# Enterprise Central
## EcoStruxure Building Operation

## Introduction

Enterprise Central is the top-tier EcoStruxure BMS server in a large Building Management System and is intended for system specific tasks and supervision. Enterprise Central can host several Enterprise Servers, which in turn can host multiple SmartX servers. As the dedicated server at the top of the system architecture hierarchy, Enterprise Central provides an entry point from which you can configure, control, monitor, and search the entire system. Enterprise Central collects site-wide data for aggregation and archiving and serves as a single point of administration through WorkStation or WebStation.

For Corporate Facility Managers, Senior Engineering Managers, Chief Space Planners and others who need to manage their buildings in a global, aggregated, and efficient manner, Enterprise Central is an EcoStruxure BMS server that allows users to scale operations management across the largest buildings, campuses, and multi-site corporate real estate portfolios from a single location by generating aggregated reports, standardizing critical security policies, normalizing alarm presentation and prioritization, and auditing activity across the entire organization.

Unlike other BMSs which focus on a single location or on a single aspect of the operation, Enterprise Central provides a single pane of glass across all aspects of a large real estate portfolio.

## Features

Enterprise Central has the following main features:

- Global view, access, and search of the system
- Centralized alarms and data management:
    - Alarms from multiple servers
    - Event logs from multiple servers
    - Extended trend logs from multiple servers
    - Historical data storage from multiple servers
- Scalability
- User and domain management
- Windows Active Directory integration
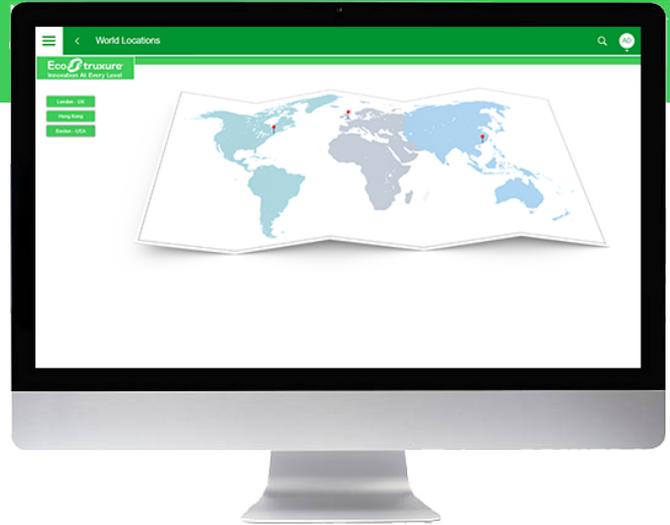
### Global view, access, and search of the system

The entire system, including all mid-tier Enterprise Servers and the base-tier SmartX servers with their associated I/O modules, field controllers, and other field devices, can be accessed and configured through Enterprise Central. When logged on to Enterprise Central, you can also search the entire system, and view alarm and event data from all associated Enterprise Servers and SmartX servers. In short, with the exception of not hosting its own layer of field bus devices, Enterprise Central carries the same full feature set as the Enterprise Servers.

### Centralized alarms and data management

Alarms from the Enterprise Servers, SmartX servers, and their associated devices throughout the site, are collected by Enterprise Central for centralized logging, display, and management. Alarms can trigger email, SNMP, file, or client notifications, which can include alarm, point value, or trend log data. Notifications can also be triggered periodically by schedules or other binary values.

Users can also view event logs and trend logs from multiple Enterprise Servers and SmartX servers. The historical event data is collected from the multiple servers and stored in a central database.

EcoStruxure BMS servers can be configured to automatically store all historical data, trend log data, event log and audit trail data, in a high-capacity, open, and well-proven database. If data needs to be available for longer periods of time, an external log storage can be incorporated into the EcoStruxure BMS

Life Is On | Schneider Electric

# Enterprise Central
## EcoStruxure Building Operation

without the need for extensive engineering work. The database supported is TimescaleDB, which is built on PostgreSQL. The capacity is limited only by the size of the selected storage media.

The data in the external log storage is available natively to the viewers built into the EcoStruxure Building Operation clients and to the built-in reporting functionality. No other software is required to access the data throughout the full retention period. The data is readily available for any analytics software that you already use, due to the open nature of PostgreSQL. Most reporting tools have native support for PostgreSQL.

The TimescaleDB extension to PostgreSQL optimizes the solution for time-stamped data and is well-suited for the EcoStruxure Building Operation historical data.

The system architecture is very flexible. All EcoStruxure BMS servers in an EcoStruxure BMS can write to and read from the same TimescaleDB database, or multiple databases can be used.

