areashell

Areashell – Web Technology Based Integrated Security System Platform

Version 2.0
2017

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Universal Platform for Security, Management & Monitoring Solutions

Physical Access Control
Configure access control system hardware, manage access policies, users, credentials, graphic maps, graphic maps, notification settings.

Location Services
Monitor people and assets location on graphic maps in real time. Manage and enforce people and assets location rules.

Time & Attendance
Tightly integrated with Physical Access Control and Location Services subsystems.

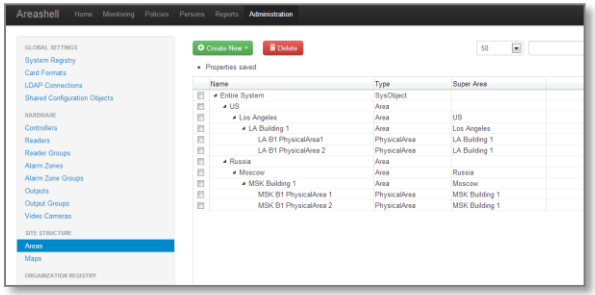
Parking Monitoring
Real-time dashboard of parking availability by area.

Irrigation Monitoring
Real-time monitoring dashboards, displaying moisture and temperature information as lists and diagrams.

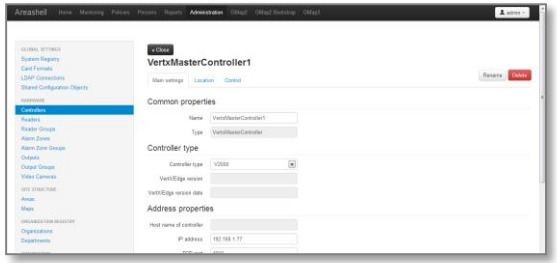
Analog/Digital Signal Processing
Collecting and analyzing data from sensors with analog-to-digital converters.

Unified Web-based Interface

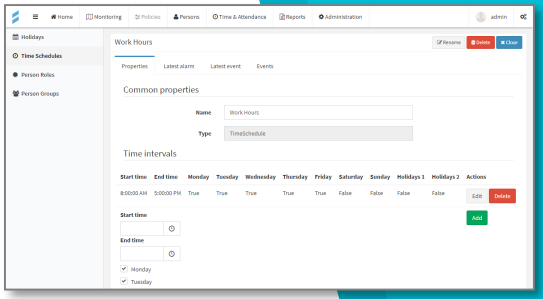
All functions available through unified web interface



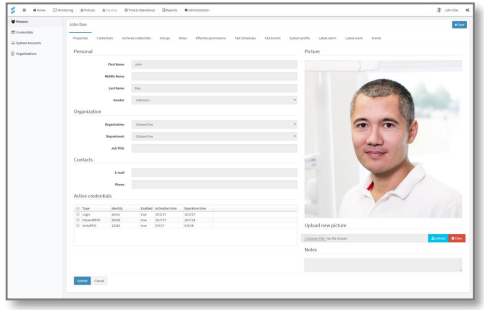
System configuration management



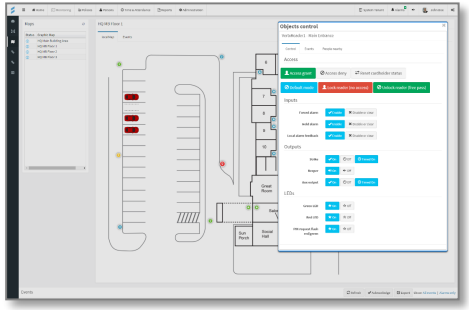
Hardware management



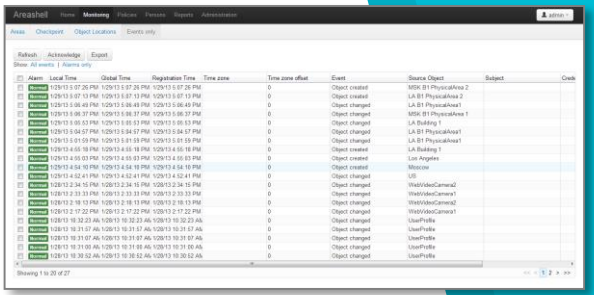
Policy management



Cardholders management



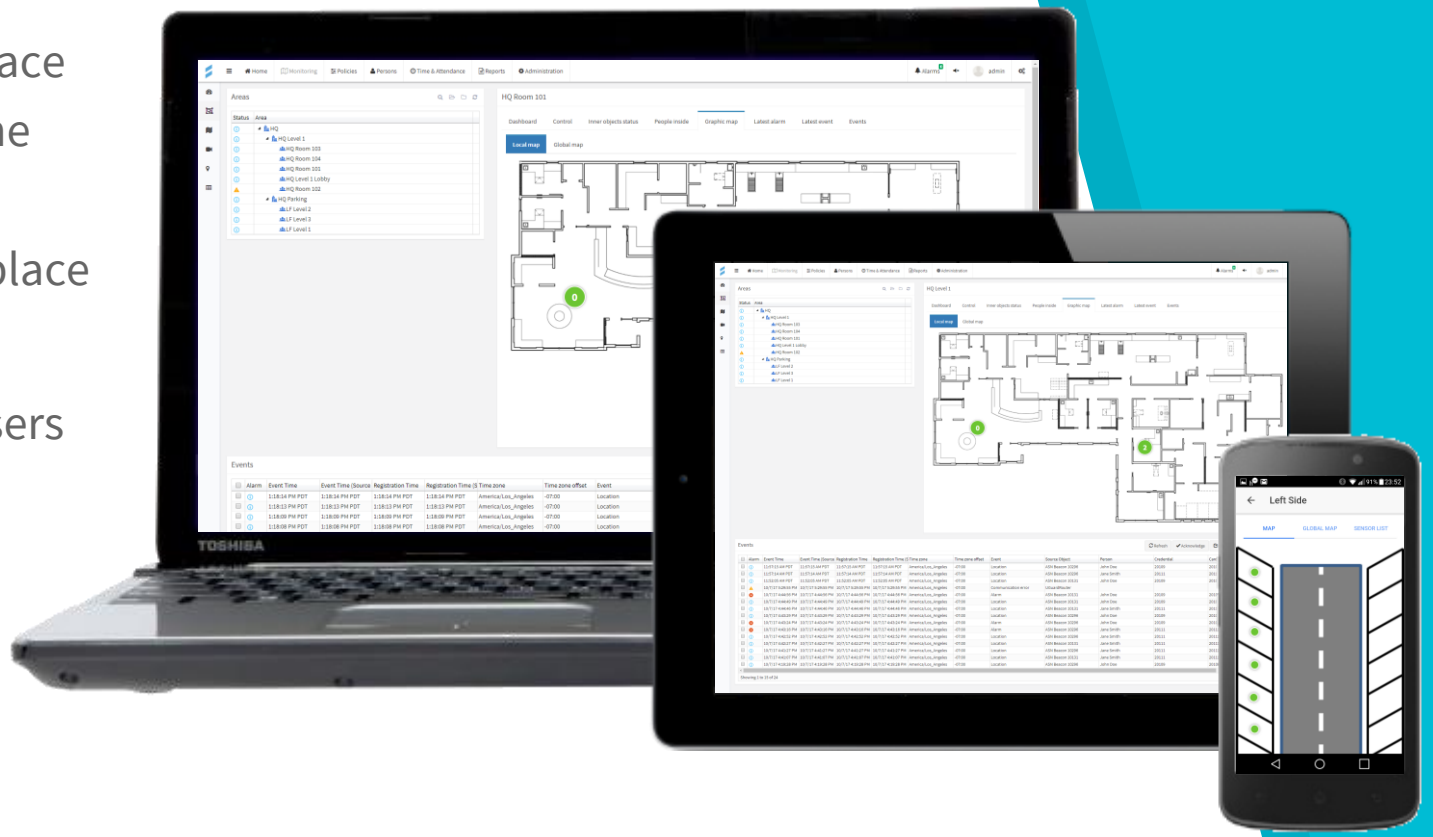
Real-time monitoring & control



Reporting

Mobile Friendly

- Web-based interface allows manage the system from any device from any place
- Special mobile application for users



1.

AREASHELL PHYSICAL ACCESS CONTROL

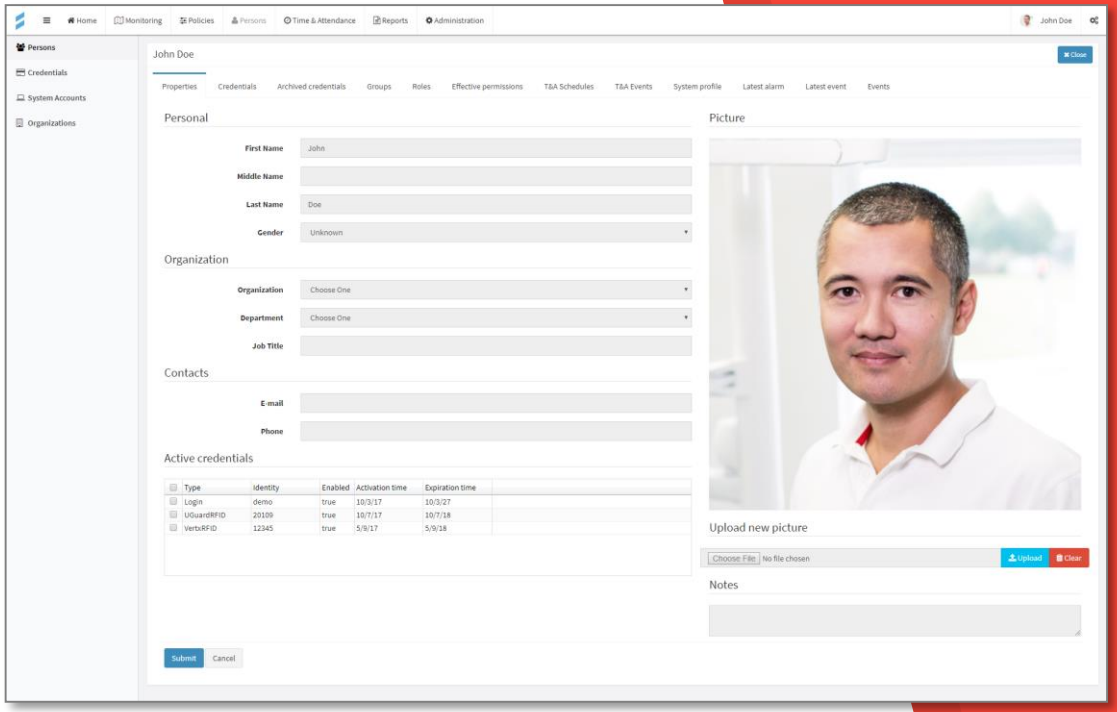
Full-featured
Web-based
Physical Access Control
System

Based on HID Global Network Controllers

- Linux-based controllers
- IP-based communication between controllers and server
- HID Global VertX® EVO / Global VertX® Networked Access Controllers
  - Choise between using a separate controller and IP address per door (HID VERTX EVO V2000) or using a single controller and IP address for by connecting up to 20 downstream interface modules and 40 readers (HID VERTX EVO V1000)
- HID Global EDGE® EVO / Global EDGE® Networked Access Controllers
  - Power-over-Ethernet (PoE) – enabled; Under many circumstances allow to wire an Ethernet cable to a door for both communications and for powering a controller, lock, and readers

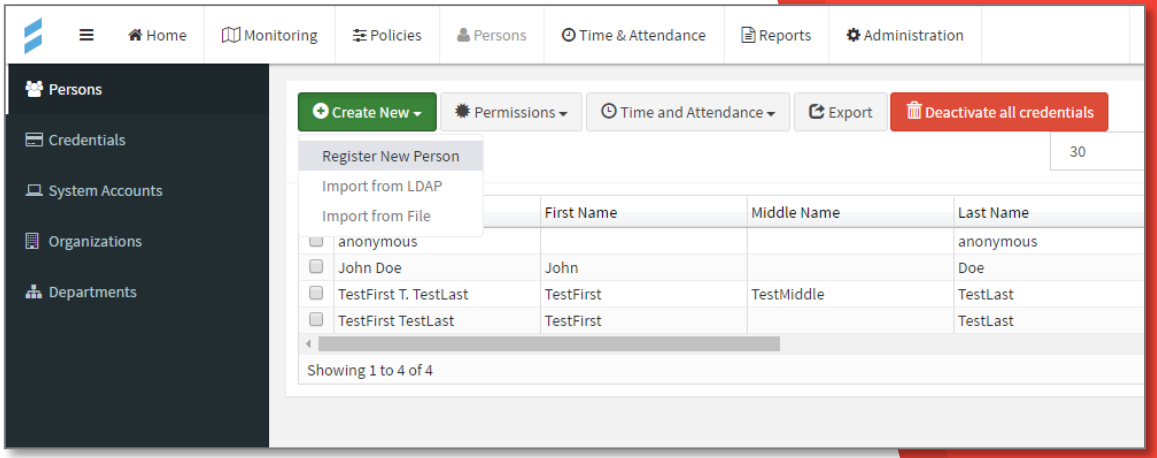
User Management

- Registering users (cardholders)
- Issuing Credentials – RFID cards, location sensors, PINs, passwords
- Assigning user groups, roles, permissions
- Assigning time & attendance policies



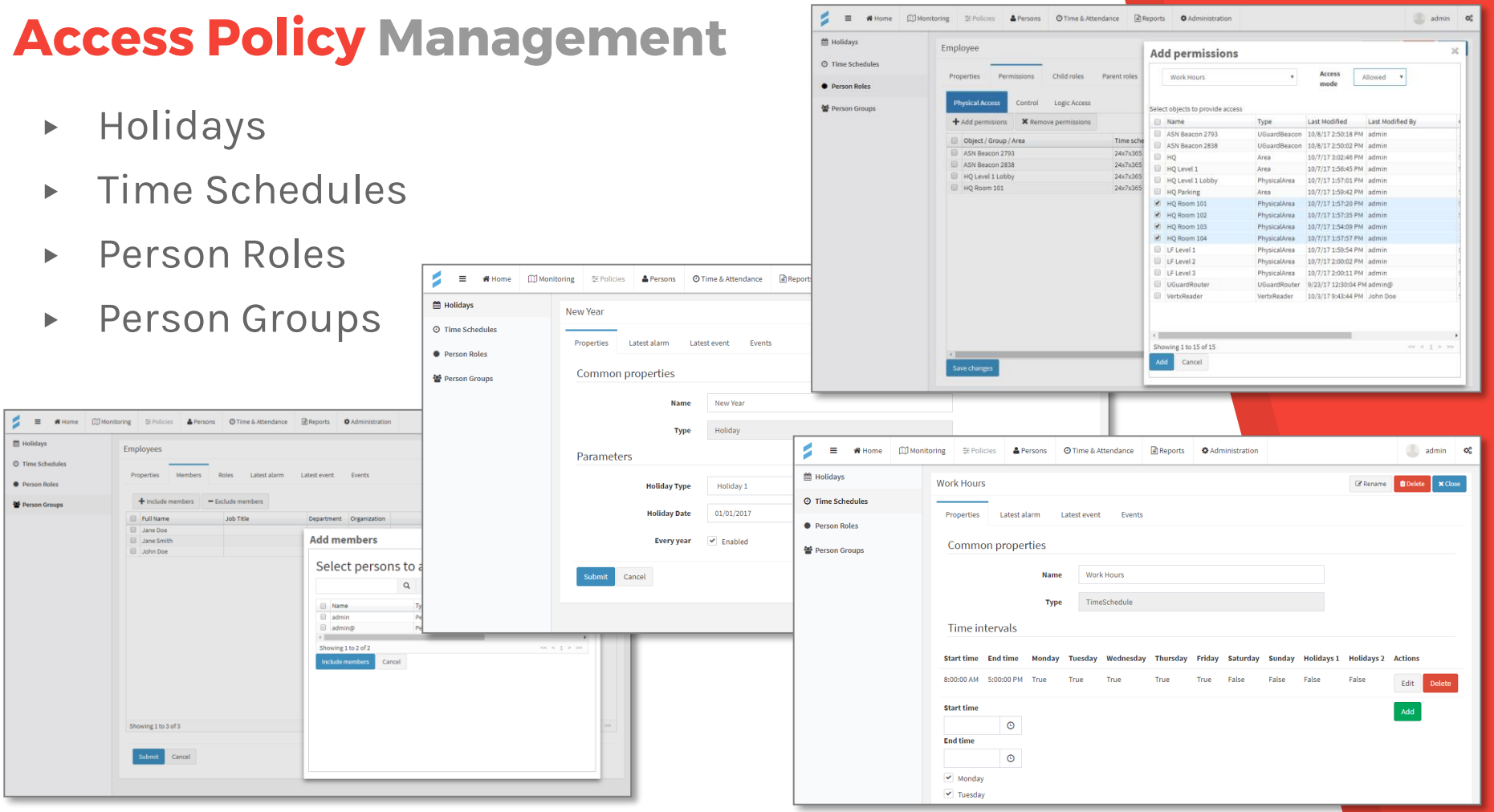
Integration with Directory Services

- Import users from CSV-files
- Import users from Active Directory / LDAP Directory
- Grant user roles automatically by mapping Areashell Roles on User Groups defined in Active Directory / LDAP Directory
- REST-based integration API for user registration from other software



