

## Product Description



# Sky-Walker™

## Open Integration Platform

Sky-Walker is an open integration platform that integrates all the technical, safety and security systems within your buildings. Whatever brand or supplier you use, you'll end up with one intuitive management solution.







“ Building  
Software  
That Matters

## Contents

<b>4</b>	<b>Introduction</b>
4	About Sky-Walker
<b>6</b>	<b>Features</b>
8	GUI
10	Users
11	Alarms
12	Navigation
13	Command and Control
<b>14</b>	<b>Modules</b>
16	IP Matrix
17	Web Client
18	Workflow Manager
19	GIS Integration
<b>20</b>	<b>Software</b>
21	Architecture
22	Application Layer
26	Data Layer
27	Communication Layer
<b>28</b>	<b>Hardware req.</b>
29	Architecture
30	Video Wall
30	Workstation
30	Subsystems
31	Servers
31	Network

Buildings are equipped with a lot of diverse technologies, usually from different manufacturers. Managing all these technologies using the specific management tools of the separate systems can be very complex and time-consuming.

Our Sky-Walker Open Integration Platform provides one solution for the management and control of all separate systems and technologies, within buildings or at multiple sites, by combining them under one open, powerful and intuitive user interface. Most of these systems can be grouped in 3 main domains, being comfort management, security management and safety management.

# ABOUT THE SKY-WALKER

## BUILDING MANAGEMENT PLATFORM



### SAFETY

Safety Management systems are designed to manage safety elements in the workplace. Thanks to its open integration structure, Sky-Walker connects with, and integrates any type of safety management system such as public address, alarm messaging, evacuation systems, fire and hazard detection and many more.



### SECURITY

Security Management relates to the security of buildings, people and assets, as well as to the protection of information, network and telecommunication systems. Traditionally, Physical Security Information Management (PSIM) software provides a platform to integrate multiple security subsystems and devices like CCTV, access control, intrusion, intercom etc.



### COMFORT

Comfort Management typically relates to systems that control the building climate. Think of heating, ventilation, air conditioning, cooling and humidification for example. Together with other kinds of comfort management systems like lighting, energy consumption and electricity, Sky-Walker is able to keep a close eye on the comfort level in buildings and multi-sites.



All your systems  
combined in one  
software platform

# Features



GUI  
PAGE 8



USERS  
PAGE 10



ALARMS  
PAGE 11



NAVIGATION  
PAGE 12



COMMAND AND CONTROL  
PAGE 13





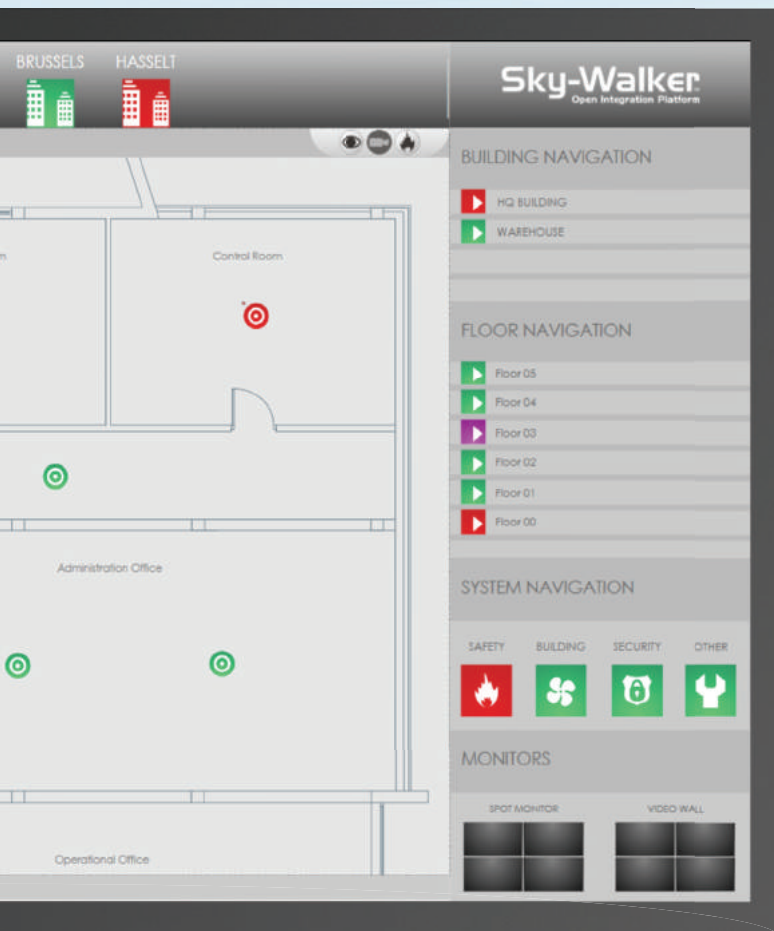


## GUI

The graphical user interface (GUI) is built for use on Windows. The screen setup is entirely user defined, meaning that the customer can determine the complete look and feel of the software, including images, colours and fonts. Even the icons are customizable with the comprehensive icon library provided to each customer. The in-house graphics team is also capable of providing tailored and customized icons to best suit the customers' organization.

The GUI can be built across multiple monitors, linked through one workstation. This makes it possible to display multiple screens simultaneously. E.g. it is possible to display the graphical screens on the first monitor and the real-time alarm buffers or live video images (or other) on a second monitor.





