IQ Messenger in Healthcare

Deliver clinical alerts while minimising risks with the
CE Class IIb medical certified alarm management platform

iqmessenger
When the message is critical

Alcatel·Lucent
Enterprise

IQ Messenger monitors whole healthcare ecosystems in real-time, delivering time-critical clinical alerts to the right staff members working in and beyond your facilities for fast action.

IQ Messenger ensures patient and clinical staff safety while securing people and buildings. This software application meets today's healthcare providers' need to comply with regulations, reduce alarm fatigue, deliver consistent notification services while mobile and integrate with existing alarm systems and workflows.

IQ Messenger is well adapted to connect and monitor medical devices and is Medical Device Regulation certified.

Critical alarm and notification challenges for health providers

The number of connected pieces of equipment is growing dramatically in healthcare facilities such that alarm management is becoming a real nightmare for clinical staff. The 2018 NCBI (National Center for Biotechnology Information) study indicates that alarms per patient in intensive care have risen from six to 40 in the last three decades and the percentage of insignificant or non-actionable alarms is between 80 to 99 percent.

The need for safety and efficiency is continuously increasing as well. To address these needs, a new European Medical Device Regulation (MDR) was approved by the European Parliament on April 5, 2017. After a four-year transition period, the MDR compliance will be mandatory (as of May 26, 2021). This applies to stand-alone software classified as a medical device, such as notification servers processing vital physiological parameters.

Alarm and notification solution certified as a medical device

Alcatel-Lucent Enterprise (ALE) has already evolved its alarm and notification system to address customer concerns regarding the Medical Device Regulation. Alcatel-Lucent OpenTouch Notification Service has evolved to IQ Messenger, integrating an exclusive ALE proprietary connector to offer an enriched ecosystem experience.

As of now, our IQ Messenger offer is compliant with:

· **ISO/IEC 27001** (International standard for information security)

· **ISO 13485** (ISO standard for a Quality Management System for the design and manufacture of Medical Devices)

· **ISO 80001** (ISO standard for application of risk management for IT networks incorporating medical devices)

· **Medical Device Regulation (MDR) Class IIb**

IQ Messenger: A fully adapted notification system for healthcare environments

IQ Messenger is a full IP any-to-any supervised messaging and notification software platform that:

· Collects and aggregates alarms from multiple subsystems, such as nurse calls or wander prevention systems, as well as building sensors

· Notifies, in real-time, the most appropriate person(s) to respond to the situation, using multiple communication means

IQ Messenger any-to-any

The IQ Messenger platform is based on an any-to-any message broker mechanism that enables reactions to critical alarms. This is crucial to protecting the health of patients and clinical staff. Data is translated from the triggering messaging protocol to the notification messaging protocol. To deliver even more relevant alarm messages, IQ Messenger is able to enrich notification messages with geolocation information for instance, by interfacing with the healthcare provider's information system.

Support many vendors and many technologies

IQ Messenger can transparently integrate with a rich ecosystem of third-party vendors, protecting your investment in legacy systems by being open to other systems and enabling innovative services and uses.

IQ Messenger is an open alarm software platform with no brand preference — the medical process comes first. It can integrate with more than 140 third-party vendors systems, such as:

- Medical systems: **ACKERMANN, ARCOMED, ASCOM, BRAUN, DRAGER, INDIGO, PHILIPS, SCHRACK, TELEVIC, TUNSTALL**
- Electronic Patient Medical Services: **HIX & EPIC**
- Wander prevention systems: **KADEX, STT CONDIGI, TUNSTALL**
- Building management systems: **BACNET, KNX, WAGO**
- Fire alarm systems: **ASCOM, ESSER, SIEMENS**
- Smart sensor (Video observations/motion/sounds) systems: **MOBOTIX, ROBIN**

IQ Messenger's large ecosystem

Fully integrated with the ALE portfolio

IQ Messenger embeds proprietary connectors allowing:

- Receipt of voice messages or mini-messages on ALE deskphones and DECT/VoWLAN handsets
- Generation of specific alarm ring tones (normal, urgent, very urgent) or even hands-free Alcatel-Lucent 8244, 8254 and 8262 DECT handsets
- Triggering of an alarm from 8262 DECT handsets (red button pull cord and detection of vertical loss, immobility and shock)
- Management of bi-directional Rainbow™ by Alcatel-Lucent Enterprise Instant Messages
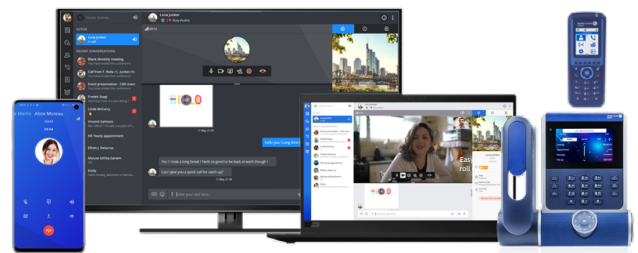
Alcatel-Lucent collaboration services and phones

Notify in a secure and relevant manner, even on the move

All alerts handled by the IQ Messenger platform can be by e-mail notification, SMS, voice message, or even social media message to any person — anywhere in the health facility and beyond.

A smartphone and tablet application named SmartApp is available for Android OS and iOS to manage critical alarms with contextual information. This includes video observation and clinical personal security (using lone worker protection, panic button and immobility detection mechanisms.) To ensure critical alarm notifications, the SmartApp overrides the smartphone silent mode (even on iOS devices) and generates warning audio tones when the coverage doesn't allow the server connection.

SmartApp graphical interface

Intuitive web-based configuration and reporting tools for easy administration

Event flow manager

- Drag and drop building blocks
- Red icon: Choose your incoming alarm per building, room, device and alarm type
- Blue icon: Use a conditional block to adapt the script behaviour depending on calendar, and escalation, among others.
- Green icon: Choose your notification mode

Graphical floor plan

- Alarms graphically displayed and activated
- Alarms up to 64 buildings at the same time
- Accept and reject alarms
- Allocate the alarm priority depending on the colour
- Real-time patient data

Graphical event assignment

- Simple assignment application for users
- Drag devices to the rooms for assignment
- Assignment per floor, room, bed device or alarm type
- See which patient is staying in which room
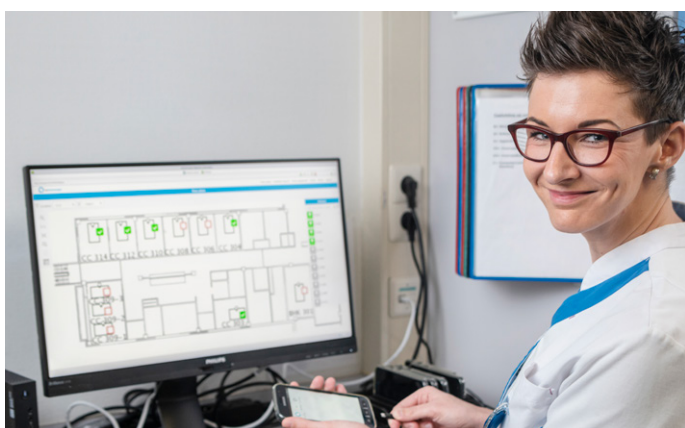
Real-time console

- Real-time alarm view with priority level
- Accept and reject alarms
- Know precisely which patient is staying in which room
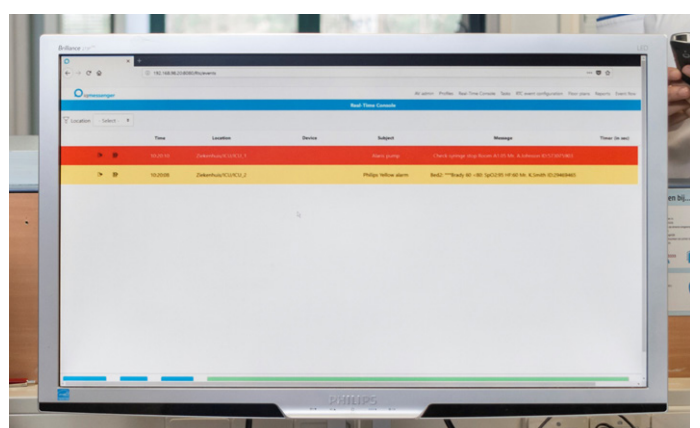
Empower your clinical staff with digital alarm and notification services while ensuring patient safety

