FX Server Release 14.x Product Bulletin

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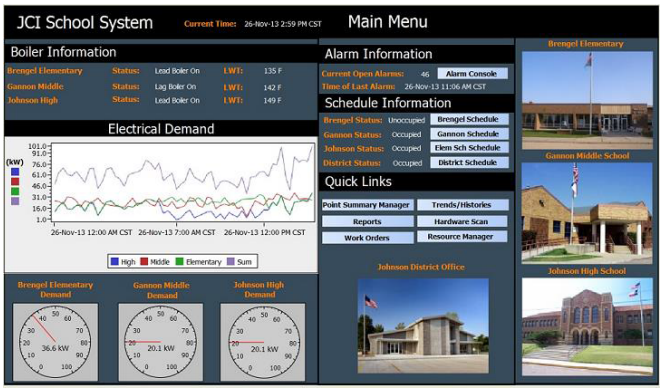
Refer to the QuickLIT Web site for the most up-to-date version of this document.

Overview

The FX Server software expands the capabilities of one or more FX Supervisory Controllers, in addition to managing TCP/IP field devices directly. The FX Server collects, stores, and provides access to large amounts of information (such as alarms, events, and histories) sourced from one or more FX Supervisory Controllers. The FX Server also coordinates the integration of multiple FX Supervisory Controllers networked together on a single project by providing network-wide automation and coordination, such as master scheduling, system-wide database management, and integration with enterprise software applications and from TCP/IP field devices.

The FX Server includes a graphical user interface and configuration tool you can access with a web browser. Multiple users can concurrently connect to the FX Server. User security and presentation preferences are managed through user profiles, login IDs, and passwords. Remote access is easily achieved from an intranet, WAN, LAN, and Internet connection.

