



**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, 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.

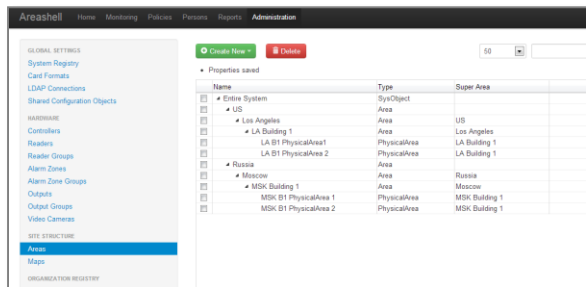


## Analog/Digital Signal Processing

Collecting and analyzing data from sensors with analog-to-digital converters.

# Unified Web-based Interface

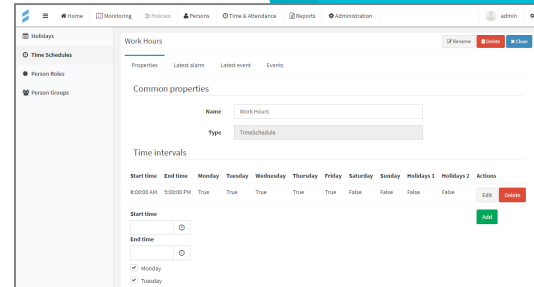
All functions available through unified web interface



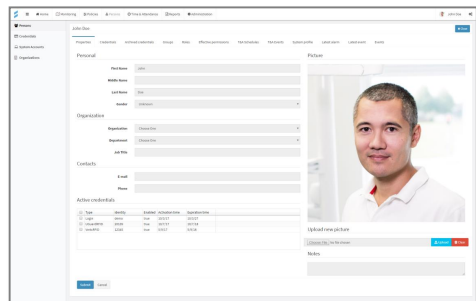
System configuration management



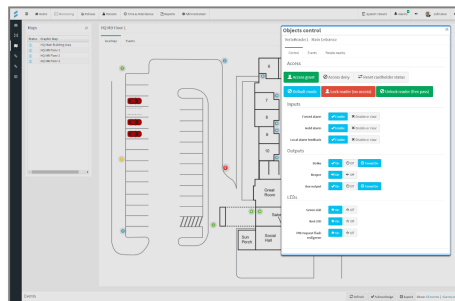
Hardware management



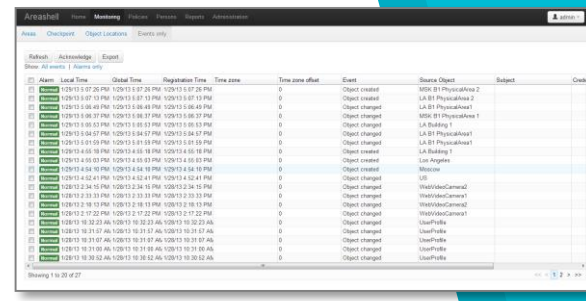
Policy management



Cardholders management



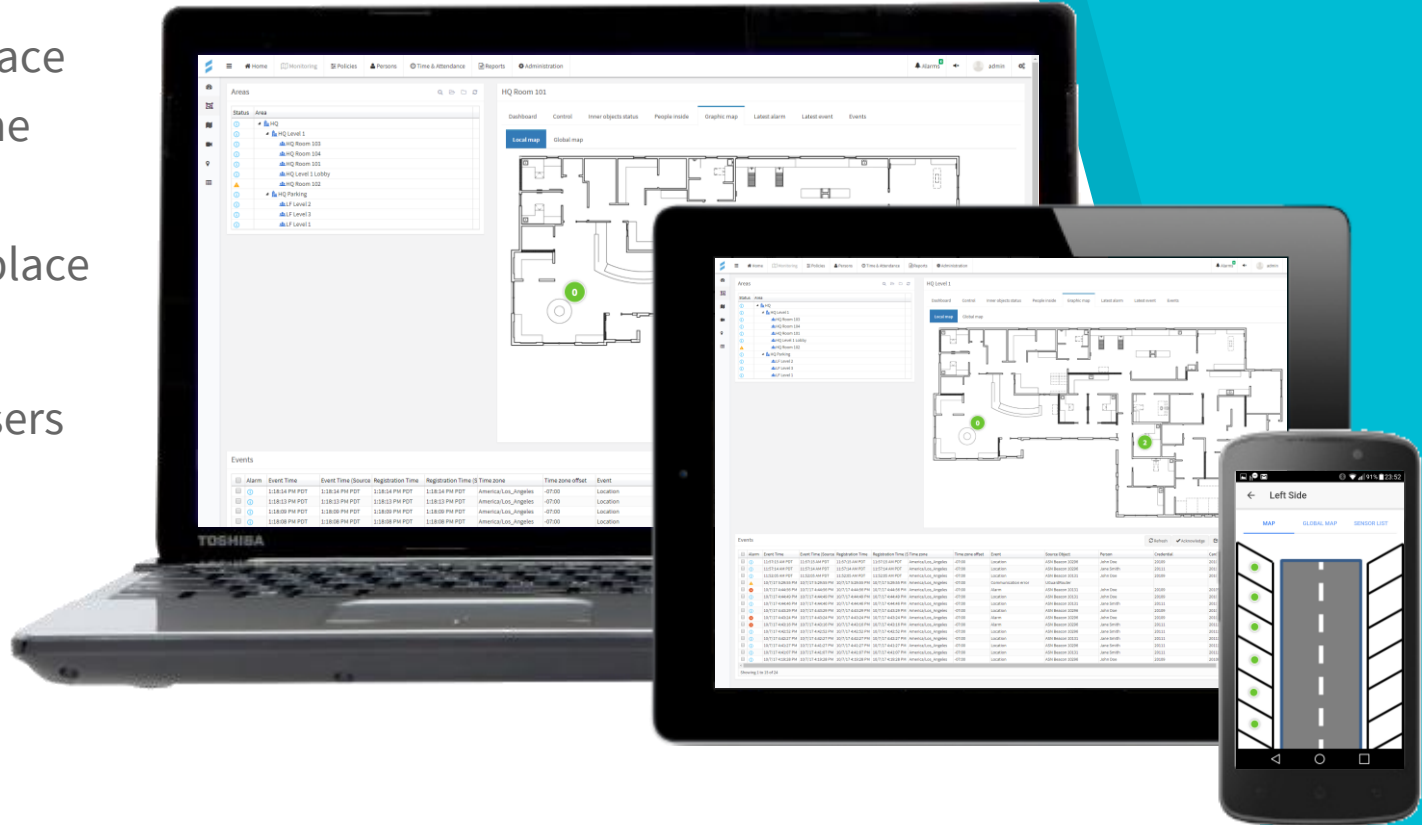
Real-time monitoring & control



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

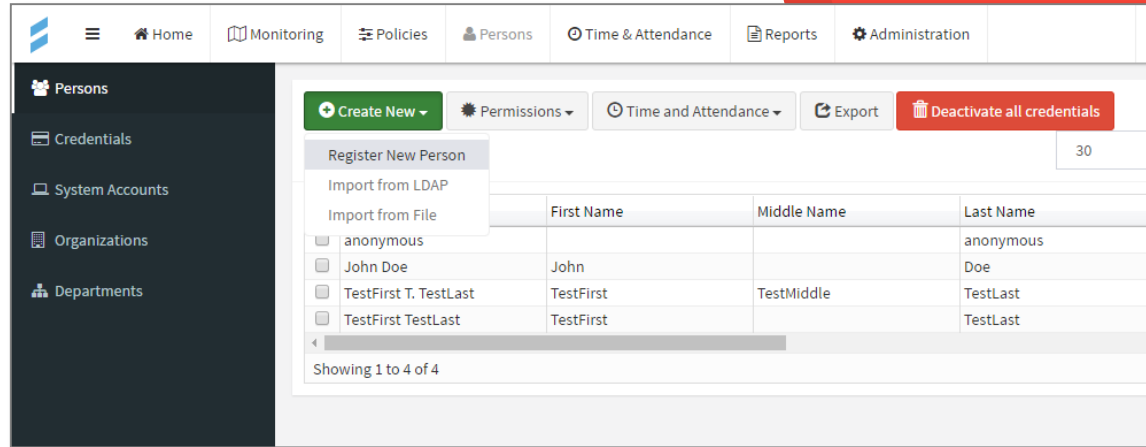
- Registering users (cardholders)
- Issuing Credentials – RFID cards, location sensors, PINs, passwords
- Assigning user groups, roles, permissions
- Assigning time & attendance policies

The screenshot displays a web application for user management. The top navigation bar includes links for Home, Monitoring, Policies, Persons, Time & Attendance, Reports, and Administration. The left sidebar lists 'Persons', 'Credentials', 'System Accounts', and 'Organizations'. The main content area is titled 'John Doe' and contains several tabs: Properties, Credentials, Archived credentials, Groups, Roles, Effective permissions, T&A Schedules, T&A Events, System profile, Latest alarm, Latest event, and Events. The 'Properties' tab is active, showing a 'Personal' section with fields for First Name (John), Middle Name, Last Name (Doe), and Gender (Unknown). Below this is an 'Organization' section with dropdown menus for Organization and Department, and a text field for Job Title. A 'Contacts' section includes fields for E-mail and Phone. At the bottom left, an 'Active credentials' table lists three credentials: Login, UGuardRFID, and VerbiRFID, each with columns for Type, Identity, Enabled, Activation time, and Expiration time. On the right, a 'Picture' section shows a user photo and an 'Upload new picture' area with a file selection button and 'Upload'/'Clear' options. A 'Notes' section is at the bottom right.

Type	Identity	Enabled	Activation time	Expiration time
Login	demo	true	10/3/17	10/3/27
UGuardRFID	20109	true	10/7/17	10/7/18
VerbiRFID	12345	true	5/8/17	5/9/18

# 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

This screenshot shows the 'Person Groups' management page. The left sidebar contains navigation links for Holidays, Time Schedules, Person Roles, and Person Groups. The main content area is titled 'Employees' and includes tabs for Properties, Members, Roles, Latest alarm, Latest event, and Events. The 'Members' tab is active, displaying a table with columns for Full Name, Job Title, Department, and Organization. Below the table, there is an 'Add members' section with a search bar and a list of users (admin, admin@) to be added. A 'Submit' button is at the bottom.

This screenshot shows the 'New Year' holiday configuration page. The left sidebar is the same as the previous screenshot. The main content area is titled 'New Year' and includes tabs for Properties, Latest alarm, Latest event, and Events. The 'Properties' tab is active, showing 'Common properties' and 'Parameters'. The 'Parameters' section includes fields for 'Holiday Type' (set to 'Holiday 1'), 'Holiday Date' (set to '01/01/2017'), and 'Every year' (checked). 'Submit' and 'Cancel' buttons are at the bottom.

This screenshot shows the 'Add permissions' dialog for an employee. The dialog has a search bar for 'Work Hours' and a dropdown for 'Access mode' set to 'Allowed'. Below, there is a table 'Select objects to provide access' with columns for Name, Type, Last Modified, and Last Modified By. The table lists various objects like 'ASN Beacon 2793', 'HQ Level 1 Lobby', and 'HQ Room 101'. A 'Save changes' button is at the bottom left.

This screenshot shows the 'Work Hours' configuration page. The left sidebar is the same as the previous screenshots. The main content area is titled 'Work Hours' and includes tabs for Properties, Latest alarm, Latest event, and Events. The 'Properties' tab is active, showing 'Common properties' and 'Time intervals'. The 'Common properties' section includes fields for 'Name' (set to 'Work Hours') and 'Type' (set to 'TimeSchedule'). The 'Time intervals' section includes a table with columns for Start time, End time, and days of the week (Monday through Sunday). The table shows start and end times and whether the schedule is active on each day. 'Edit' and 'Delete' buttons are at the bottom right.

# Holiday Management

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

The screenshot displays a web application interface for 'Holiday Management'. The top navigation bar includes links for Home, Monitoring, Policies, Persons, Time & Attendance, Reports, and Administration. The left sidebar shows a menu with 'Holidays' (selected), 'Time Schedules', 'Person Roles', and 'Person Groups'. The main content area is titled 'New Year' and contains a form with the following sections:

- Properties:** Includes tabs for 'Properties', 'Latest alarm', 'Latest event', and 'Events'. The 'Properties' tab is active.
- Common properties:**
  - Name:** A text input field containing 'New Year'.
  - Type:** A dropdown menu showing 'Holiday'.
- Parameters:**
  - Holiday Type:** A dropdown menu showing 'Holiday 1'.
  - Holiday Date:** A date input field showing '01/01/2017' with a calendar icon.
  - Every year:** A checkbox labeled 'Enabled' which is checked.

At the bottom of the form are 'Submit' and 'Cancel' buttons. In the top right corner of the form, there are 'Rename', 'Delete', and 'Close' buttons.

# 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

The screenshot displays the 'Access Schedule Management' interface. The top navigation bar includes links for Home, Monitoring, Policies, Persons, Time & Attendance, Reports, and Administration. The left sidebar shows a tree view with 'Holidays', 'Time Schedules', 'Person Roles', and 'Person Groups'. The main content area is titled 'Work Hours' and contains the following sections:

- Properties:** Includes tabs for 'Latest alarm', 'Latest event', and 'Events'. The 'Common properties' section shows 'Name' as 'Work Hours' and 'Type' as 'TimeSchedule'.
- Time intervals:** A table with columns for 'Start time', 'End time', and days of the week (Monday through Sunday), plus 'Holidays 1' and 'Holidays 2'. The table shows '8:00:00 AM' to '5:00:00 PM' for Monday through Friday, with 'True' for Monday through Wednesday and 'False' for Thursday through Sunday. There are 'Edit' and 'Delete' buttons for each row.
- Start time:** A text input field with a clock icon.
- End time:** A text input field with a clock icon.
- Checkboxes:** 'Monday' and 'Tuesday' are checked.