Clinical staff safety scenario

Aaron works as a nurse in a hospital specialising in psychiatry. On rare occasions, he must deal with aggressive acts by patients. To safeguard health professionals, the hospital has equipped them with a ruggedised DECT handset for isolated worker protection: The Alcatel-Lucent 8262 DECT handset.
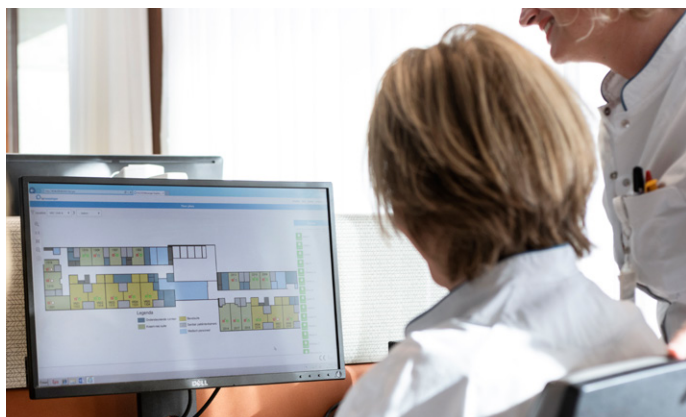
With the new equipment, when a patient starts to become aggressive and nothing seems to calm them down, Aaron can press the red button to discretely and noiselessly send an alarm to others who can help and prevent an escalation in violence.

The critical alarm is displayed on the Graphical Floor Plan interface of the security desk. It indicates Aaron's location based on the Bluetooth® beacons nearby that were detected by the DECT handset. Aaron's location information is sent to the IQ Messenger. Security personnel can arrive quickly to the incident scene, subdue the patient and isolate them in their room.

Nurse call scenario

Anne works mostly in the rehabilitation care unit of a hospital. However, sometimes she must change care units to fill a vacancy or a sick leave.

This morning she was asked to work in the intensive care unit. The dispatcher drags and drops Anne's SmartApp from the rehabilitation ward area to the intensive care ward area in the IQ Messenger Graphical Event Assignment tool. Anne receives the nurse call alarms scripted for the new allocated care unit on her handset.

The assignment can also be done by Anne herself. Upon entering the new ward, she scans the QR code or NFC sticker to activate the local alarm functionality for this ward and she will then be able to receive nurse call alarms. When she returns to her own ward, another QR code or NFC sticker will be scanned to assign rehabilitation care unit alarms.

Code blue emergency scenario

Following a serious car accident, Daniel is hospitalised in an intensive care unit, which monitors his vital physiological parameters.

To meet the emergency requirements of such a care unit, the hospital provides its clinical staff with smartphones that have the SmartApp application loaded. This mobile app is connected to the IQ Messenger software platform running on the hospital's data centre through the private WLAN network.

As soon as one of Daniel's vital parameters deteriorate, an alarm is generated by the medical equipment (patient status monitor) and sent to the IQ Messenger notification server, which immediately notifies the on-duty staff on their smartphone with a loud ring and precise contextual information. It provides the patient's name, room and bed number, as well as the vital parameter with its trigger value responsible for the alarm.

To provide a quiet environment in the ward, the nursing staff can view the vital parameters in real-time on their SmartApp without having to disturb the patient in their room.

Wander detection scenario

Sophie lives in a retirement home surrounded by a park. To prevent residents from leaving, the healthcare facility has installed a wander prevention system in the area around the building as well as several cameras around the building and in the garden.

Sophie has Alzheimer's disease. She has somehow managed to leave the resident area which has triggered a centralised IQ Messenger alarm. Security personnel are notified on their smartphones through the SmartApp application indicating the zone with a pointer to connect the closest video camera. As the security personnel arrive at the detection zone, Sophie has just enough time to exit the building triggering a second perimeter alarm that is traced back to the SmartApp application. The security personnel are close to the area and heading in the right direction, allowing them to catch up with Sophie and bring her back inside, safely and without stress.

Hospital information system integration scenario

Some hospitals use global monitoring systems that retrieve information from all medical systems (cardiac, pressure, blood, pumps and more) and dispatches it to monitors, as well as data to the hospital's patient file system.

In parallel, when an alarm is sent to the global monitoring system, it sends it using HL7 to IQ Messenger. IQ Messenger is responsible for handling the alarm, identifying what type of alarm it is (what type of equipment) and its location, and converts it to be interpreted by nurses (DECT display, SmartApp display) so that they can intervene.

Want to learn more?

For more information about IQ Messenger, please visit our web page.

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