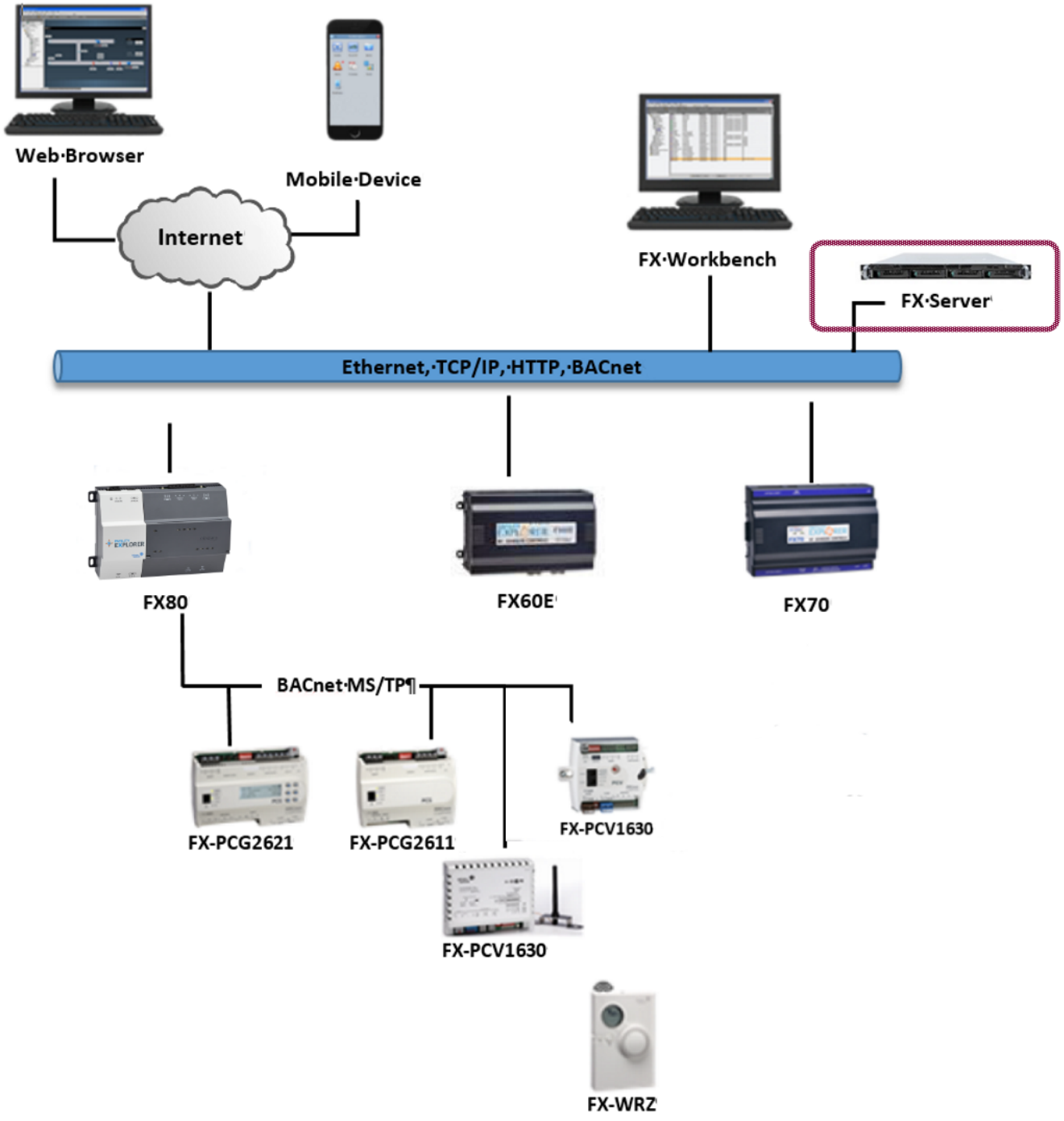
Figure 1: FX Server



FX Server Features and Benefits

- **Web-Based User Interface**—Features a bold and intuitive new interface that is modern and easy to use. An HTML5 profile has been added to provide a more robust web experience.
- **Powerful Security**—Provides a **defense-in-depth** approach to security that requires users to use strong credentials. Provides encrypted data. Easy to configure user permissions.
- **Centralized Enterprise-Wide Information**—Provides a single access point for a project consisting of multiple FX Supervisory Controllers or multiple IP field controllers.
- **Large Storage Repository for Alarms, Events, and Histories**—Allows large amounts of historical information to be accessed and archived.
- **Niagara® Analytics**—Allows you to apply a variety of analytic algorithms and diagnostics to both historical and real-time data.

Figure 2: Example of a Facility Explorer Configuration



FX Server

The FX Server is a software package that resides and runs on a third-party computer hardware platform. The FX Server connects to IP-based field controllers or one or more FX Supervisory Controllers and expands their capabilities by providing the following:

- large-scale, centralized storage for events, alarms, histories, and graphics
- master scheduling
- system-wide database management
- integration of enterprise software applications

Common Application

Common application examples for the FX Server include the following:

- a large building, requiring more field devices than a single FX Supervisory Controller can handle.
  You can network together multiple FX Supervisory Controllers, where each controller supervises a section, floor, or wing of the building (by using a hub or over the intranet to support the required number of field devices). Then you can use the FX Server to centralize the user interface; act as the master scheduler; and store alarms, events, and histories for the entire project.
- a collection of buildings (for example, a school district) that requires the centralization of multiple, remotely located FX Supervisory Controllers.
  You can network multiple FX Supervisory Controllers, where each controller supervises an entire building, over the Internet. Then you can use the FX Server to centralize the user interface; act as the master scheduler; and store alarms, events, and histories for the entire project.
- a project that requires additional performance from a single FX Supervisory Controller
  You can use the FX Server to leverage the dedicated processing power and memory of the third-party computer hardware platform to:
  - provide long, term high capacity archival of alarm, event, and historical data records sourced from the FX Supervisory Controller
  - serve up the system user interface requiring large-sized graphic image files or requiring a large number of concurrent users.
- a building where most or all field controller-level devices are IP-based and do not require an FX Supervisory Controller to manage them. The FX Server can manage them directly.

Web-Based User Interface

The FX Server's web-based user interface (Web UI) provides system-wide monitoring and control capability through a web browser. The Web UI capability is embedded in every FX Server, allowing users to access the system by using a web browser over an Ethernet LAN, Internet, or dial-up modem connection. The Facility Explorer Release 14.x features an HTML5 interface, reducing the reliance on browser plug-ins.