At the bottom right, there is an 'Add' button.

# 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

The screenshot displays a web-based interface for managing physical access permissions. The top navigation bar includes links for Home, Monitoring, Policies, Persons, Time & Attendance, Reports, and Administration. The left sidebar shows a menu with options like Holidays, Time Schedules, Person Roles (selected), and Person Groups. The main content area is titled 'Employees' and features tabs for Properties, Permissions (active), Child roles, Parent roles, Assignments, and Events. Under the 'Permissions' tab, there are sub-tabs for Physical Access, Control, and Logic Access. A table lists permissions with columns for Object / Group / Area, Time schedule, and Readers. The table includes entries for 'All HQ Entrances', 'All HQ Exits', 'HQ Main Building', 'HQ Main Territory', and 'HQ Security Room', all with 'Business Hours' as the time schedule. The 'Readers' column lists various access control devices and servers. At the bottom, there is a 'Save changes' button.

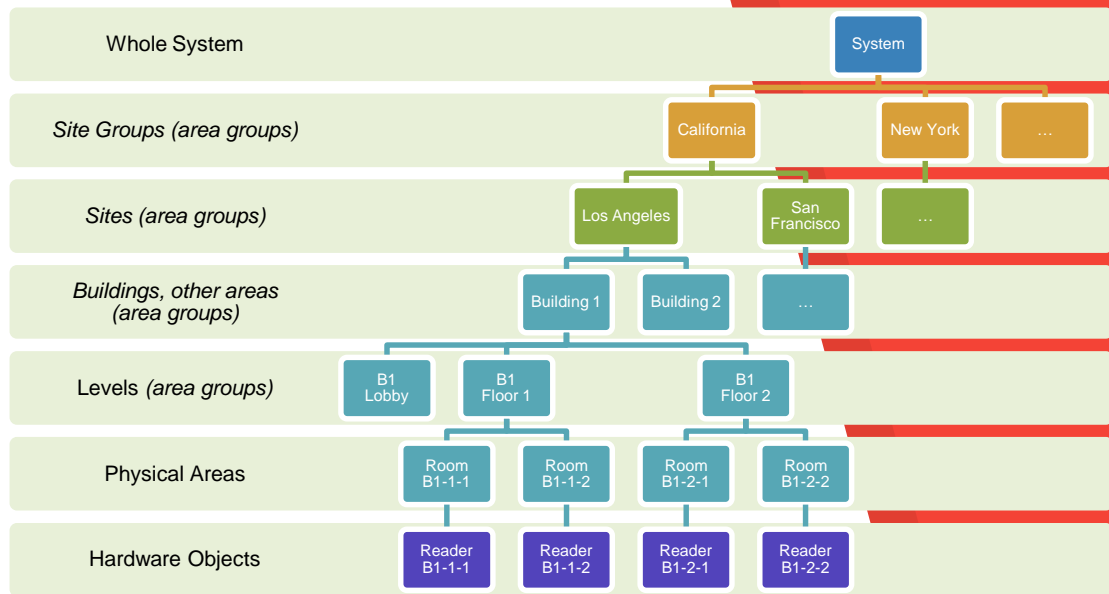
Object / Group / Area	Time schedule	Readers
<input type="checkbox"/> All HQ Entrances	Business Hours	VertxReader1 - Main Entrance
<input type="checkbox"/> All HQ Exits	Business Hours	VertxReader2 - Main Exit
<input type="checkbox"/> HQ Main Building	Business Hours	UGuard Coordinator; UGuardBeacon 1; UGuardBeacon 2; HID EDGE Controller; VertxReader2 - Main Exit; AxonNext Server
<input type="checkbox"/> HQ Main Territory	Business Hours	UGuard Coordinator; UGuardBeacon 1; UGuardBeacon 2; HID EDGE Controller; VertxReader2 - Main Exit; AxonNext Server
<input type="checkbox"/> HQ Security Room	Business Hours	

# 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

### HQ Main Building

DashboardControlInner objects statusPeople inside

Refresh

Status	Source Object	Type	Latest E
①	AxonNext Server	AxonNextServer	Unknown
①	HID EDGE Controller	VertxController	Unknown
⬮	HID VertX V2000 Network Contro	VertxController	Start task
①	UGuard Coordinator	UGuardCoordinator	Unknown
①	UGuardBeacon 1	UGuardBeacon	Unknown
①	UGuardBeacon 2	UGuardBeacon	Unknown
⬮	VertxReader2 - Main Exit	VertxReader	Door parity failure

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### HQ Main Building

DashboardControlInner objects statusPeople insideGraphic mapLatest alarmEvents

Set default mode

Set default mode

Entrances

Unlock entrancesLock entrancesControl entrances

Exits

Unlock exitsLock exitsControl exits

Internal readers

Unlock internal readersLock internal readersControl internal readers

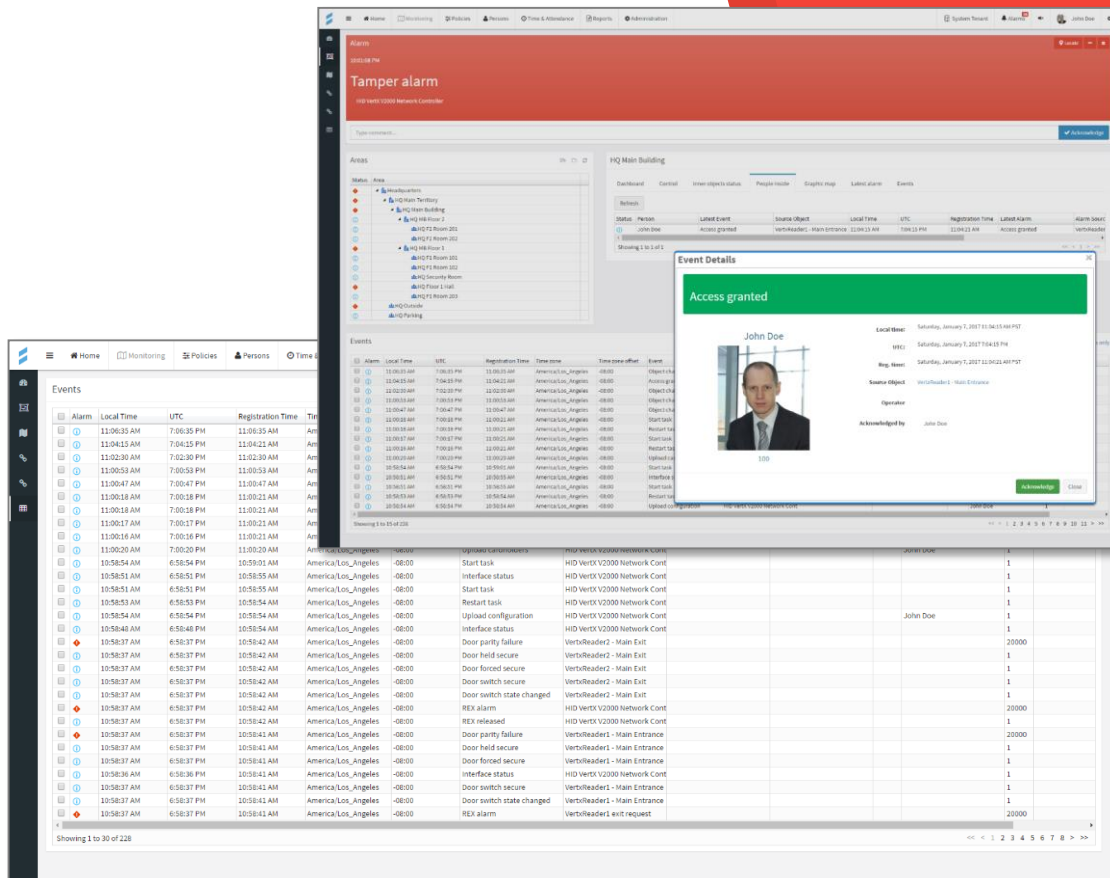
Alarm zones

ArmDisarm

	10:58:37 AM	6:58:37 PM	10:58:42 AM	
	10:58:37 AM	6:58:37 PM	10:58:42 AM	

<< < 1 > >>

- 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

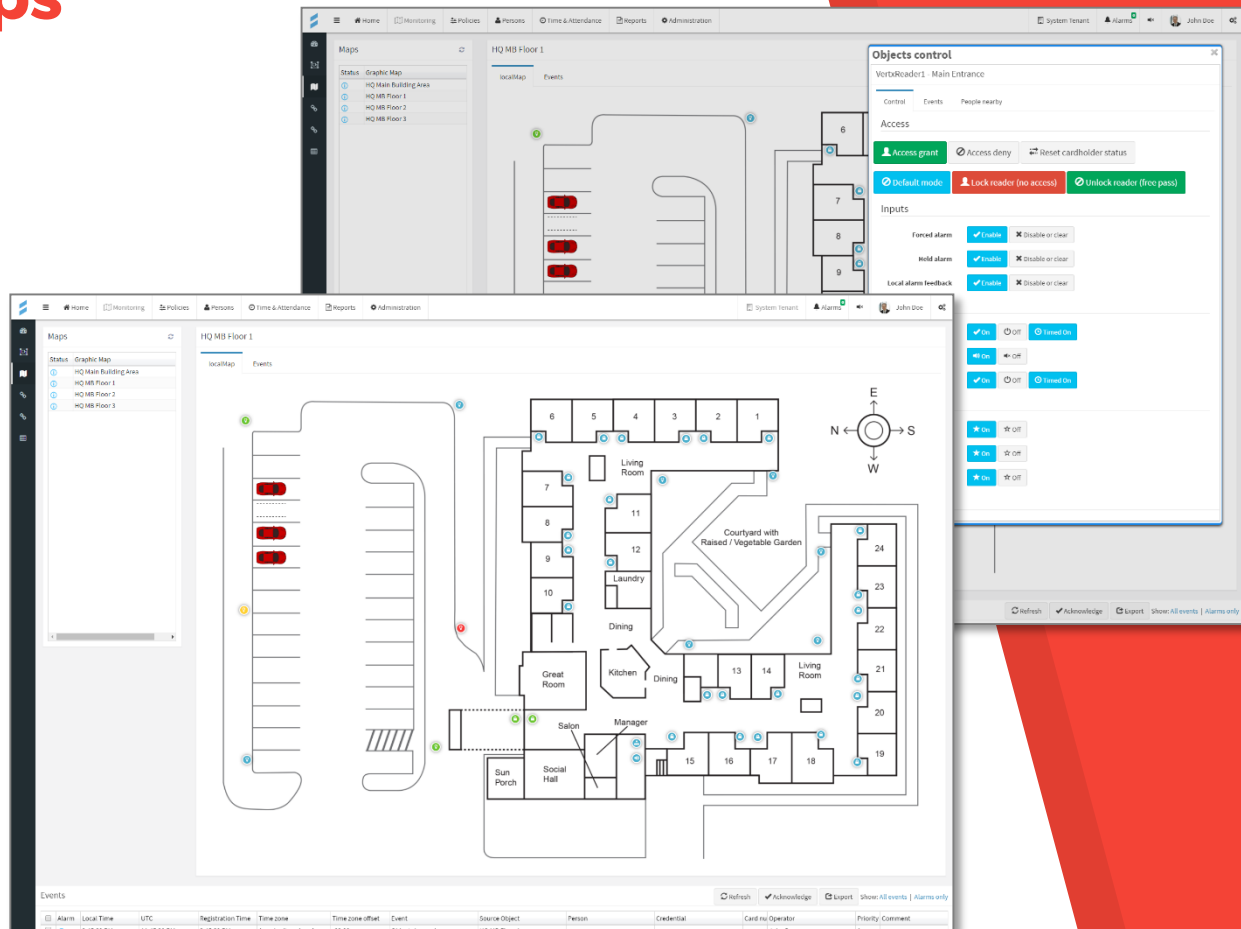
The screenshot displays a web-based alarm management interface. At the top, a navigation bar includes links for Home, Monitoring, Policies, Persons, Time & Attendance, Reports, and Administration. The main header shows the user 'John Doe' and the system 'System Tenant'. The central area is titled 'Alarm' and displays a 'Tamper alarm' from the 'HID Vertx V2000 Network Controller'. Below this, there's a section for 'Areas' with a tree view showing the hierarchy: Headquarters > Main Territory > Main Building > Main Floor 2 > F2 Room 201 > Main Floor 1 > F1 Room 101 > F1 Room 102 > Security Room > F1 Room 203 > Outside > Parking. The right side of the interface shows a 'HQ Floor 1 Hall' view with tabs for Dashboard, Control, Inner objects status, People inside, Graphic map, Latest alarm, and Events. The 'Events' tab is active, showing a table of recent events. The bottom of the interface shows a list of events with columns for Alarm, Local Time, UTC, Registration Time, Time zone, Time zone offset, Event, Source Object, Person, Credential, Card no, Operator, Priority, and Comment. The events list shows various status changes and door events, with the most recent being a 'Door switch secure' event at 1/6/17 4:11:47 PM.