You can use the powerful Log Processor functionality for custom processing of trend data for viewing in charts, dashboards and for inclusion in reports. The Log Processor enables advanced calculations on one or multiple trend logs and point values.

Examples of advanced calculations:

- Energy usage normalization
- Virtual submeters and summaries
- Calculation of Mean Kinetic Temperature
- Unit conversions
- Average, maximum, and mininum over custom periods

The output of the Log Processor can be saved in the database, including the External Log Storage or calculated automatically on demand.

## Scalability and Enterprise Central models

Enterprise Central is available in two different sizes, which are differentiated based upon the maximum quantity of Enterprise Servers that can be hosted. The available sizes are five Enterprise Servers and ten Enterprise Servers. When using Enterprise Central, an EcoStruxure BMS can include anywhere from a handful of SmartX servers on up to 10 Enterprise Servers,

where each Enterprise Server is connected to another 250 SmartX servers, and each SmartX server is connected to the full complement of SmartX IP controllers and field bus devices.

## User and domain management

You can use Enterprise Central to create and configure domains, user groups, and permissions.

## Reporting

The EcoStruxure BMS servers provide built-in functionality for basic reporting that can deliver reports in any text format, XLSX and PDF, without any dependencies to other external software. Reports for XLSX and PDF can be enriched by using advanced XLSX functionality such as formulas, conditional formatting, charts and sparklines.

Reports can be generated on schedule, on an alarm event or other custom conditions, and you can get the output delivered via email or written to file.

Using Enterprise Server and Enterprise Central, you can elevate the data security and traceability even further by using the optional add-on for automatically signing PDF reports with a digital certificate upon generation. This validates that the content has not been altered after the report was generated.

## Authentication and permissions

An EcoStruxure BMS provides a powerful permission system that is easy to manage, flexible, and adapts to all kinds of system sizes. The permission system provides a high standard of authentication. Authentication is done against the built-in user account management system or against Windows Active Directory Domains. The built-in account management system allows an administrator to establish password policies that meet stringent cybersecurity guidelines. When Windows Active Directory is used, the administration costs are lower because users do not have to be managed in multiple directories.

With Enterprise Central, the password policies are standardized across all hosted Enterprise Servers.

## Advanced activity log

It is important to log more than basic activity. In an EcoStruxure BMS, every action is logged with a timestamp, the user who performed the action, and the values that were changed.

Life Is On | Schneider Electric

# Enterprise Central
## EcoStruxure Building Operation

### WorkStation/WebStation interface

Through any client, the user experience is similar regardless of which EcoStruxure BMS server the user is logged on to. The user can log directly on to an Enterprise Central to commission, supervise, and monitor the Enterprise Servers and SmartX servers with their attached I/O modules, field controllers, and other field devices. For more information, see the WorkStation and WebStation specification sheets.

### Web Services support

Enterprise Central supports the use of Web Services based on open standards, such as SOAP and REST, to consume data into the EcoStruxure BMS. Use incoming third-party data (temperature forecast, energy cost) over the Web to determine site modes, scheduling, and programming.

### EcoStruxure Web Services support

EcoStruxure Web Services, Schneider Electric's Web Services standard, is natively supported in the EcoStruxure BMS servers. EcoStruxure Web Services offers extra features between compliant systems whether within Schneider Electric or other authorized systems. These features include system directory browsing, read/write of current values, alarm receipt and acknowledgement, and historical trend log data. EcoStruxure Web Services requires user name and password to log on to the system.

### IT friendly

The EcoStruxure BMS servers communicate using the networking standards. This makes installations easy, management simple, and transactions more secure.

### TLS support

Communication between clients and the EcoStruxure BMS servers can be encrypted using Transport Layer Security (TLS 1.2). The servers are delivered with a default self-signed certificate. Commercial Certification Authority (CA) server certificates are supported to lower the risk of malicious information technology attacks. Use of encrypted communication can be enforced for both WorkStation and WebStation access.

### Supported Protocols

- IP addressing
- TCP communications
- DHCP for easy network configuration
- DNS for simple lookup of addresses
- HTTP/HTTPS for internet access through firewalls, which enables remote monitoring and control
- NTP (Network Time Protocol) for time synchronization throughout the system
- SMTP or SMTPS with support for SSL/TLS based authentication, enables sending email messages triggered by schedule or alarm
- SNMP enables reception of application alarms in designated network management tools

## Specifications

### Hardware requirements

Processor power, memory, and storage capacity should be scaled upwards to accommodate targeted system size as impacted by the total quantity of Enterprise Servers, SmartX servers, and expected historical archiving. Enterprise Central is tested on a server with an 8-core 3.6 GHz processor, a 16 GB of memory, and an SSD storage capacity of 4 TB.