## 360° TRANSPARENCY AND UNIFORMITY

### Simultaneously display any of these:

- Maps, floorplans, technical drawings
- Real-time alarms
- Navigation
- Project, plan or object information
- Desired action information

Navigation throughout Sky-Walker is remarkably intuitive. The extensive zoom functionalities make sure the operator had a clear view of both the entire building and site plans, as well as their tiniest details. Each window can also be repositioned and resized, individually activated or deactivated. Multiple windows are grouped together and can be displayed simultaneously on the screen.

The layout is completely scalable, so the operational client can be run either from a PC, a tablet or a video wall. The engineering of the GUI is completely independent of the plan-type, which makes Sky-Walker highly adaptive and transparent. Sky-Walker's graphical user interface supports 2D floor plan rendering, including for example DWG, PNG, JPEG, BMP and GIF files.



## USERS

Every user of the integration platform logs on with his own unique user ID. Once a user profile is created, user rights can be assigned. These user rights make sure each operator only has access to the systems and information within his or her jurisdiction. For example, the operator in charge of the HVAC systems only has access to the HVAC plans, while the operator in charge of security has access to CCTV systems. On top of that, their supervisor has access to both systems.

These rights can be assigned to not only a physical person, but also to a physical workstation. When an operator is logged into Sky-Walker in a specific workstation in charge of the fire systems for example, he will only have access to the fire systems. An important notice however, is the fact that there is only one shared Sky-Walker platform, providing different rights to different users and workstations.

In general, Sky-Walker is mainly used by its operators. However, managers can gather useful information from statistics and reports as well. Access rights and specific tasks can be appointed to managers' user profiles.





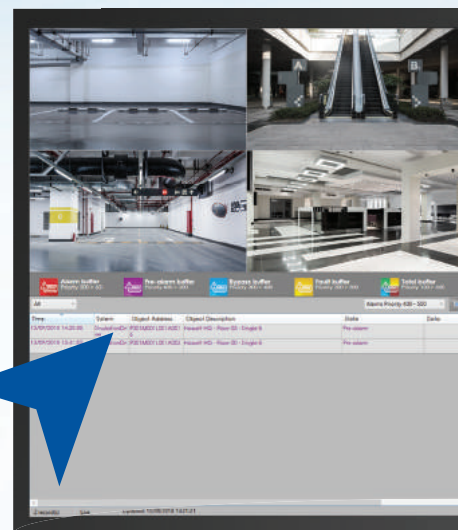
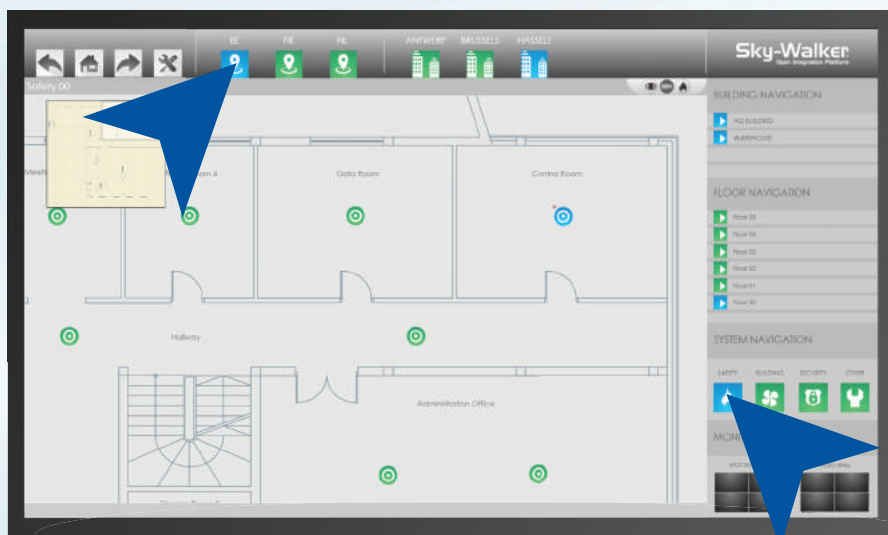
## ALARMS

Handling alarms a crucial responsibility of a control room operator. In Sky-Walker, alarms occur in the real-time alarm buffer, where the alarms are continuously visible on screen. The location of the alarm is indicated via the colour change in the navigation buttons. For example, in the Sky-Walker GUI above, the alarm takes place on the ground floor of the HQ Building, located in Hasselt, Belgium.

It is of great importance that the operator in charge is immediately triggered when an alarm occurs. When the object goes into the alarm-state, it's colour will change. If needed, the object can even be animated in order for it to blink or rotate. Simultaneously, each alarm-state can be accompanied by a flash object, sound (e.g. fire siren) and video (e.g. the evacuation plan).

Furthermore, the alarms can be filtered according to their priority. The operator can work his or her way through the high priority alarms first, before handling the ones with a lower priority. By clicking on an alarm in the alarm buffer, Sky-Walker also automatically navigates to the alarm zone in on the floorplan of said alarm.





## NAVIGATION

Navigation between the different screens is possible via the navigation buttons, the treeview or via the alarm buffer. The user interface also provides the ability to navigate to a location where cameras are installed, and manage these cameras, by using the Sky-Walker PTZ viewer (pan-tilt-zoom). Sky-Walker has 3 types of navigation.

