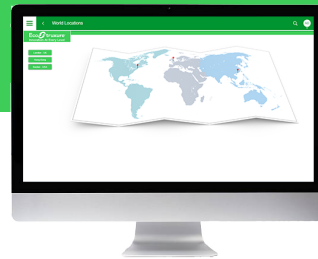


Enterprise Central

EcoStruxure Building Operation

EcoStruxure™ Building



Introduction

EcoStruxure Building Operation 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 SpaceLogic™ automation 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.

Enterprise Central

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

Semantics

Enterprise Server and Enterprise Central come with built-in support for modelling of the “digital twin” of the building, site, campus, and region using Brick Schema. WorkStation and WebStation provide enhanced human understandability through the additional context that is given to alarms and points through the “digital twin”. The required graph database is included in the installation packages. WorkStation can be used to create the model, or it can be imported using the graph database user interface.

Global view, access, and search of the system

The entire system, including all mid-tier Enterprise Servers and the base-tier automation servers with their associated Central IO 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 automation 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, automation 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 automation 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 an external database. If data needs to be available for

longer periods of time, an external log storage can be incorporated into the EcoStruxure BMS without the need for extensive engineering work. The supported databases are TimescaleDB, which is built on PostgreSQL, and Microsoft SQL Server. 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.

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 minimum 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.

From EcoStruxure Building Operation version 5.0.3 and later, selected trend logs and the event log can be sent to AVEVA PI System directly without the need for intermediate storage or specialized PI System connectors.

Scalability and Enterprise Central models

Enterprise Central is available in three different sizes, which are differentiated based upon the maximum quantity of Enterprise Servers that can be hosted. The available sizes are two Enterprise Servers, five Enterprise Servers, and ten Enterprise Servers. When using Enterprise Central, an EcoStruxure BMS can include anywhere from a handful of automation servers on up to 50 Enterprise Servers, where each Enterprise Server is connected to another 250 automation servers (with a maximum of 2,500 automation servers in total per system), and each automation server is connected to the full complement of BACnet/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 and XLSX, without any dependencies to other external software. Reports for XLSX can be enriched by using advanced functionality such as formulas, conditional formatting, charts and sparklines.

Enterprise Central

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, reports can be converted to PDF, and 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, against Windows Active Directory Domains, or via SAML 2.0 single sign-on. The built-in account management system allows an administrator to establish password policies that meet stringent cybersecurity guidelines. When Windows Active Directory or SAML 2.0 authentication 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 automation servers with their attached Central IO 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 access to semantic model, 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.

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

TLS support

Communication between clients and the EcoStruxure BMS servers, and between EcoStruxure BMS servers, can be encrypted using Transport Layer Security (TLS). 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.

Enterprise Central

Windows and Linux Licences Availability

Enterprise Central Licences	Windows	Linux
Enterprise Central - 2 Enterprise Servers ^a	Yes	Yes
Enterprise Central - 5 Enterprise Servers ^a	Yes	Yes
Enterprise Central - 10 Enterprise Servers ^a	Yes	Yes

a) For more information on the part numbers, see section "Specifications", subsection "Part Numbers".

Upgrade Software Bundle Licences	Windows	Linux
Upgrade 3.x - 5 Enterprise Servers ^a	Yes	-
Upgrade 3.x - 10 Enterprise Servers ^a	Yes	-
Upgrade 4.x or 5.x - 5 Enterprise Servers ^a	Yes	-
Upgrade 4.x or 5.x - 10 Enterprise Servers ^a	Yes	-

a) For more information on the upgrade software bundles, see section "Specifications", subsection "Upgrade software bundles".

Add-on Option Licences	Windows	Linux
EC Hosting Pack - 3 ^a	Yes	Yes
EC Hosting Pack - 5 ^a	Yes	Yes
EcoStruxure Web Services Consume ^a	Yes	Yes
EcoStruxure Web Services Serve & Consume ^a	Yes	Yes
EcoStruxure Web Services Serve & Consume and Historical trend log data ^a	Yes	Yes
Web Services (Generic Consume) option ^a	Yes	Yes
Alarm notifications via SNMP option ^a	Yes	Yes
Personal Dashboards option ^a	Yes	Yes
TimescaleDB connection option ^a	Yes	Yes
Microsoft SQL Server connection option ^a	Yes	Yes
AVEVA PI System connection option ^a	Yes	Yes
Regulated Industries Compliance Pack option ^a	Yes	Yes
PDF signing option ^a	Yes	Yes
SAML Authentication option ^a	Yes	Yes
Semantic DB Plus 2 CPU Cores ^a	Yes	-
Semantic DB Plus 6 CPU Cores ^a	Yes	-
Semantic DB External Use Plus 2 CPU Cores ^a	Yes	-
Semantic DB External Use Plus 6 CPU Cores ^a	Yes	-
Sustainability Pack option ^a	Yes	Yes

a) For more information on the add-on options, see section "Specifications", subsection "Add-on options".

