



# ALERT











Alarm management


# ALERT

A complete compatibility with your applications

As a powerful Industry-Telecom gateway, ALERT provides complete management of your critical alarms, by combining a multitude of technologies


## Data sources

- OPC 
- SCADA 
- BACnet/Modbus 
- ESPA-X / ESPA-4.4.4 
- E-mail 
- Databases 
- SMS 
- Lone worker protection 
- MQTT 
- Others (REST, API, ...) 




### ALARM MANAGEMENT

- Alarm centralization
- Scenarios
- Call tracking
- Data recording
- Localization




### ON-CALL MANAGEMENT

- User profiles
- Call group and teams
- On-call calendar
- Call cascades
- Interactive vocal server



### MODULAR ARCHITECTURE


- Remote access
- Redundant
- Multi-station



### MONITORING

- Data sources
- Communication channel
- Redundancy


## Multi-media broadcasting



### VOICE

- Mobile phone
- DECT
- Landline
- Radio handset

*VoIP, speech synthesis broadcast, GSN, ISDN, analog line...*



### TEXT

- Mobile phone
- DECT
- Pager
- Radio handset
- Fax

*SMS, Email, notification, manufacturer-specific, broadcast...*

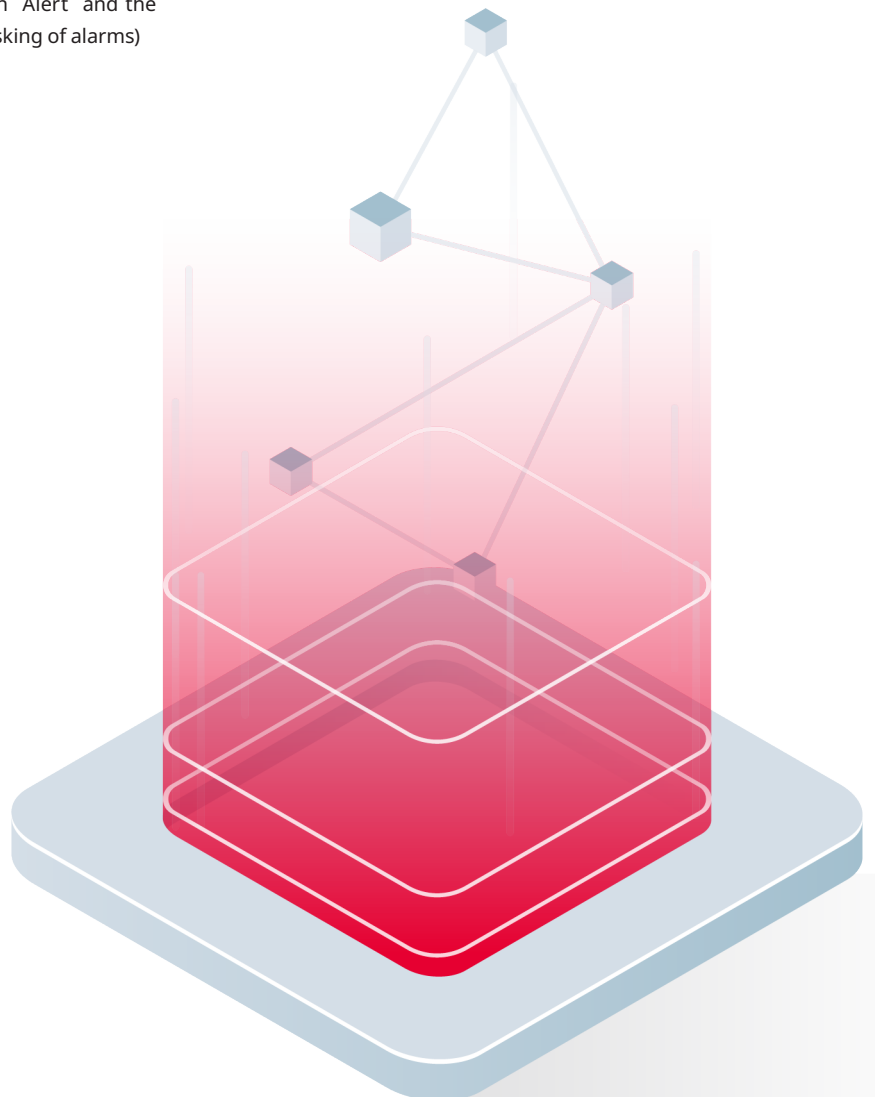
## AN INTEGRATED CONNECTION WITH PCVUE

In order to facilitate its integration into an industrial environment equipped with PcVue, ALERT includes a dedicated connector to easily import and connect supervisor variables.