Alarm	Local Time	UTC	Registration Time	Time zone	Time zone offset	Event	Source Object	Person	Credential	Card no	Operator	Priority	Comment
1	10:40:35 AM	6:40:35 PM	10:40:35 AM	America/Los_Angeles	-08:00	Object changed	HID Vertx V2000 Network Cont	John Doe			1		
2	10:47:56 AM	6:47:56 PM	10:47:56 AM	America/Los_Angeles	-08:00	Object changed	HID Vertx V2000 Network Cont	John Doe			1		
3	10:46:49 AM	6:46:49 PM	10:46:54 AM	America/Los_Angeles	-08:00	Start task	HID Vertx V2000 Network Cont				1		
4	10:46:48 AM	6:46:48 PM	10:46:48 AM	America/Los_Angeles	-08:00	Upload cardholders	HID Vertx V2000 Network Cont				John Doe	1	
5	10:46:49 AM	6:46:49 PM	10:46:48 AM	America/Los_Angeles	-08:00	Restart task	HID Vertx V2000 Network Cont				1		
6	10:46:48 AM	6:46:48 PM	10:46:48 AM	America/Los_Angeles	-08:00	Start task	HID Vertx V2000 Network Cont				1		
7	10:46:47 AM	6:46:47 PM	10:46:47 AM	America/Los_Angeles	-08:00	Restart task	HID Vertx V2000 Network Cont				1		
8	10:39:34 AM	6:39:34 PM	10:39:34 AM	America/Los_Angeles	-08:00	Communication error	HID Vertx V2000 Network Cont				10000		
9	1/6/17 4:11:15 PM	12:11:15 AM	1/6/17 4:11:48 PM	America/Los_Angeles	-08:00	Restart task	HID Vertx V2000 Network Cont				1		
10	1/6/17 4:11:15 PM	12:11:15 AM	1/6/17 4:11:48 PM	America/Los_Angeles	-08:00	Start task	HID Vertx V2000 Network Cont				1		
11	1/6/17 4:11:15 PM	12:11:15 AM	1/6/17 4:11:47 PM	America/Los_Angeles	-08:00	Restart task	HID Vertx V2000 Network Cont				1		
12	1/6/17 4:11:15 PM	12:11:15 AM	1/6/17 4:11:47 PM	America/Los_Angeles	-08:00	Door parity failure	VertReader2 - Main Exit				20000		
13	1/6/17 4:11:15 PM	12:11:15 AM	1/6/17 4:11:47 PM	America/Los_Angeles	-08:00	Door held secure	VertReader2 - Main Exit				1		
14	1/6/17 4:11:15 PM	12:11:15 AM	1/6/17 4:11:47 PM	America/Los_Angeles	-08:00	Door forced secure	VertReader2 - Main Exit				1		
15	1/6/17 4:11:15 PM	12:11:15 AM	1/6/17 4:11:47 PM	America/Los_Angeles	-08:00	Door switch secure	VertReader2 - Main Exit				1		



# 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

The screenshot displays a security management software interface. The top navigation bar includes tabs for Home, Monitoring, Policies, Persons, Time & Attendance, Reports, and Administration. The user is logged in as John Doe. The main area is divided into two sections: 'Areas' on the left and 'HQ Parking' on the right.

The 'Areas' section shows a tree view of the system's hierarchy:

- Headquarters
  - HQ Main Territory
    - HQ Main Building
      - HQ MB Floor 2
        - HQ F2 Room 201
        - HQ F2 Room 202
      - HQ MB Floor 1
        - HQ F1 Room 101
        - HQ F1 Room 102
        - HQ Security Room
        - HQ Floor 1 Hall
        - HQ F1 Room 203
      - HQ Outside
      - HQ Parking

The 'HQ Parking' section features a 'Graphic map' tab. The map shows a layout of the parking area with several colored pins (green, blue, red) indicating the status of different objects. The map is labeled 'Local map' and 'Global map'.

Below the map is an 'Events' table with columns: Alarm, Local Time, UTC, Registration Time, Time zone, Time zone offset, Event, Source Object, Person, Credential, Card nu Operator, Priority, and Comment. The table shows a list of events, including object changes, object creations, and logins.

Alarm	Local Time	UTC	Registration Time	Time zone	Time zone offset	Event	Source Object	Person	Credential	Card nu Operator	Priority	Comment
	3:45:30 PM	11:45:30 PM	3:45:30 PM	America/Los_Angeles	-08:00	Object changed	HQ MB Floor 1			John Doe	1	
	3:45:00 PM	11:45:00 PM	3:45:00 PM	America/Los_Angeles	-08:00	Object changed	HQ MB Floor 1			John Doe	1	
	3:26:26 PM	11:26:26 PM	3:26:26 PM	America/Los_Angeles	-08:00	Object changed	HQ MB Floor 1			John Doe	1	
	3:24:59 PM	11:24:59 PM	3:24:59 PM	America/Los_Angeles	-08:00	Object changed	HQ MB Floor 1			John Doe	1	
	3:19:52 PM	11:19:52 PM	3:19:52 PM	America/Los_Angeles	-08:00	Object created	VeriReader3			John Doe	1	
	3:17:55 PM	11:17:55 PM	3:17:55 PM	America/Los_Angeles	-08:00	Object changed	HQ MB Floor 1			John Doe	1	
	3:15:34 PM	11:15:34 PM	3:15:34 PM	America/Los_Angeles	-08:00	Object changed	HQ MB Floor 1			John Doe	1	
	3:14:05 PM	11:14:05 PM	3:14:05 PM	America/Los_Angeles	-08:00	Object changed	HQ MB Floor 1			John Doe	1	
	2:34:06 AM	10:34:06 AM	2:34:06 AM	America/Los_Angeles	-08:00	Object changed	HQ MB Floor 1			John Doe	1	
	2:32:39 AM	10:32:39 AM	2:32:39 AM	America/Los_Angeles	-08:00	Object changed	HQ MB Floor 1			John Doe	1	
	2:29:04 AM	10:29:04 AM	2:29:04 AM	America/Los_Angeles	-08:00	Object changed	HQ MB Floor 1			John Doe	1	
	2:23:14 AM	10:23:14 AM	2:23:14 AM	America/Los_Angeles	-08:00	Object changed	HQ MB Floor 1			John Doe	1	
	12/24/16 2:33:27 PM	12/24/16 10:33:27 PM	12/24/16 2:33:27 PM	America/Los_Angeles	-08:00	Login	John Doe			John Doe	1	
	12/24/16 1:42:16 AM	12/24/16 9:42:16 AM	12/24/16 1:42:16 AM	America/Los_Angeles	-08:00	Object created	LicenseFile			John Doe	1	
	12/24/16 1:40:11 AM	12/24/16 9:40:11 AM	12/24/16 1:40:11 AM	America/Los_Angeles	-08:00	Object changed	HQ Parking			John Doe	1	

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# 2.

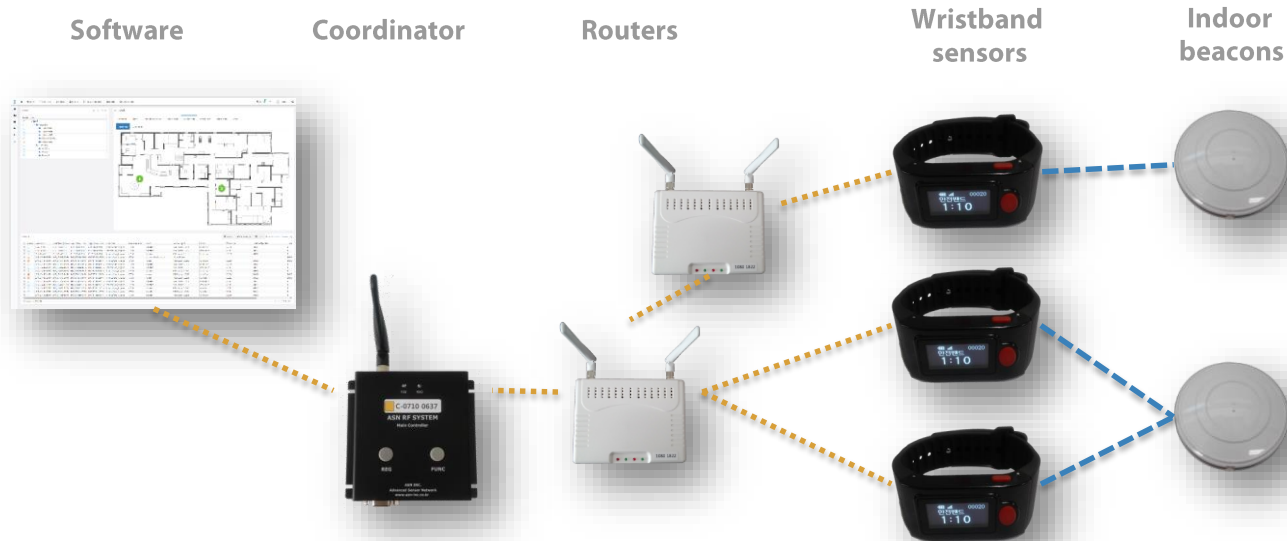
## **AREASHELL LOCATION SERVICES**

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

The dashboard interface includes a top navigation bar with the following tabs: Home, Monitoring, Policies, Persons, Time & Attendance, Reports, and Administration. A left sidebar contains icons for various functions.

**Mobile objects**

Person	Location area	Latitude	Longitude	Latest event
Jane Smith	HQ Room 101	33.644	242.281	11:57:14 AM PDT
John Doe	HQ Room 101	33.644	242.281	11:57:15 AM PDT

**Local map**

The map displays a floor plan with three green circular markers labeled 0, 2, and 3. Marker 0 is in a circular area on the left, marker 2 is in a room on the right, and marker 3 is in a room on the far right. A tooltip for marker 3 shows the following information:

ASN Beacon 10296  
Jane Doe  
John Doe  
Jane Smith

**Events**

Alarm	Event Time	Event Time (Source)	Registration Time	Registration Time (S Time zone)	Time zone offset	Event	Source Object	Person	Credential	
	11:57:15 AM PDT	11:57:15 AM PDT	11:57:15 AM PDT	11:57:15 AM PDT	America/Los_Angeles	-07:00	Location	ASN Beacon 10296	John Doe	20109
	11:57:14 AM PDT	11:57:14 AM PDT	11:57:14 AM PDT	11:57:14 AM PDT	America/Los_Angeles	-07:00	Location	ASN Beacon 10296	Jane Smith	20111
	11:52:05 AM PDT	11:52:05 AM PDT	11:52:05 AM PDT	11:52:05 AM PDT	America/Los_Angeles	-07:00	Location	ASN Beacon 10131	John Doe	20109
	10/7/17 5:30:55 PM	10/7/17 5:30:55 PM	10/7/17 5:30:55 PM	10/7/17 5:30:55 PM	America/Los_Angeles	-07:00	Communication error	UGuardRouter		

**Monitor**  
**people and**  
**assets**  
**location on**  
**graphic maps**  
**in real time**

The dashboard interface includes a top navigation bar with the following tabs: Home, Monitoring, Policies, Persons, Time & Attendance, Reports, and Administration. On the left, a sidebar contains icons for various functions: a list, a location pin, a magnifying glass, and a document.

**Mobile objects**

Person	Location area	Latitude	Longitude	Latest event
Jane Smith	HQ Room 101	33.644	242.281	11:57:14 AM PDT
John Doe	HQ Room 101	33.644	242.281	11:57:15 AM PDT

**Global map** **Local map**

The local map displays a detailed floor plan of a building. Two specific locations are highlighted with green circles and numbers: '0' is located in a central open area, and '2' is located in a room on the right side of the plan.

**Events**

Alarm	Event Time	Event Time (Source)	Registration Time	Registration Time (S)	Time zone	Time zone offset	Event	Source Object	Person	Credential
<input type="checkbox"/>	11:57:15 AM PDT	11:57:15 AM PDT	11:57:15 AM PDT	11:57:15 AM PDT	America/Los_Angeles	-07:00	Location	ASN Beacon 10296	John Doe	20109
<input type="checkbox"/>	11:57:14 AM PDT	11:57:14 AM PDT	11:57:14 AM PDT	11:57:14 AM PDT	America/Los_Angeles	-07:00	Location	ASN Beacon 10296	Jane Smith	20111
<input type="checkbox"/>	11:52:05 AM PDT	11:52:05 AM PDT	11:52:05 AM PDT	11:52:05 AM PDT	America/Los_Angeles	-07:00	Location	ASN Beacon 10131	John Doe	20109
<input type="checkbox"/>	10/7/17 5:29:55 PM	10/7/17 5:29:55 PM	10/7/17 5:29:55 PM	10/7/17 5:29:55 PM	America/Los_Angeles	-07:00	Communication error	UGuardRouter		
<input type="checkbox"/>	10/7/17 4:44:56 PM	10/7/17 4:44:56 PM	10/7/17 4:44:56 PM	10/7/17 4:44:56 PM	America/Los_Angeles	-07:00	Alarm	ASN Beacon 10131	John Doe	20109

# 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.

The screenshot displays a web application interface for managing location rules. The top navigation bar includes links for Home, Monitoring, Policies, Persons, Time & Attendance, Reports, and Administration, along with a user profile 'admin'. The left sidebar lists 'Holidays', 'Time Schedules', 'Person Roles', and 'Person Groups'. The main content area is titled 'Demo Role' and features tabs for Properties, Permissions, Child roles, Parent roles, Assignments, Latest alarm, Latest event, and Events. The 'Permissions' tab is active, showing sub-tabs for Physical Access, Control, and Logic Access. Below these are buttons for '+ Add permissions' and '- Remove permissions'. A table lists permissions for 'HQ Level 1 Lobby' and 'HQ Room 101', detailing their time schedules, associated readers, and access modes.

