

Enterprise Server

EcoStruxure Building Operation

Introduction

An EcoStruxure BMS server is the core of the system and performs key functionality, such as control logic, trend logging, and alarm supervision. The Enterprise Server is the Windows application version of an EcoStruxure BMS server that collects site-wide data for aggregation and archiving, yet is flexible enough to run stand-alone applications. The Enterprise Server also serves as a single point of administration through WorkStation or WebStation for the EcoStruxure BMS, Schneider Electric's intelligent Building Management System.

Features

The Enterprise Server is a central point in the EcoStruxure BMS architecture from which users can configure, control, and monitor the system.

Networking powerhouse

The Enterprise Server can run multiple control programs using a variety of protocols. It can manage alarms, users, schedules, and trend logs. Data from the Enterprise Server can be delivered directly to the user or to other EcoStruxure BMS servers and field devices throughout the site or enterprise.

Global view of the system

The entire site, including all of the SmartX servers and their associated devices, can be accessed and configured through the Enterprise Server.

This overview of the site provides easier mass change engineering and data analysis. The Enterprise Server also aggregates the event and alarm data from all its associated SmartX servers. Trend logs can be aggregated through the use of extended trend logs.

Text and graphics-based programming tools

Unique to the industry, the Enterprise Server has both Script and Function Block programming options. This flexibility assures that the best programming method can be selected for the application.

Centralized alarms and data management

Alarms from multiple devices throughout the site, including SmartX servers, are collected by the Enterprise Server for centralized logging, display, and management. Users can also view event logs and trend logs from multiple servers.



The Enterprise Server hosts the historical and configuration databases. These databases store current information, including trends, alarms, user activity, and property information. 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.

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.

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 Server to engineer, commission, supervise,

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and monitor the SmartX server as well as its attached I/O modules and field bus devices. For more information, see the WorkStation and WebStation specification sheets.

Open building protocol support

One of the cornerstones of the EcoStruxure BMS is support for open standards. The Enterprise Server can natively communicate with three of the most popular standards for buildings: BACnet, LonWorks, and Modbus.

Native BTL-listed BACnet support

The Enterprise Server communicates directly to BACnet/IP networks. The Enterprise Server is BTL-listed as a BACnet Building Controller (B-BC), the most advance BACnet device profile, and as a BACnet Operator Workstation (B-OWS). This capability provides access to the full range of BACnet devices from Schneider Electric and other vendors. See the BTL Product Catalog for up-to-date details on BTL listed software revisions on BACnet International's home page. The Enterprise Server can also serve as a BACnet Broadcast Management Device (BBMD) to facilitate BACnet systems that span multiple IP networks.

Native LonWorks support

The Enterprise Server works with a range of LonTalk adapters to communicate to TP/FT-10 LonWorks networks. Integrated LonWorks functionality enables access to LonWorks devices from Schneider Electric and other vendors. LonWorks networks can be commissioned, bound, and configured from the Enterprise Server using the built-in LonWorks Network Management Tool. No third-party tools are needed. To increase ease of use, LNS device plug-ins are supported. This allows for easier engineering and maintenance of LonWorks devices from Schneider Electric and other vendors. There are some limitations on how LNS device plug-ins can be used.

Native Modbus support

The Enterprise Server natively integrates Modbus RS-485 master and slave configurations, as well as TCP client and server. This allows full access to third-party products and the range of Schneider Electric products that communicate on the Modbus protocol, such as power meters, UPS, circuit breakers, and lighting controllers.

Web Services support

The Enterprise Server 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 Enterprise Server. 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

The Enterprise Server 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 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

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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 SmartX servers and expected historical archiving. Enterprise Server is tested on many different servers with varying configurations. The typical configuration is an 8-core 3.6 GHz processor, a 32 GB of memory, and a storage capacity of 1 TB.