When you create your Web UI pages, you can choose from a full library of colorful, graphical symbols including:

- HVAC equipment
- duct work
- coils
- piping
- control devices (for example, dampers or valves)
- widgets (for example, buttons, tables, or hyperlinks)

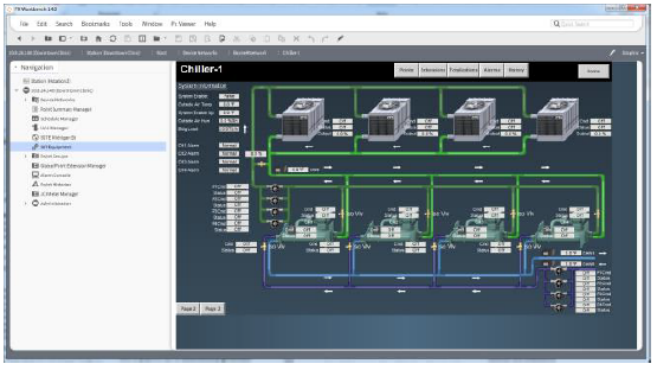
In addition, you can import your own digital images (for example, a floor plan .jpg file) and incorporate them into your Web UI.

FX Workbench provides you with two sets of factory-designed, standard application graphics to include in your Web UI. One set is designed for viewing with a full-sized computer screen, and the other set has been optimized for viewing with an iPhone® or iPod touch® handheld device. When you import a controller with a standard application, both sets of graphics can be automatically generated.

You can view devices, points, schedules, alarms, and graphics with the convenience of a wireless handheld device. You can also acknowledge alarms, command points, and modify schedules. The user interface updates dynamically, so that when changes are made to the FX Supervisory Controller configuration, these changes automatically appear.

Figure 3: Mobile Device Web UI

Figure 4: Full Size Web UI



Standard Features

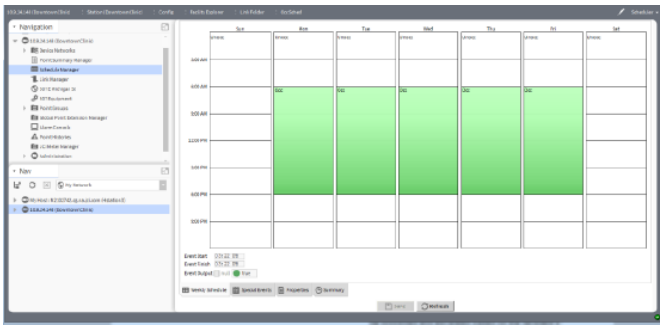
Centralized Scheduling

For projects that consist of multiple FX Supervisory Controllers, the FX Server can operate as a centralized interface to all connected FX Supervisory Controller schedules.

The Schedule Export or Import Manager provides the ability to determine when and how the schedule synchronization occurs.

The FX Server UI provides the same visual method to configure the schedule time and date as the FX Supervisory Controller UI, which provides a consistent look and feel to operators.

Figure 5: Scheduling

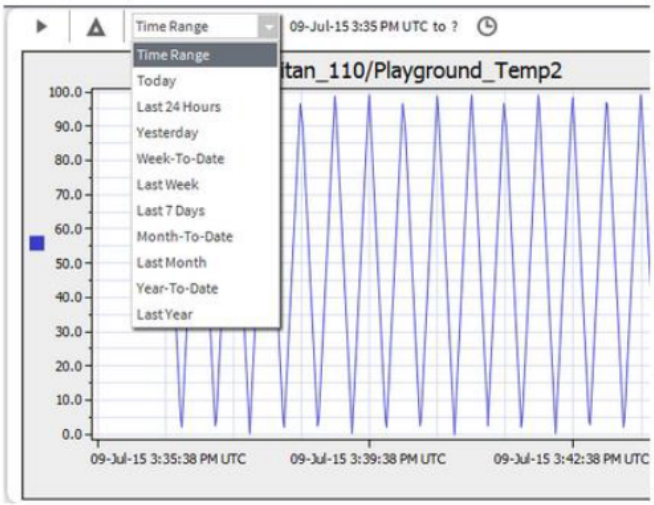


History Archiving

The history archiving feature allows the automatic transfer of histories from one or more FX Supervisory Controller to the FX Server. Use the archiving histories feature when long-term or large capacity storage of history records is required or when a project consisting of multiple FX Supervisory Controllers requires centralized storage.