Object / Group / Area	Time schedule	Readers	Access mode
<input type="checkbox"/> HQ Level 1 Lobby	All the time	ASN Beacon 10131	Access/location required
<input type="checkbox"/> HQ Room 101	All the time	VerbxReader; ASN Beacon 10296	Access prohibited

# 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)

The screenshot displays a security management interface. A red alarm notification is prominently shown in the upper left, indicating a location rule violation. The notification text includes the time (12:11:52 PM), the message 'Access prohibited', the location 'HQ / HQ Level 1 / HQ Room 101 / ASN Beacon 2838', and the person involved, 'Jane Smith'. Below the notification is a 'Type comment...' input field. To the right, a floor plan map of 'HQ Room 101' is visible, showing various rooms and corridors. A red circle with the number '2' is placed on the map, likely indicating the location of the alarm. Below the map, an 'Events' table lists recent security incidents, including access prohibitions, location changes, and login attempts.

**Alarm**

12:11:52 PM

**Access prohibited**

HQ / HQ Level 1 / HQ Room 101 / ASN Beacon 2838

Jane Smith

Type comment...

**Areas**

- Area
- Area
- Area
- Area
- Area

**HQ Room 101**

Dashboard Control Inner objects status People inside **Graphic map** Latent alarms Latent event Events

Local map Global map

**Events**

Alarm	Event Time	Event Time (Source)	Registration Time	Registration Time (S)	Time zone	Time zone offset	Event	Source Object	Person	Credential	Card no.	Operator	Priority
Alarm	12:11:53 PM PDT	12:11:53 PM PDT	12:11:53 PM PDT	12:11:53 PM PDT	America/Los_Angeles	-07:00	Access prohibited	ASN Beacon 2838	Jane Doe	20109	20109		30000
Alarm	12:11:53 PM PDT	12:11:53 PM PDT	12:11:53 PM PDT	12:11:53 PM PDT	America/Los_Angeles	-07:00	Location	ASN Beacon 2838	Jane Doe	20109	20109		1
Alarm	12:11:52 PM PDT	12:11:52 PM PDT	12:11:52 PM PDT	12:11:52 PM PDT	America/Los_Angeles	-07:00	Access prohibited	ASN Beacon 2838	Jane Smith	20111	20111		30000
Alarm	12:11:52 PM PDT	12:11:52 PM PDT	12:11:52 PM PDT	12:11:52 PM PDT	America/Los_Angeles	-07:00	Location	ASN Beacon 2838	Jane Smith	20111	20111		1
Alarm	12:11:43 PM PDT	12:11:43 PM PDT	12:11:43 PM PDT	12:11:43 PM PDT	America/Los_Angeles	-07:00	Location	ASN Beacon 2793	Jane Doe	20109	20109		1
Alarm	12:11:36 PM PDT	12:11:36 PM PDT	12:11:36 PM PDT	12:11:36 PM PDT	America/Los_Angeles	-07:00	Location	ASN Beacon 2793	Jane Doe	20109	20109		1
Alarm	12:11:13 PM PDT	12:11:13 PM PDT	12:11:13 PM PDT	12:11:13 PM PDT	America/Los_Angeles	-07:00	Login		admin			admin	1

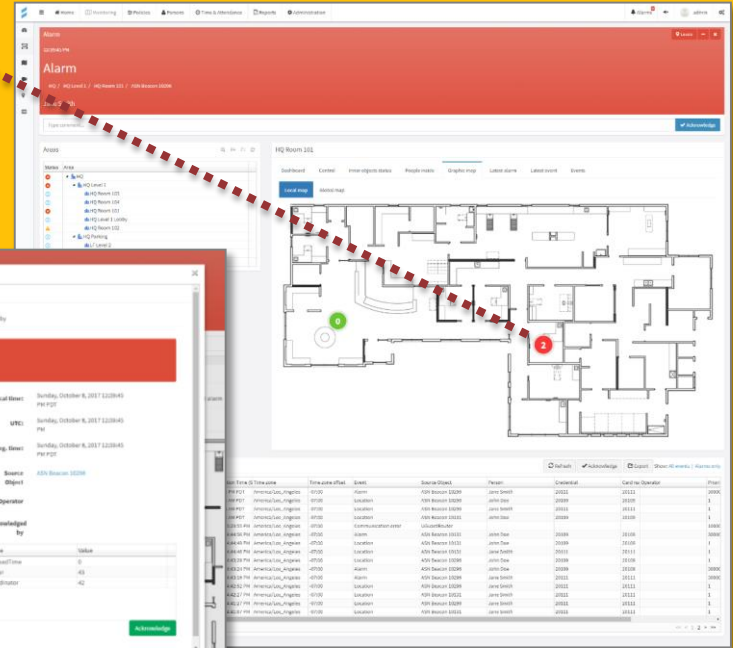
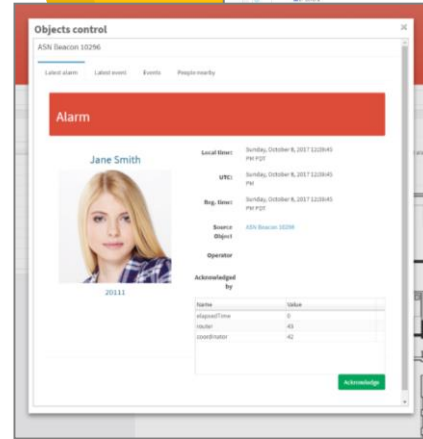
Showing 1 to 7 of 7





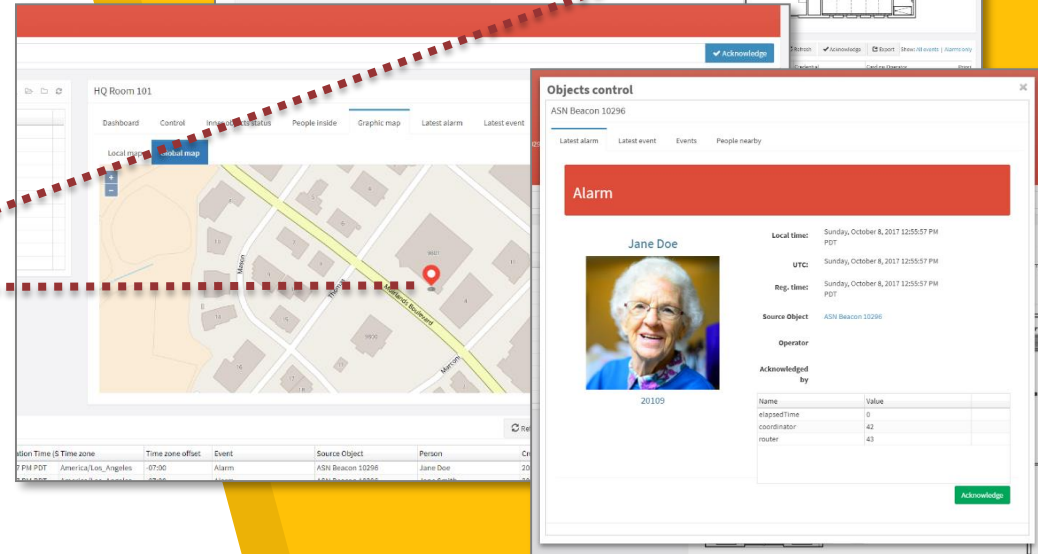
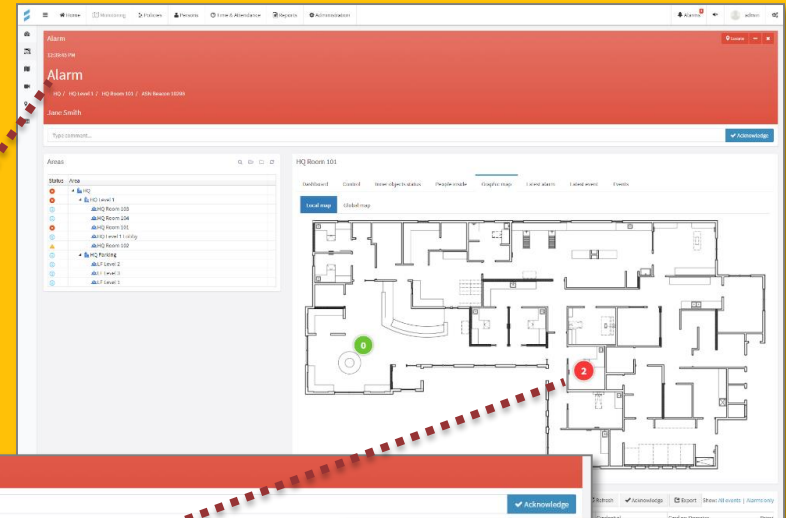
# Personal Alarm Button

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

The interface displays an alarm for Jane Smith at HQ Level 1 / HQ Room 101 / ASN Beacon 10206 at 12:38:45 PM. A red 'Locate' button is highlighted in the top right corner. Below the alarm details, there are tabs for 'Areas', 'Graphic map', 'Latest alarm', 'Latest event', and 'Events'. The 'Graphic map' tab is selected, showing a floor plan of HQ Room 101 with a red dot indicating the location of Jane Smith. A yellow dotted line connects the 'Locate' button to the red dot on the floor plan. Below the floor plan, there is a 'Global map' tab showing a street map with a red dot indicating the location of Jane Smith. A yellow dotted line connects the 'Locate' button to the red dot on the global map. At the bottom, there is a table of events.

Time zone	Time zone offset	Event	Source Object	Person	Credential	Card no.	Operator	Priority
America/Los_Angeles	-07:00	Alarm	ASN Beacon 10206	Jane Smith	20109	20109	20109	3000C
America/Los_Angeles	-07:00	Location	ASN Beacon 10206	John Doe	20109	20109	20109	1
America/Los_Angeles	-07:00	Location	ASN Beacon 10206	Jane Smith	20111	20111	20111	1
America/Los_Angeles	-07:00	Location	ASN Beacon 10211	John Doe	20109	20109	20109	1
America/Los_Angeles	-07:00	Communication error	U/Guard(Router)					3000C
America/Los_Angeles	-07:00	Alarm	ASN Beacon 10211	John Doe	20109	20109	20109	3000C
America/Los_Angeles	-07:00	Location	ASN Beacon 10211	John Doe	20109	20109	20109	1
America/Los_Angeles	-07:00	Location	ASN Beacon 10211	Jane Smith	20111	20111	20111	1
America/Los_Angeles	-07:00	Location	ASN Beacon 10206	John Doe	20109	20109	20109	1
America/Los_Angeles	-07:00	Alarm	ASN Beacon 10206	John Doe	20109	20109	20109	3000C
America/Los_Angeles	-07:00	Alarm	ASN Beacon 10206	Jane Smith	20111	20111	20111	3000C
America/Los_Angeles	-07:00	Location	ASN Beacon 10206	Jane Smith	20111	20111	20111	1
America/Los_Angeles	-07:00	Location	ASN Beacon 10211	Jane Smith	20111	20111	20111	1
America/Los_Angeles	-07:00	Location	ASN Beacon 10206	Jane Smith	20111	20111	20111	1
America/Los_Angeles	-07:00	Location	ASN Beacon 10211	Jane Smith	20111	20111	20111	1



# 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

The image displays two overlapping screenshots of the Areashell Time & Attendance management interface. The top screenshot shows the 'Shift settings' for a 'Day 1' shift. It includes a sidebar with 'Personnel & Reports', 'Work Areas', and 'Work Shifts'. The main content area has tabs for 'Properties', 'Day schedules', and 'Events'. Under 'Shift settings', there are options for 'Shift type' (Weekly, Cycle (fixed number of days)), 'Work on workdays' (Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday), and 'Work on holidays' (On-holiday type 1, On-holiday type 2). There are also fields for 'Start time', 'End time', and 'Grace period' (before shift starts, after shift starts, before shift ends, after shift ends). The bottom screenshot shows the 'Shift settings' for a 'Day 2' shift, with similar options and fields, but with a 'Break' section at the bottom including 'Break start time', 'Break end time', and 'Grace period' (before break starts, after break starts, before break ends, after break ends). It also has fields for 'Always on duty minimum break time', 'Minimum break time', and 'Applies break time when'.

A large teal graphic element consisting of several overlapping diagonal bands that sweep from the top right towards the bottom left, creating a sense of motion and depth.