Processor ...................................................................................................Minimum: Intel Core i5 @ 3.0 GHz or equivalent
...........................................................................................................Recommended: Intel Core i5 @ 4.0 GHz or better

Memory ....................................................................................................................................................Minimum: 6 GB
.........................................................................................................................................Recommended: 12 GB or higher

Storage capacity..............................................................................................................................................Minimum: 1 TB
...........................................................................................................................................................Recommended: 4 TB

Storage device..............................................................................................Recommended: Enterprise Solid State Drive (SSD)
An Enterprise SSD is recommended to maintain the necessary speed and stability. The database and the binaries should both be installed on the Enterprise SSD.

Other devices ........................................................................Microsoft mouse or compatible pointing device is required.

Life Is On | Schneider Electric

# Enterprise Central
## EcoStruxure Building Operation

## Software requirements

Operating systems..................................................................................................Microsoft Windows 10 (64-bit)
.................................................................................................Microsoft Windows Server 2012 R2 (64-bit)
.......................................................................................................................Microsoft Windows Server 2016
.............................................................Microsoft Windows Server 2019 (not supported for I/NET integrated system)
The following Microsoft Windows 10 editions are supported: Pro and Enterprise.
The following Microsoft Windows Server 2012 R2 editions are supported: Datacenter, Standard, Essentials, and Foundation.
The following Microsoft Windows Server 2016 editions are supported: Datacenter, Standard, and Essentials.
The following Microsoft Windows Server 2019 editions are supported (not supported for I/NET integrated system): Datacenter, Standard, and Essentials.

Required additional software..............................................................Microsoft .NET Framework 4.7.2 and later
The Microsoft .NET Framework is required by Software Administrator.

External log storage option...............................................................................PostgreSQL 11.0 and later
.......................................................................................................................TimescaleDB 1.2 and later
Quality assurance testing has been performed by Schneider Electric with TimescaleDB and PostgreSQL installed natively in Windows 10, Windows Server 2012, and Windows Server 2016. Other deployment scenarios have not been tested by Schneider Electric.

## Communication

TCP................................................................................................................Binary, port fixed, 4444

HTTP.........................................................................................Non-binary, port configurable, default 80

HTTPS...........................................Encrypted supporting TLS 1.2, 1.1, and 1.0, port configurable default 443

SMTP ...................................................................................Email sending, port configurable, default 25

SMTPS .................................................................................Email sending, port configurable, default 587

SNMP ..........................................................................................................................version 3
........................................................................................Application alarm distribution using trap

NTP ...................................................................................................................Time synchronization

## Part numbers

Enterprise Central - 5, EcoStruxure Building Operation Enterprise Central license for a PC server,
includes support to 5 Enterprise Servers ..............................................................................SXWSWECXX00005

Enterprise Central - 10, EcoStruxure Building Operation Enterprise Central license for a PC server,
includes support to 10 Enterprise Servers ............................................................................SXWSWECXX00010

## Add-on options

EC Hosting Pack -5, License to add 5 Enterprise Servers
in addition to the original Enterprise Central purchased size ...........................................................SXWSWESEC00005

SW-EWS-1, EcoStruxure Web Services (run-time) option
Consume only for one Enterprise Server or one Enterprise Central....................................................SXWSWEWSX00001

SW-EWS-2, EcoStruxure Web Services (run-time) option
Serve & Consume for one Enterprise Server or one Enterprise Central.............................................SXWSWEWSX00002

SW-EWS-3, EcoStruxure Web Services (run-time) option
Serve & Consume, plus Historical trend log data for one Enterprise Server or one Enterprise Central ...............................................................................................................................SXWSWEWSX00003

SW-GWS-1, Web Services (Generic Consume) option
For one Enterprise Server or one Enterprise Central...................................................................SXWSWGWSX00001

Life Is On | Schneider Electric

# Enterprise Central
## EcoStruxure Building Operation

SW-SNMP-1, Alarm notifications via SNMP option
For one Enterprise Server or one Enterprise Central .........................................................................SXWSWSNMP00001

SW-ECDBTS-1, TimescaleDB connection option
For one Enterprise Central ...................................................................................................................SXWSWECDBTS001

SW-ECPDF-1, Building Operation PDF sign off option
For one Enterprise ................................................................................................................................SXWSWECPDFSS01

Life Is On | Schneider Electric