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Specifications

Enterprise Central

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, automation 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: 8 GB
Recommended: 16 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.

Software requirements

Operating systems – Enterprise Central for Windows

Microsoft Windows 10 (64-bit)
Microsoft Windows 11^a
Microsoft Windows Server 2012 R2 (64-bit)
Microsoft Windows Server 2016
Microsoft Windows Server 2019
Microsoft Windows Server 2022^a

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

The following Microsoft Windows 11^a 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: Datacenter, Standard, and Essentials.

The following Microsoft Windows Server 2022^a editions are supported: Datacenter, Standard, and Essentials.

a) EcoStruxure Building Operation version 4.0.2 and later

Operating systems – Enterprise Central for Linux

OCI compliant container runtime on Linux x86-64

Quality assurance testing has been performed on, and support is provided with, Ubuntu 20.04 and 22.04 with Docker Engine version 20.10.00. Other deployment scenarios have not been tested by Schneider Electric. Product Support Services may require that potential issues can be reproduced in tested and supported environment for full support.

Required additional software – Enterprise Central for Windows

The Microsoft .NET Framework is required by Software Administrator.

Microsoft .NET Framework 4.7.2 and later

External log storage PostgreSQL option

TimescaleDB 1.2 and later

For use of compression: TimescaleDB 2.11 and later

PostgreSQL version compatible with the TimescaleDB version

Quality assurance testing has been performed by Schneider Electric with TimescaleDB and PostgreSQL installed natively in Windows 10, Windows Server 2012, 2016, and 2019. Other deployment scenarios have not been tested by Schneider Electric.

External log storage Microsoft SQL option

Microsoft SQL Server 2016 SP1 and later

The following Microsoft SQL Server editions are supported: Enterprise, Standard, and Express.

External log storage AVEVA PI System option

PI Web API 2021 SP3 and database compatible with that version

Quality assurance testing has been performed by Schneider Electric with PI Web API 2021 SP3, and database compatible with that version, installed on Windows Server 2019. Other deployment scenarios have not been tested by Schneider Electric.

Communication

TCP

Binary, port fixed, 4444

HTTP

Non-binary, port configurable, default 80

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HTTPS

a) Disabled by default.

Encrypted supporting TLS 1.3, 1.2, 1.1^a, and 1.0^a, 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 Server for Windows

Enterprise Central - 2, EcoStruxure Building Operation Enterprise Central license for a PC server, includes support to 2 Enterprise Servers, 3 concurrent clients, and 1 semantic database limited to 2 CPU cores SXWSWECXX00002

Enterprise Central - 5, EcoStruxure Building Operation Enterprise Central license for a PC server, includes support to 5 Enterprise Servers, 3 concurrent clients, and 1 semantic database limited to 2 CPU cores SXWSWECXX00005

Enterprise Central - 10, EcoStruxure Building Operation Enterprise Central license for a PC server, includes support to 10 Enterprise Servers, 3 concurrent clients, and 1 semantic database limited to 2 CPU cores SXWSWECXX00010

Enterprise Server for Linux

Enterprise Central - 2, EcoStruxure Building Operation Enterprise Central for Linux license for a PC server, includes support to 2 Enterprise Servers and 3 concurrent clients SXWSWECLX00002

Enterprise Central - 5, EcoStruxure Building Operation Enterprise Central for Linux license for a PC server, includes support to 5 Enterprise Servers and 3 concurrent clients SXWSWECLX00005

Enterprise Central - 10, EcoStruxure Building Operation Enterprise Central for Linux license for a PC server, includes support to 10 Enterprise Servers and 3 concurrent clients SXWSWECLX00010

Upgrade software bundles

Enterprise Server for Windows

Enterprise Central Upgrade – 5 or fewer Enterprise Servers
Upgrades Enterprise Central, with 5 or fewer hosted Enterprise Servers, from EcoStruxure Building Operation software version 3.x to 6.0. SXWSWECUP30005

Enterprise Central Upgrade – 10 or fewer Enterprise Servers
Upgrades Enterprise Central, with 10 or fewer hosted Enterprise Servers, from EcoStruxure Building Operation software version 3.x to 6.0. SXWSWECUP30010

Enterprise Central Upgrade – 2 or fewer Enterprise Servers
Upgrades Enterprise Central, with 2 or fewer hosted Enterprise Servers, from EcoStruxure Building Operation software version 4.x or 5.x to 6.0. SXWSWECUP40002