# 4.

## AREASHELL PARKING MONITORING

Monitor parking availability  
on dashboards and graphic maps  
in real time

# Internet of Things Ecosystem



- 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

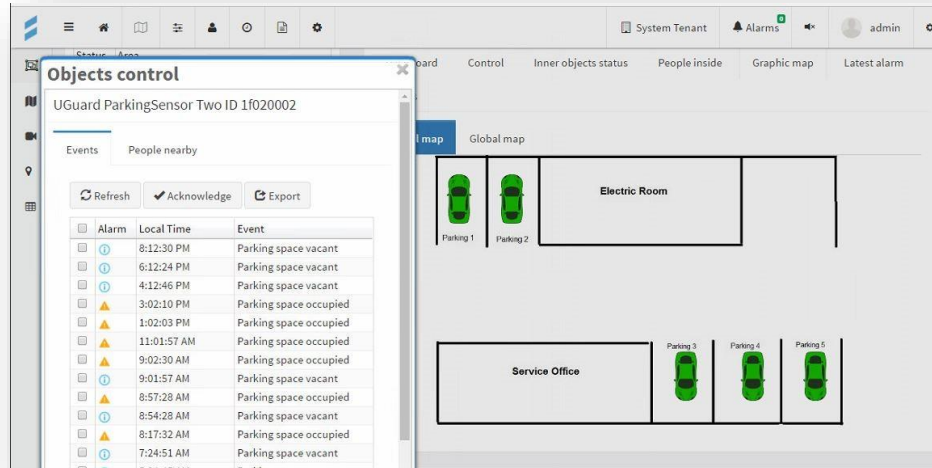
Routers

Parking sensors



# Parking Monitoring Services

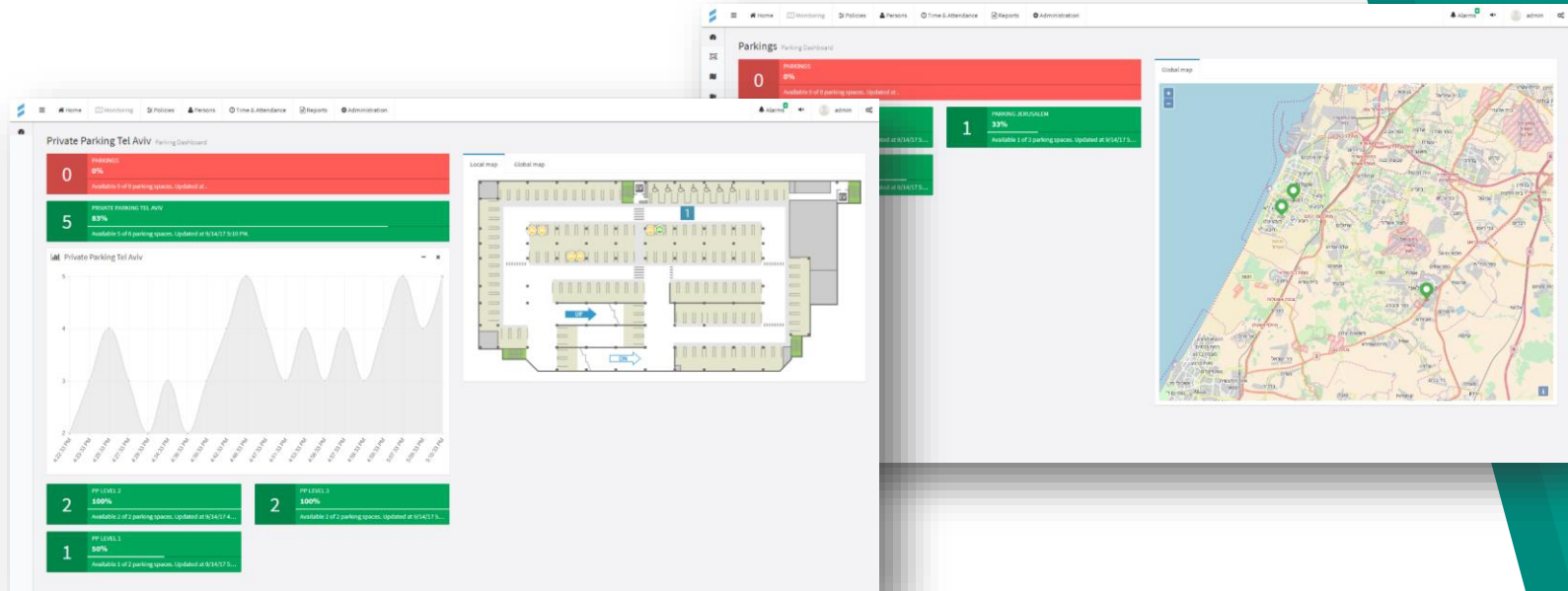
- Collecting data about space availability from parking sensors
- Recording collected data to the database
- Recording calculated area parking availability data to the database
- Monitoring parking availability by area in real time
- Report generation based on the recorded data





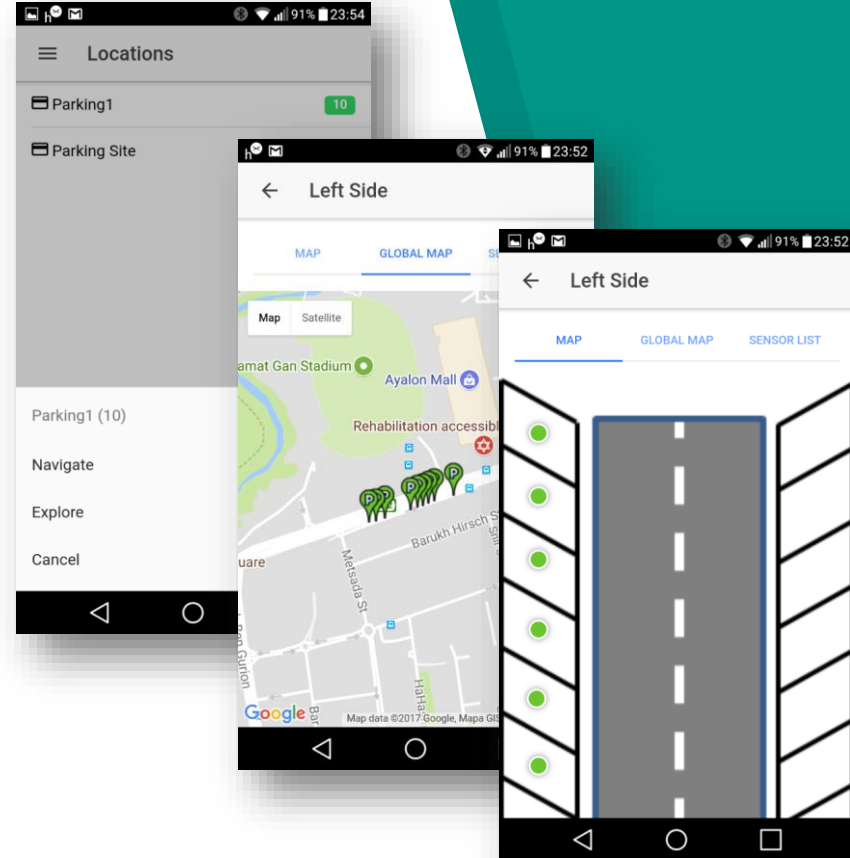
# Real-time Parking Availability Dashboard

- 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

The screenshot displays a web-based parking management system interface. The top navigation bar includes links for Home, Monitoring, Policies, Persons, Reports, and Administration. The left sidebar lists report categories: Event reports, T&A Reports, and Parking reports. The main content area shows a 'Parking reports' dropdown menu with options like 'Parking Events', 'Parking Fee Report', and 'Parking Fee Total Report'. Below this, a tree view shows a hierarchy of areas: Area11, PhysicalArea111, Area12, PhysicalArea121, and Parking Demo. The 'Parking Fee Report' is selected, showing a table with columns for Parking space, Record start, Record end, Duration, and Fee. The report is filtered by 'Start date: 11/11/17, End date: 11/12/17'. An 'Event Details' pop-up window is open, showing a table with columns for Record start, Record end, Rate start time, Rate end time, Rate grace period, Pay rate, Pay period, Maximum pay per day, and Fee. The pop-up also includes buttons for 'Check In', 'Check Out', 'Refresh', and 'Export'.

**Parking Fee Report**

Start date: 11/11/17, End date: 11/12/17

Parking space	Record start	Record end	Duration	Fee
UGuardParkingSensor1	9:17:35 PM	9:18:45 PM	0:01	3.45
UGuardParkingSensor1	9:19:15 PM	9:19:25 PM	0:00	0.5
UGuardParkingSensor1	9:19:35 PM	9:21:45 PM	0:02	6.45
UGuardParkingSensor1	9:22:05 PM	9:22:45 PM	0:00	2

**Event Details**

Check In Check Out Refresh Export

Record start	Record end	Rate start time	Rate end time	Rate grace period	Pay rate	Pay period	Maximum pay per day	Fee
9:27:25 PM	9:29:35 PM	1/1/70 6:16:00 PM	1/1/70 11:59:00 PM	5	3	60	30	6.45

Showing 1 to 1 of 1

# 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

The screenshot displays a web application interface for managing parking fees. The top navigation bar includes links for Home, Monitoring, Policies, Persons, Reports, and Administration, along with a user profile for 'admin'. A left sidebar lists various management options: Holidays, Time Schedules, Person Roles, Person Groups, T&A Work Areas, T&A Work Shifts, and Parking Rates (which is currently selected).

The main content area is titled 'Effective time' and contains several configuration sections:

- Buttons:** 'Save changes' (blue), 'New rate' (green), 'Move left (earlier)' (grey), 'Move right (later)' (grey), and 'Delete' (red).
- Rate Selection:** Tabs for 'Rate 1' and 'Rate 2' are visible.
- Work on weekdays:** Checkboxes for Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday, all of which are checked.
- Work on holidays:** Checkboxes for 'On holidays type 1' and 'On holidays type 2', both of which are checked.
- Time Settings:** 'Start time' is set to 12:00 AM and 'End time' is set to 6:16 PM, each with a clock icon for selection.
- Rate parameters:** A series of input fields for:
  - Grace period (minutes): 5
  - Pay period (minutes): 60
  - Currency: USD
  - Pay rate: 2
  - Maximum pay per day: 15
- Submission:** 'Submit' (blue) and 'Cancel' (grey) buttons at the bottom.

# Integration with Areashell Cloud Parking Services

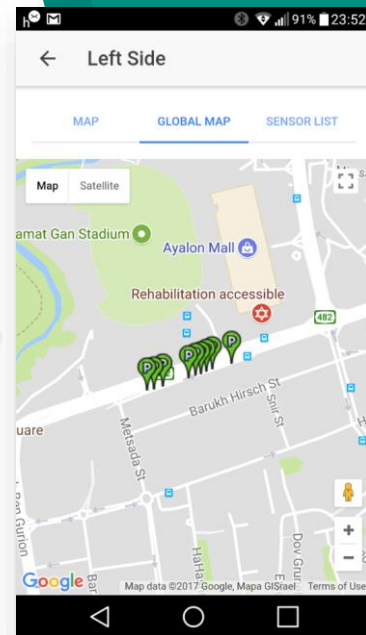
- Any Areashell instance can be integrated with the Areashell Parking Services (running in the Areashell cloud)
- Areashell instances regularly send information about availability of the parking spaces to Areashell Cloud Parking Services
- Areashell Cloud Parking Services provides parking availability,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

**Areashell Server**



**Areashell Cloud  
Parking Service**

**Areashell  
Parking  
mobile  
application**



A large green diagonal graphic element that starts from the top right and extends towards the bottom left, creating a triangular shape on the right side of the slide.

# 5.

## **AREASHELL IRRIGATION MONITORING**

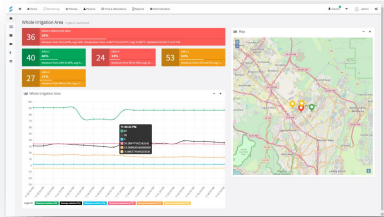
Monitor moisture and temperature  
on dashboards and graphic maps  
in real time