ALERT thus becomes an extension of the supervisor by offering advanced features for reporting alarms and on-call management.

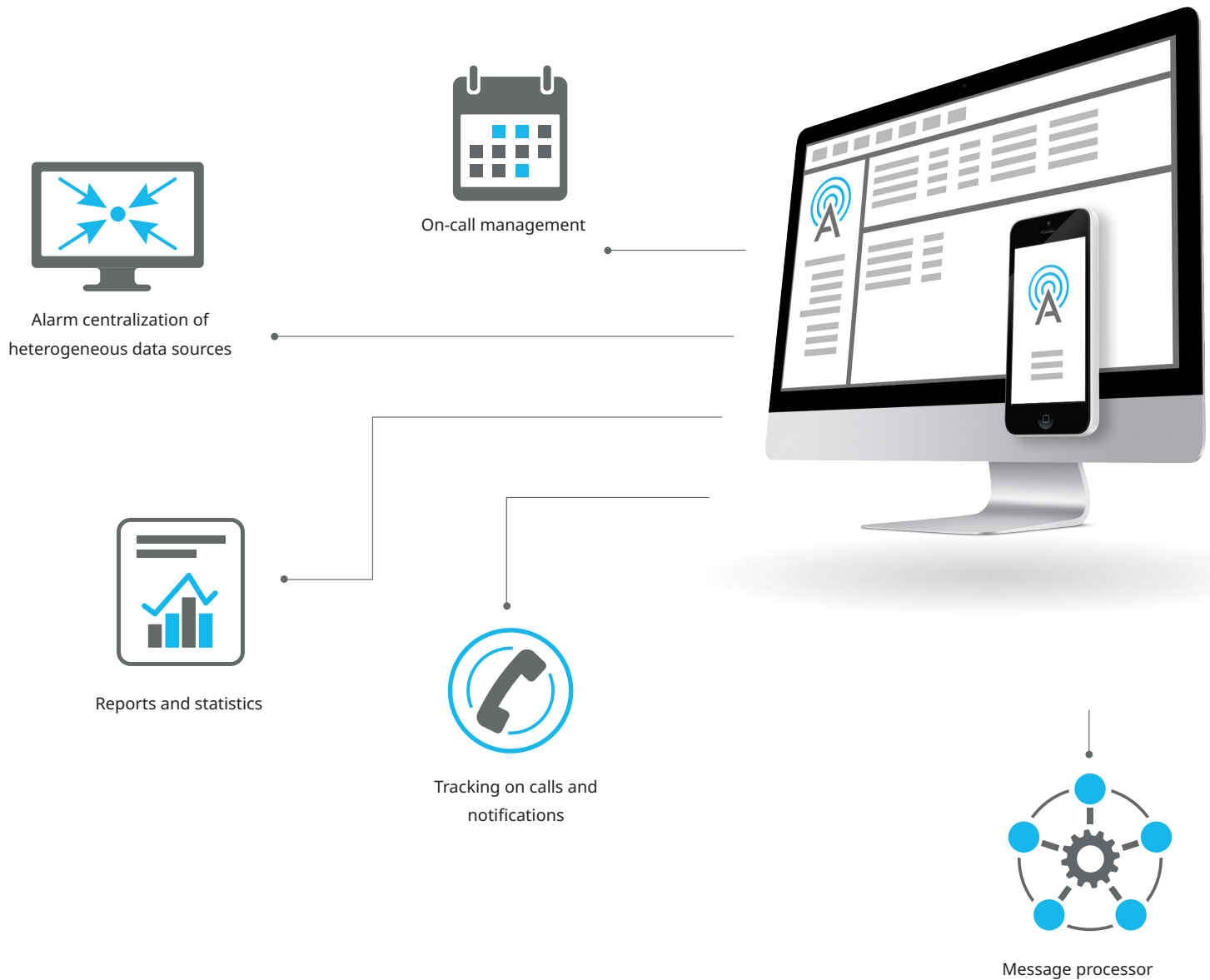
### The main advantages of a dedicated connector:

- **Simplified import** of the database of existing alarms into the supervisory control systems with all their attributes (identifier, message, priority, group, etc.), thereby preventing users from having to re-enter the monitored data and associated parameters
- **Dynamic creation** of the alarms in the monitoring system with the option of creating processing filters
- **Two-way transmission of alarm states** between Alert and the monitoring system (acknowledgement and masking of alarms)



## SOFTWARE SOLUTION FOR NOTIFICATION AND MANAGEMENT OF YOUR CRITICAL ALARMS

Process optimization thanks to reliable and efficient alarm management





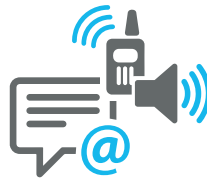
Lone worker protection



Connectors to various SCADA



Escalation scenarios



Alarm transmission to every device

## MULTIMEDIA BROADCASTING OF YOUR ALARMS

ALERT is able to use the most diverse means of communication to transmit critical information.

### VOCAL CALLS

#### Vocal call via VoIP

ALERT offers the possibility of making a large number of simultaneous VoIP calls (Voice over IP) for the transmission of voice messages (2 by default, expandable by option). The main selling point with this technology is that it does not require any special hardware, only a simple connection to the computer network (IP). For the system to work, however, a private branch exchange (PABX/ IP PBX) or an account with an external service provider is required that meets the following specifications:

- SIP protocol: RFC 3261
- Audio formats: G.711 u-law and G.711 A-Law
- DTMF support: RFC 2833, SIP INFO

#### Vocal call via PSTN line

Although in decline, the Telephone Network Switched is still very present and used as it has been, for many years, the main support communication (Telephone, Minitel, Pager, Fax, ADSL, ...). ALERT has always been able to perform voice phone calls through this network of historical telecommunications, namely:  
On analog lines using analog modems  
On digital lines (ISDN) in using digital modems.

### REMOTE MONITORING SYSTEMS

ALERT allows companies to send their alarms to remote monitoring companies using the protocols that have achieved benchmark status in this particular field. Currently supported protocols:

- SIA over IP
- CONTACT ID over IP
- TRSII

#### Vocal call via GSM network

Using the Micromedia GSM modem, ALERT can use the GSM network to make voice calls. With the end of the historical telephone technology announced in many countries, this solution becomes an interesting alternative because it also offers the following advantages:

- Independence of the installation from the user's telephone or IT infrastructure
- Sending of SMS in addition to voice
- Possibility of monitoring the proper functioning of ALERT by automatically sending an SMS in the event of a communication failure with the software (Watchdog function)

#### Radio handset (walkie-talkie)

Radio networks continue to be a popular means of communication at several industrial sites due to the technology's easy and cost-effective deployment and its wide-ranging coverage. Depending on the radio base station, ALERT can send voice messages over walkie-talkies in different ways:

- Using conventional phone calls by interconnecting the radio base station with the site's telephone system
- Using VoIP over radio base stations that are compatible with the protocol
- Using special modules for interconnecting with the radio base station and a proprietary IP communication protocol embedded in ALERT

### VOCAL SYNTHESIS

ALERT also features an optional speech synthesis program for automatically converting text into voice messages, which spares users the effort of having to first record voice messages manually for the alarms. This module adds dynamic data (date, value, etc.) to their messages for even greater accuracy.



## TEXT MESSAGE

### SMS

ALERT supports two methods for sending SMS messages:

- By using a GSM modem (requires a mobile subscription from a telecoms operator)
- By IP over the Internet and via the SMPP protocol, which is natively available in ALERT (requires an SMPP subscription from a service provider offering this particular protocol).

