhere, etc.

SCHEDULE MANAGEMENT

The TOPKAPI standby scheduler was designed after analyzing users requirements collected over years. All operations requested by on call management are seamlessly performed by the users, regarding time schedule and operators.

ONE YEAR TIME SCHEDULE

→ **Day types**: call periods and call mode for each period and each fault level (immediate, delayed, postponed or simply ignored).
→ **Schedule for standard weeks** generating the yearly schedule.
→ **Assignment of special**, non periodic days (holidays, days off, etc.).
→ **Special modifications** of hourly schedule (exceptions).
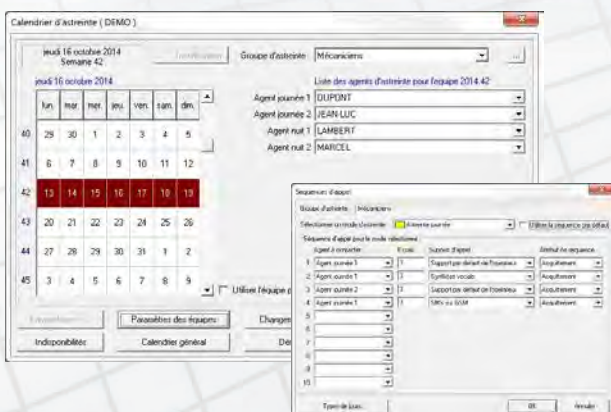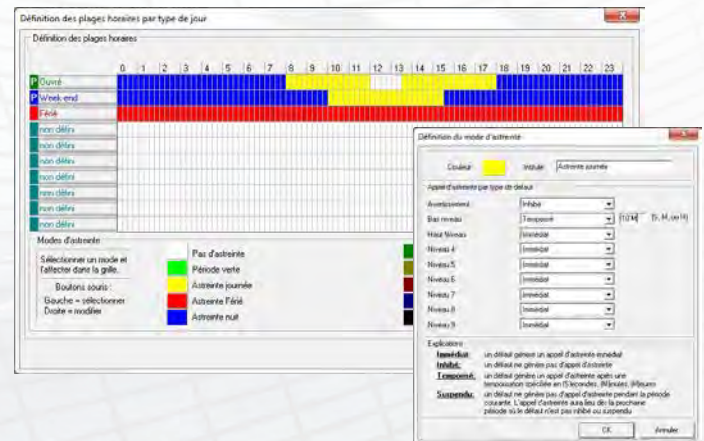
ON CALL GROUPS MANAGEMENT

→ **Groups**: assignment of alarms to groups, based on geographical or technical criteria.
→ **Teams**: assignment of operators, call sequences, number of calls, delays.
→ **Schedule**:
  • Weekly assignment of a team to each group.
  • Replacement by exception of an operator by another one.
  • Operator not available by exception (ignored in the call sequence).

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NETWORKED SYSTEMS

→ Access to standby schedule from TOPKAPI client stations (Netview or Open Client).

→ The schedule of a central station can be transferred/published to other TOPKAPI server stations.
→ An alarm can be forwarded to another TOPKAPI server station which will process it as a local alarm.

BENEFITS OF AN INCORPORATED MODULE

An independent alarm notification software has to provide the below functions:

1. Data acquisition
2. Alarms processing configuration
3. Operators management
4. Planning
5. Calls management
6. Alarms lists displays (current and logs)
7. Remote access for acknowledgement and control

All these functions, except for items 4 and 5, are in general available in a SCADA software. Using an add-on to operate on call management will result in operating two systems in parallel, with the associated constraints:

→ To parameterize the data exchanges between the two applications.
→ To carry out the modifications on each of the two associated applications.
→ To use two different control interfaces to remotely operate the system.

On the opposite, the incorporated module of TOPKAPI provides a global consistent system and ensures DATA UNIQUENESS.

Once the global schedule is set up:

→ A single group selection will be enough to assign a remote notification to an alarm.
→ A modification performed on a variable is immediately taken into account, without any action to be made inside the on call module.

By using the OPC client/server functions, TOPKAPI can also be used in addition to other SCADA systems for remote alarm notification or as a Front End Communication Unit (for modem communications, acquisition of historical data time-stamped at the source, etc.).

TEXT TO SPEECH

The TEXT-TO-SPEECH function enables TOPKAPI to make voice calls to any phone set, without specific equipment for the receiver. Alarm messages are generated by TOPKAPI as text strings, and then converted to voice by a Windows API (with version 6 or later) or the Speech Unit modem.

PRINCIPLE

The voice message is the easiest and most natural way to send a warning message. It does not require any preliminary knowledge: the user is guided by voice instructions at any step.

The messages are generated by TOPKAPI without any specific configuration for each alarm : they are built according to a global format (adjustable) using any of the variable fields (on the opposite of pre-recorded messages, which are particularly time consuming when one has to record hundreds or thousands of messages, and to change them after each application modification).

OPERATION

Configuration of the TTS option is limited to:

→ two mandatory parameters
→ four optional adjustment parameters
→ the welcome message input
→ the global format definition of the messages

After the reception of a message, the operator receives voice instructions to perform controls with the phone keypad (DTMF):

→ listen the message again
→ acknowledge (with numeric password)
→ browse the list of alarms (next/previous)
→ get help

REMOTE CONTROL/CONSULTATION

Consultation and remote controls can be performed with the telephone keypad.

The variables to be consulted and/or controlled are selected in the TOPKAPI configuration and arranged in groups, in a tree-like manner. A number/key is associated to each branch, enabling to go from the root to an elementary information.

At each information level the TTS module itemizes the list of subsequent branches until the user selects an item. When an elementary item is reached, its value is announced and -if enabled- a remote control can be issued.

Of course, such controls shall be limited to a small amount of variables and/or for occasional use; for a global and frequent control of applications, true client connections will be preferred.

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