1

### ALARM BUFFER

Via the alarm buffer the user can automatically navigate to the screen where the alarm occurs. This is done by a simple click on the alarm line.

2

### NAVIGATION BUTTONS

Per navigation button a user can navigate in each window to a different screen. Depending on the access level of the operator and the workstation.

3

### TREEVIEW

Via the treeview a user can navigate between the different pages in each window. This view visually structures the hierarchy of the pages.

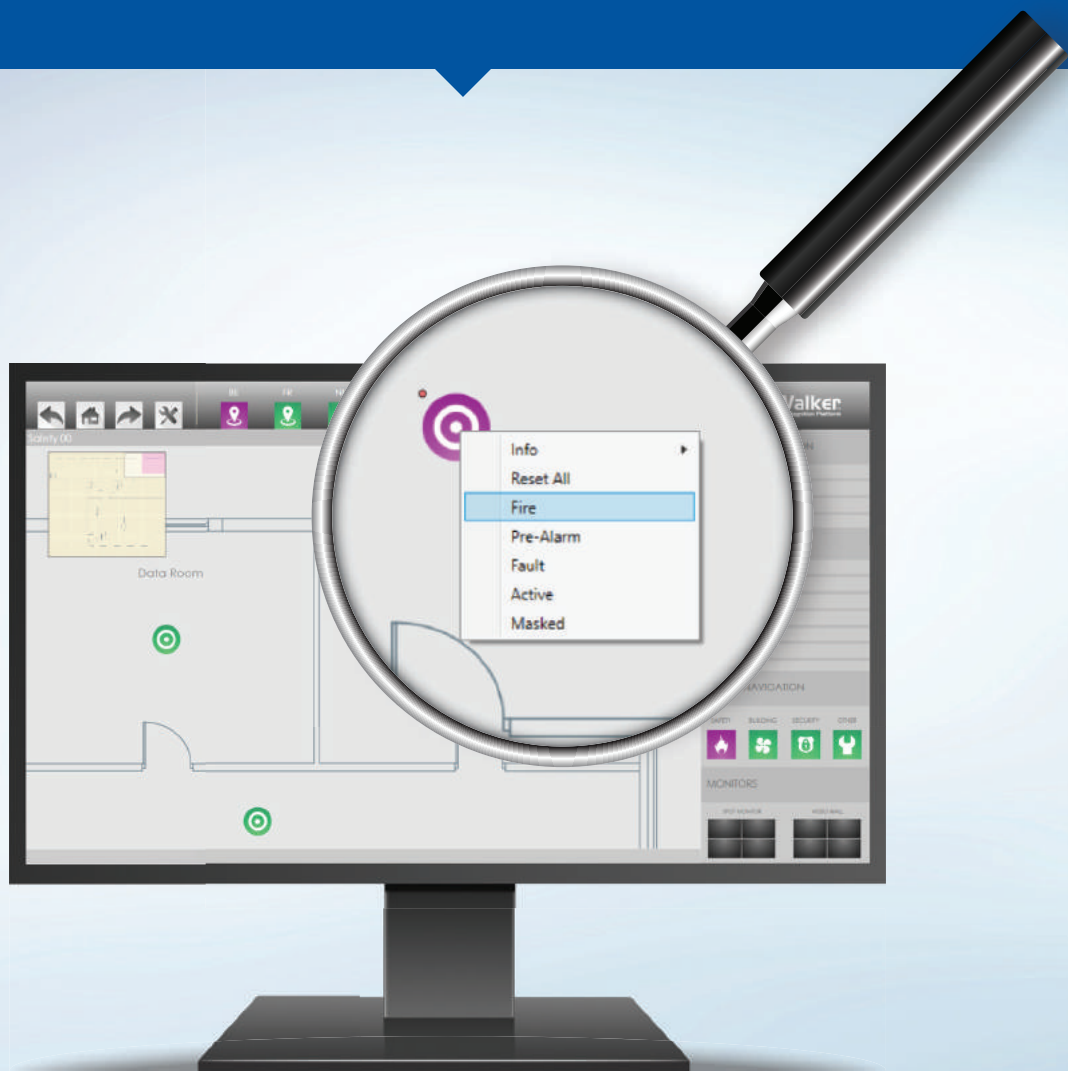


## COMMAND AND CONTROL

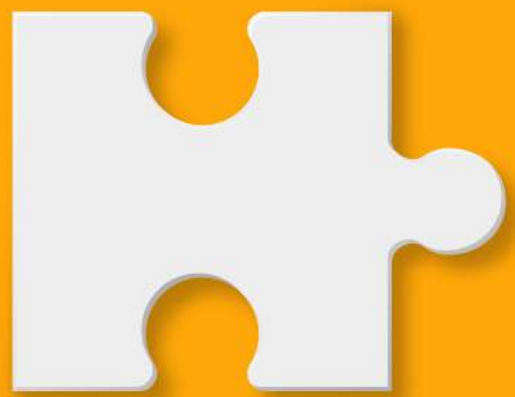
Per connected system it is possible to define a command menu. This menu appears after a right-click on the icon of the subsystem in question and is uniform for all subsystems.

Examples of possible commands are masking a fire detector, (un)lock door, switching a video image, show a plan, show camera, hide viewer, show, release, flash or change an alarm camera, configure a sequence, run a salvo, show a live view, show recordings, send, execute of control a command, start or stop a scenario, raise an event, ...