### Email

As standard, ALERT supports emails (simple messages and emails with an attachment) via an SMTP (SSL, STARTTLS and ESMTP) or Exchange account. ALERT can also be used to receive emails for:

- Managing call acknowledgements (alarm message acknowledgements). To use this feature, the system must be configured to receive emails with the embedded POP3 protocol
- Retrieving alarms from third-party devices or solutions that are capable of sending emails. Emails can either be retrieved with an external mailbox (POP3) and dedicated ALERT email address, or by using ALERT directly as an outgoing server with the natively integrated SMTP server

### Mini-message on DECT

ALERT incorporates a large number of drivers for sending text messages to the DECT devices marketed by leading brands (Alcatel, Mitel, Ascom, Cisco, Spectralink, etc.).

On compatible devices, users can define different acknowledgement levels for the message that they have received from ALERT (message stored on the device, message opened, explicit read confirmation, etc.).

### Pager

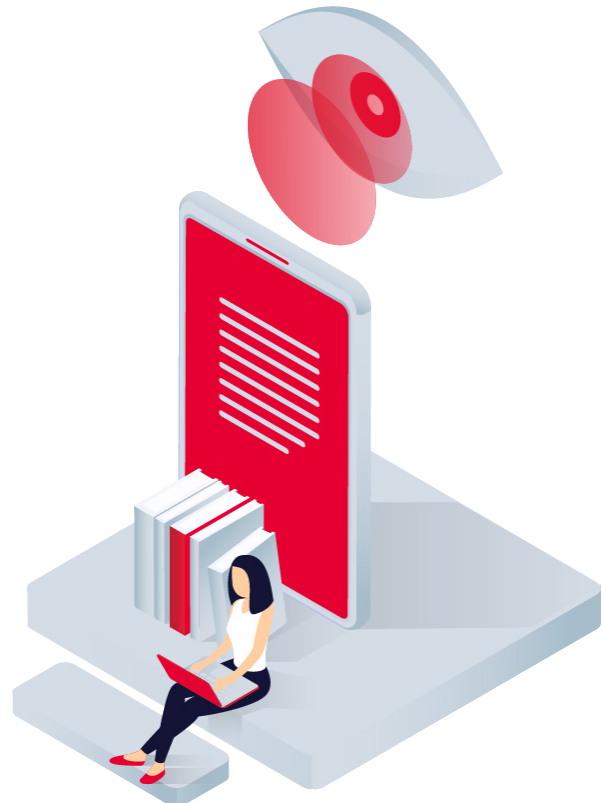
Pagers are still frequently used at industrial sites due to their reliability for sending messages.

Whether across a public or private network, ALERT can send text messages to pagers that are compatible with standard protocols, including TAP (analog or IP), ERMES, ESPA 4.4.4 and ESPA X, as well as certain proprietary protocols (ASCOM, e\*Message, etc.).

### Radio handset (walkie-talkie)

The emergence of digital radio has opened up the realm of applications for walkie-talkies, meaning that they are no longer confined to voice calls. Users can now send text messages over radio devices.

ALERT includes IP drivers for sending notifications to users on their radio devices and enabling them to interact with ALERT (acknowledge or reject calls).



## MESSAGE PROCESSOR

A powerful script interpreter

This module takes the ALERT system's acquisition and dissemination abilities to the next level by interfacing with::

- Serial or TCP/IP links
- Formatted text files (CSV, XML, JSON, etc.)
- SQL databases
- SMS or incoming email
- Proprietary APIs (REST, etc.)
- Telephone calls
- MQTT

Sometimes, attempting to address specific requirements or facilities with commercial off-the-shelf solutions is akin to pushing a square peg in a round hole. In a bid to deliver a solution that satisfies the broadest range of needs, we have bundled a fully customizable module into ALERT called the Message Processor, which is capable of addressing the most complex requirements.

The Message Processor is a real-time script interpreter module. The scripts are written in a language such as BASIC (Beginner's

Allpurpose Symbolic Instruction Code) and offer a wealth of tools for fetching, processing and disseminating information..

The Message Processor also includes a powerful filter management tool that contains a simple and intuitive interface for providing operators with all the significant information extracted from a given data source.

Therefore, users can configure how ALERT behaves according to the information received without needing to be development experts. Scripts can be executed automatically when the software is started or upon an event:

- Alarm appearance
- Reception of an IP / Serial frame
- Receipt of an Email / SMS
- Receiving a voice call

It is also possible to trigger a script manually via a command in the «Operation» menu of the software.