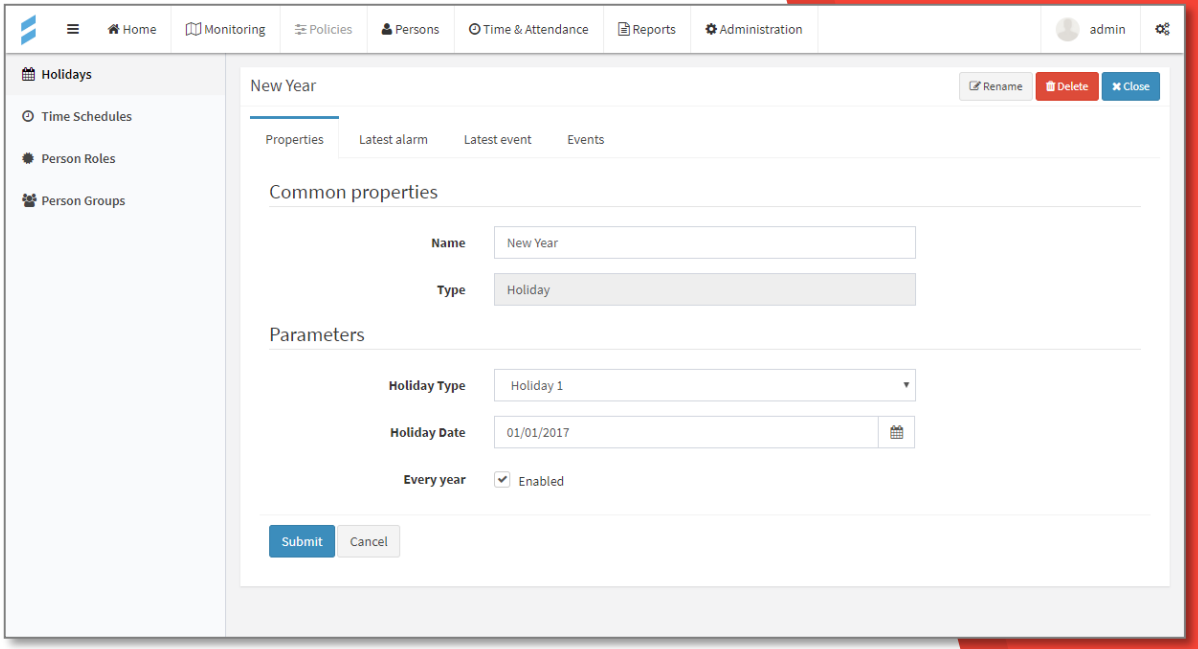
Access Policy Management

- Holidays
- Time Schedules
- Person Roles
- Person Groups



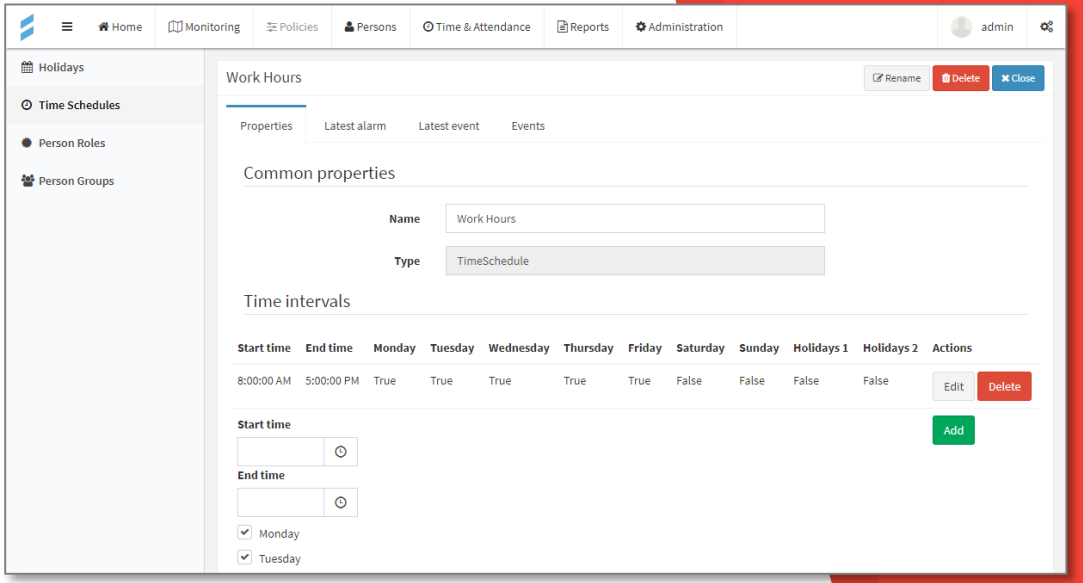
Holiday Management

- Annual and one-time holidays
- Two types of holidays with separate access permission settings



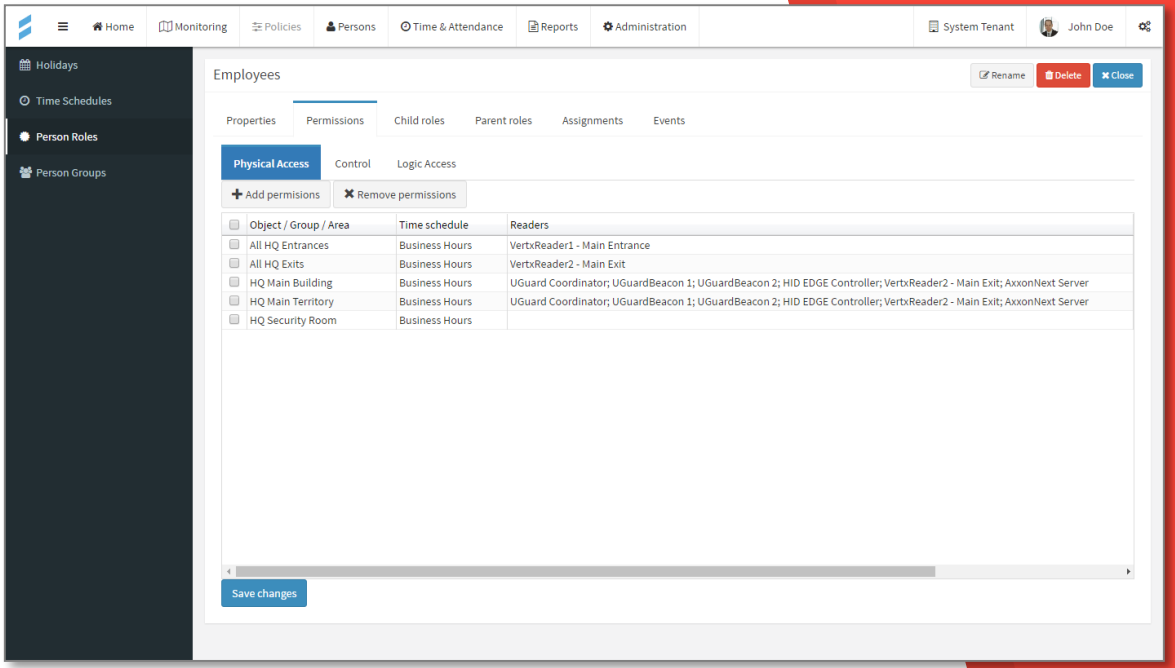
Access Schedule Management

- Unlimited number of time intervals per time schedule
- Separate access permission settings for different week days
- Separate access permission settings for different types of holidays
  - One type can be a holiday, while another type can be a work day, for example



Role-based Physical Access Permission Management

- Role – set of permissions required user to have to do some specific task
- Roles can contain other roles
- Child role inherits all permissions assigned to all it’s parent roles
- Roles can be assigned to users or to user groups

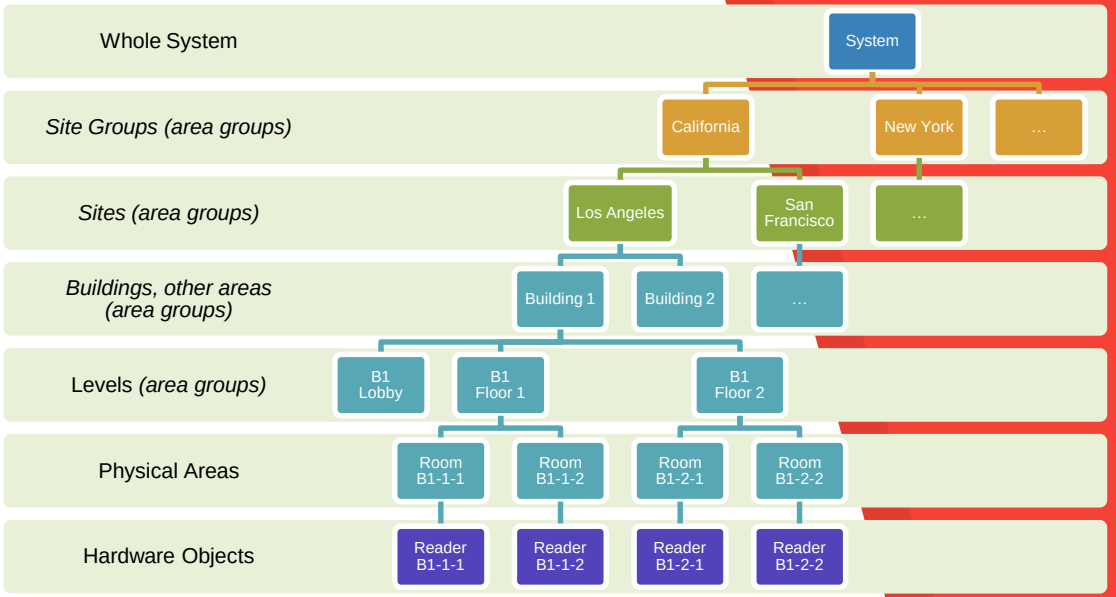


Area Hierarchy

Areas are grouped into hierarchy.

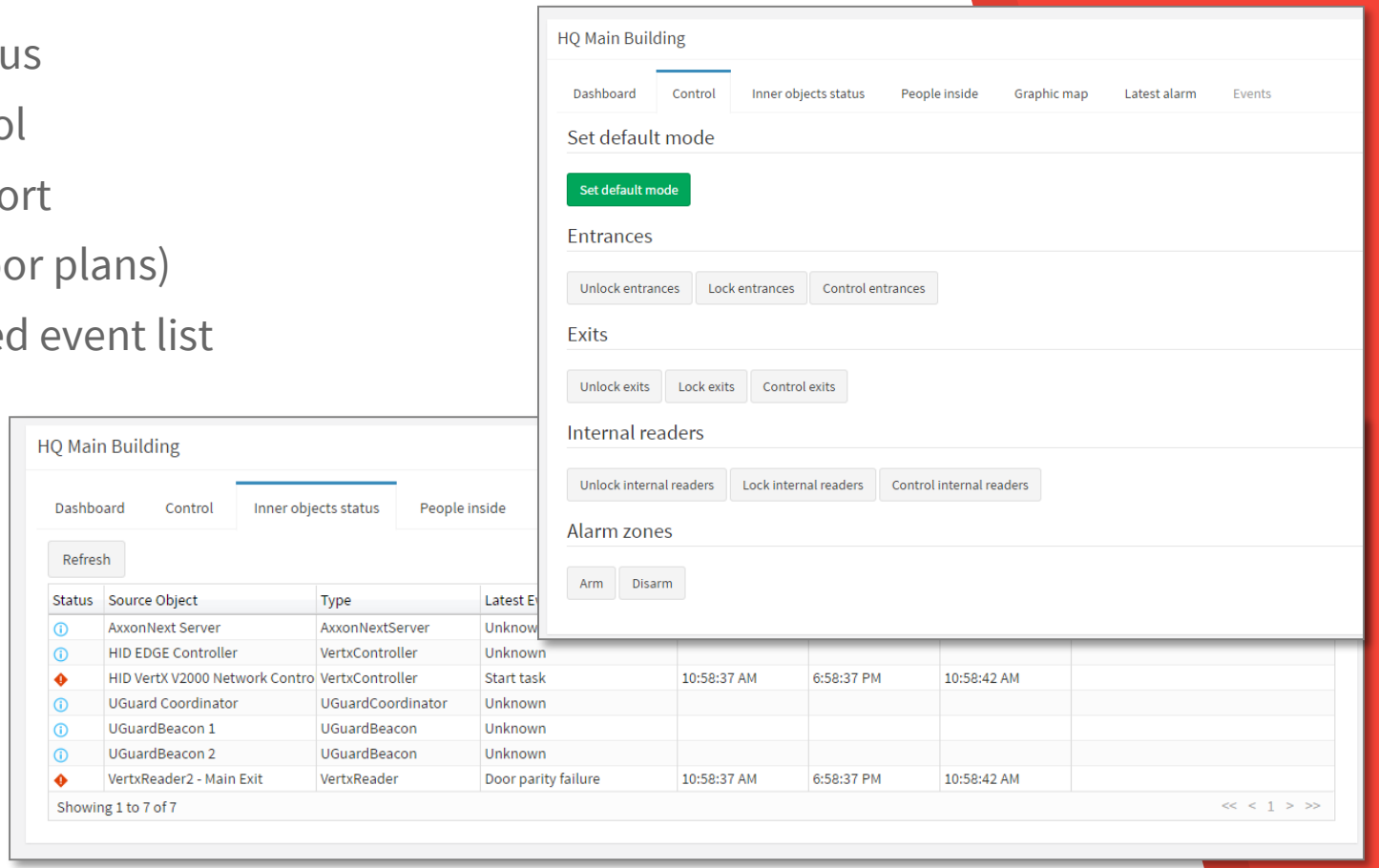
Areas hierarchy can be used:

- to manage user physical access permissions to rooms, levels, buildings, sites
- to manage user permissions for object control
- to monitor area status and events
- to issue group commands to all hardware objects in an area and all it's subareas



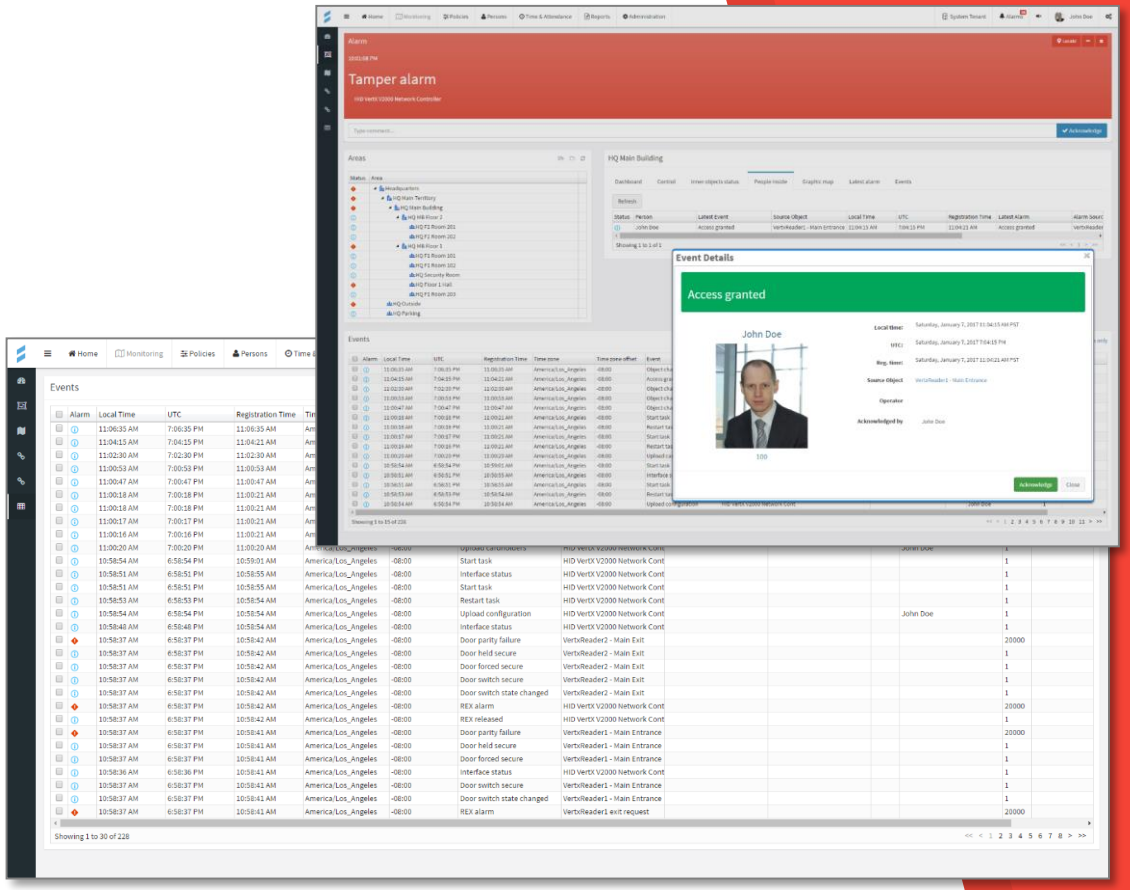
Area Control

- Inner objects status
- Whole area control
- People inside report
- Graphic maps (floor plans)
- Latest area-scoped event list