For each command a confirmation may be asked whether to execute the command or not depending on the configuration. It is also possible to add extra information when executing a command. Both the confirmation, as well as the extra info are options and can be easily activated or deactivated depending on the command.



# Modules



IP MATRIX

PAGE 16



WEB CLIENT

PAGE 17



WORKFLOW MANAGER

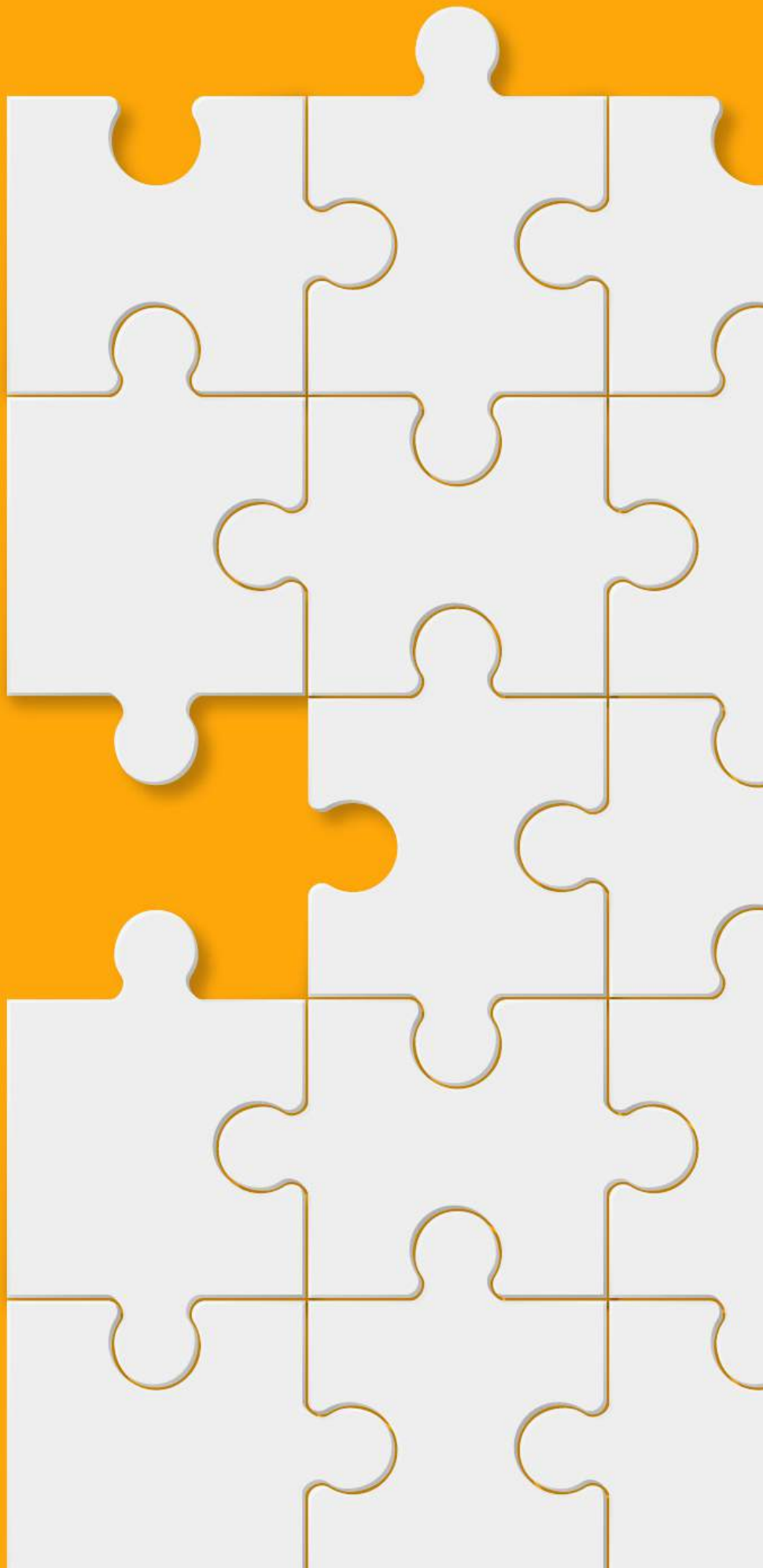
PAGE 18



GIS INTEGRATION

PAGE 19







## IP MATRIX

The Sky-Walker IP Matrix module enables you to connect various CCTV systems like IP camera's, DVR's and NVR systems, into one clear video matrix.

All cameras can be linked with fire detectors, sensors, intrusion detectors to have a better view when an event occurs. Functions as PTZ (pan-tilt-zoom), live view, layouts, salvo's & sequences and playback recordings are all implemented.

### BENEFITS

- Better decision making
- Extra set of eyes
- Cost saving
- Only one client required
- Better alarm handling
- Extended features



## WEB CLIENT

Often, in case of an alarm, the operator who handles the incoming alarm is the same operator who has to check out the probable danger or stress situation. Where in the past, the operator would leave the desk and thus the Sky-Walker client, the operator now has the handy Web Client when on the move.