### VOCAL SERVER

The «Voice Server» functionality allows to have a fully qualified voice server configurable by script. It enables users to consult and control at distance any type of information available in ALERT.

Furthermore, it offers different services on incoming calls, for example an automatic transfer to the on-call agent on duty.

This function is fully configurable via the Message Processor Toolkit, and can thus benefit from all the functions offered by this powerful scripting tool.

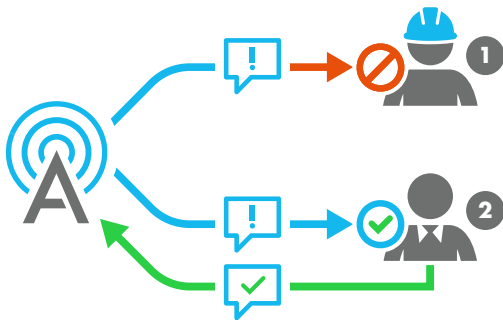


## ORGANIZATION AND FOLLOW-UP OF CALLS

ALERT monitors the success of calls as well as the effective taking into account of alarms, and incorporates very advanced on-call management features.

### Call termination control

It is vitally important to ensure that alarm notifications reach the operators, and ALERT does everything in its power to achieve this objective. If the call fails (busy line, no answer, etc.), it is automatically repeated according to the defined settings.



If users cannot be sure that the notification has been sent to the right recipient, a call acknowledgement is expected. If the acknowledgement is not received within a given timeframe, the call is repeated.

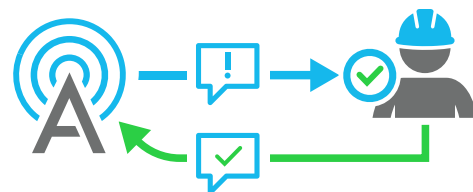
If the call failure is verified, the call is either made to the next number on the operator's contact list or to a relief operator.

### Acknowledgement of calls and alarms

When operators are notified that ALERT has sent an alarm, they must confirm that they have received the message by acknowledging the call. Calls can be acknowledged using the same medium as the initial contact where practicable.

In case of one-way communication devices (e.g. pagers), operators can use the other means of communication configured in ALERT, including voice calls and SMS messages.

Once the alarm has been processed, it must also be acknowledged to show that it has been duly taken into account. The call procedure can then be closed. Users can acknowledge alarms on the ALERT workstation or remotely via the Web client, a thick client, by telephone, SMS or the AlertMobile smartphone app. Acknowledgements can be received directly from the actual data source.

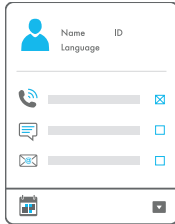


## ADVANCED ON-CALL MANAGEMENT

### Operator profile

In addition to the basic information (first name and last name), you can also define the following attributes in an ALERT operator profile:

- Password (managed either by ALERT or Active Directory)
- Access rights (System, Control and Operation levels)
- Language (multilingual graphical interface, alarm message depending on the language used by the operator)
- Media list / phone numbers
- Planning of the call media in a schedule



With ALERT, you can create an unlimited number of operators and media.

### On-call groups and teams

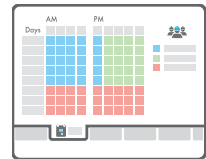
ALERT combines operators into theme-based call groups (HVAC, fire, process, etc.), which are then assigned to the alarms. Operators in the call groups are divided into teams, and a weekly or monthly schedule specifies the active team, hour by hour.

Team operators can be defined as active (they must be called) or relief (they are called if the active operators cannot be contacted). Similarly, calls can be cascaded down from one group to another if the first group cannot be reached, which guarantees

that the alarm notification will always be sent.

Each on-call group has its own schedule which defines the assignment of teams based time slots. The schedule can be created as a weekly program or defined as a monthly roster.