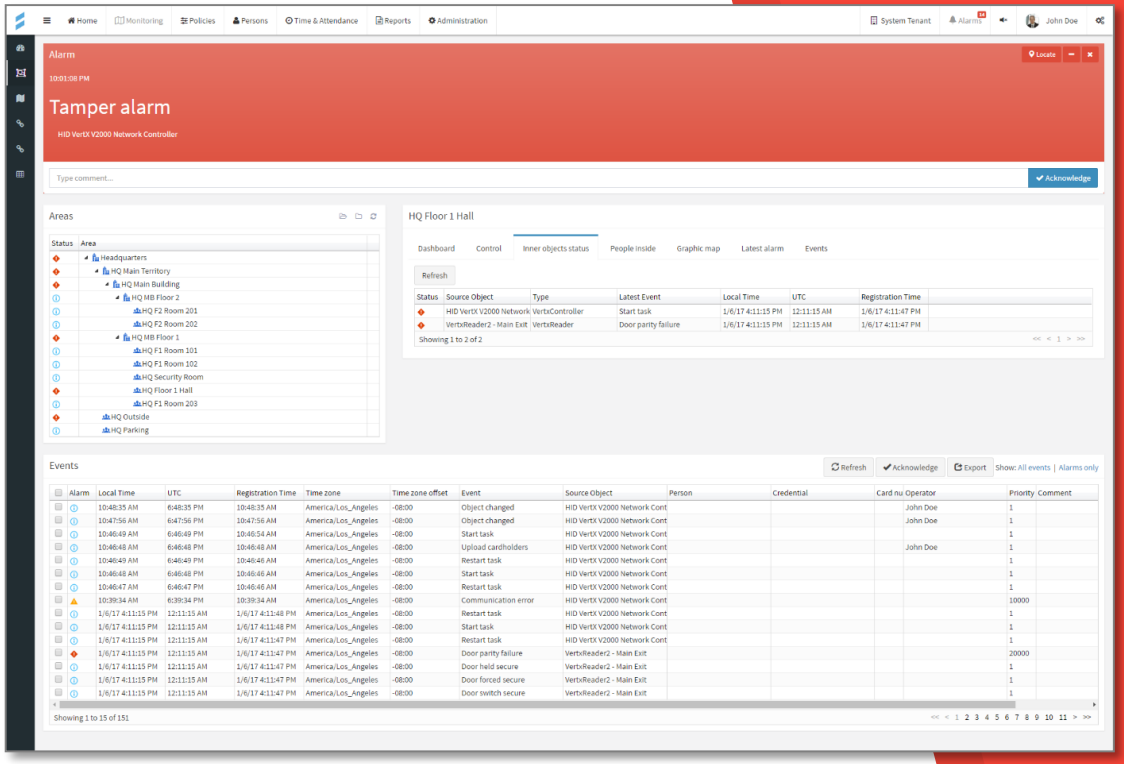
Real-Time Monitoring – Events

- Web based user interface for real-time monitoring
- Different displaying modes
- Recent events table
- Event details modal window
- Pop-up windows for events details
- Full Screen Mode Support



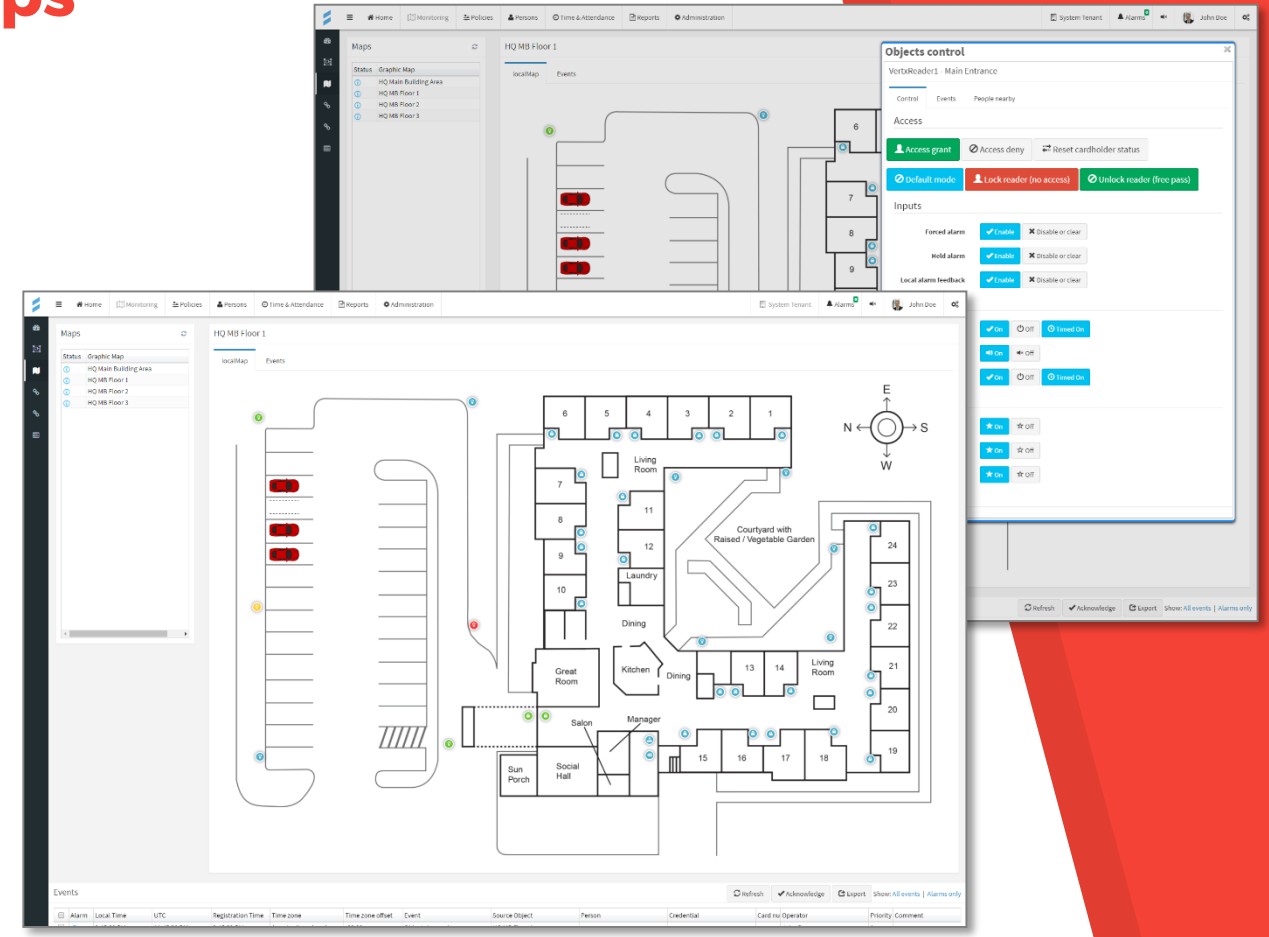
Alarm Management

- Area-based navigation
- Hardware status monitoring and control
- Local and global graphic maps
- Events table
- Event (alarm) acknowledges



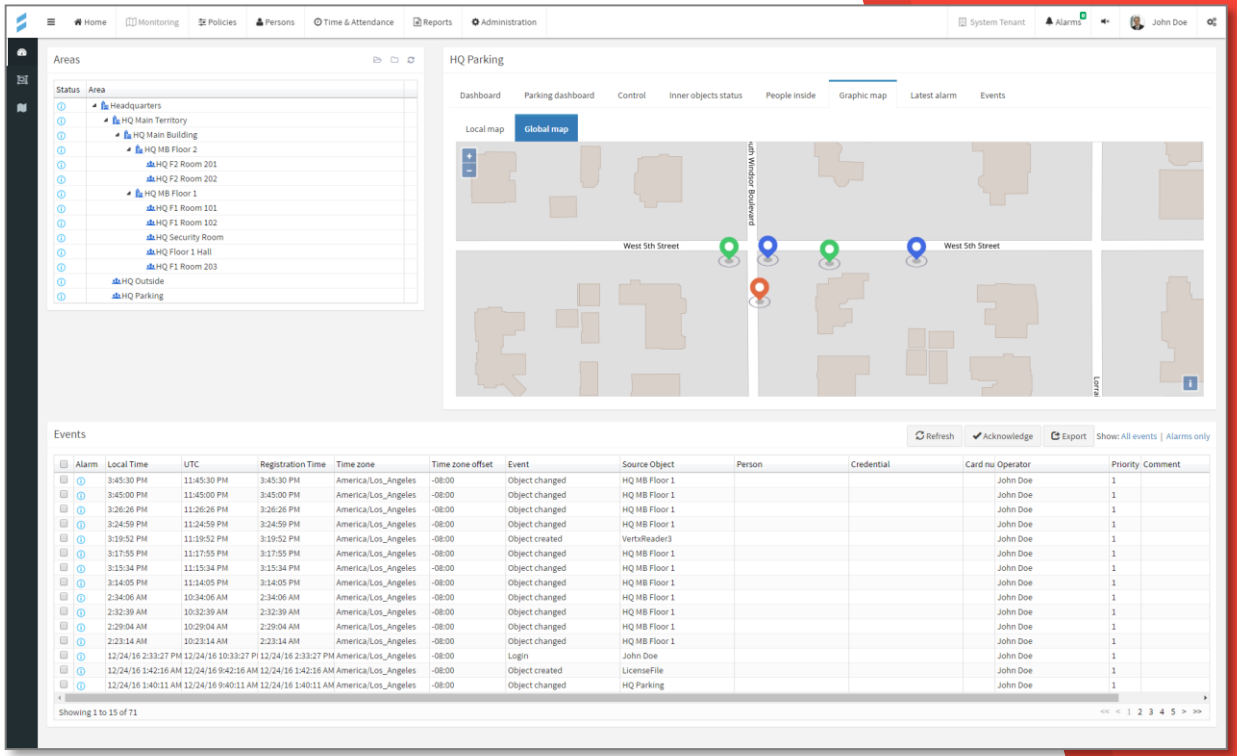
Local Graphic Maps

- Local graphic maps for internal rooms and areas
- Displaying color-coded status of hardware objects and areas
- Displaying the number of users inside areas and near beacons right on the map
- Pop-up object control windows



Global Graphic Maps

- Global graphic maps for territory and outside areas
- Displaying color-coded status of hardware objects and areas
- Pop-up object control windows



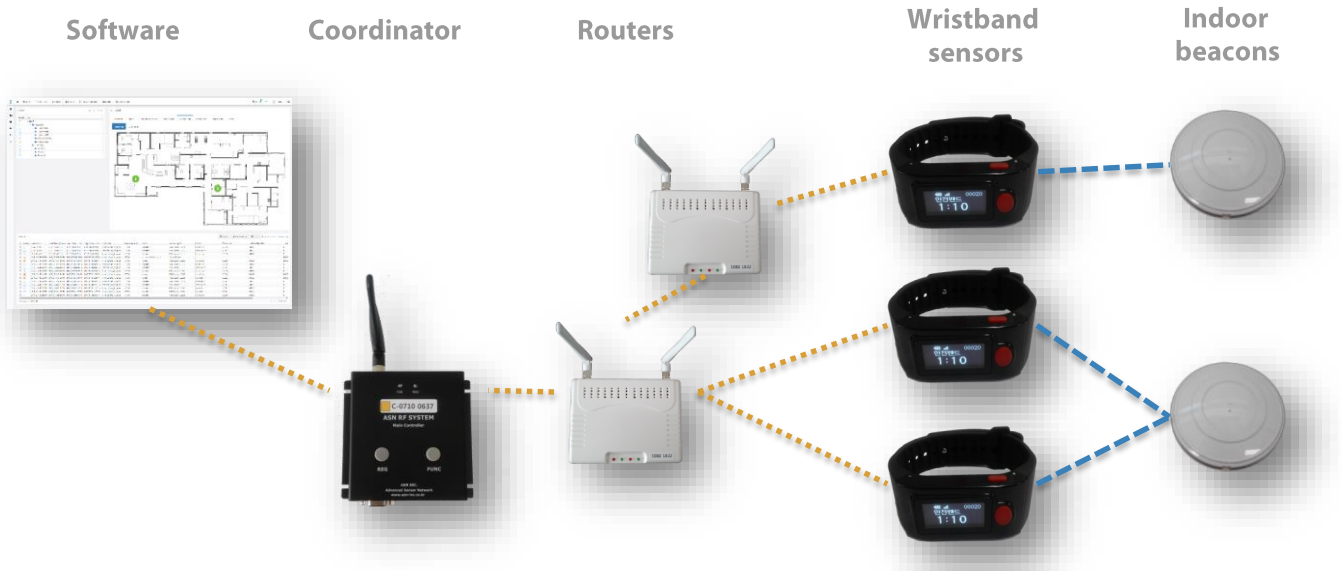
2.

AREASHELL LOCATION SERVICES

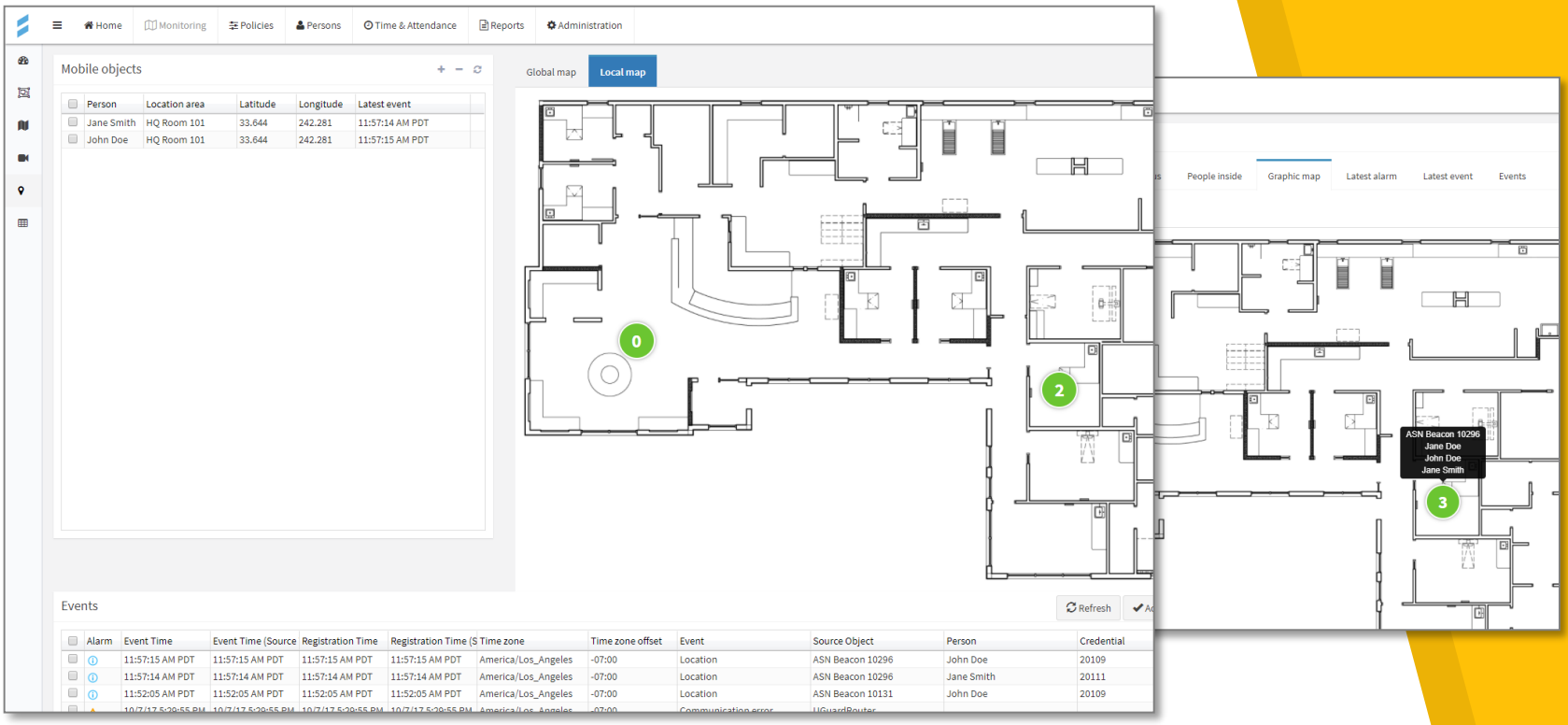
Monitor people and assets location on graphic maps in real time.
Manage and enforce people and assets location rules.