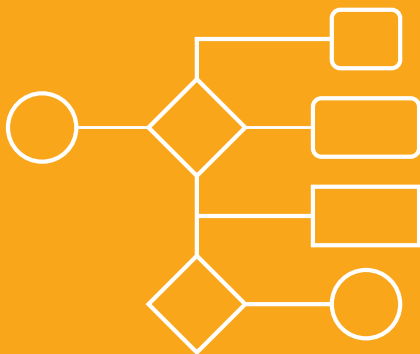
When a new alarm occurs, which has a higher priority than the existing alarm, the operator knows immediately which alarm occurs and where it takes place, thus increasing the operators adaptivity and responsiveness.

### BENEFITS

- Accessible anywhere
- Adaptivity
- Extended functionalities
- Simplified system testing
- Increased situational awareness
- Increased monitoring capabilities







## WORKFLOW MANAGER

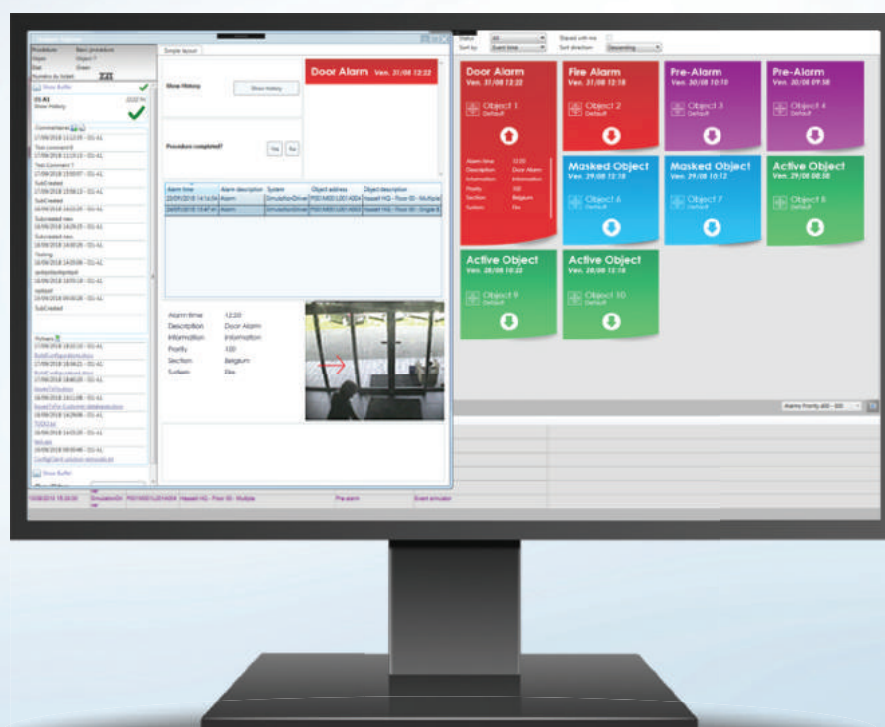
The Sky-Walker workflow manager enables the operator to handle alarms and incidents in the most intuitive way possible. These workflows are configured in advance, following the wishes of the customer. The main advantage of this is that when the workflow requires changes or adaptations, this can easily be configured in the Sky-Walker configuration client.

Each workflow can be configured specifically for the custom's needs. Change the colors, fonts, setup, filters and other look-and-feel features to your wishes. Changes and adaptations can be made easily afterwards. This makes the Sky-Walker workflow manager a very flexibel tool.

## ALARM FORM



In alarm handling, innovation is key. The alarm form is a brand new Sky-Walker addition, part of the workflow, in which the operator has to fill in all the information regarding a certain alarm or event. The alarm form provides all the instructions needed as well, in order to optimize the alarm handling workflow to a whole new level.





## GIS INTEGRATION

Sky-Walker visualizes mobile units and alarms in very intuitive way using the GIS integration module developed by our in-house development team.

In crisis situations, the life of an operator is often very stressful and demanding. GIS is here to help the operator make better and faster decisions when faced with the many tasks at hand. Sky-Walker visualizes mobile units and alarms in very intuitive way.

### BENEFITS

- Display of unit states and location
- Real time traffic information
- Helicopter view of incident
- Completely customizable
- Intuitive alarm handling
- Situational awareness

# Software

The Sky-Walker Integration Platform has a **Service Oriented Architecture**, which means that the software is built up out of services, designed to run 24/7 in the background.

Services work **autonomously** without user interaction and start automatically with the Windows Operation System, independent of the user logon, thus giving more flexibility in virtual environments.

Another asset of services is that they are **generic, modular and accessible** for multiple clients.