Enterprise Central Upgrade – 5 or fewer Enterprise Servers
Upgrades Enterprise Central, with 5 or fewer hosted Enterprise Servers, from EcoStruxure Building Operation software version 4.x or 5.x to 6.0. SXWSWECUP40005

Enterprise Central Upgrade – 10 or fewer Enterprise Servers
Upgrades Enterprise Central, with 10 or fewer hosted Enterprise Servers, from EcoStruxure Building Operation software version 4.x or 5.x to 6.0. SXWSWECUP40010

Add-on options

Enterprise Server for Windows

EC Hosting Pack -3, License to add 3 Enterprise Servers in addition to the original Enterprise Central purchased size SXWSWESEC00003

Enterprise Central

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
SW-SNMP-1, Alarm notifications via SNMP option For one Enterprise Server or one Enterprise Central	SXWSWSNMP00001
Building Operation Personal Dashboards option, 1 per server required for users logging on to that server to have Personal Dashboard capabilities For one Enterprise Server or one Enterprise Central	SXWSWDASH00001
SW-ECDBTS-1, TimescaleDB connection option For one Enterprise Central	SXWSWECDBTS001
EcoStruxure Building Operation, Microsoft SQL Server connection option For one Enterprise Central	SXWSWECDBMS001
EcoStruxure Building Operation, AVEVA PI System connection option For one Enterprise Central	SXWSWECDBPI001
Regulated Industries Compliance Pack option For one Enterprise Server or one Enterprise Central <small>* SXWSWCMLPK001 includes TimescaleDB connection option (SXWSWESDBTS001 or SXWSWECDBTS001) and PDF signing option (SXWSWESPDFSS01 or SXWSWECPDFSS01).</small>	SXWSWCMLPK001*
SW-ECPDF-1, Building Operation PDF signing option For one Enterprise Central	SXWSWECPDFSS01
SAML Authentication option For one Enterprise Central	SXWSWECSAML001
Semantic DB Plus 2 CPU Cores Additional concurrent queries for one semantic database	SXWSWSTDBAC002
Semantic DB Plus 6 CPU Cores Additional concurrent queries for one semantic database	SXWSWSTDBAC006
Semantic DB External Use Plus 2 CPU Cores Enables queries from external tools and additional concurrent queries	SXWSWSTDBEUAC2
Semantic DB External Use Plus 6 CPU Cores Enables queries from external tools and additional concurrent queries	SXWSWSTDBEUAC6
Sustainability Pack option For one Enterprise Central for Windows	SXWSWECSUSPKW1
Enterprise Server for Linux	
EC Hosting Pack - 3, License to add 3 Enterprise Servers in addition to the original Enterprise Central for Linux purchased size	SXWSWESECL0003
EC Hosting Pack - 5, License to add 5 Enterprise Servers in addition to the original Enterprise Central for Linux purchased size	SXWSWESECL0005
EcoStruxure Web Services (run-time) option Consume only for one Enterprise Server for Linux or one Enterprise Central for Linux	SXWSWEWSL00001

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EcoStruxure Web Services (run-time) option Serve & Consume for one Enterprise Server for Linux or one Enterprise Central for Linux	SXWSWEWSL00002
EcoStruxure Web Services (run-time) option Linux Serve & Consume, plus Historical trend log data for one Enterprise Server for Linux or one Enterprise Central for Linux	SXWSWEWSL00003
Web Services (Generic Consume) option For one Enterprise Server for Linux or one Enterprise Central for Linux	SXWSWGWSL00001
Alarm notifications via SNMP option For one Enterprise Server for Linux or one Enterprise Central for Linux	SXWSWSNMPL0001
Personal Dashboards option, 1 per server required for users logging on to that server to have Personal Dashboard capabilities For one Enterprise Server for Linux or one Enterprise Central for Linux	SXWSWDASHL0001
TimescaleDB connection option For one Enterprise Central for Linux	SXWSWECDBTSL01
Microsoft SQL Server connection option For one Enterprise Central for Linux	SXWSWECDBMSL01
AVEVA PI System connection option For one Enterprise Central for Linux	SXWSWECDBPIL01
Regulated Industries Compliance Pack option For one Enterprise Server for Linux or one Enterprise Central for Linux <small>* SXWSWCMLPKL01 includes TimescaleDB connection option (SXWSWESDBTSL01 or SXWSWECDBTSL01) and PDF signing option (SXWSWESPDFSSL1 or SXWSWECPDFSSL1).</small>	SXWSWCMLPKL01*
PDF signing option For one Enterprise Central for Linux	SXWSWECPDFSSL1
SAML Authentication option For one Enterprise Central for Linux	SXWSWECSAMLL01
Sustainability Pack option For one Enterprise Central for Linux	SXWSWECSUSPKL1

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