

# Dubai Saba Towers 1&3 implement open BMS with Niagara retrofit

## BMS Retrofit Case Study

### THE CHALLENGE

Saba Towers 1 & 3 are strategically located in Cluster E and Q respectively in JLT, close to Sheikh Zayed Road, with a total area of over 800,000 sq. Ft. The project was awarded to Taka Solutions, who we worked with to retrofit the two towers.

The construction began in 2005 and was completed in 2008. The original MEP infrastructure plan included a central Building Management System (BMS) to control HVAC, electrical, water and elevator systems. The towers had HVAC, Electrical, Plumbing and ELV systems connected to the BMS.

The existing BMS was obsolete, and the Client was facing multiple operational issues. The Client's focus was to implement an open platform BMS that can be operated and maintained at a low cost. The decision to retrofit came following multiple years of energy inefficiencies, humidity investigations, remediations, and engineering.

### OBJECTIVES

- Replacing the legacy system with an open-protocol building operating system provided by Tridium's Niagara.
- Implement a full-fledge Energy Data Platform & operating system.

To achieve these goals, the retrofit project team used Tridium- an open Niagara-based BMS, as well as a Niagara-at-the-Edge approach.

### THE SOLUTION

Niagara Edge 10 controllers offer superior price- performance when driving applications such as zone temperature control and the operation of fan coil units, single-stage air handling units, elevators and more. Niagara Edge 10 controllers run the full Niagara stack, with 10 points of on-board IO and IO-R expansion capability. With this design, the Saba Towers' operations team would be able to oversee, control and gain insight from many more data points, while still having only one operating system to learn.

To complete the BMS retrofit, existing DDC Panels, field devices and wiring were reused, replacing only the controllers inside existing DDC panels with Tridium JACE and Niagara EdgeTM10 Controllers and IO modules. Also the existing front-end supervisory control unit was replaced with Tridium's Niagara Supervisor and a custom Niagara user interface was built. The Niagara network, for the whole tower, comprises of 12 JACE 8000 controllers, 4 Edge10 controllers and multiple IO modules: IO 34 modules-40 no's, and IO16 modules – 8 no's installed in 16 DDC panels. Also 128 XL 10 controllers were integrated to the Jace controller through LIP router and the remaining 41 FCU controllers were integrated through BACnet .The customized graphical UI now offers histories and alarms that make any issues easy to detect, root causes easy to identify and resolution fast to happen.

“ I have been working along with Green Optima since 2016 and have had a great experience working with them during these years. Their quality of work and outcome has always been professional in all the projects worked with them. Especially for the Saba Towers BMS Upgrade, based on Tridium's Niagara retrofit, the solution provided was beneficial to the buildings operations team in order to manage the building in a better way. The open protocol capability by Tridium's Niagara has given a lot of opportunities for the end user to implement different devices into the system. Overall, the team is very professional and is committed to deliver an excellent job. We look forward to working with our premium partners Green Optima for future projects too. ”



**Mirza Shaheen Baig**  
Implementation Manager,  
Taka Solutions

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## THE RESULTS

Saba Towers were provided with a completely open and refreshed BMS, with low operating and maintenance costs. Close monitoring and optimizing of operations through Niagara Framework has proven to assist in energy savings at no negative effect to comfort level. Early detection of equipment failures or reduced efficiency reduces energy consumption and also maintenance costs.

The Energy & Data Platform implemented enables Saba to remote, monitor and control, in real time, the buildings' management and energy activity. The energy performance can trend, over time, to observe deterioration and to plan upgrades and replacements.

### FAST FACTS:

**Project Type:** BMS Retrofit of a Commercial Building

**Client:** SABA Property Management DMCC/Taka Solutions

**Niagara Partner:** Green Optima

**Property:** Landmark skyscraper. Original construction completed in 2008.

**Retrofit Date:** 2021

**SABA-1:** HVAC Equipment: Heat Exchanger -4 no's with 6 pumps; FAHUs (4); FCUs (90); Basement Exhaust Fan (10); Fire

Pump(1);FACP(1);Generator(1);Lifts(6);Water Tank(3);Submersible Pump (2); Booster Pump(2);Pressurisation unit (2);Energy meter(2)

**SABA-3:** HVAC Equipment: Heat Exchanger -6 no's with 8 pumps; FAHUs (4); FCUs (78); CO Exhaust Fan (4) ;SPF fan (1);Corridor Pressurisation

Fan(1);Sewage Pump(3);Sump pump(2);Fire Fighting pump(3); Transfer Pump(3);Domestic water pump(3);Booster pump(3); Tank(3); FACP(1); Generator(1); Lifts(6); Energy meter(6)

**Key Technologies:** Niagara Supervisor, Tridium JACE 8000, Niagara Edge 10 Plus IO Modules



### ABOUT GREEN OPTIMA

Green Optima is a well-known Tridium Partner in the UAE and an experienced system integrator delivering innovative, high quality, economical integrated building management solutions. Founded in 2006, its team of experienced professional engineers deliver customized solutions with top-of-the-range control, monitoring, energy and cost-saving objectives as a priority. Green Optima is actively involved in successfully implementing integrated automation solutions in the government and private sectors for retrofit and ESCO companies, and is a strategic supplier of Taka Solutions. It has proven ability to deliver BMS solutions with speed, tech-savvy flexibility and cost-efficiency as evidenced by its impressive project portfolio. Additional information about Green Optima is available at [www.greenoptima.ae](http://www.greenoptima.ae)

### ABOUT TRIDIUM

For over 20 years, Tridium has led the world in business application frameworks — advancing truly open environments that harness the power of the Internet of Things. Our products allow diverse monitoring, control and automation systems to communicate and collaborate in buildings, data centers, manufacturing systems, smart cities and more. We create smarter, safer and more efficient enterprises and communities — bringing intelligence and connectivity to the network edge and back. Additional information about Tridium is available at [www.tridium.com](http://www.tridium.com)

### ABOUT TAKA SOLUTIONS

Taka Solutions is a UAE-based company that delivers comprehensive energy solutions to improve energy and water efficiency, reduce carbon impact and save money, using innovative financing models. Taka Solutions' comprehensive turnkey offer combines consulting, financing, implementation, energy and O&M services to help customers meet their efficiency goals without sacrificing the standards of comfort, and creating positive economic, social and environmental impact. Additional information about Taka Solutions is available at: [www.takasolutions.com](http://www.takasolutions.com)