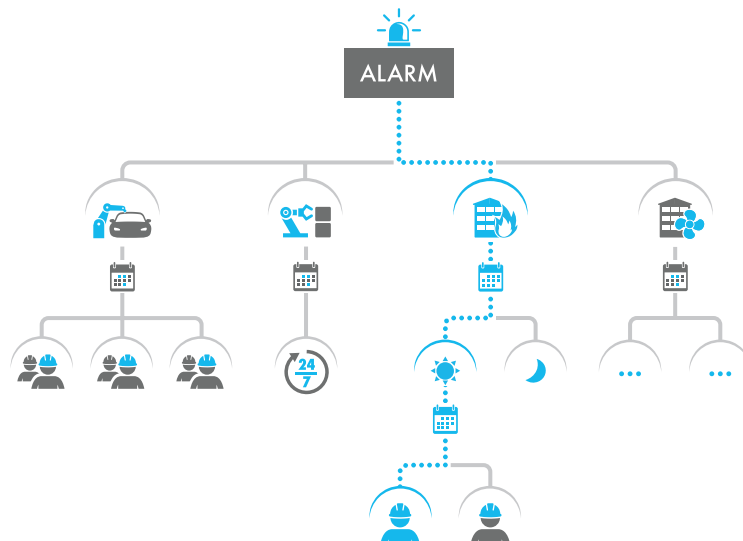
The schedules are graphically configurable thanks to a simple and intuitive interface. In order to offer a good precision in scheduling configuration, ALERT offers 3 levels of granularity (15 min, 30 min, 60 min).



The active team is automatically changed in line with the defined schedules, but you can also define an explicit changeover period. With this feature, an alarm is triggered if no operator has gone on-call after the maximum changeover period.

### What about unforeseen incidents?

You can stand down an on-call group at any time. When a team has been stood down, its calls will be suspended or forwarded to a designated standby team.



## HISTORY AND STATISTICS FOR ALARMS AND FIELD ACTIONS

ALERT ensures a recording of all detected events as well as calls and interventions triggered in response

Each alarm processed by ALERT is recorded in a detailed log, along with such information as the date triggered, the activation time, the name of the operator who acknowledged the alarm and the response / action time.

Logging alarms and field actions can also help to produce complete statistics.

For example, users can view the following statistics for an alarm, a group of alarms or all alarms over a given period:

- Number of faults during the period
- Total number of faults
- Average fault durations

Field action statistics can also be viewed for each operator over a given period (day, week or month):

- Number of field actions
- Average field action time
- Average response time

This leading-edge monitoring system can be leveraged to check call performance in real time and analyze previous call cycles at a later date.

## EXPORT TO DATABASES

To drive back the boundaries on alarm statistics and analytics, the history can automatically be exported to an external database (SQL Server, Oracle, ...).

The configuration and history tables are updated in the database in real time following each modification or alarm event.

This option brings a bundle of extra features, such as:

- Adding comments to alarms
- Creating alarm reports, which can include statistics
- Detailed history and real-time call monitoring



### MAINTENANCE LOG

In addition to the alarm log and statistics, ALERT lets users enter reports when operations are part of the maintenance service.

Reports can be made in writing (local or remote) or verbally. They are automatically signed and timestamped, and attachments can be added to provide extra information (photos, videos, etc.).

## ALARM LOCALIZATION

To address the most critical situations, such as alarms where personal safety is at risk, ALERT is capable of supporting the geolocation data contained in the alarms to provide the vital information needed for a fast response.

Whether static alarms predefined with a specific location or dynamic alarms with variable locations (LWP alarms), ALERT can process and display the alarm on a map or plan in real time.

The intuitive GUI in ALERT makes managing alarm locations child's play.

For example, users can quickly and easily define zones, locate alarms and track down devices according to the following principle:

1. Define a site: an image representing the site (possibility of positioning the site on an OpenStreetMap map)
2. Create buildings: outline areas on the previously created site for each building. Each building is defined by a name and the total number of floors (including basement levels).
3. Create floors: import the layout and map of each floor as an image.
4. Position an alarm, Bluetooth beacon or RFID tag, or define an area and its alarms on the floor diagram, site plan or directly on the map.