# Architecture

APPLICATION LAYER

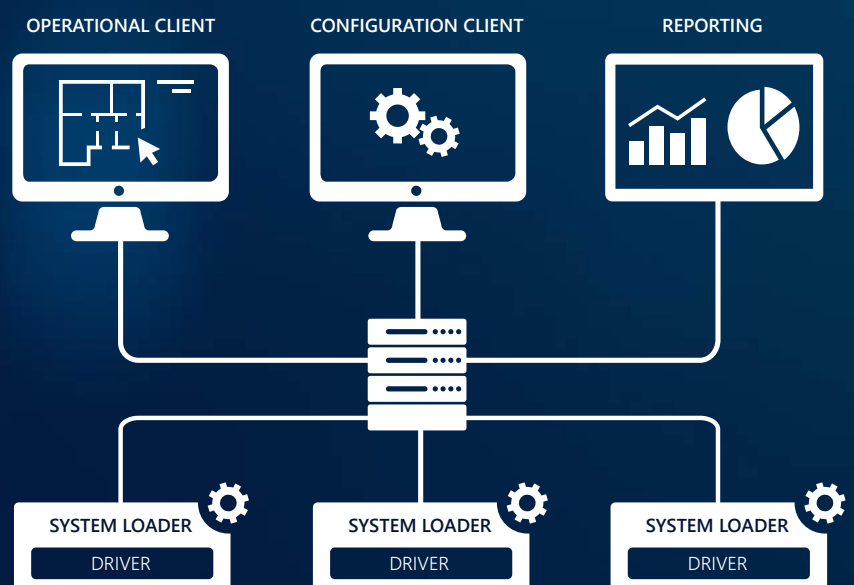
PAGE 22

DATA LAYER

PAGE 26

COMMUNICATION LAYER

PAGE 27





# USE

The front-end software or application layer consists of the operational client, the configuration client and the reporting module.

The operational client and the configuration client are inseparable from one another as they configuration client is used to configure the operational client.



OPERATIONAL CLIENT



CONFIGURATION CLIENT

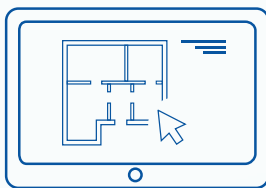


REPORTING MODULE



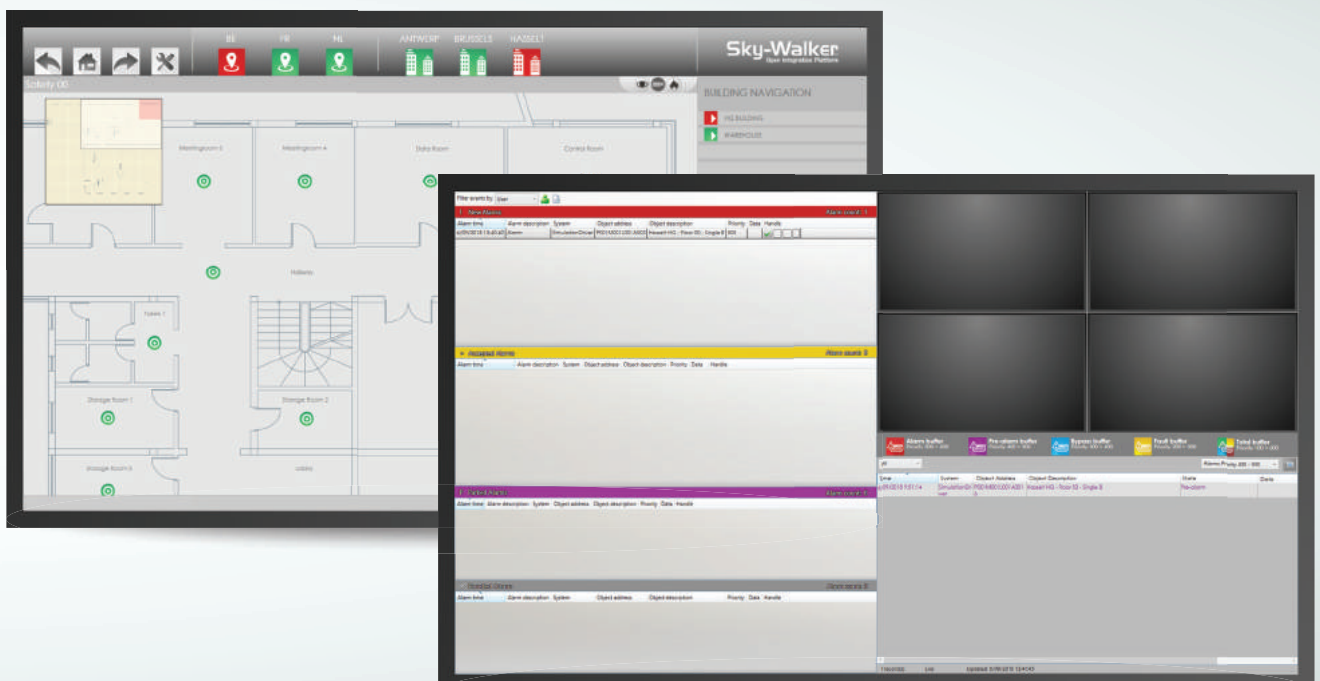


## OPERATIONAL CLIENT



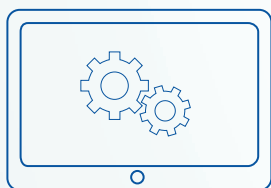
The **Operational Client** is the software used by the operators to control and monitor the connected systems. They have a **Graphical User Interface (GUI)** available that visualizes maps and floorplans and enables them to navigate through different buildings.

The interactive **Sky-Walker GUI** is often configured on two screens. In the example below the plans and navigation are displayed on the left monitor and the alarm handling buffer and CCTV screens on the right monitor.





## CONFIGURATION CLIENT



The **Configuration Client** is a separate application which allows modifications to the system at all times, depending on the access level of the user.

