Enterprise Server

Introduction

A SmartStruxure 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 a SmartStruxure 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 SmartStruxure solution, Schneider Electric's intelligent Building Management System.

Features

At the top of the SmartStruxure solution architecture is the Enterprise Server. It is the central point from which users can configure, control, and monitor the entire 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 SmartStruxure servers and field devices throughout the site or enterprise.

Global view of the system

The entire system, including all of the SmartStruxure server devices 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 SmartStruxure server devices. Trend logs can also 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 SmartStruxure server devices, 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

A SmartStruxure solution 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 to 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 set password policies that meet

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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 a SmartStruxure solution, 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 SmartStruxure server the user is logged on to. The user can log directly on to an Enterprise Server to engineer, commission, supervise, and monitor the SmartStruxure server device 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 SmartStruxure solution 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 SmartStruxure solution. 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 SmartStruxure 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

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- TCP communications
- DHCP/DNS for rapid deployment and 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 hard disk space should be scaled upwards to accommodate targeted system size as impacted by the total quantity of SmartStruxure server devices and expected historical archiving. The Enterprise Server is tested on a machine with an 8-core 3.6 GHz processor, 32 GB of memory, and a hard drive of 3 TB.

Processor..Minimum: Intel Core i5 @ 2.0 GHz or equivalent
....Recommended: Intel Core i5 @ 3.0 GHz or better

Memory ....Minimum: 4 GB
....Recommended: 8 GB or higher

Hard disk space..Minimum: 100 GB

Drive...............DVD drive is required if your copy of StruxureWare Building Operation was delivered on disc.

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

Software requirements

Operating systems ....Microsoft Windows 7 (32-bit)
....Microsoft Windows 7 (64-bit)
....Microsoft Windows 8.1 (32-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)

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.

Required additional software..Microsoft .NET Framework 4.5 or 4.6

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

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BACnet ....BACnet/IP, port configurable, default 47808
....BTL B-BC (BACnet Building Controller)[a]
....BTL B-OWS (BACnet Operator Workstation)[a]
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 number

SW-ES-BASE-0, StruxureWare Building Operation Enterprise Server license for a PC server, includes Reports Server license
(No maintenance subscription included) SXWSWESXX00001

Add-on options

SW-EWS-1, EcoStruxure Web Services (run-time) option
Consume only for one SmartStruxure server, no maintenance.....................................SXWSWEWSX00001

SW-EWS-2, EcoStruxure Web Services (run-time) option
Serve & Consume for one SmartStruxure server, no maintenance SXWSWEWSX00002

SW-EWS-3, EcoStruxure Web Services (run-time) option
Serve & Consume, plus Historical trend log data for one SmartStruxure server, no maintenance SXWSWEWSX00003

SW-GWS-1, Web Services (Generic Consume) option
For one SmartStruxure server, no maintenance SXWSWGWSX00001

SW-SNMP-1, Alarm notifications via SNMP option
For one SmartStruxure server, no maintenance...SXWSWSNMP00001

SW-SMARTDRIVER-1, Communication to external devices via SmartDriver
For one SmartDriver license...SXWSWSDRV00001

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