Internet of Things Ecosystem

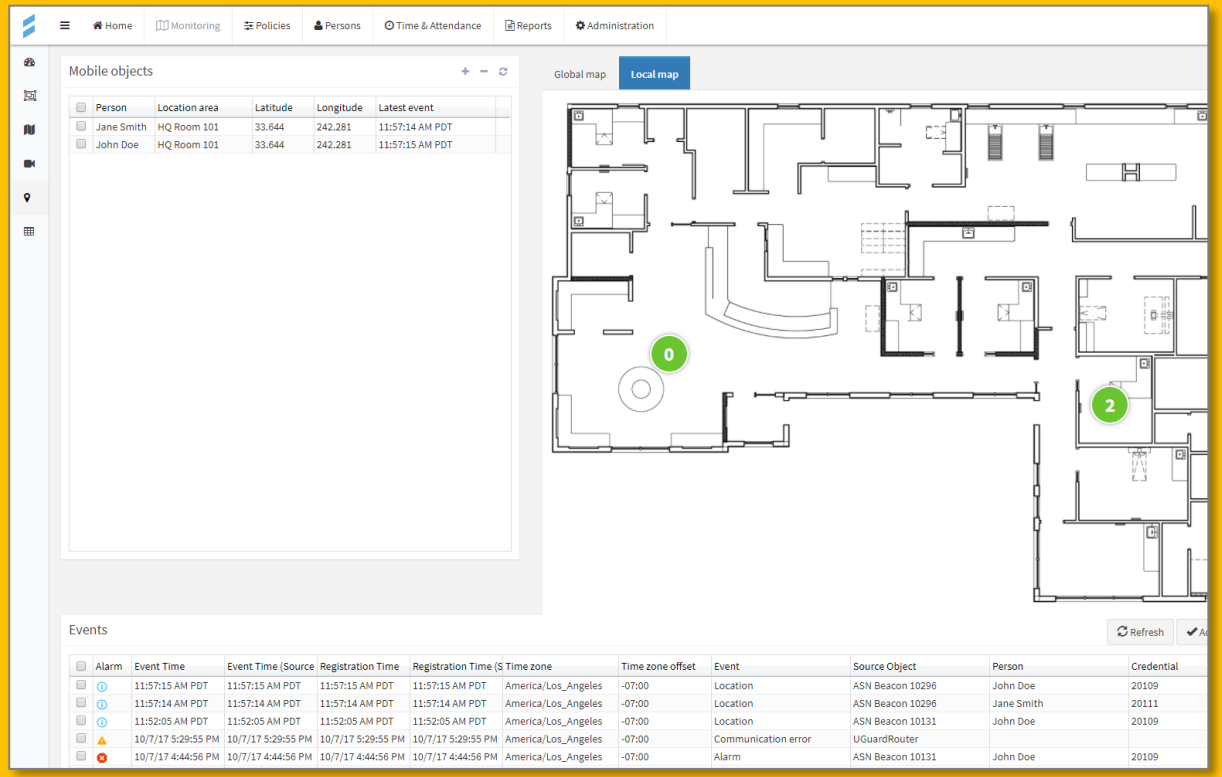
- Areashell Location Services based on ASN Inc. Indoor Positioning / Real-Time Location IoT controllers and sensors
- Wireless communication between coordinators, routers, sensors and beacons
- Wristband sensors regularly receive location information from indoor beacons and send it to the nearest router
- The network of routers transfers data from the wristband sensors to the coordinator
- The coordinator transfers data to the Areashell software



Monitor people and assets location on graphic maps in real time

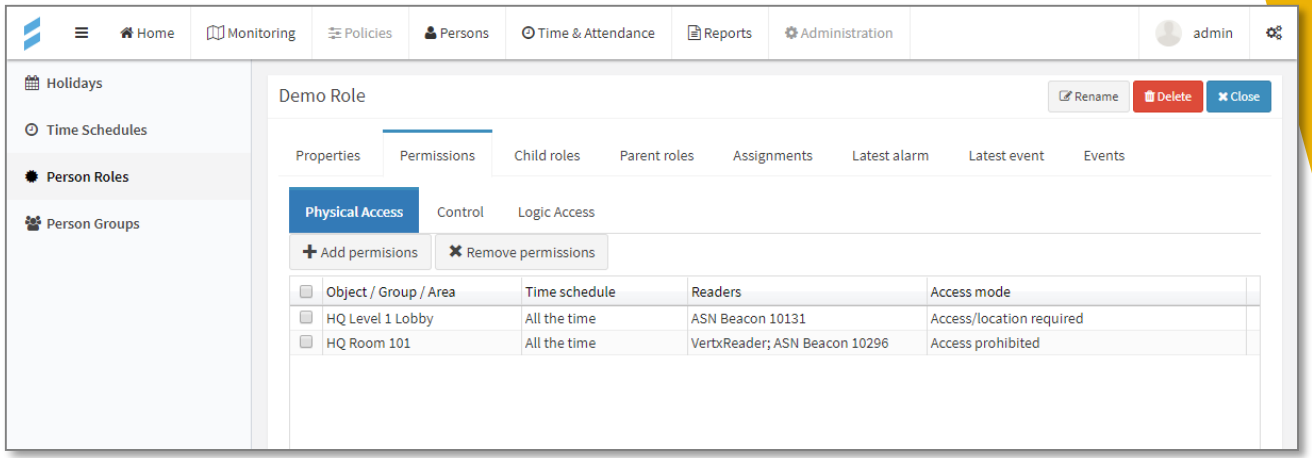


Monitor people and assets location on graphic maps in real time



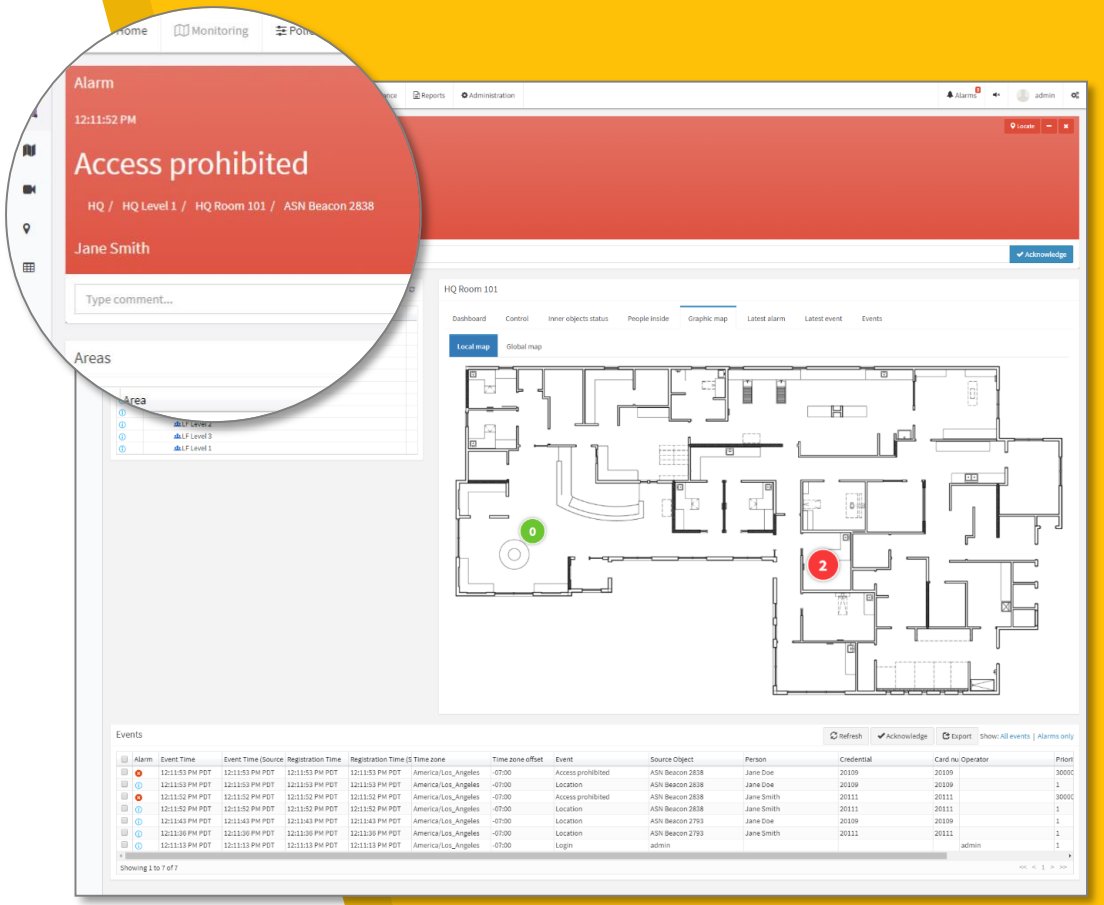
Location Rules Management

Manage people or assets location rules – set the rules in what areas or near to what objects (beacons) people and assets can appear or must be present at what time.



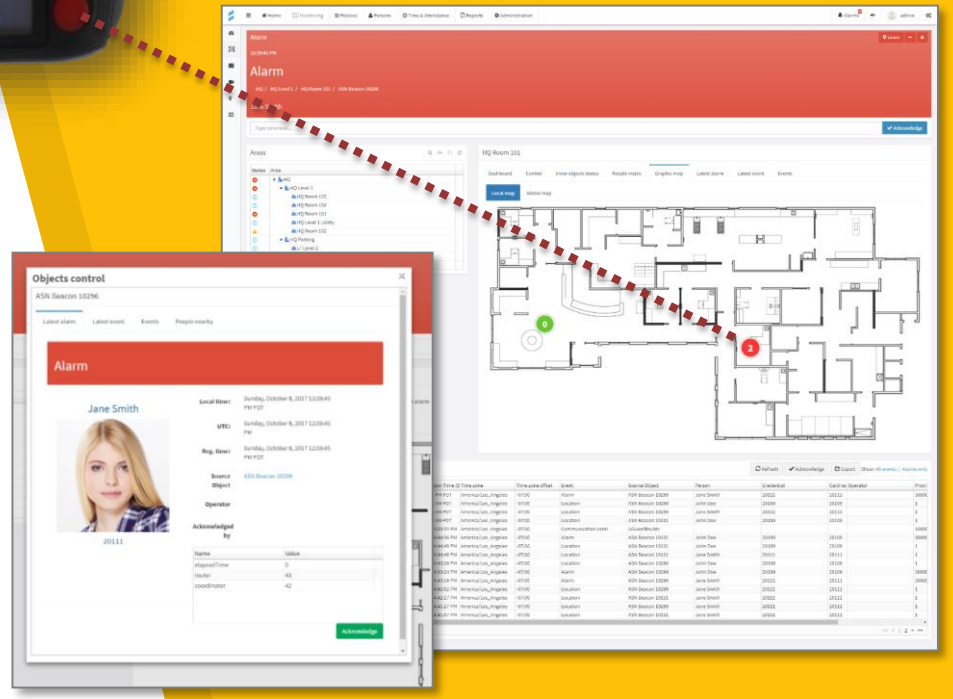
Location Rules Enforcement

Instantly receive alarm notifications if the location rules are broken (if a person or an asset appears in a restricted area or leaves an area, where he or she should be located at this time)



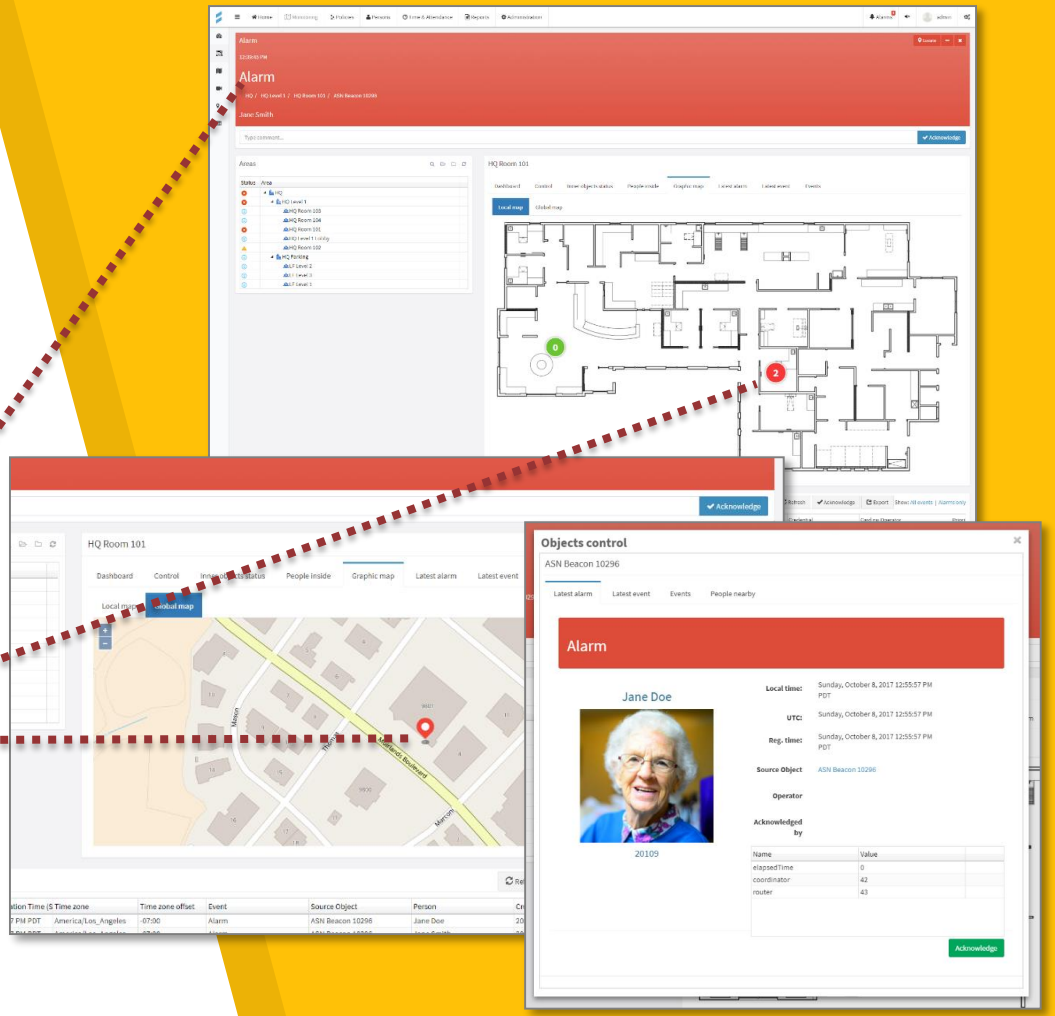
Personal
Alarm Button

Receive an alarm signal
with location
information
from a person pressed
an alarm button on a
watch

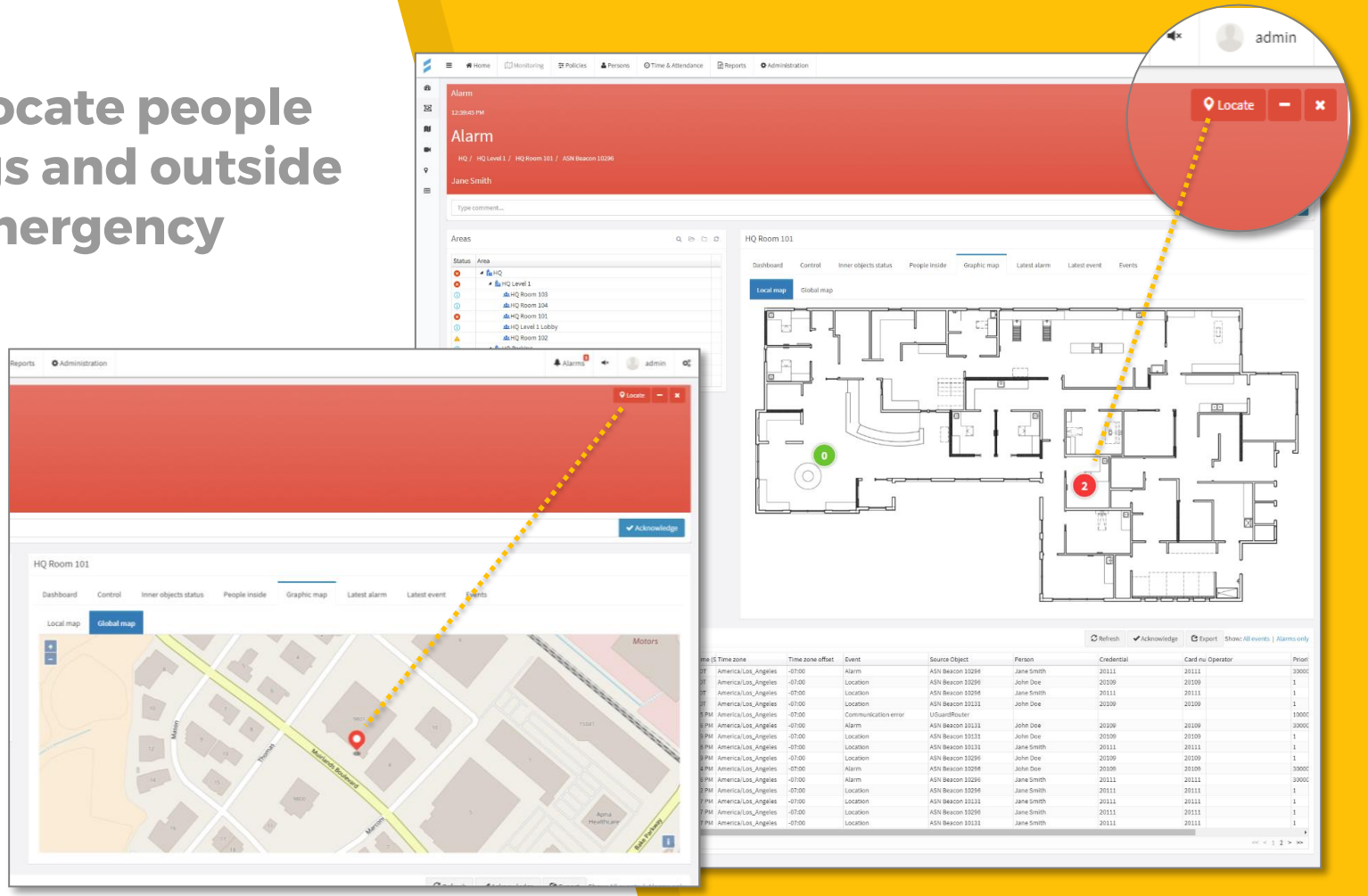


Activity Monitoring

Receive an alarm signal
with location
information
if a person wearing a
watch does not move



Instantly locate people in buildings and outside areas in emergency situations



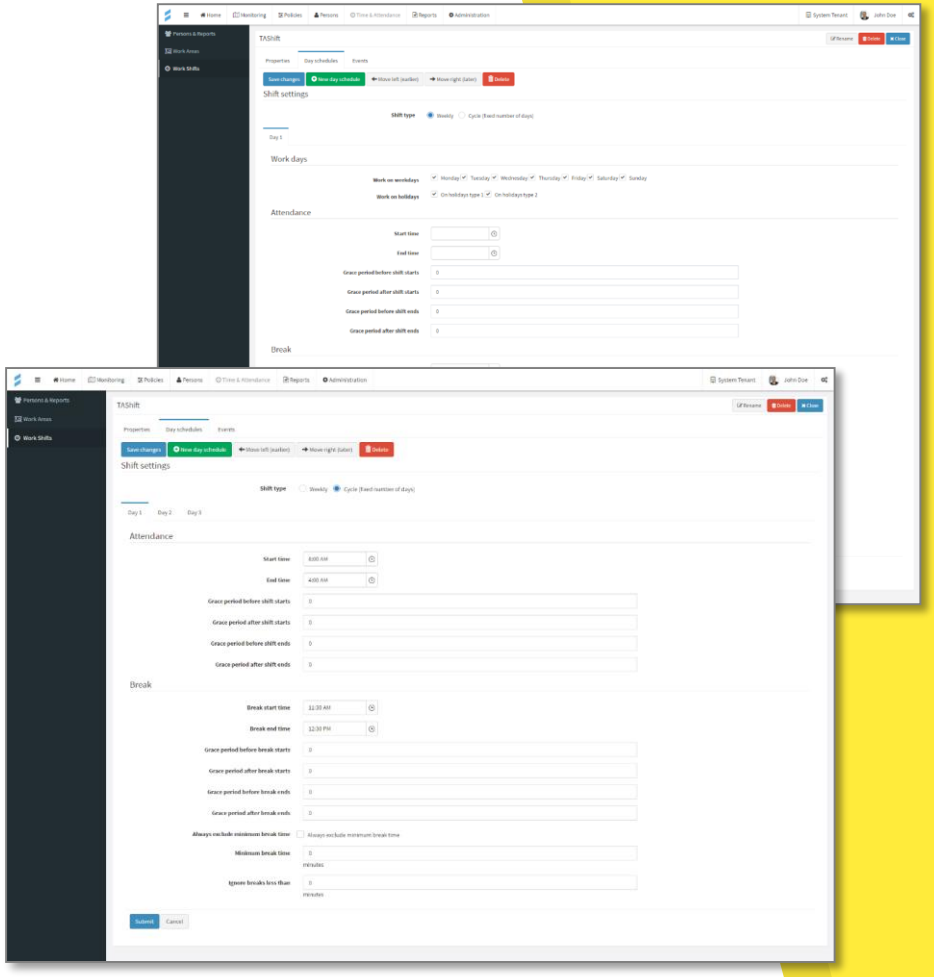
3.