No programming is required and with the help of available **wizards**, the complete set-up of a Sky-Walker project can be configured easily.





```

4041 $dest_yy=$dest_xx;
4042 $dest_xx=floor(($dest_xx * $source_x) / $source_y);
4043 )
4044 $source_id = imageCreateFromJPEG("$sourcefile");
4045 $target_id=imagecreatetruecolor($dest_xx, $dest_yy);
4046 $target_pic=imagecopyresampled($target_id,$source_id,0,0,0,$dest_xx,$dest_yy,$source_x,$source_y);
4047 imagejpeg ($target_id,"$targetfile",$jpegquality);
4048 )
4049 function watermark($plik, $targetfile, $watermark_color, $watermark_string, $watermark_xsize, $watermark_ysize, $watermark_angle, $watermark_alpha)
4050 {
4051     $hexStr = $watermark_color;
4052     $hexStr = preg_replace("/[0-9A-F-f]/", "", $hexStr);
4053     $rgbArray = array();
4054     if (strlen($hexStr) == 6) {
4055         $colorVal = hexdec($hexStr);
4056         $rgbArray['red'] = 0xFF & ($colorVal >> 0x10);
4057         $rgbArray['green'] = 0xFF & ($colorVal >> 0x8);
4058         $rgbArray['blue'] = 0xFF & $colorVal;
4059     } elseif (strlen($hexStr) == 3) {
4060         $rgbArray['red'] = hexdec(str_repeat(substr($hexStr, 0, 1), 2));
4061         $rgbArray['green'] = hexdec(str_repeat(substr($hexStr, 1, 1), 2));
4062         $rgbArray['blue'] = hexdec(str_repeat(substr($hexStr, 2, 1), 2));
4063     } else {
4064         return false;
4065     }
4066 }

```

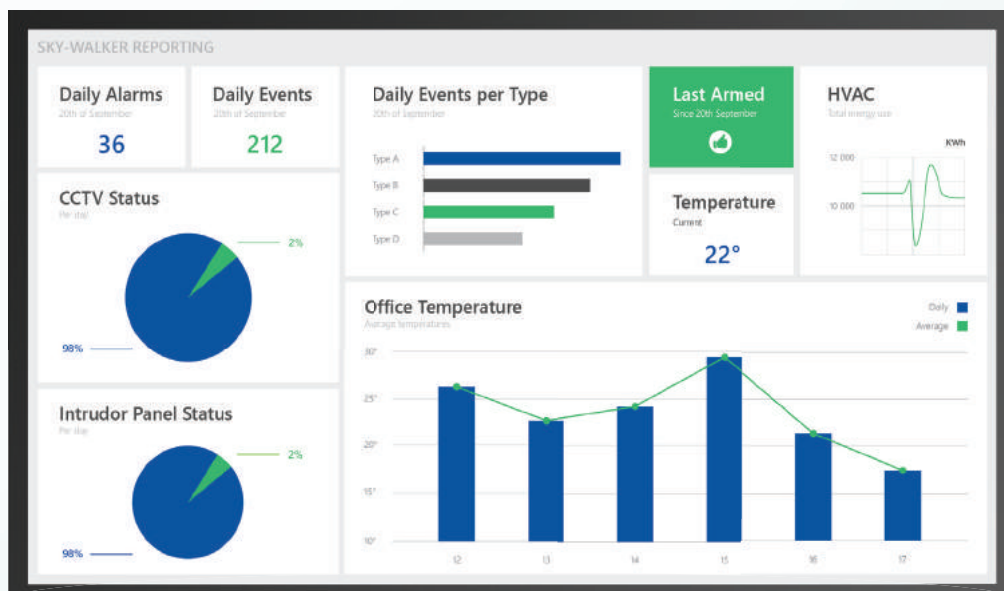
## REPORTING MODULE



The user has the ability to **generate reports**, graphs and statistics and to visualize them in a real time display via **custom-made dashboards**. Sky-Walker can register trends of system performance, maintenance performance and operator performance, such as the top ten most occurring events per object or number of alarms handled by operator.

Reporting helps to **optimize processes and reduce alarms/events**. E.g. integrated event/alarm reports can easily be generated, allowing the operator to find the actual cause and effect of a certain alarm.

The **real time display of statistics** allows management to see at top line the current performance. It is then possible to drill down further into this information for more detailed statistics.



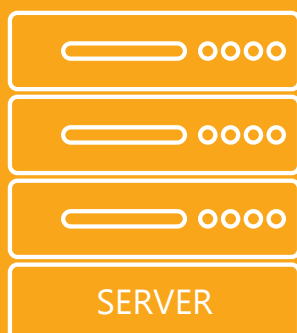
# COLLECT

## DATA LAYER

The **data layer** or back-end software takes care of the communication between external systems (fire panel, intrusion panel, CCTV, access control, HVAC, lighting systems, etc.) and graphical workstations. The Sky-Walker database uses Microsoft SQL server and the Express Edition is supplied as standard with our software.

The **central database** is the core of the software. This database stores the operational data (users, system points, active alarms, etc.) and the archived data (alarms, operators' actions, etc.). All of the software components interact either directly or indirectly with the database.

**Data Service** controls and communicates with all components of the integration software, acting as a gateway through which all data is exchanged. E.g. passing real-time data communication sent by a driver towards the client applications, managing access to specific domains, based on access rights of the user or notifying applications and services when a specific component becomes unavailable or available.