ProcessorMinimum: Intel Core i5 @ 2.0 GHz or equivalent
Recommended: Intel Core i5 @ 3.0 GHz or better

MemoryMinimum: 4 GB
Recommended: 8 GB or higher

Storage capacityMinimum: 100 GB
Recommended: 1 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 7 (64-bit)
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 7 editions are supported: Professional, Enterprise, and Ultimate.

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 4.5 or 4.6

Communication

TCPBinary, port fixed, 4444

HTTPNon-binary, port configurable, default 80

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

SMTPEmail sending, port configurable, default 25

SMTPSEmail sending, port configurable, default 587

SNMPversion 3

.....Application alarm distribution using trap

NTPTime synchronization

BACnet.....BACnet/IP, port configurable, default 47808

.....BTL B-BC (BACnet Building Controller)^a

.....BTL B-OWS (BACnet Operator Workstation)^a

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a) See the BTL Product Catalog for up-to-date details on BTL listed firmware revisions on BACnet International's home page.

Supports the following LonTalk adapters:NIC709-PCI
NIC709-USB
NIC709-USB100
NIC709-IP
NIC852

Other protocols may be used for particular additional functionality. See Technical Documentation.

LNS

LNS version.....OpenLNS
 Installed on WorkStation PC

LonMark

Resource files version.....14.00

Part numbers

Enterprise Server - 10, EcoStruxure Building Operation Enterprise Server license for a PC server, includes support for 10 SmartX servers, includes Reports Server licenseSXWSWESXX00010
 Enterprise Server - 50, EcoStruxure Building Operation Enterprise Server license for a PC server, includes support for 50 SmartX servers, includes Reports Server licenseSXWSWESXX00050
 Enterprise Server - 100, EcoStruxure Building Operation Enterprise Server license for a PC server, includes support for 100 SmartX servers, includes Reports Server licenseSXWSWESXX00100
 Enterprise Server - 250, EcoStruxure Building Operation Enterprise Server license for a PC server, includes support for 250 SmartX servers, includes Reports Server licenseSXWSWESXX00250

Add-on options

ES Hosting AS Pack - 01, License to add 1 SmartX server in addition to the original Enterprise Server purchased size.SXWSWASES00001
 ES Hosted Node Pack - 5, License to add 5 Non-SmartX servers/controllers with maximum 50 points per device.SXWSWNDES00005
 ES Hosted Node Pack - 10, License to add 10 Non-SmartX servers/controllers with maximum 50 points per device.SXWSWNDES00010
 ES Hosted Node Pack - 25, License to add 25 Non-SmartX servers/controllers with maximum 50 points per device.SXWSWNDES00025
 ES Hosted Node Pack - 50, License to add 50 Non-SmartX servers/controllers with maximum 50 points per device.SXWSWNDES00050
 ES Hosted Node Pack - 100, License to add 100 Non-SmartX servers/controllers with maximum 50 points per device.SXWSWNDES00100
 ES Hosted Node Pack - 300, License to add 300 Non-SmartX servers/controllers with maximum 50 points per device.SXWSWNDES00300
 ES Hosted Node Pack - 600, License to add 600 Non-SmartX servers/controllers with maximum 50 points per device.SXWSWNDES00600
 SW-EWS-1, EcoStruxure Web Services (run-time) option
 Consume only for one EcoStruxure BMS serverSXWSWEWSX00001
 SW-EWS-2, EcoStruxure Web Services (run-time) option
 Serve & Consume for one EcoStruxure BMS serverSXWSWEWSX00002
 SW-EWS-3, EcoStruxure Web Services (run-time) option
 Serve & Consume, plus Historical trend log data for one EcoStruxure BMS serverSXWSWEWSX00003

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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-SMARTDRIVER-1, Communication to external devices via SmartDriver	
For one SmartDriver license	SXWSWSDRV00001
SW-SMART-CONNECT, Smart Connector deployment license	
For one Smart Connector deployment	SXWSWSCDL10000