AREASHELL TIME & ATTENDANCE

Tightly integrated with Physical Access Control and Location Services subsystems

Time & Attendance

- Tightly integrated with Physical Access Control and Location Services modules
  - Physical access control and Location Service events are used to analyze when people enter and leave the working places
  - Based on Areashell Physical Access Control events user Check In and Check Out.
- Areashell area-based work areas management
- Week days based and recurring time shifts support
- Real-time monitoring who is on site



4.

AREASHELL PARKING MONITORING

Monitor parking availability
on dashboards and graphic maps
in real time

Internet of Things Ecosystem

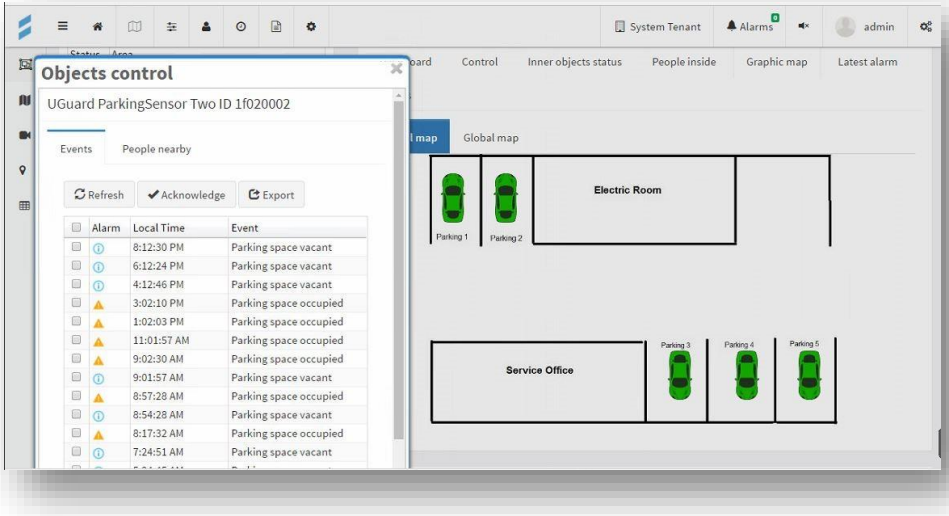
ASN Inc
Advanced Sensor Network
www.asn-inc.co.kr

- Areashell Parking Monitoring Service based on ASN Inc.
  Parking Monitoring IoT controllers and sensors
- Wireless communication between coordinators, routers and sensors
- Parking sensors send availability information to the nearest router
- The network of routers transfers data from the parking sensors to the coordinator
- The coordinator transfers data to the Areashell software

Software Coordinator Routers Parking sensors

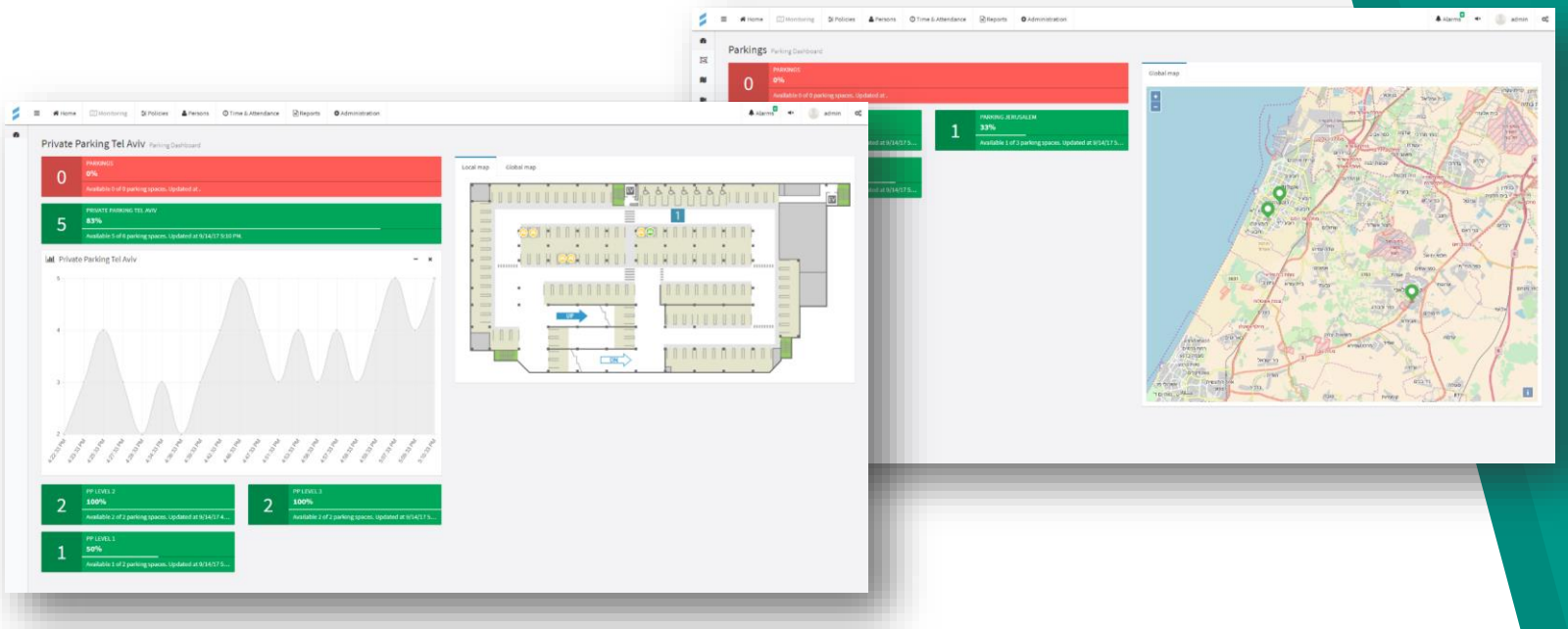
Parking Monitoring Services

- Collecting data about space availability from parking sensors
- Recording collected data to the database
- Recording calculated area parking availability data to the database
- Monitoring parking availability by area in real time
- Report generation based on the recorded data



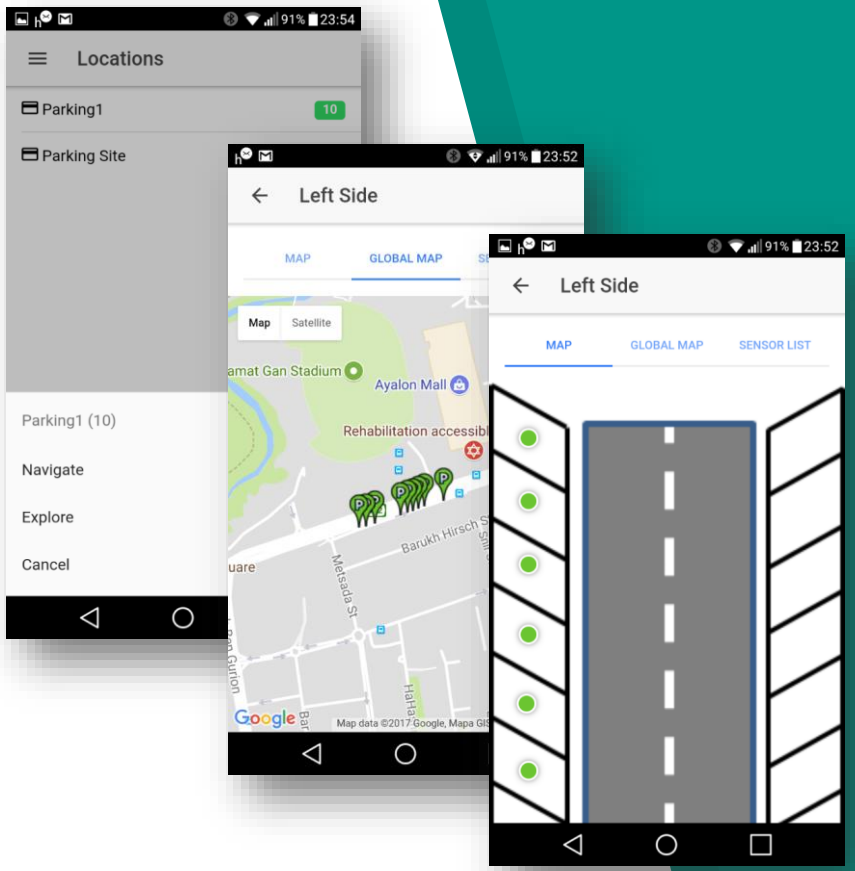
Real-time Parking Availability Dashboard

- Monitoring parking availability by area of indoor and outdoor parking locations on local and global graphic maps
- Diagrams of changing parking availability by time



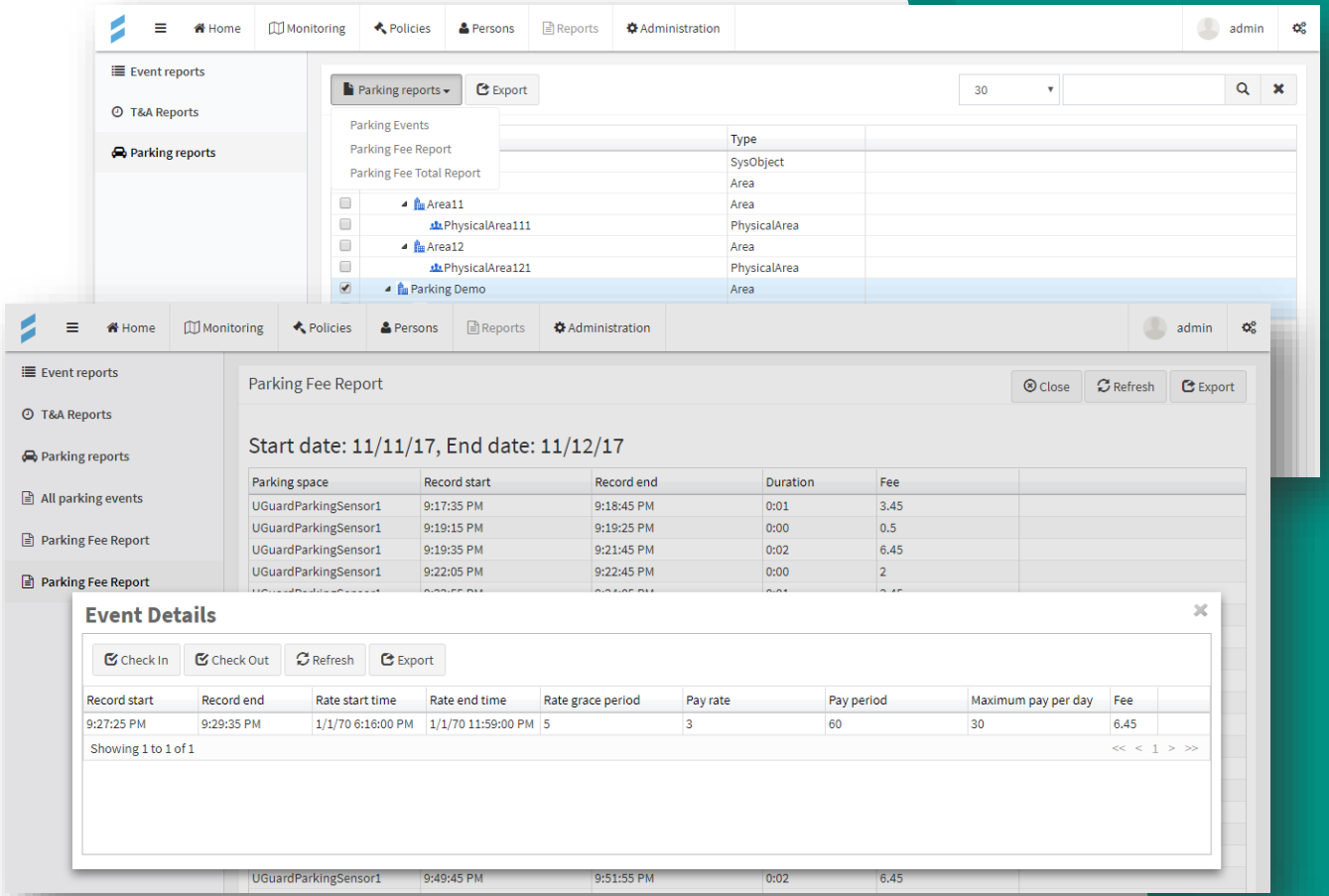
Quickly **Locate Available** Parking Space

- Areashell Parking mobile application:
- Works directly with corporate Areashell instances and Areashell Parking Cloud Services
- Provides users with the information about parking availability of parking areas in the corporate and public parking structures
- Navigates users to the selected parking areas with using the default device navigation application
- Free to install and use



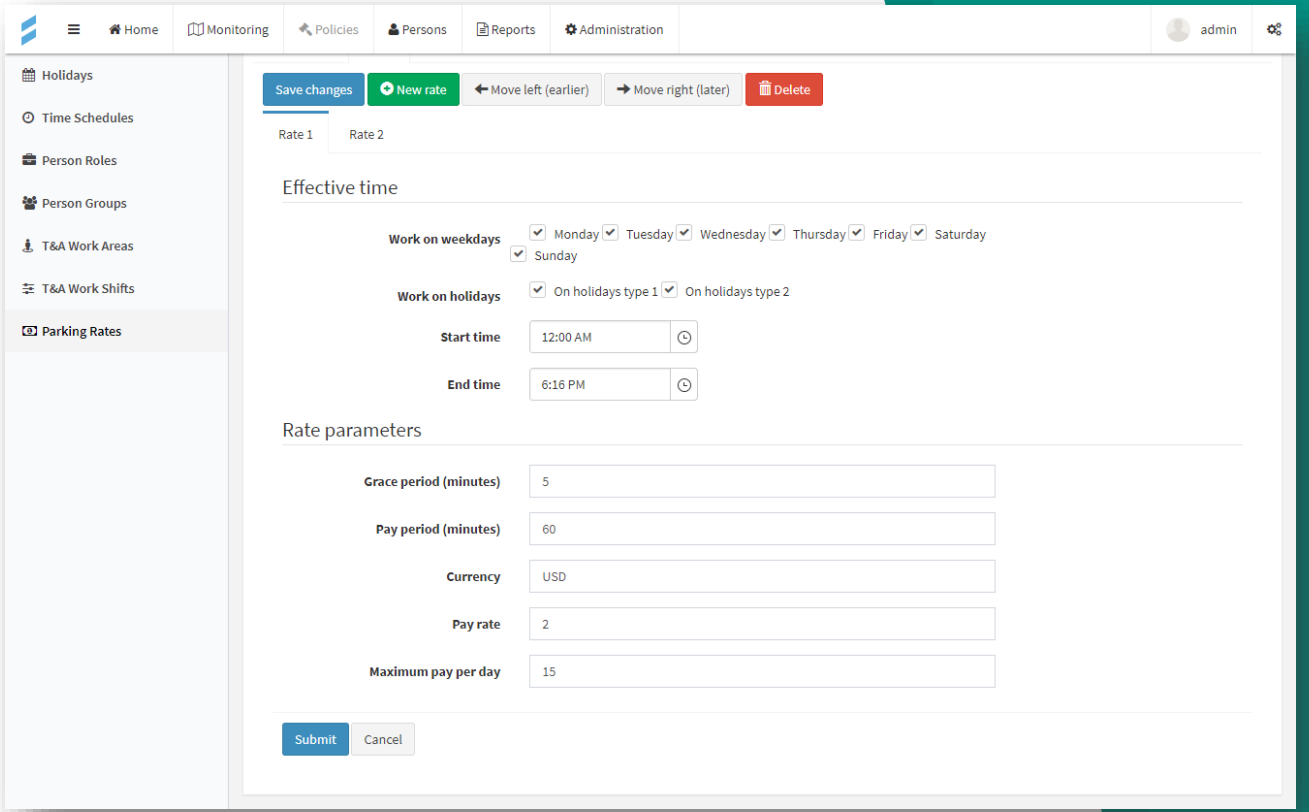
Parking Reports

- Special report for parking events by parking area / subarea
- Parking fee report by parking space by parking event
- Total parking fee report by parking space for a period of time
- Export reports to external files



Flexible Parking Fee Rates / Schedules

- Parking fee reports are using configurable parking fee schedules
- Parking fee schedule can contain several fee rates different for different days of week, holidays, period of day



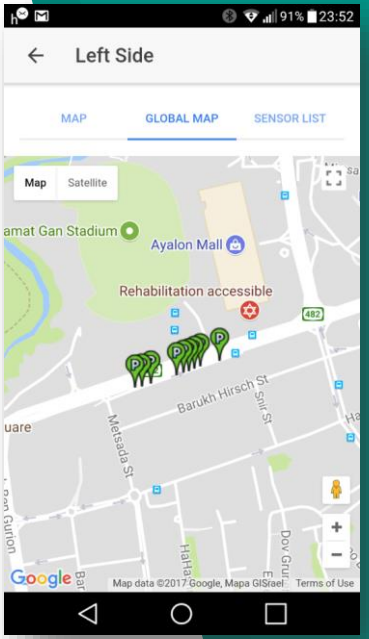
Integration with
Areashell Cloud Parking Services

- Any Areashell instance can be integrated with the Areashell Parking Services (running in the Areashell cloud)
- Areashell instances regularly send information about availability of the parking spaces to Areashell Cloud Parking Services
- Areashell Cloud Parking Services provides parking availability, location and other information to Areashell Parking mobile applications

Areashell Server

Areashell Cloud Parking Service

Areashell Parking mobile application



5.