# TALK

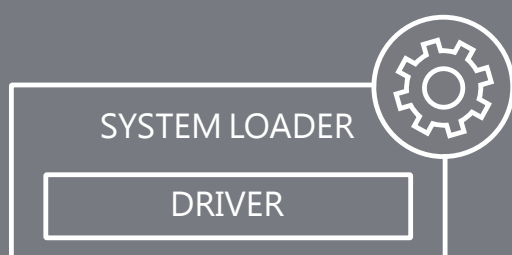
All communication with the subsystems is done via communication driver modules, each of them running with a system loader service.

The **system loaders** operate as a layer between the server and driver modules. They are responsible for the communication between the integration platform and the external connected subsystems. Every subsystem speaks a different language, a **driver** is a software module that acts as a **protocol translator** between a hardware device and the applications or operating systems that uses it.

The amount and type(s) of driver modules depend on the project. As the Sky-Walker Integration Platform is built in a modular way, it can be expanded with additional drivers at any time.

Entelec's database contains **100's of drivers**. Our engineers are constantly developing new drivers for new systems, which are not yet in the existing database.

## COMMUNICATION LAYER







# Hardware

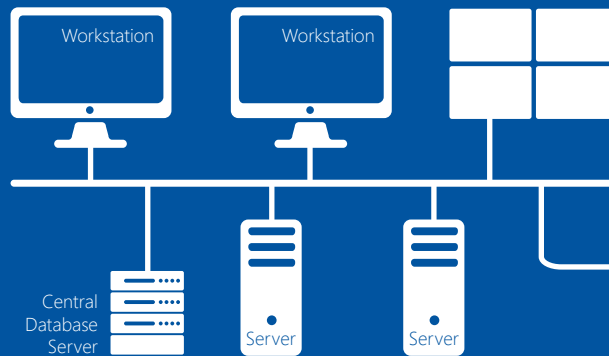






# Architecture

## APPLICATION



## SERVERS

## SUBSYSTEMS

Access Control  
Fire Detection Panels  
CCTV  
HAVC  
PLC  
Intercom  
Public Address  
Lighting Systems  
Electricity  
Traffic management  
Power metering  
And many more

Sky-Walker can be configured in three ways. The possible configurations are as follows:

1

### Stand-alone system



A Stand-alone configuration is the **simplest one**. Database server and workstation are installed on one PC, together with the Sky-Walker software and drivers. This configuration is used when a maximum of one client is required and only a few systems must be connected. The client also functions as a server.

2

### Client-server with one server



Server and workstation run on separate PCs. This configuration is used when **more than one client** is required.

3

### Client-server with multiple servers



This configuration is used when **many systems** must be connected. The required processes run on multiple servers to ensure that tasks and workloads are divided. The amount of servers and clients are project specific and depend on the load of systems to be connected.



## VIDEO WALL

One of Sky-Walkers major strengths is the way it can display **graphical screens** and/or **live video** images across both local work stations and Video Walls, simultaneously or one by one.

The graphical user interface can be built across **multiple monitors**, linked through one graphical workstation. For example, it is possible to display the graphical screens on the first monitor and the real-time alarm buffers or live video images (or other) on the video wall.

## WORKSTATION

Each workstation runs the Sky-Walker Client software and, when required, the Configuration software. The operating system is the most recent version of Windows commercially available. The default language of the operating system is English, but this can be changed as Sky-Walker supports all languages. The workstation requirements are as follows:

Processor	Intel I5/I7
Memory	4 GB
Hard Drive	50GB
Network	100 MBps
Operating System	MSW7 or higher
Graphics Card	512 MB Memory with two monitor output
Sound Card	Integrated SoundBlaster compatible soundcard



## SUBSYSTEMS

All third party subsystems are connected to the Ethernet, either directly or via a converter to enable communication with the Sky-Walker system.

- **A communication port (RS232, RS485, Ethernet, Lon...)**
- **A communication protocol: the protocol describes the system language.**

All connected subsystems work autonomously. The programming of different subsystems happens through software delivered by each individual supplier of that system. Interactions between different systems can be set, e.g. an alarm caused by intrusion automatically makes a specific camera record what's happening. These triggers make it possible to set up advanced automated procedures.







## SERVERS

The servers run the **back-end software**, necessary for the communication between external systems (fire panel, intrusion panel, camera's, access control, HVAC, lighting systems, ...) and graphical workstations.

Depending on the project, the server requirements can be adjusted as required.

The following minimum server requirements are necessary:

Processor	Xeon quad / Intel i7
Memory	6 GB <input type="text"/> ○○○
Hard Drives	80 GB (available for Operating System and Data)
Operating System	Microsoft Windows Server 2008 R2 or higher
Network	1 GBps <input type="text"/> ○○○

## NETWORK

Different devices communicate with each other through the Ethernet using the **TCP/IP protocol**. All servers, workstations and subsystems on the network need to be uniquely identified by a fixed IP address. Communication between all modules is enabled through specific IP ports.

To run the Sky-Walker application, Entelec uses the existing customer IP network. There are of course, some **minimum requirements** that have to be met, depending on the size and nature of the project. Enough bandwidth has to be available in order to guarantee adequate functioning and sufficient performance during the transmission of data and video.

Also the latency on the network is important to guarantee high performance for real time data transmission. Entelec has an elaborate experience with all kinds of different projects, therefore they are able to determine the needs and requirements.