# Internet of Things Ecosystem



- 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



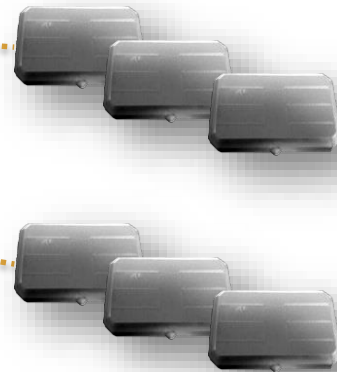
Coordinator



Routers

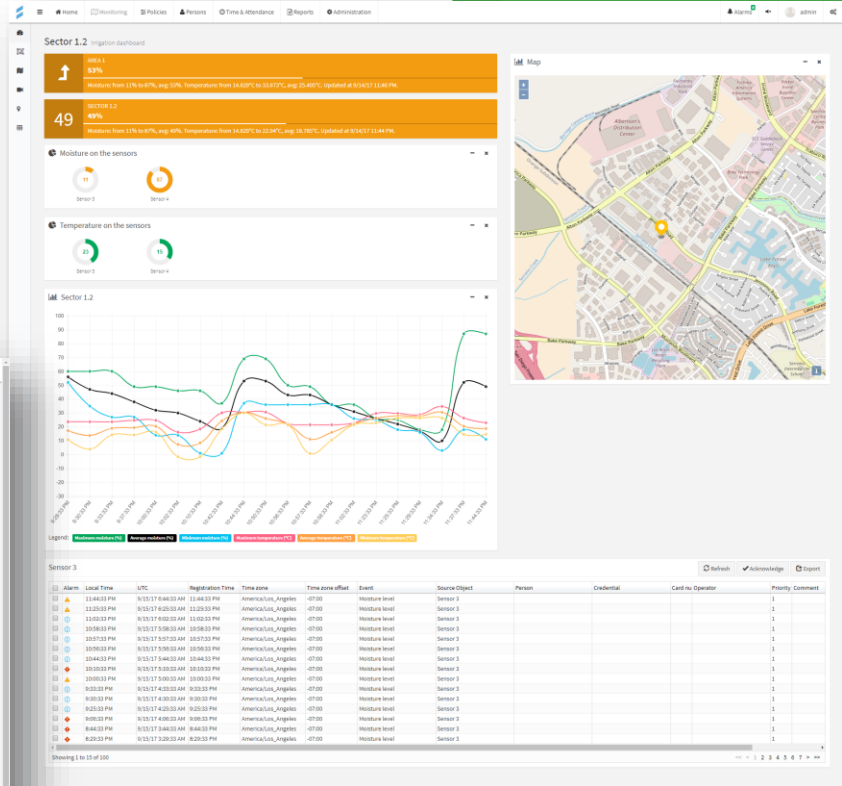
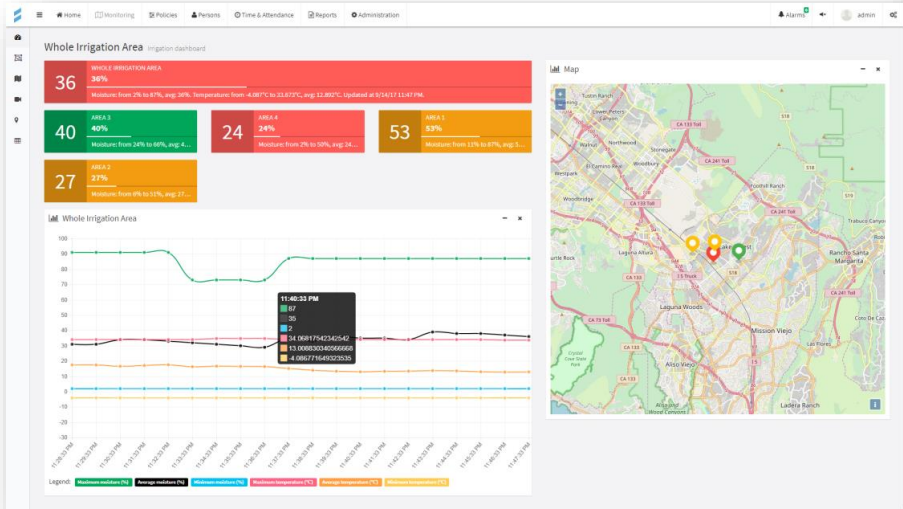


Moisture / Temperature Sensors



# 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

The screenshot displays the Areashell Alarm Monitoring Screen interface. The top navigation bar includes links for Home, Monitoring, Policies, Persons, Time & Attendance, Reports, and Administration. The left sidebar shows a tree view of areas, including Whole Irrigation Area, Area 1, Area 2, Area 3, and Area 4, each with sub-sectors. The main content area is titled 'Whole Irrigation Area' and features a map view with a 'Global map' button. The map shows a geographical area with various landmarks and colored markers indicating alarm locations. Below the map, there is an 'Events' section with a table listing alarm notifications.

Alarm	Local Time	UTC	Registration Time	Time zone	Time zone offset	Event	Source Object	Person	Credential	Card nu	Operator	Priority	Comment
	11:46:00 PM	9/15/17 6:46:00 AM	11:46:00 PM	America/Los_Angeles	-07:00	Login	admin				admin	1	
	11:45:33 PM	9/15/17 6:45:33 AM	11:45:33 PM	America/Los_Angeles	-07:00	Moisture level	Whole Irrigation Area					1	
	11:45:33 PM	9/15/17 6:45:33 AM	11:45:33 PM	America/Los_Angeles	-07:00	Moisture level	Area 3					1	
	11:45:33 PM	9/15/17 6:45:33 AM	11:45:33 PM	America/Los_Angeles	-07:00	Moisture level	Sector 3.2					1	
	11:45:33 PM	9/15/17 6:45:33 AM	11:45:33 PM	America/Los_Angeles	-07:00	Moisture level	Sensor 12					1	
	11:44:33 PM	9/15/17 6:44:33 AM	11:44:33 PM	America/Los_Angeles	-07:00	Moisture level	Whole Irrigation Area					1	
	11:44:33 PM	9/15/17 6:44:33 AM	11:44:33 PM	America/Los_Angeles	-07:00	Moisture level	Area 1					1	
	11:44:33 PM	9/15/17 6:44:33 AM	11:44:33 PM	America/Los_Angeles	-07:00	Moisture level	Sector 1.2					1	
	11:44:33 PM	9/15/17 6:44:33 AM	11:44:33 PM	America/Los_Angeles	-07:00	Moisture level	Sensor 3					1	
	11:43:33 PM	9/15/17 6:43:33 AM	11:43:33 PM	America/Los_Angeles	-07:00	Moisture level	Whole Irrigation Area					1	
	11:43:33 PM	9/15/17 6:43:33 AM	11:43:33 PM	America/Los_Angeles	-07:00	Moisture level	Area 1					1	
	11:43:33 PM	9/15/17 6:43:33 AM	11:43:33 PM	America/Los_Angeles	-07:00	Moisture level	Sector 1.1					1	
	11:43:33 PM	9/15/17 6:43:33 AM	11:43:33 PM	America/Los_Angeles	-07:00	Moisture level	Sensor 2					1	
	11:42:33 PM	9/15/17 6:42:33 AM	11:42:33 PM	America/Los_Angeles	-07:00	Moisture level	Whole Irrigation Area					1	
	11:42:33 PM	9/15/17 6:42:33 AM	11:42:33 PM	America/Los_Angeles	-07:00	Moisture level	Area 1					1	

# Global Graphic Maps

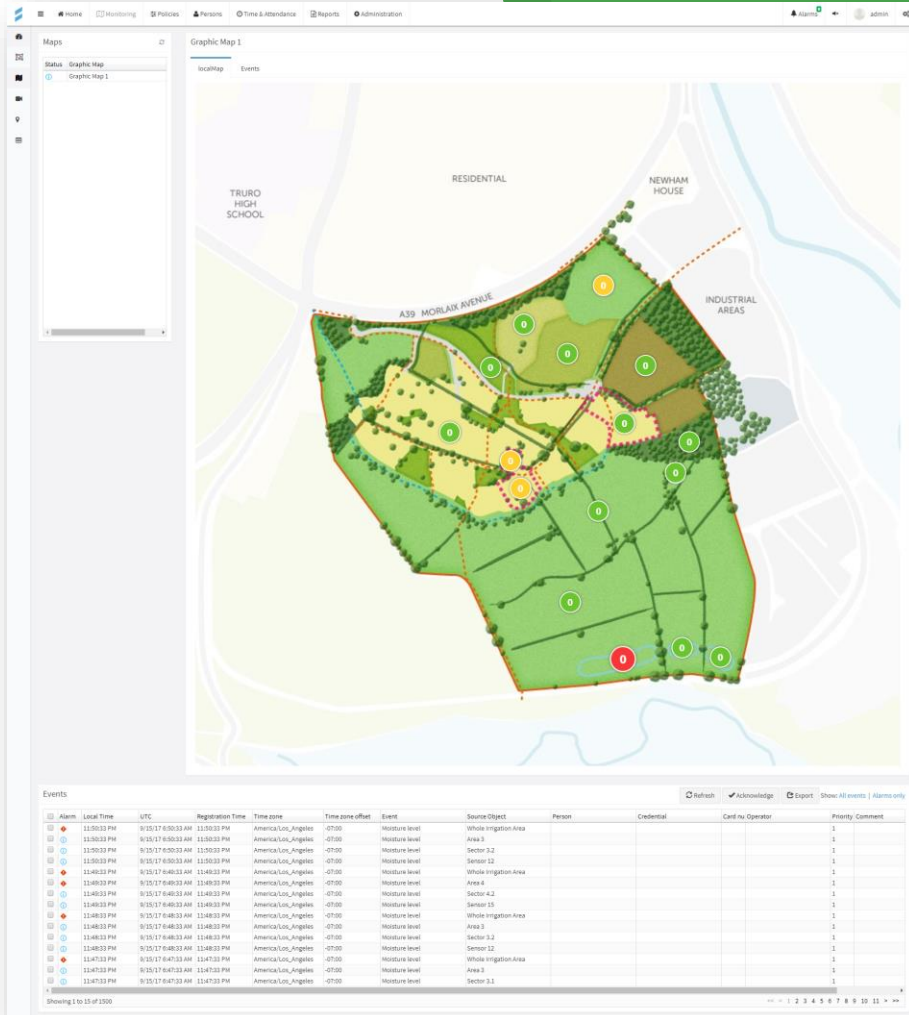
Place areas and sensors on global graphic maps to monitor outside areas and territories or to monitor minimum, maximum and average moisture and temperature values for whole areas (buildings, fields, territories)

The screenshot displays a web-based monitoring application. The top navigation bar includes links for Home, Monitoring, Policies, Persons, Time & Attendance, Reports, and Administration. The left sidebar contains a tree view for 'Areas' with a hierarchy: Whole Irrigation Area, Area 1, Area 2, Area 3, Area 4, and various sectors. The main area is titled 'Whole Irrigation Area' and features a 'Graphic map' tab. The map shows a geographical area with various landmarks and sensors marked with colored dots. Below the map is a table of events.

Alarm	Local Time	UTC	Registration Time	Time zone	Time zone offset	Event	Source Object	Person	Credential	Card nu	Operator	Priority	Comment
<input type="checkbox"/>	11:46:00 PM	9/15/17 6:46:00 AM	11:46:00 PM	America/Los_Angeles	-07:00	Login	admin				admin	1	
<input type="checkbox"/>	11:45:33 PM	9/15/17 6:45:33 AM	11:45:33 PM	America/Los_Angeles	-07:00	Moisture level	Whole Irrigation Area					1	
<input type="checkbox"/>	11:45:33 PM	9/15/17 6:45:33 AM	11:45:33 PM	America/Los_Angeles	-07:00	Moisture level	Area 3					1	
<input type="checkbox"/>	11:45:33 PM	9/15/17 6:45:33 AM	11:45:33 PM	America/Los_Angeles	-07:00	Moisture level	Sector 3.2					1	
<input type="checkbox"/>	11:45:33 PM	9/15/17 6:45:33 AM	11:45:33 PM	America/Los_Angeles	-07:00	Moisture level	Sensor 12					1	
<input type="checkbox"/>	11:44:33 PM	9/15/17 6:44:33 AM	11:44:33 PM	America/Los_Angeles	-07:00	Moisture level	Whole Irrigation Area					1	
<input type="checkbox"/>	11:44:33 PM	9/15/17 6:44:33 AM	11:44:33 PM	America/Los_Angeles	-07:00	Moisture level	Area 1					1	
<input type="checkbox"/>	11:44:33 PM	9/15/17 6:44:33 AM	11:44:33 PM	America/Los_Angeles	-07:00	Moisture level	Sector 1.2					1	
<input type="checkbox"/>	11:44:33 PM	9/15/17 6:44:33 AM	11:44:33 PM	America/Los_Angeles	-07:00	Moisture level	Sensor 3					1	
<input type="checkbox"/>	11:43:33 PM	9/15/17 6:43:33 AM	11:43:33 PM	America/Los_Angeles	-07:00	Moisture level	Whole Irrigation Area					1	
<input type="checkbox"/>	11:43:33 PM	9/15/17 6:43:33 AM	11:43:33 PM	America/Los_Angeles	-07:00	Moisture level	Area 1					1	
<input type="checkbox"/>	11:43:33 PM	9/15/17 6:43:33 AM	11:43:33 PM	America/Los_Angeles	-07:00	Moisture level	Sector 1.1					1	
<input type="checkbox"/>	11:43:33 PM	9/15/17 6:43:33 AM	11:43:33 PM	America/Los_Angeles	-07:00	Moisture level	Sensor 2					1	
<input type="checkbox"/>	11:42:33 PM	9/15/17 6:42:33 AM	11:42:33 PM	America/Los_Angeles	-07:00	Moisture level	Whole Irrigation Area					1	
<input type="checkbox"/>	11:42:33 PM	9/15/17 6:42:33 AM	11:42:33 PM	America/Los_Angeles	-07:00	Moisture level	Area 1					1	

# Local Graphic Maps

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



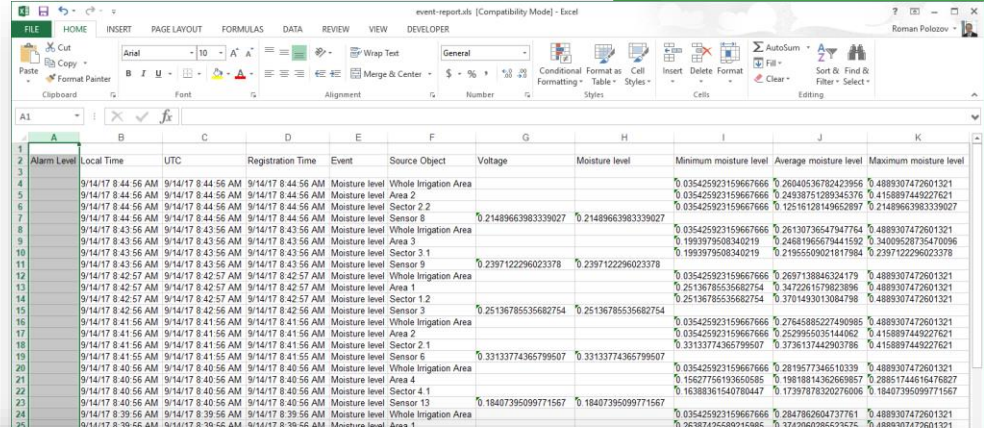
# Individual Sensor Alarm Threshold Settings