AREASHELL IRRIGATION MONITORING

Monitor moisture and temperature on dashboards and graphic maps in real time

Internet of Things Ecosystem

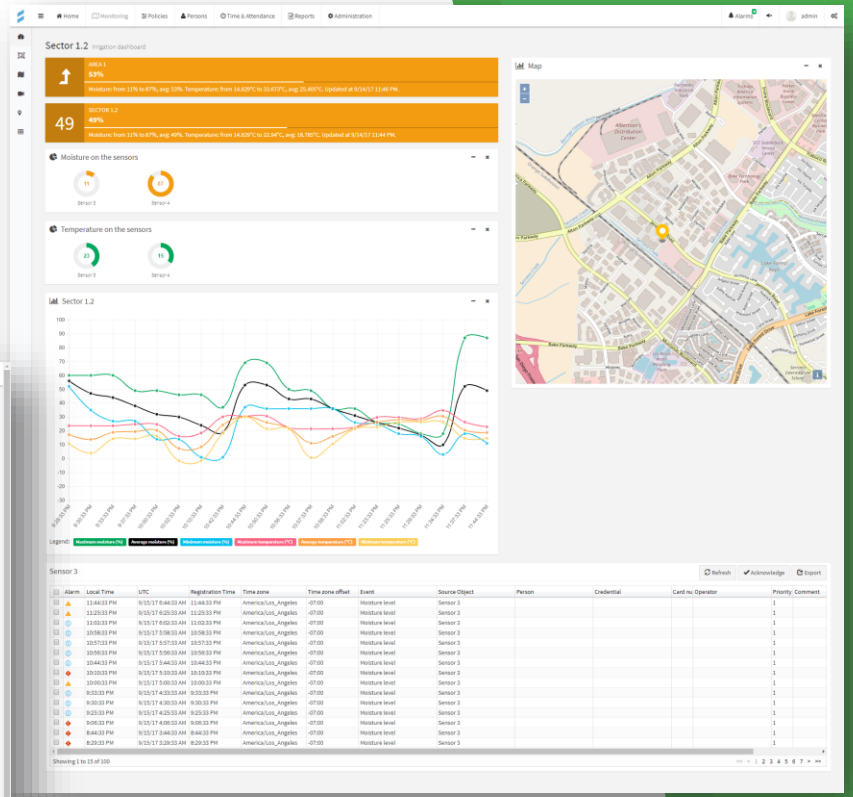
ASN Inc
Advanced Sensor Network
www.asn-inc.co.kr

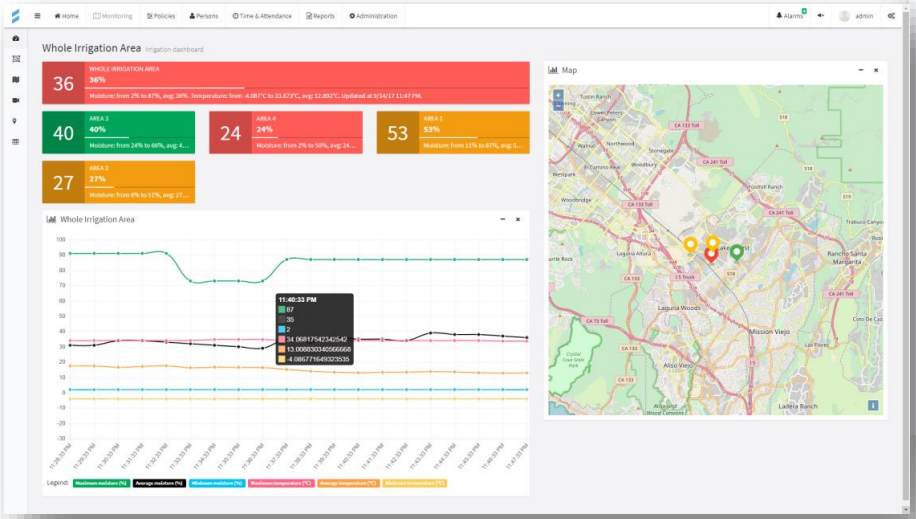
- Areashell Irrigation Monitoring Service is based on ASN Inc. IoT controllers and moisture and temperature sensors
- Wireless communication between coordinators, routers and sensors
  - The sensors send current moisture and temperature data to the nearest router
  - The network of routers transfers data from the moisture and temperature sensors to the coordinator
  - The coordinator transfers data to the Areashell software

Software | Coordinator | Routers | Moisture / Temperature Sensors

Real-time Moisture and Temperature Dashboard

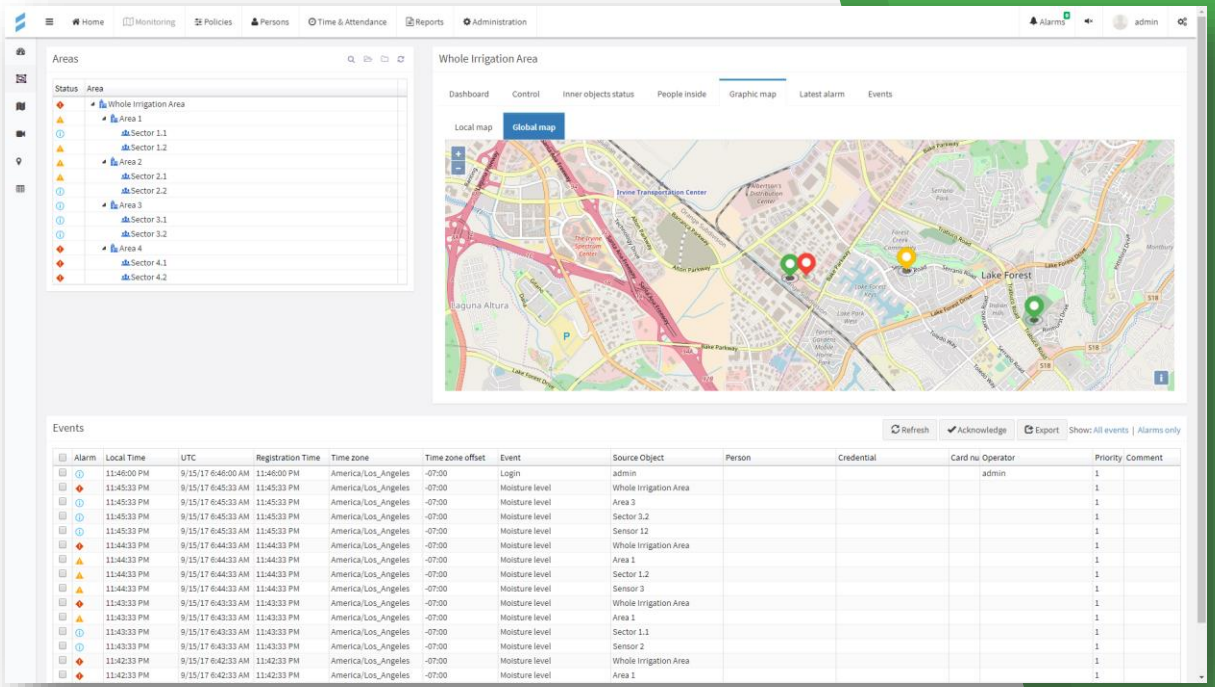
- Current status and moisture and temperature value for each sensor
- Minimum, maximum and average moisture and temperature for areas and area groups
- Diagrams of changing moisture and temperature by time





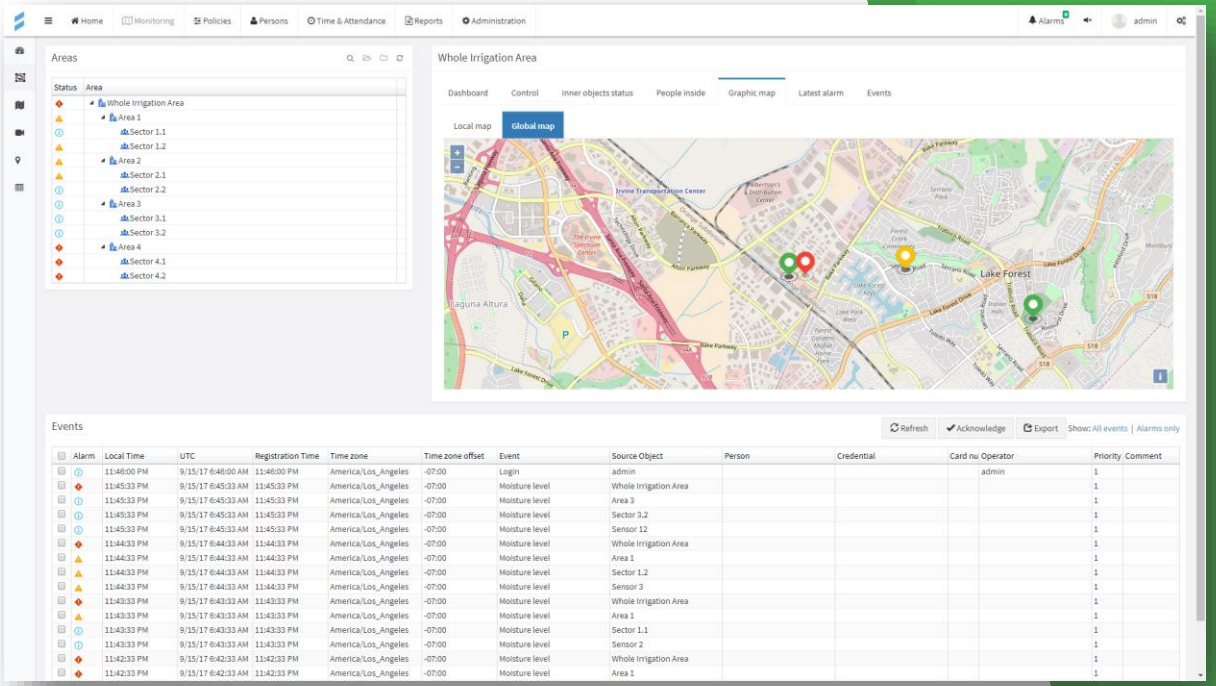
Integration into Unified Areashell Alarm Monitoring Screen

- Monitor status of all areas – internal rooms, parking zones, irrigation zones and others – on unified monitoring screen
- Alarm notifications in case of emergency situation in any of these subsystems



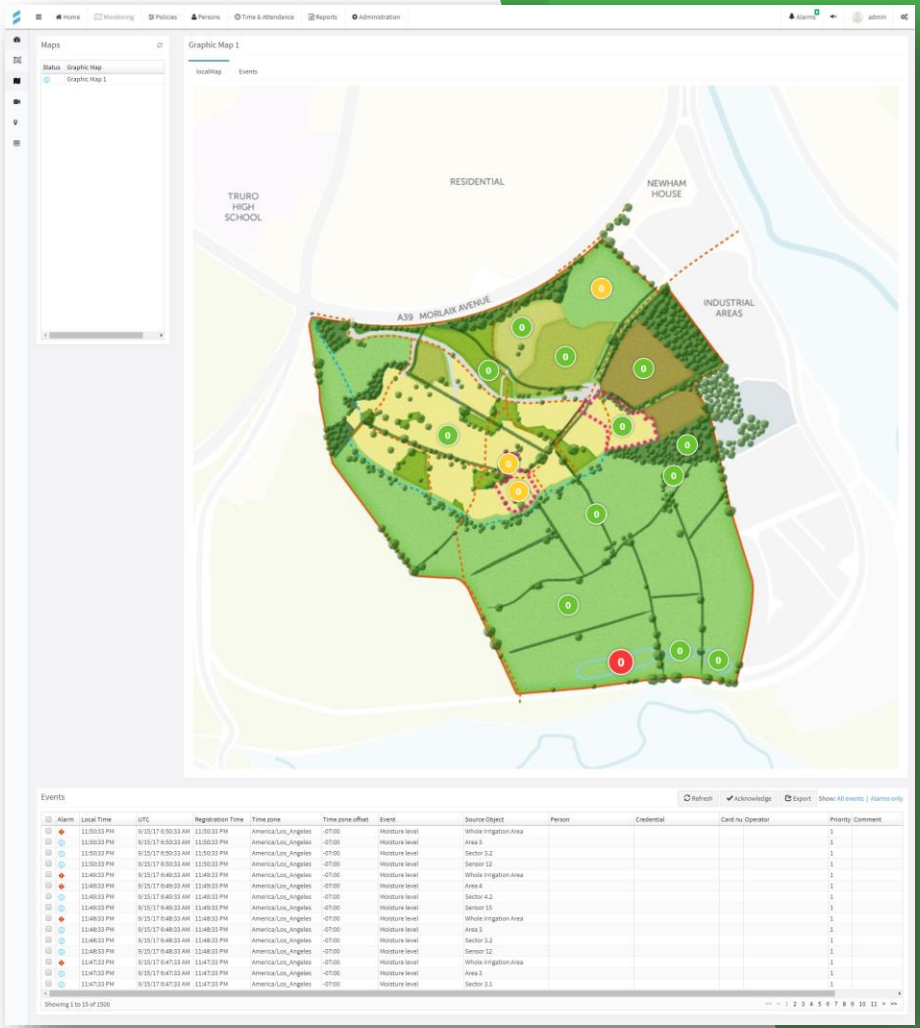
Global Graphic Maps

Place areas and sensors on global graphic maps to monitor outside areas and territories or to monitor minimum, maximum and average moisture and temperature values for whole areas (buildings, fields, territories)



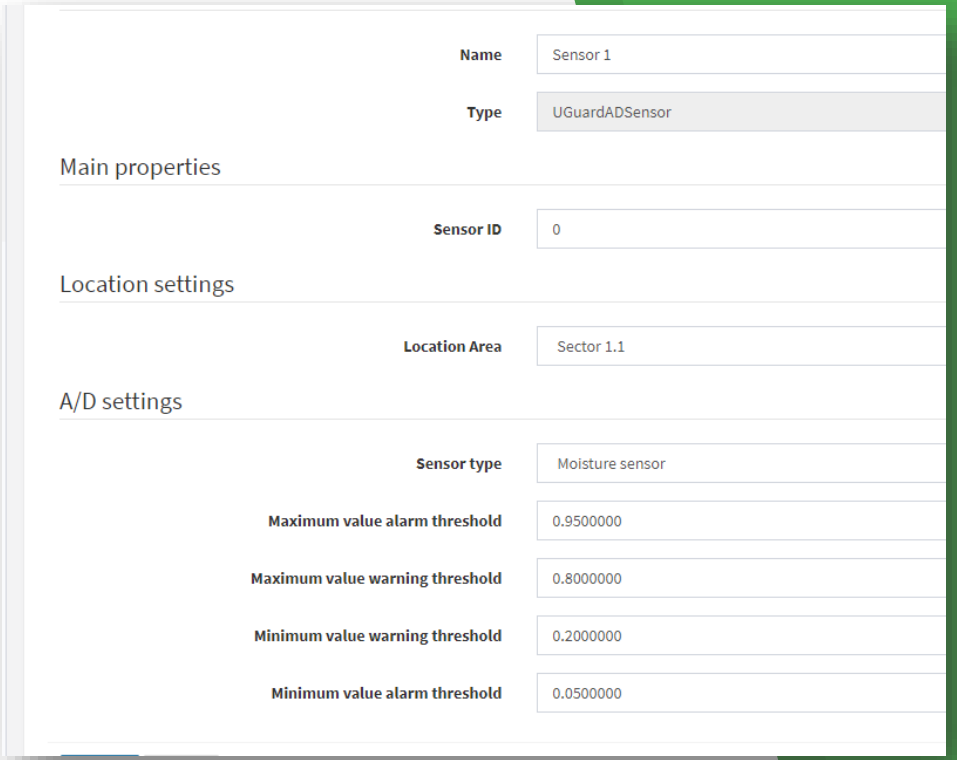
Local Graphic Maps

Create custom local graphic maps with irrigation areas and sensors for internal rooms or small outside areas and territories