### Dynamic localization



Sometimes, it takes more than a notification of the alarm to deliver fast assistance when roaming workers are in trouble. Operators need to quickly see the worker's location. For this, each operator must be equipped with a specific device offering the ability to locate. This localization can be carried out in different ways depending on the type of device:

When the device raises the alarm, ALERT receives and processes the geolocation data to display the location of the worker in need

of assistance on a plan (indoor location using Bluetooth beacons, Wi-Fi access points, RFID tags, DECT access points, etc.) or on a map (outdoor location using GPS coordinates).

LWP devices	Localization interface
Radio	GPS/Bluetooth beacons/ RFID tags
DECT	DECT access points
GSM/Dedicated devices	GPS/Bluetooth beacons
Application ALERTMobile	GPS/Wi-Fi access points/ Bluetooth beacons

### View the location of your Lone Worker alarms to intervene as quickly as possible!

#### Static localization



ALERT can determine the location of all the alarms in your facility.

Alarms can be geolocated individually and collectively according to the principle of zones.

Zones are represented on the map as an outline of a room, building, sector, and so on, and several alarms may be associated with the zone. When an alarm is triggered, the associated zone is displayed on the map in red.



## OPC PROTOCOL

ALERT is compatible with Windows protocol OPC standard allowing data exchange between applications in the automation industrial processes.

The OPC client interfaces allow the acquisition of data, events and alarms on applications third parties with a server interface. In OPC, it also allows automatic browsing of the data to be monitored.

The OPC server interface provides in real time the various software tag values (alarms, system information, ...) thus allowing to monitor of the state of the entire system – either by third-party applications or by ALERT itself.

For data supervision on remote stations, the client OPC interface (DA or AE) can be very easily deported through the AlertTunneler module.

### SUPPORTED OPC STANDARDS:

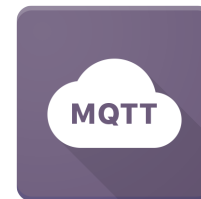
OPC link type	Operating Mode
DA (Data Access)	Client/Server
AE (Alarm and Events)	Client
UA (Unified Architecture)	Client

## MQTT PROTOCOL

The MQTT protocol, which is widely used in IoT (internet of things) environments, is becoming increasingly important in industrial companies due to its simplicity of implementation, its performance and its low resource requirements.

Thanks to its dedicated MQTT connector, ALERT can subscribe to different topics of an MQTT broker and thus retrieve and process any type of data from other equipment. It is also possible to publish messages on an MQTT server using the dedicated subject available in the script editor.

ALERT can therefore act as sender and receiver (publish / subscribe) to any MQTT broker present on the local infrastructure or on the Internet.



## PLCS (PROGRAMMABLE LOGICAL CONTROLERS)

ALERT is able to retrieve information directly from the source from non proprietary protocols such as BACnet (dedicated building management protocol) and Modbus in order to notify operators in the event of a malfunction occurring on the system.

BACnet is an internationally recognized standard public domain protocol (ANSI1 and ISO), which enables data communication in the field of technical building management, i.e. between ventilation, air conditioning, lighting, access control, fire safety and their associated services.

Thanks to its dedicated BACnet interface, ALERT allows the management of technical alarms coming directly from BACnet devices without the need for the presence of a third-party system.

The ALERT interface dedicated to the Modbus protocol allows to connect to industrial units and PLCs in RTU (master) and TCP (client) mode, to read and analyze the data of this equipment and proceed processing of detected alarms.

It is also possible to write commands through Modbus, by writing in Modbus variables and thus interacting with the equipment if necessary.

## SPECIFICATIONS - AT A GLANCE

Software for Windows environment (32/64 bits), office or server version, on physical or virtual workstations

### Data acquisition interface

- OPC (DA, AE, UA)
- Industrial PLCs (BACnet, Modbus)
- LWP devices (DECT, Radio, GSM)
- Manufacturer-specific scripts
- MQTT
- ...

### Multi-media broadcasting

Voice call, SMS, Mobile application, Email, Pager, Radio handset, Fax / Event printer, Remote monitoring systems, ...

