

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.

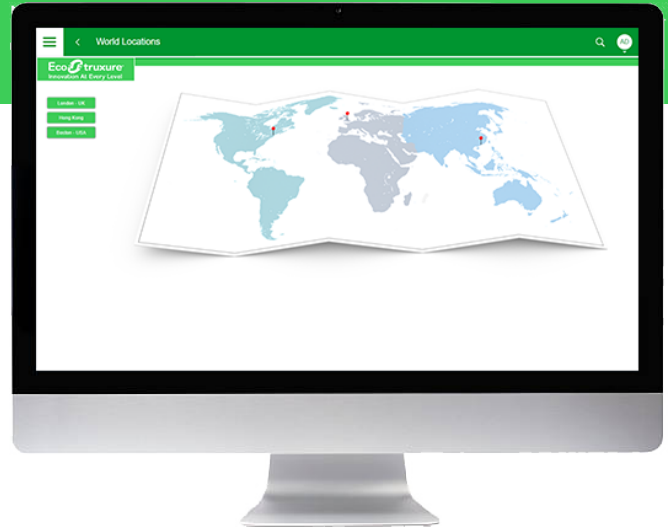
For Corporate Facility Managers, Senior Engineering Managers, Chief Space Planners and others who need to manage their buildings in a global, aggregated, and efficient manner, Enterprise Central is an EcoStruxure BMS server that allows users to scale operations management across the largest buildings, 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

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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. 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.

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.

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 security level of the highest standards. 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.

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 Enterprise Central. EcoStruxure Web Services offers extra features between compliant systems whether within Schneider Electric or authorized third-party systems. These features include system directory browsing, read/write of current values, alarm receipt and acknowledgement, and historical trend log data. EcoStruxure Web Services is secure. User name and password are required to log on to the system.

IT friendly

Enterprise Central communicates using networking standards, such as DHCP, HTTP, and HTTPS. This makes installation easy, management simple, and transactions 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

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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 a storage capacity of 4 TB.

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

MemoryMinimum: 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.

DriveDVD drive is required if your copy of the EcoStruxure Building Operation software was delivered on disc.

Other devicesMicrosoft mouse or compatible pointing device is required.

Software requirements

Operating systems.....Microsoft Windows 8.1 (64-bit)
Microsoft Windows 10 (64-bit)
Microsoft Windows Server 2008 R2 (64-bit)
Microsoft Windows Server 2012 (64-bit)
Microsoft Windows Server 2012 R2 (64-bit)
Microsoft Windows Server 2016

The following Microsoft Windows 8.1 editions are supported: Pro, Pro N, Enterprise, and Enterprise N.

The following Microsoft Windows 10 editions are supported: Pro and Enterprise.

The following Microsoft Windows Server 2008 R2 editions are supported: Standard, Web, Enterprise, Datacenter, and Itanium.

The following Microsoft Windows Server 2012 and 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.

Required additional software.....Microsoft .NET Framework 4.7
The Microsoft .NET Framework is required by Software Administrator.

External log storage optionPostgreSQL 11.0 (or higher), TimescaleDB 1.2 (or higher)

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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, allows hosting of five EcoStruxure Building Operation Enterprise Servers, includes Reports Server license	SXWSWECXX00005
Enterprise Central - 10, EcoStruxure Building Operation Enterprise Central license for a PC server, allows hosting of ten EcoStruxure Building Operation Enterprise Servers, includes Reports Server license	SXWSWECXX00010

Add-on options

SW-EWS-1, EcoStruxure Web Services (run-time) option Consume only for one EcoStruxure BMS server	SXWSWEWSX00001
SW-EWS-2, EcoStruxure Web Services (run-time) option Serve & Consume for one EcoStruxure BMS server	SXWSWEWSX00002
SW-EWS-3, EcoStruxure Web Services (run-time) option Serve & Consume, plus Historical trend log data for one EcoStruxure BMS server	SXWSWEWSX00003
SW-GWS-1, Web Services (Generic Consume) option For one EcoStruxure BMS server	SXWSWGWSX00001
SW-SNMP-1, Alarm notifications via SNMP option For one EcoStruxure BMS server	SXWSWSNMP00001
SW-ECDBTS-1, TimescaleDB connection option For one Enterprise Central	SXWSWECDBTS001