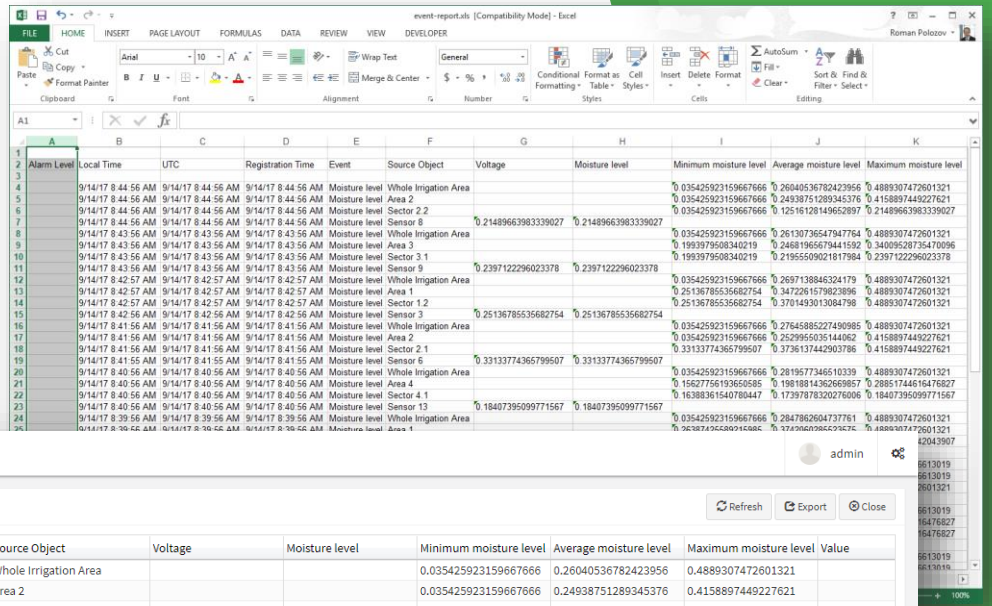
Individual Sensor
Alarm Threshold Settings

- Individual warning and alarm thresholds for each sensor
- Automatic alarm or warning notifications if the values are off of configured normal values



Report generation based on the collected data

- All data from moisture/temperature are stored in the database
- Report generation based on the collected and stored data
- Export reports to external files



Home | Monitoring | Policies | Persons | Time & Attendance | Reports | Administration | admin

Reports

Moisture Report

Moisture Report

Refresh | Export | Close

Alarm Le	Local Time	UTC	Registration Time	Event	Source Object	Voltage	Moisture level	Minimum moisture level	Average moisture level	Maximum moisture level	Value
	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	Moisture level	Whole Irrigation Area			0.035425923159667666	0.26040536782423956	0.4889307472601321	
	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	Moisture level	Area 2			0.035425923159667666	0.24938751289345376	0.4158897449227621	
	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	Moisture level	Sector 2.2			0.035425923159667666	0.12516128149652897	0.21489663983339027	
	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	Moisture level	Sensor 8	0.21489663983339027	0.21489663983339027				
	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	Moisture level	Whole Irrigation Area			0.035425923159667666	0.26130736547947764	0.4889307472601321	
	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	Moisture level	Area 3			0.1993979508340219	0.24681965679441592	0.34009528735470096	
	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	Moisture level	Sector 3.1			0.1993979508340219	0.21955509021817984	0.2397122296023378	
	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	Moisture level	Sensor 9	0.2397122296023378	0.2397122296023378				
	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	Moisture level	Whole Irrigation Area			0.035425923159667666	0.2697138846324179	0.4889307472601321	
	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	Moisture level	Area 1			0.25136785535682754	0.3472261579823896	0.4889307472601321	
	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	Moisture level	Sector 1.2			0.25136785535682754	0.3701493013084798	0.4889307472601321	
	9/14/17 8:42:56 AM	9/14/17 8:42:56 AM	9/14/17 8:42:56 AM	Moisture level	Sensor 3	0.25136785535682754	0.25136785535682754				
	9/14/17 8:41:56 AM	9/14/17 8:41:56 AM	9/14/17 8:41:56 AM	Moisture level	Whole Irrigation Area			0.035425923159667666	0.27645885227490985	0.4889307472601321	
	9/14/17 8:41:56 AM	9/14/17 8:41:56 AM	9/14/17 8:41:56 AM	Moisture level	Area 2			0.035425923159667666	0.2529955035144062	0.4158897449227621	
	9/14/17 8:41:56 AM	9/14/17 8:41:56 AM	9/14/17 8:41:56 AM	Moisture level	Sector 2.1			0.3313377436799507	0.3736137442903786	0.4158897449227621	
	9/14/17 8:41:55 AM	9/14/17 8:41:55 AM	9/14/17 8:41:55 AM	Moisture level	Sensor 6	0.3313377436799507	0.3313377436799507				
	9/14/17 8:40:56 AM	9/14/17 8:40:56 AM	9/14/17 8:40:56 AM	Moisture level	Whole Irrigation Area			0.035425923159667666	0.2819577346510339	0.4889307472601321	
	9/14/17 8:40:56 AM	9/14/17 8:40:56 AM	9/14/17 8:40:56 AM	Moisture level	Area 4			0.15627756193650585	0.19818814362669857	0.28851744616476827	
	9/14/17 8:40:56 AM	9/14/17 8:40:56 AM	9/14/17 8:40:56 AM	Moisture level	Sector 4.1			0.1638836154078044 7	0.17397878320276006	0.18407395099771567	
	9/14/17 8:40:56 AM	9/14/17 8:40:56 AM	9/14/17 8:40:56 AM	Moisture level	Sensor 13	0.18407395099771567	0.18407395099771567				
	9/14/17 8:39:56 AM	9/14/17 8:39:56 AM	9/14/17 8:39:56 AM	Moisture level	Whole Irrigation Area			0.035425923159667666	0.2847862604737761	0.4889307472601321	

6.

AREASHELL ANALOG SIGNAL MONITORING

Monitor data from various sensors on dashboards and graphic maps in real time

Internet of Things Ecosystem

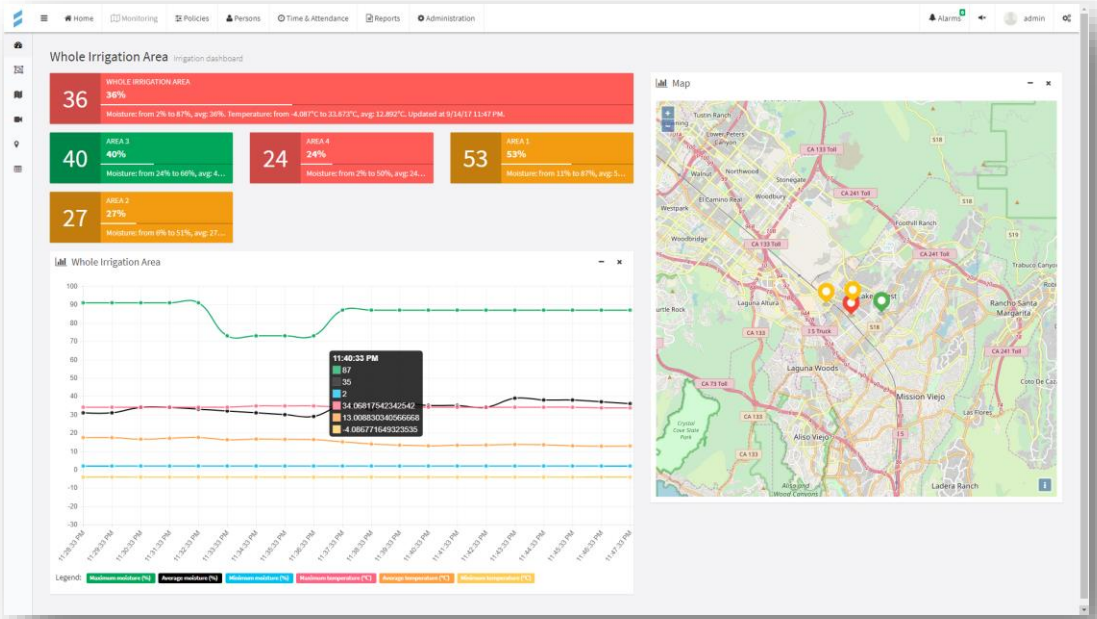
ASN Inc
Advanced Sensor Network
www.asn-inc.co.kr

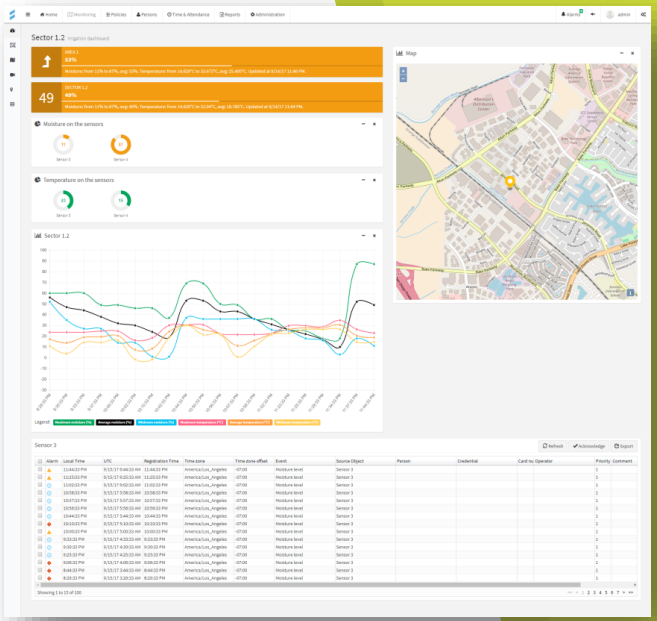
- Areashell Signal Monitoring Service is based on ASN Inc. IoT controllers and sensors
- Wireless communication between coordinators, routers and sensors
  - A/D sensors send current measured data to the nearest router
  - The network of routers transfers data from the sensors to the coordinator
  - The coordinator transfers data to the Areashell software

Software | Coordinator | Routers | A/D Sensors

Real-time Status Monitoring Dashboard

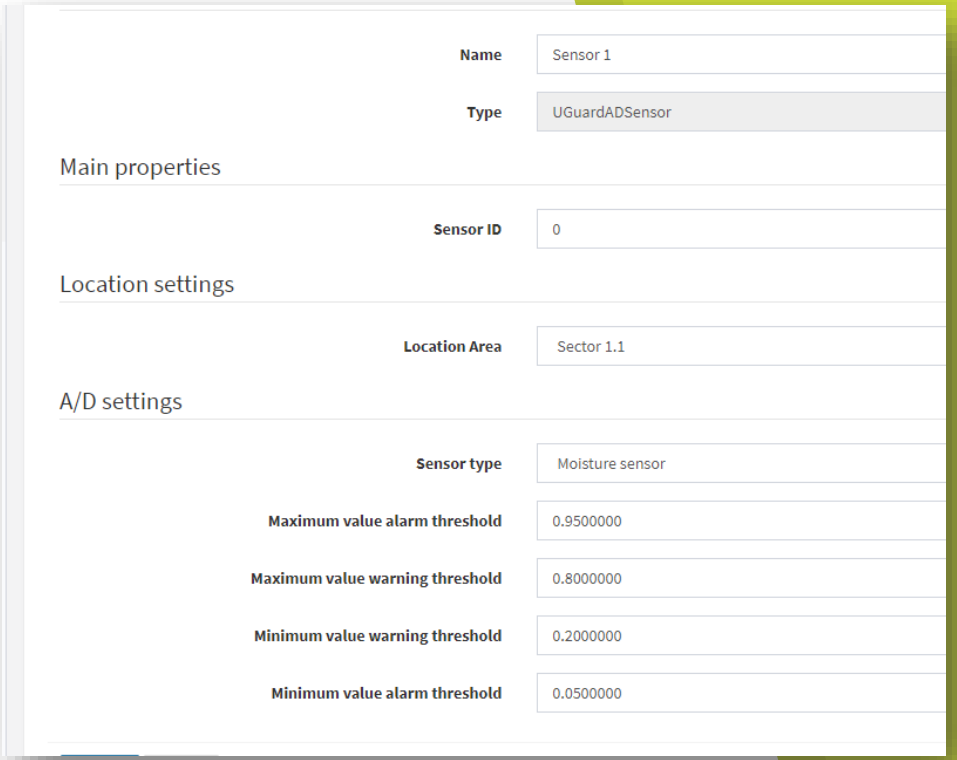
Real-time monitoring dashboards, displaying information as lists, diagrams, and on graphic maps





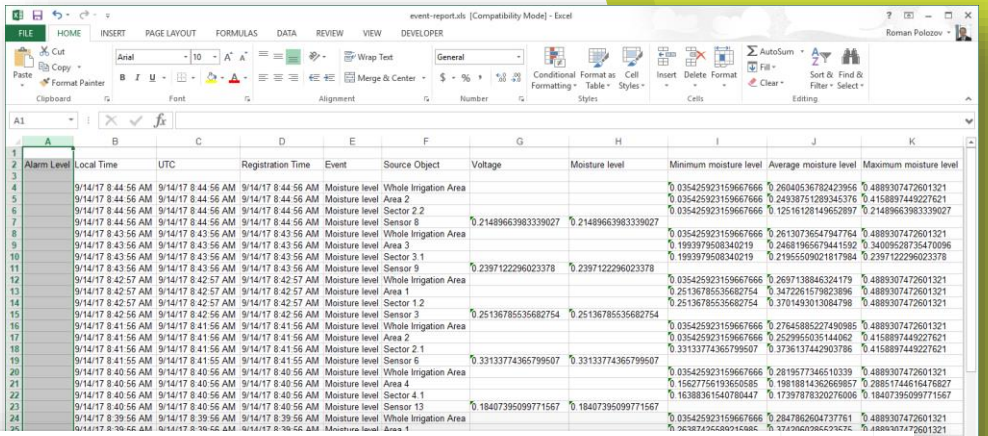
Individual Sensor
Alarm Threshold Settings

- Individual warning and alarm thresholds for each sensor
- Raising alarms in real-time if the value on any sensor is out of normal values



Report generation based on the collected data

- All data from sensors are stored in the database
- Report generation based on the collected and stored data
- Export reports to external files



Alarm Level	Local Time	UTC	Registration Time	Event	Source Object	Voltage	Moisture level	Minimum moisture level	Average moisture level	Maximum moisture level
	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	Moisture level	Whole Irrigation Area			0.035425923159667666	0.26040536782423956	0.4889307472601321
	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	Moisture level	Area 2			0.035425923159667666	0.24938751289345376	0.4158897449227621
	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	Moisture level	Sector 2.2			0.035425923159667666	0.12516128149652897	0.21489663983339027
	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	Moisture level	Sensor 8	0.21489663983339027	0.21489663983339027			
	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	Moisture level	Whole Irrigation Area			0.035425923159667666	0.26130736547947764	0.4889307472601321
	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	Moisture level	Area 3			0.1993979508340219	0.24681965679441592	0.34009528735470096
	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	Moisture level	Sector 3.1			0.1993979508340219	0.21955509021817984	0.2397122296023378
	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	Moisture level	Sensor 9	0.2397122296023378	0.2397122296023378			
	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	Moisture level	Whole Irrigation Area			0.035425923159667666	0.2697138846324179	0.4889307472601321
	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	Moisture level	Area 1			0.25136785535682754	0.3472261579823896	0.4889307472601321
	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	Moisture level	Sector 1.2			0.25136785535682754	0.3701493013084798	0.4889307472601321
	9/14/17 8:42:56 AM	9/14/17 8:42:56 AM	9/14/17 8:42:56 AM	Moisture level	Sensor 3	0.25136785535682754	0.25136785535682754			
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	9/14/17 8:41:56 AM	9/14/17 8:41:56 AM	9/14/17 8:41:56 AM	Moisture level	Area 2			0.035425923159667666	0.2529956035144062	0.4158897449227621
	9/14/17 8:41:56 AM	9/14/17 8:41:56 AM	9/14/17 8:41:56 AM	Moisture level	Sector 2.1			0.33133774365799507	0.3736137442903786	0.4158897449227621
	9/14/17 8:41:55 AM	9/14/17 8:41:55 AM	9/14/17 8:41:55 AM	Moisture level	Sensor 6	0.33133774365799507	0.33133774365799507			
	9/14/17 8:40:56 AM	9/14/17 8:40:56 AM	9/14/17 8:40:56 AM	Moisture level	Whole Irrigation Area			0.035425923159667666	0.2819577346510339	0.4889307472601321
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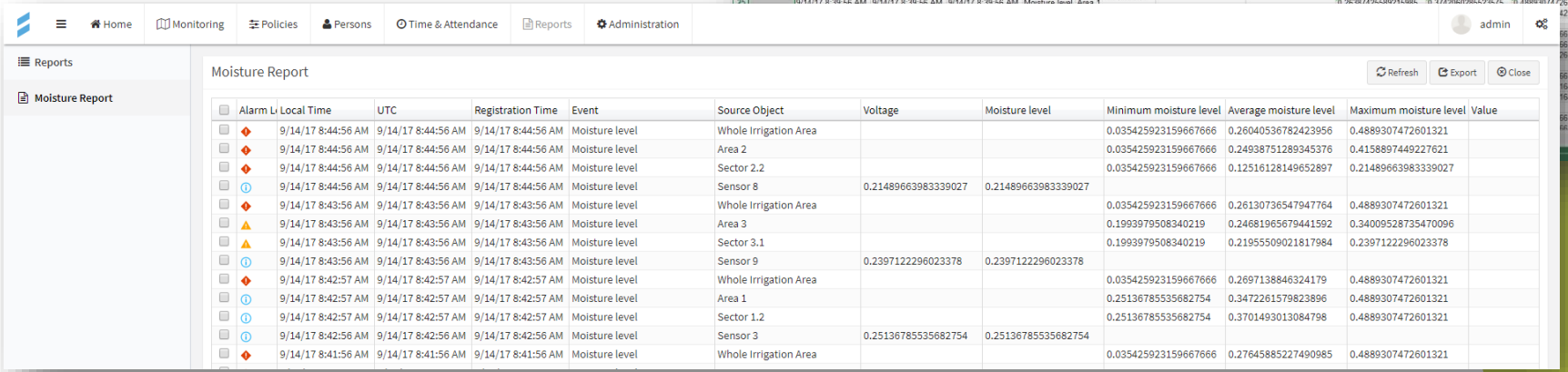
	9/14/17 8:40:56 AM	9/14/17 8:40:56 AM	9/14/17 8:40:56 AM	Moisture level	Sector 4.1			0.16388361540780447	0.17397878320276006	0.18407395099771567
	9/14/17 8:40:56 AM	9/14/17 8:40:56 AM	9/14/17 8:40:56 AM	Moisture level	Sensor 13	0.18407395099771567	0.18407395099771567			
	9/14/17 8:39:56 AM	9/14/17 8:39:56 AM	9/14/17 8:39:56 AM	Moisture level	Whole Irrigation Area			0.035425923159667666	0.2847862604737761	0.4889307472601321