### Application scope

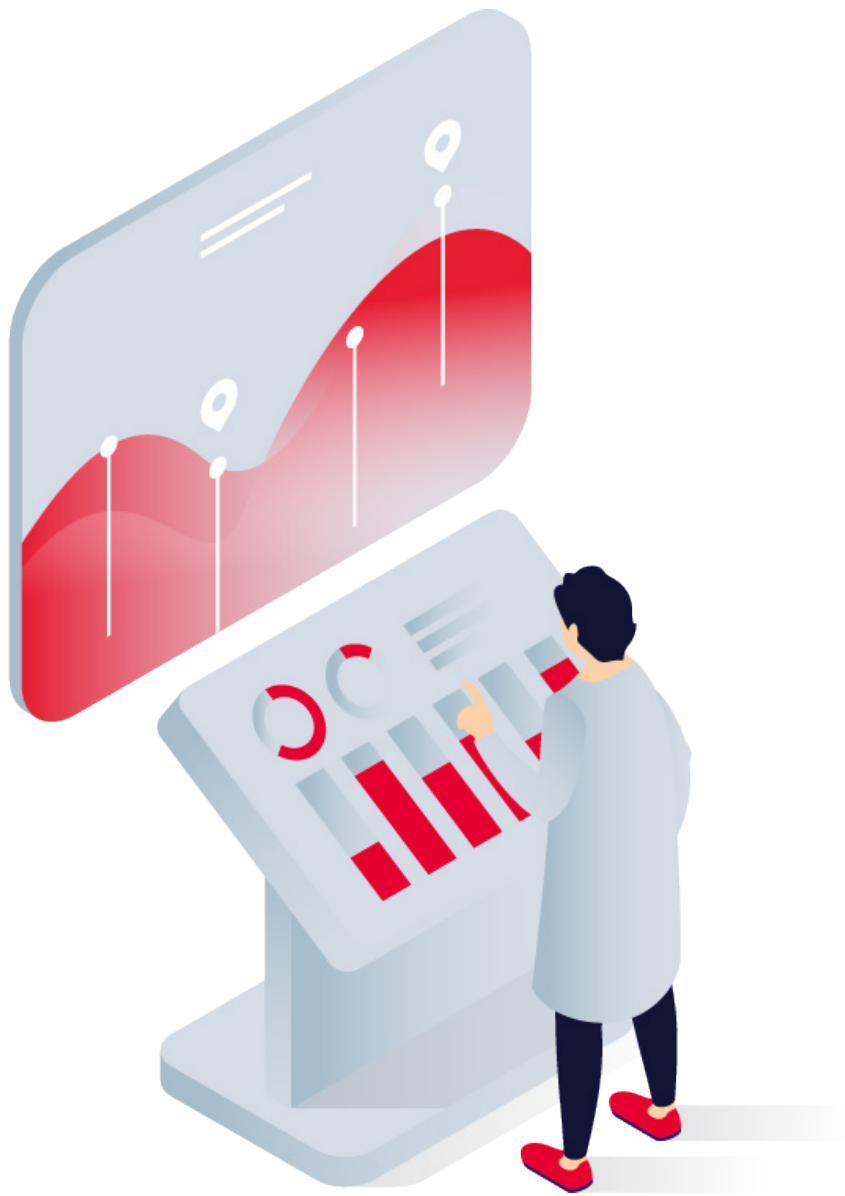
Any automated process requiring permanent supervision:  
Industrial processes, Facilities-Utilities, Pharmaceuticals, Water management, Building Automation, Automotive, Health and Healthcare, Energy, Food and Drink, Chemicals, Environment, Transport and Infrastructures, Aerospace, Microelectronics, Agriculture, Public and Private Services, ....

### Functions

- Alarms centralization from heterogeneous technical environments
- Simultaneous acquisition of several data sources through different protocols and specific connectors
- Fully customizable script interpretation module to meet the most complex needs and special cases
- Remote access via client, web interface and mobile application
- Self-monitoring in the event of loss of connection with an alarm source or related equipment
- Call tracking and escalation management
- Possibility of redundant architecture to guarantee high availability
- Multi-site management and partitioning of data specific to departments, companies, etc. (Multitenancy)

### Operating language

- Graphical user interface in 9 languages (English, German, French, Italian, Spanish, Portuguese, Dutch, Chinese, Russian)
- Messages configurable in multi-languages, transmitted in the language of the called operator






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