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

<b>Name</b>	Sensor 1
<b>Type</b>	UGuardADSensor
<b>Main properties</b>	
<b>Sensor ID</b>	0
<b>Location settings</b>	
<b>Location Area</b>	Sector 1.1
<b>A/D settings</b>	
<b>Sensor type</b>	Moisture sensor
<b>Maximum value alarm threshold</b>	0.9500000
<b>Maximum value warning threshold</b>	0.8000000
<b>Minimum value warning threshold</b>	0.2000000
<b>Minimum value alarm threshold</b>	0.0500000

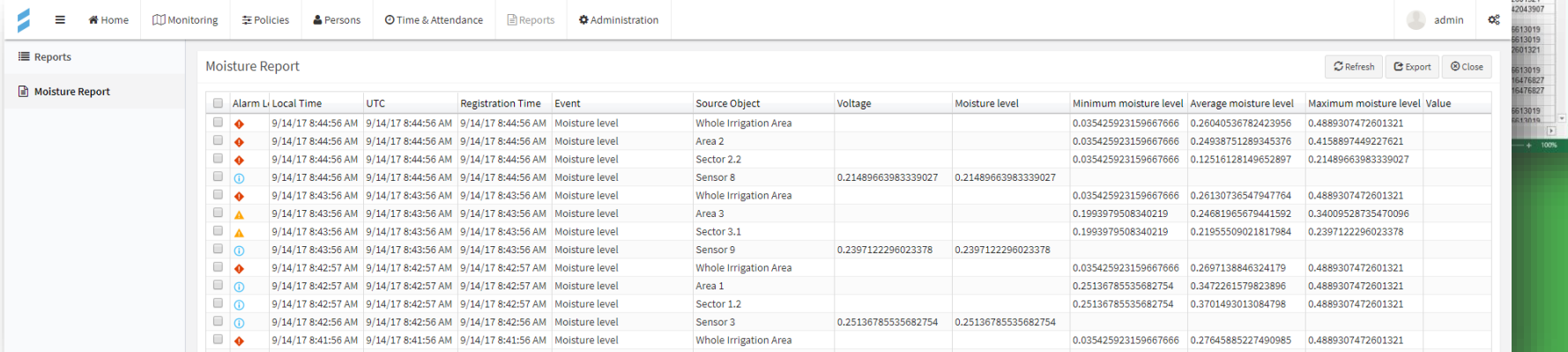
# Report generation based on the collected data

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



The screenshot shows an Excel spreadsheet titled 'event-reports.xls [Compatibility Mode] - Excel'. The data is organized in columns: A (Alarm Level), B (Local Time), C (UTC), D (Registration Time), E (Event), F (Source Object), G (Voltage), H (Moisture level), I (Minimum moisture level), J (Average moisture level), and K (Maximum moisture level). The rows contain detailed moisture level readings for various irrigation areas and sensors over time.

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			0.035425923159667666	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			0.035425923159667666	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			0.035425923159667666	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			0.035425923159667666	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	0.2529950535144062	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			0.035425923159667666	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
	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			0.035425923159667666	0.2885174616476827	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	Sector 4.1			0.035425923159667666	0.1981891436269857	0.2885174616476827
	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
	9/14/17 8:39:56 AM	9/14/17 8:39:56 AM	9/14/17 8:39:56 AM	Moisture level	Area 1			0.035425923159667666	0.3472261579823896	0.4889307472601321



The screenshot shows a web application interface with a navigation bar at the top containing links for Home, Monitoring, Policies, Persons, Time & Attendance, Reports, and Administration. The 'Reports' section is active, and the 'Moisture Report' is selected. The report displays a table with columns: Alarm Level, Local Time, UTC, Registration Time, Event, Source Object, Voltage, Moisture level, Minimum moisture level, Average moisture level, and Maximum moisture level. The table contains data for various irrigation areas and sensors over time. The interface also includes a sidebar with navigation options and a top right area with user information and a refresh button.

Alarm Level	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			0.035425923159667666	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			0.035425923159667666	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			0.035425923159667666	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			0.035425923159667666	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	



6.

## **AREASHELL ANALOG SIGNAL MONITORING**

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

# Internet of Things Ecosystem



- 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

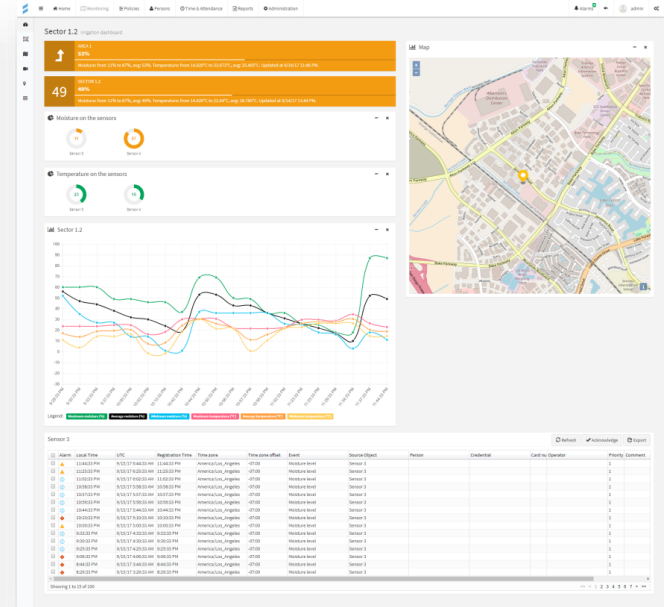
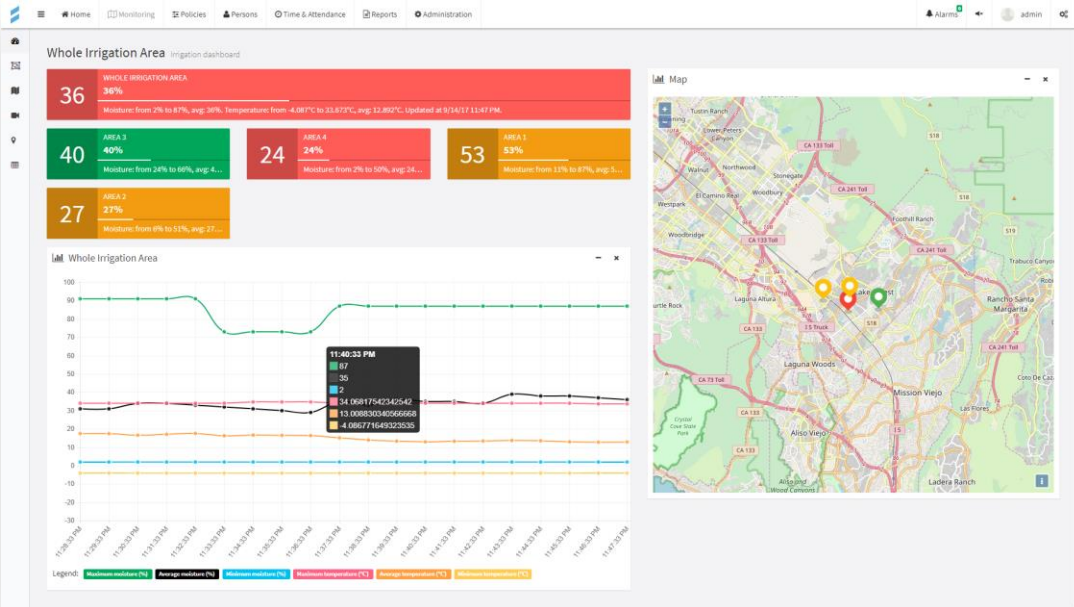
A/D Sensors





# Real-time Status Monitoring Dashboard

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





# Individual Sensor

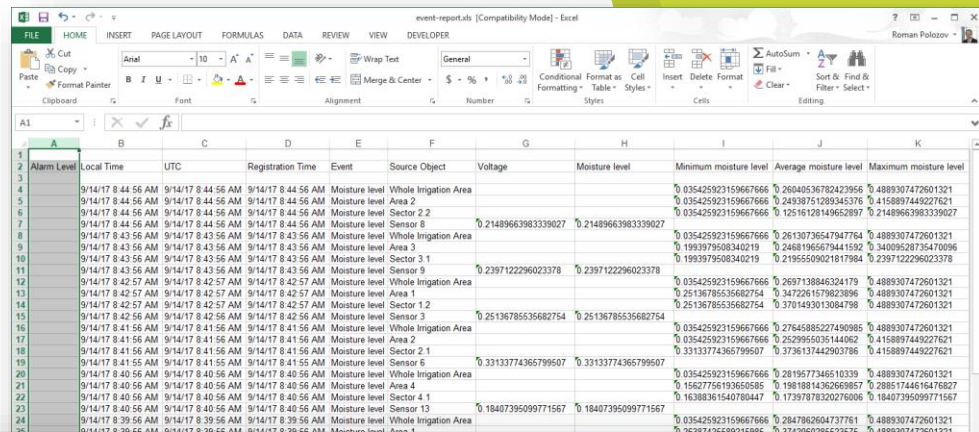
## Alarm Threshold Settings

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

<b>Name</b>	Sensor 1
<b>Type</b>	UGuardADSensor
<b>Main properties</b>	
<b>Sensor ID</b>	0
<b>Location settings</b>	
<b>Location Area</b>	Sector 1.1
<b>A/D settings</b>	
<b>Sensor type</b>	Moisture sensor
<b>Maximum value alarm threshold</b>	0.9500000
<b>Maximum value warning threshold</b>	0.8000000
<b>Minimum value warning threshold</b>	0.2000000
<b>Minimum value alarm threshold</b>	0.0500000

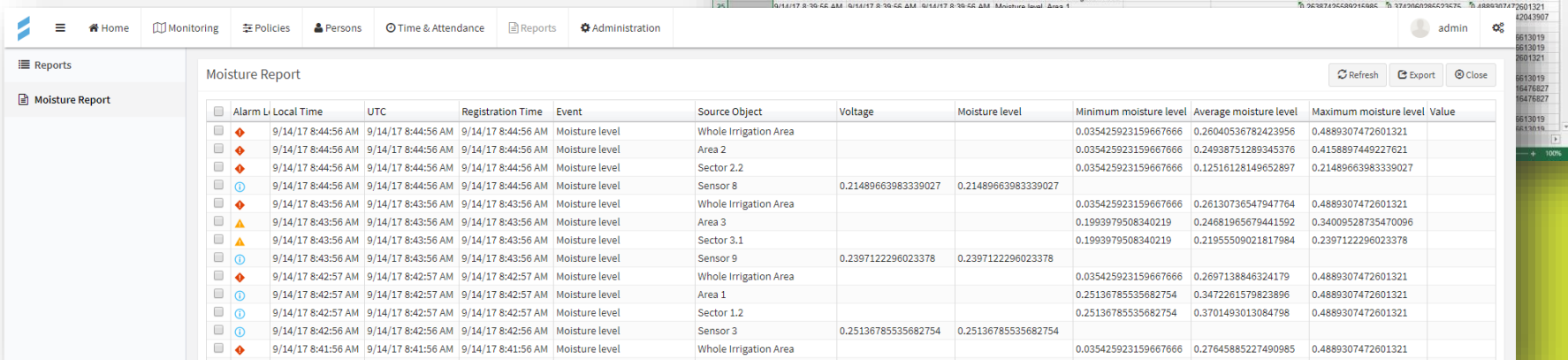
# Report generation based on the collected data

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



The screenshot shows an Excel spreadsheet titled 'event-reports.xls [Compatibility Mode] - Excel'. The data is organized in columns: A (Alarm Level), B (Local Time), C (UTC), D (Registration Time), E (Event), F (Source Object), G (Voltage), H (Moisture level), I (Minimum moisture level), J (Average moisture level), and K (Maximum moisture level). The rows contain timestamped data for various moisture levels across different irrigation areas and sensors.

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			0.035425923159667666	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			0.035425923159667666	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			0.035425923159667666	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			0.035425923159667666	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	0.252995035144062	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			0.035425923159667666	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
	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			0.035425923159667666	0.15627756193656085	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			0.035425923159667666	0.1638361540780447	0.1739787320276006
	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
	9/14/17 8:39:56 AM	9/14/17 8:39:56 AM	9/14/17 8:39:56 AM	Moisture level	Area 1			0.035425923159667666	0.3248749508929574	0.4889307472601321



The screenshot shows a web application interface with a navigation bar at the top containing links for Home, Monitoring, Policies, Persons, Time & Attendance, Reports, and Administration. The 'Reports' section is active, and the 'Moisture Report' is selected. The report displays a table of moisture data with columns for Alarm Level, Local Time, UTC, Registration Time, Event, Source Object, Voltage, Moisture level, Minimum moisture level, Average moisture level, and Maximum moisture level. The table is filtered by 'Moisture level' and shows data for various irrigation areas and sensors. The interface also includes a sidebar with navigation options and a top right area with user information and a refresh button.