Alarm Li	Local Time	UTC	Registration Time	Event	Source Object	Voltage	Moisture level	Minimum moisture level	Average moisture level	Maximum moisture level	Value
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	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	Moisture level	Sector 2.2			0.035425923159667666	0.12516128149652897	0.21489663983339027	
	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	9/14/17 8:44:56 AM	Moisture level	Sensor 8	0.21489663983339027	0.21489663983339027				
	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	Moisture level	Whole Irrigation Area			0.035425923159667666	0.26130736547947764	0.4889307472601321	
	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	Moisture level	Area 3			0.1993979508340219	0.24681965679441592	0.34009528735470096	
	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	Moisture level	Sector 3.1			0.1993979508340219	0.21955509021817984	0.2397122296023378	
	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	9/14/17 8:43:56 AM	Moisture level	Sensor 9	0.2397122296023378	0.2397122296023378				
	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	Moisture level	Whole Irrigation Area			0.035425923159667666	0.2697138846324179	0.4889307472601321	
	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	9/14/17 8:42:57 AM	Moisture level	Area 1			0.25136785535682754	0.3472261579823896	0.4889307472601321	
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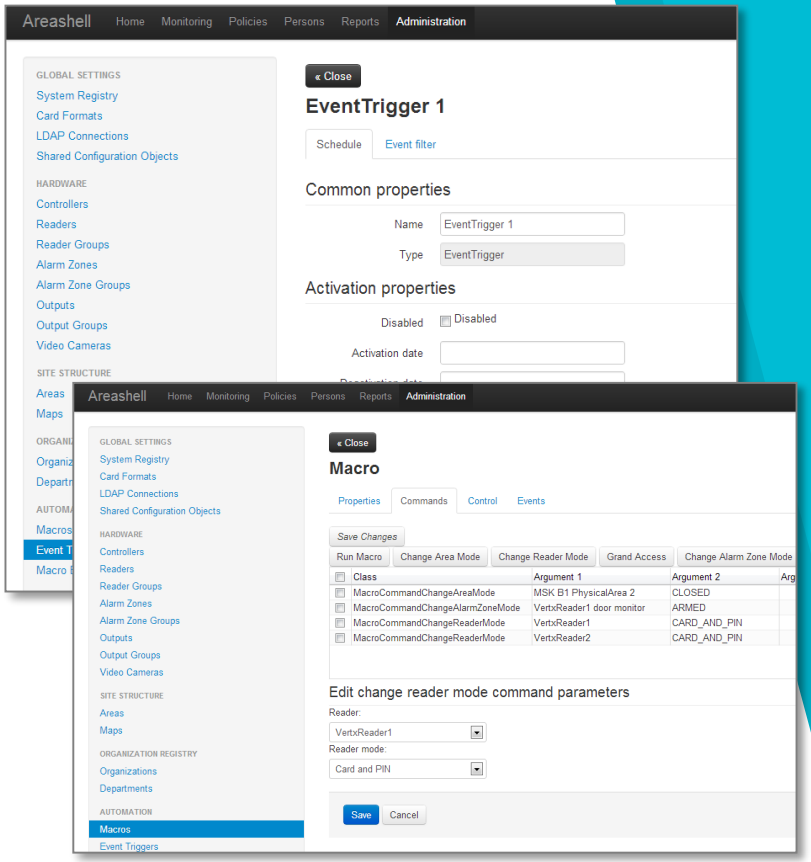
	9/14/17 8:41:56 AM	9/14/17 8:41:56 AM	9/14/17 8:41:56 AM	Moisture level	Whole Irrigation Area			0.035425923159667666	0.27645885227490985	0.4889307472601321	

7.

COMMON FEATURES, ARCHITECTURE & TECHNOLOGY

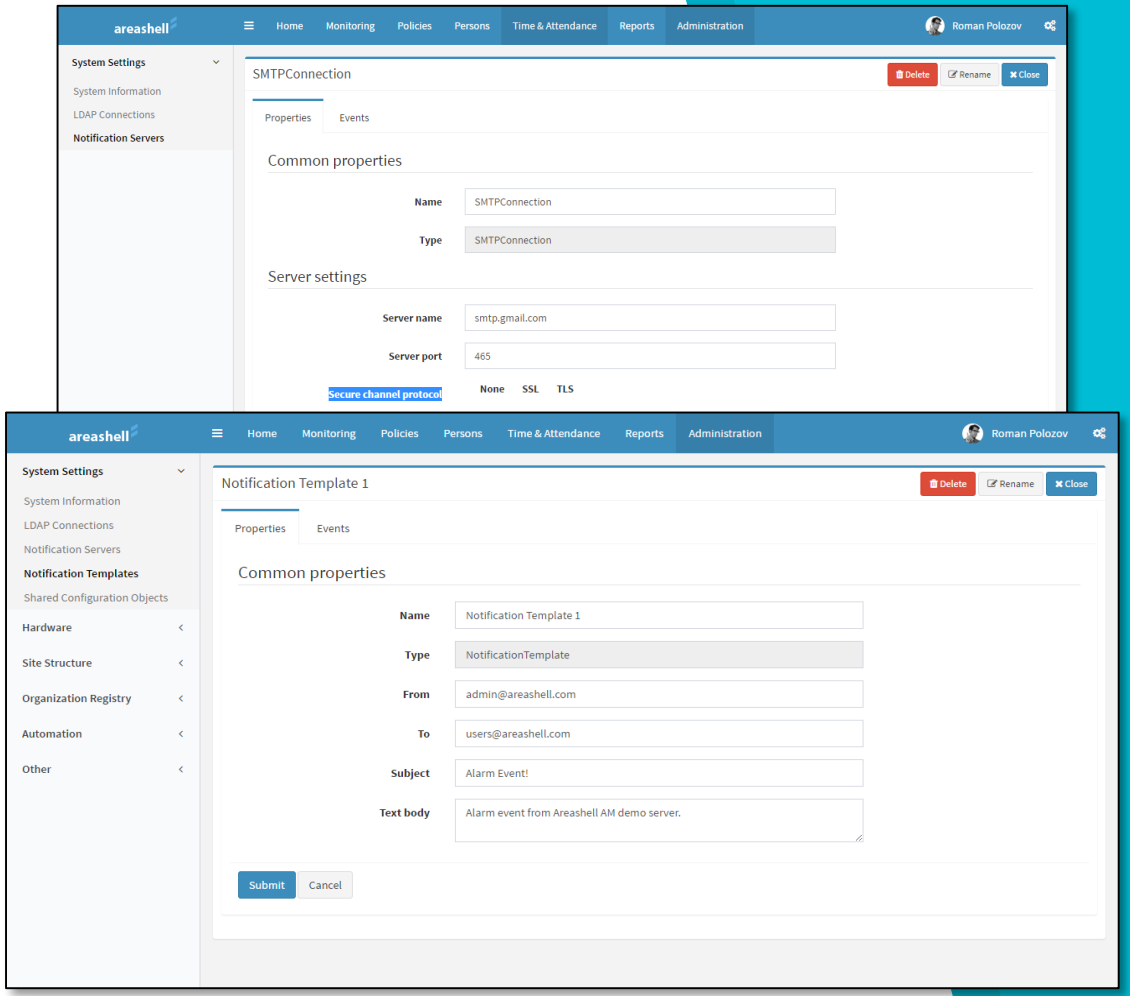
Automation Subsystem

- Macros – lists of commands to execute
- Currently available commands:
  - Change reader mode
  - Grand access through the reader
  - Change alarm zone mode (arm/disarm)
  - Change area mode (open/close)
  - Run another macro
  - Send email notification
  - Lock user or credential
- Macros can be executed
  - by event (event triggers)
  - by time schedule
  - manually (from graphic maps)



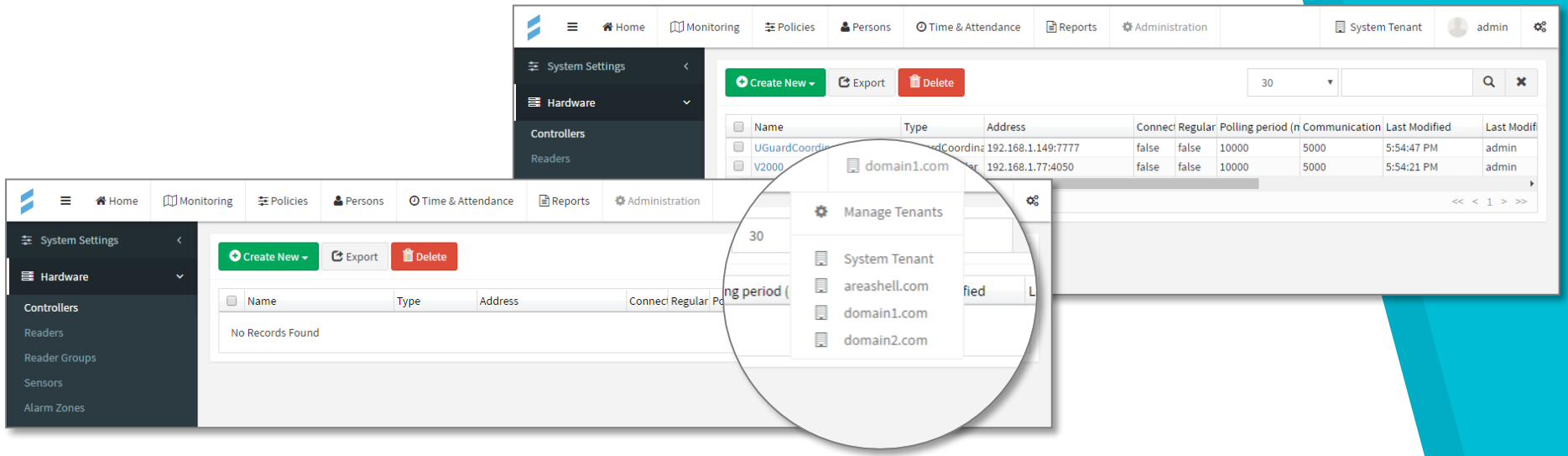
Email Notifications

- Sending notification emails through SMTP servers
- Email notifications can be by sent by automation subsystem by time schedule or by event
- Configurable notification templates
- Using variables that will be replaced by the values of the event that initiated the notification



Multitenancy

- Areashell supports multi-tenant configuration:
  - One instance of Areashell software can serve several independent isolated systems – tenants
  - Administrators of one of the tenants cannot see or manage the configurations or events of any other tenant
- This feature makes possible to support several independent system by just one installation of Areashell software

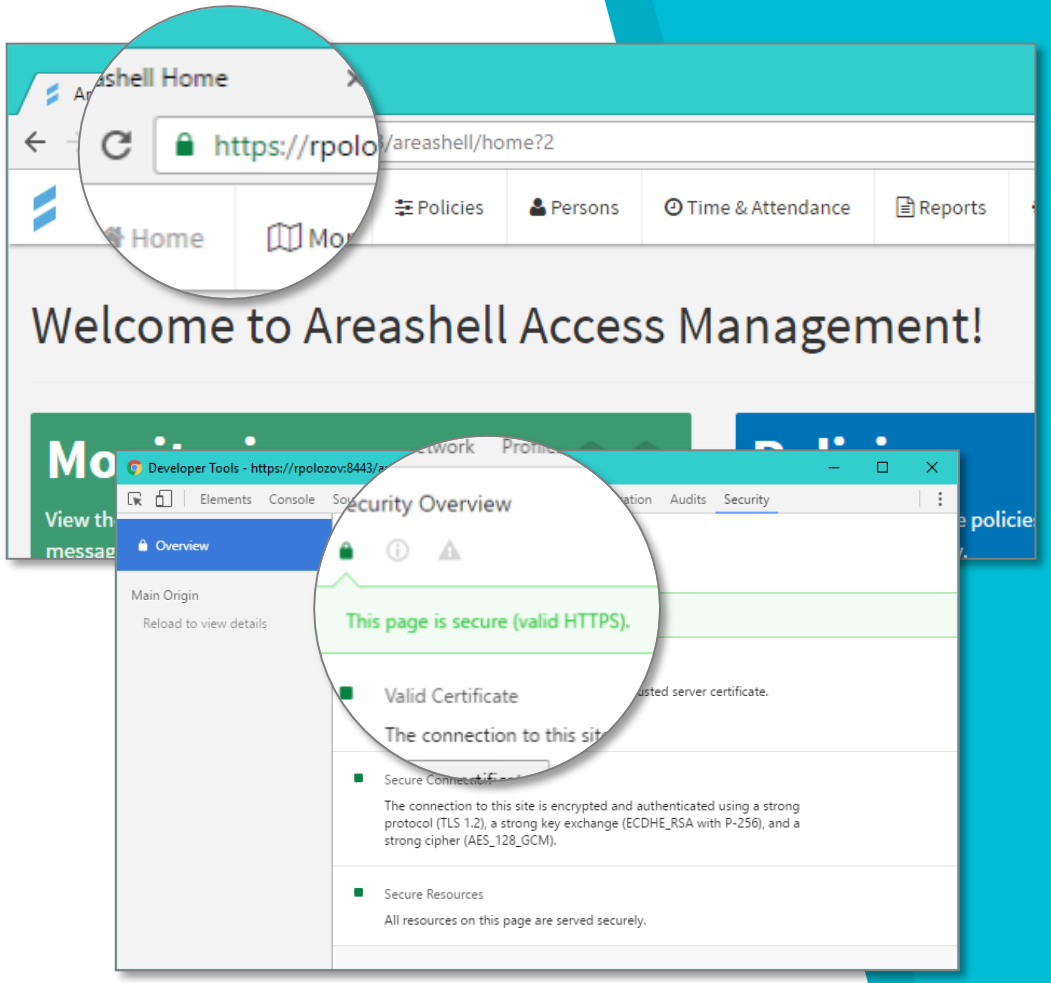


Advanced Scalable Architecture

- Ready for Public and Private Clouds
  - Web-based interface
  - Standard Java™ EE Application
  - IP-based communications with hardware controllers
  - Multi-tenant configuration options
- Multi-platform
  - Works on different hardware, operating systems, virtual platforms, web-servers, application servers, on premise and in cloud
  - Supports free open source and commercial operating systems, application servers and database management servers

Security

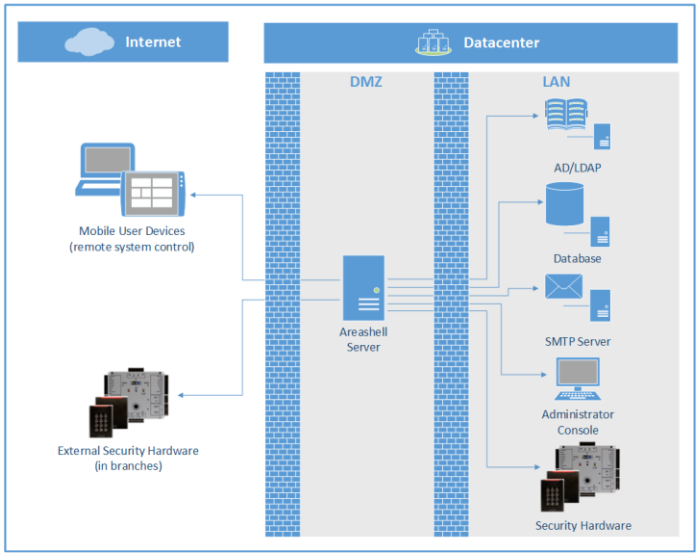
- HTTPS-encrypted communication between web-server and clients
- Role-based user permission management
- Users authentication through Enterprise Directory Services (Microsoft Active Directory, LDAP)
- Mapping Areashell User Roles onto Enterprise Directory (Active Directory, LDAP) User Groups.
- Automatic granting Areashell user permissions to AD/LDAP users by including users into AD/LDAP User Groups



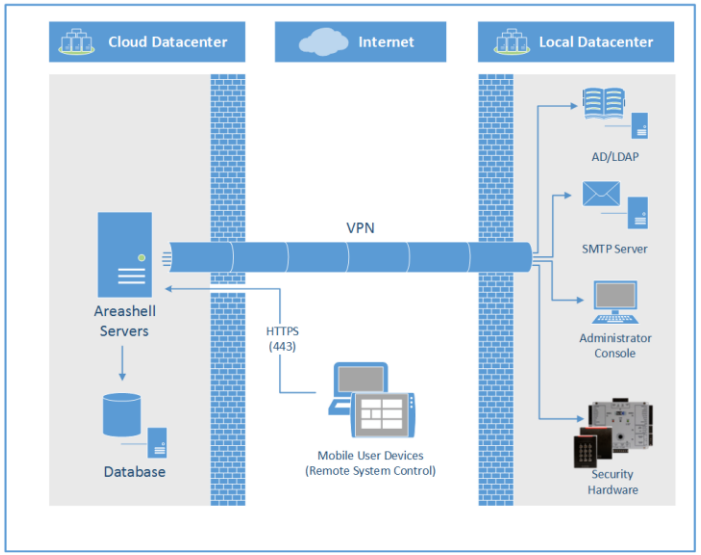
Flexible Deployment

- Areashell provides great flexibility of deployment. With Areashell you have a choice how to deploy your access control system: **in cloud or on premise**.
- In both variants you can securely control the system from any workplace, including mobile devices, and integrate your system with locally installed security hardware and other information systems.

On Premise



In Cloud



areashell

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