Alarm Level	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		0.035425923159667666	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		0.035425923159667666	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		

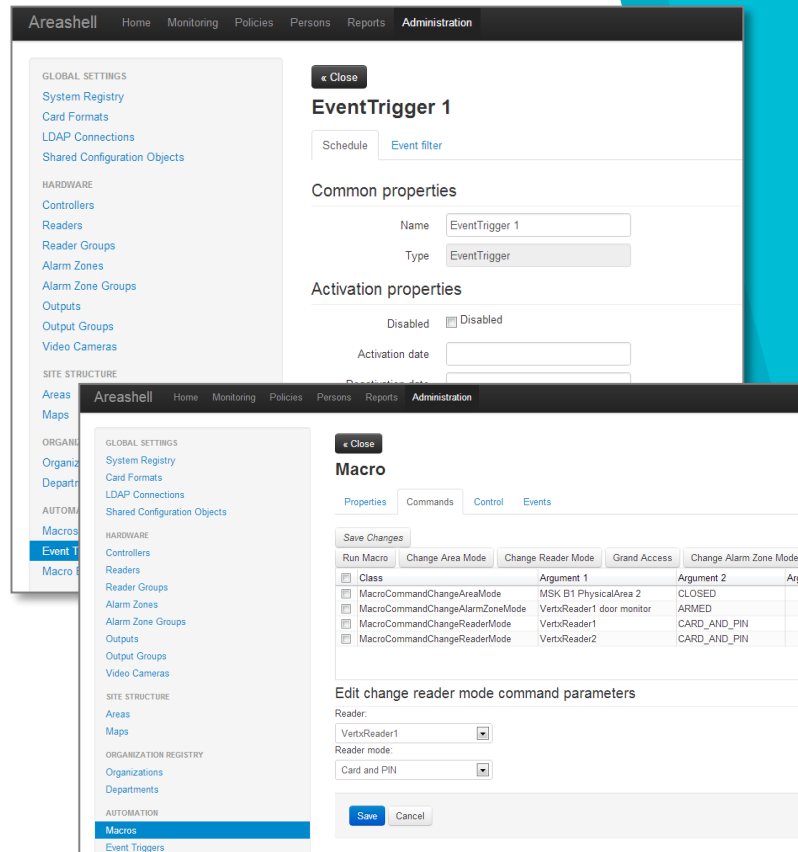


**7.**

**COMMON  
FEATURES,  
ARCHITECTURE &  
TECHNOLOGY**

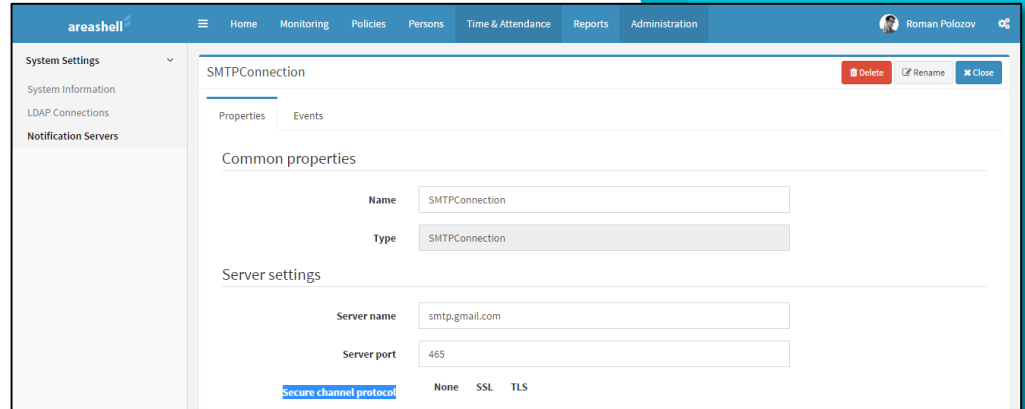
# Automation Subsystem

- Macros – lists of commands to execute
- Currently available commands:
  - Change reader mode
  - Grant 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)

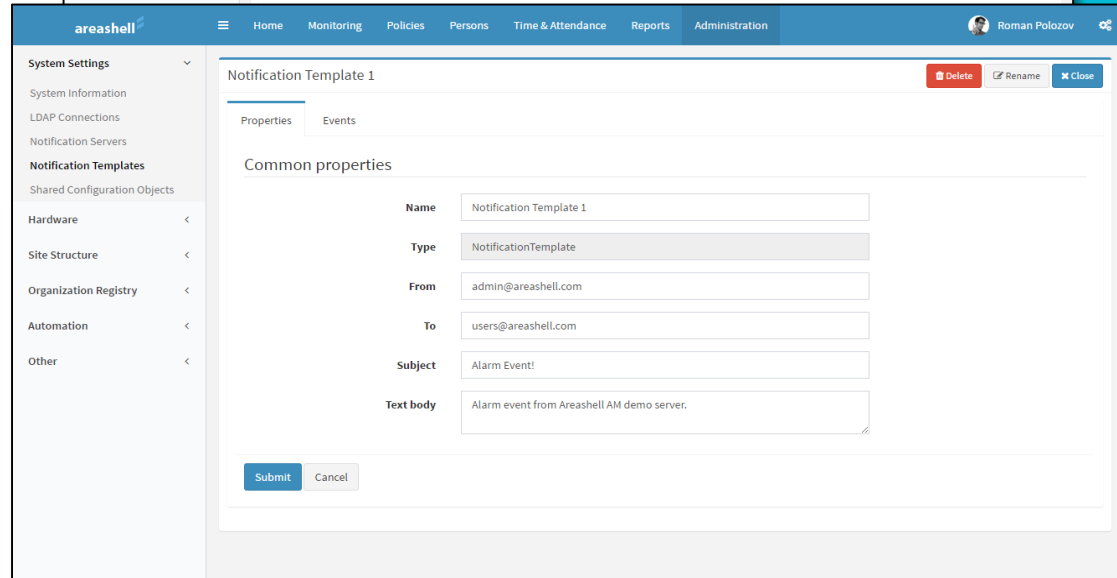


# Email Notifications

- Sending notification emails through SMTP servers
- Email notifications can be by 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



The screenshot shows the 'areashell' web interface. The left sidebar has a menu with 'System Settings' expanded, showing 'System Information', 'LDAP Connections', and 'Notification Servers'. The main content area is titled 'SMTPConnection' and has tabs for 'Properties' and 'Events'. Under 'Common properties', the 'Name' is 'SMTPConnection' and the 'Type' is 'SMTPConnection'. Under 'Server settings', the 'Server name' is 'smtp.gmail.com' and the 'Server port' is '465'. There is a 'Secure channel protocol' dropdown set to 'None', with 'SSL' and 'TLS' as options. Action buttons 'Delete', 'Rename', and 'Close' are in the top right.



The screenshot shows the 'areashell' web interface for configuring a notification template. The left sidebar has a menu with 'System Settings' expanded, showing 'System Information', 'LDAP Connections', 'Notification Servers', 'Notification Templates', 'Shared Configuration Objects', 'Hardware', 'Site Structure', 'Organization Registry', 'Automation', and 'Other'. The main content area is titled 'Notification Template 1' and has tabs for 'Properties' and 'Events'. Under 'Common properties', the 'Name' is 'Notification Template 1', the 'Type' is 'NotificationTemplate', the 'From' is 'admin@areashell.com', the 'To' is 'users@areashell.com', the 'Subject' is 'Alarm Event!', and the 'Text body' is 'Alarm event from Areashell AM demo server.'. Action buttons 'Submit' and 'Cancel' are at the bottom left, and 'Delete', 'Rename', and 'Close' are in the top right.

# 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

The screenshot displays the Areashell web interface, highlighting the multi-tenant configuration feature. The top interface shows a table of tenants, and the bottom interface shows a 'Manage Tenants' dropdown menu.

**Top Interface Table:**

Name	Type	Address	Connect	Regular	Polling period (n)	Communication	Last Modified	Last Modified
UGuardCoordinate	UGuardCoordinate	192.168.1.149:7777	false	false	10000	5000	5:54:47 PM	admin
V2000	V2000	192.168.1.77:4050	false	false	10000	5000	5:54:21 PM	admin

**Bottom Interface:**

The bottom interface shows a 'Manage Tenants' dropdown menu with the following options:

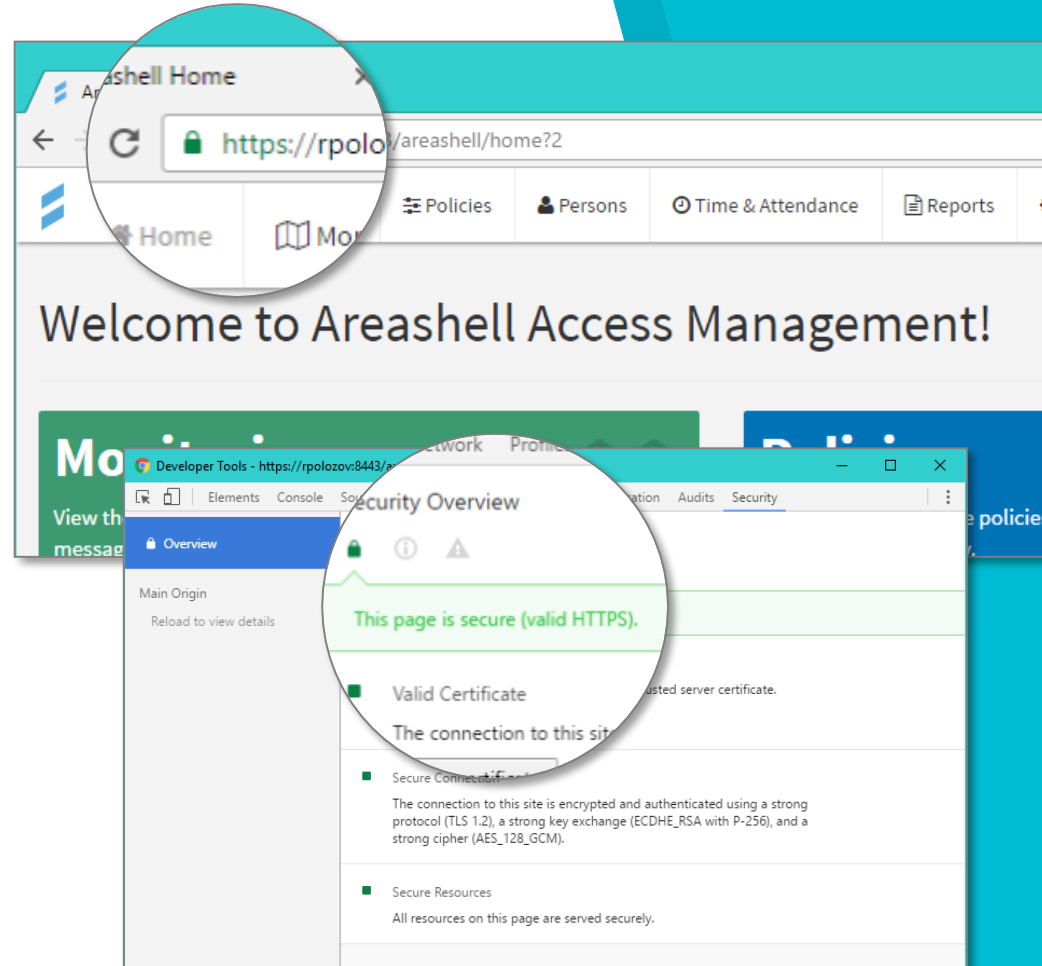
- System Tenant
- areashell.com
- domain1.com
- domain2.com

# 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

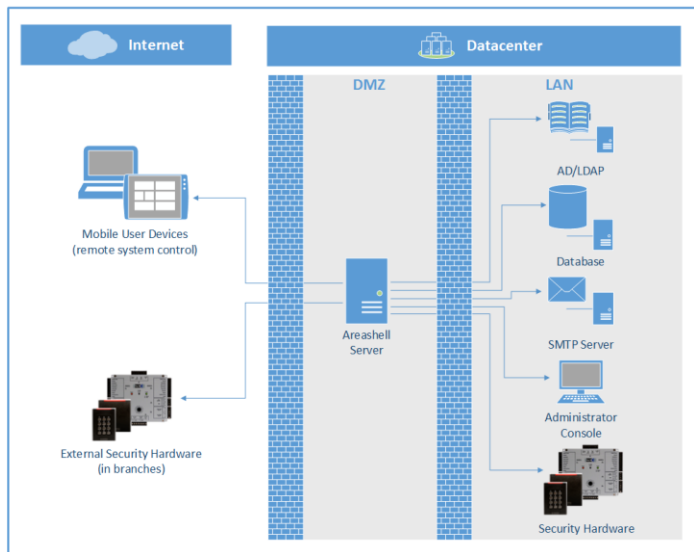




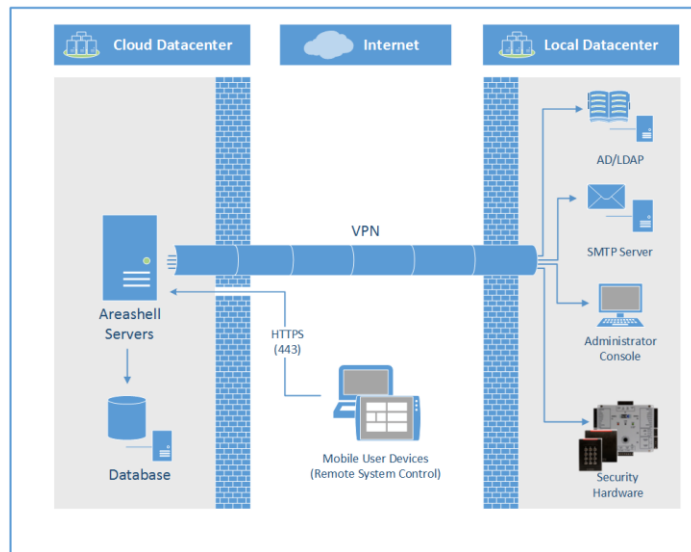
# Flexible Deployment

- 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





**Please contact us!**

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