The History Export or Import Manager provides the ability to determine when and how the archiving process is executed. The FX Server UI displays the data either graphically or in a sortable table. You can also export stored data in a TXT, PDF, or CSV format.

Figure 6: Histories

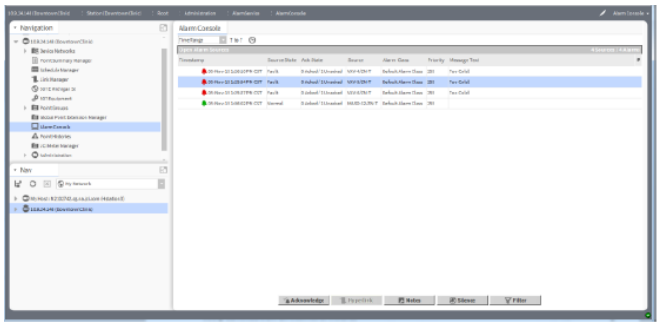


Alarm Archiving and Management

The FX Server provides an additional alarm routing option for one or more FX Supervisory Controllers. You can route alarms to the FX Server if there is a requirement for long-term storage capacity of alarm records or if a project consisting of multiple FX Supervisory Controllers requires centralized alarm management.

The FX Server's Alarm Console provides you with a variety of options to view and manage alarms, including sorting, acknowledging, silencing, and tagging . You can also export alarm records in a TXT, PDF, or CSV format.

Figure 7: Alarms

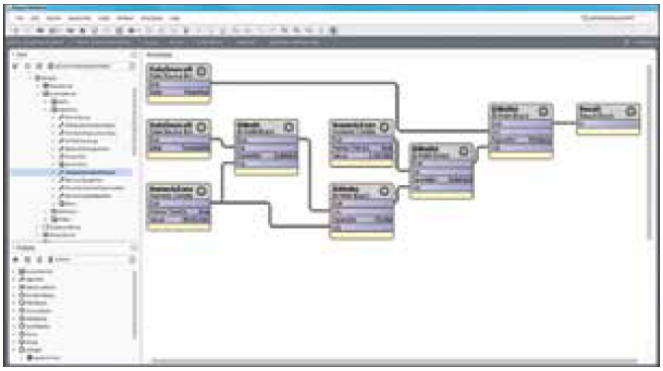


Niagara Analytics

Niagara Analytics is a data analytics extension to the Niagara Framework®, which is available on FX Supervisory Software. Niagara Analytics gives users the ability to apply a variety of analytic algorithms and diagnostics to both historical and real-time data available. At FX Supervisory Software Release 14.2, every FX80 and FX Server is licensed for 25 analytic objects.

- Algorithm Library—The algorithm library has a group of predefined algorithms that you can customize and extend to meet the specific needs of the site. Also provided are more than 40 functional and mathematical blocks to help you design and create your own custom algorithms. Use your algorithm to evaluate a single piece of equipment or all pieces of equipment in your enterprise, then save your entire analytics operation as a template and redeploy as often as needed.
- Intuitive Programming—You can drag and drop algorithms onto the wiresheet from the Analytics palette.
- Real-time, On-Premise Analytic Control—You can run on-site analytics either directly on the FX80 Supervisory Controller or in the FX Server to identify a situation and make a change in real time. Making changes in real-time enables you to make faster decisions while conserving computing power. Results can then be pushed up to the server to make changes across the enterprise.
- Automated-Control Strategies—Advanced alarming can collect data from multiple real-time data sources and make intelligent decisions based on custom algorithms and therefore providing a more sophisticated analysis. This process can eliminate many end-user nuisance alarms.

Figure 8: Analytics



Device Network Drivers

The following Ethernet-based drivers are included in the FX Server, enabling you to integrate third-party devices and services into the station:

- BACnet® IP
- MODBUS® Transmission Control Protocol (TCP)
- Open Building Information Xchange (oBIX)
- oBix® driver
- Simple Network Management Protocol (SNMP)
- LonWorks® device driver licenses are required when integrating devices for TCP/IP.
- KNX and EIB Driver
- An OPC Client over Ethernet is available for purchase.

Optional Enterprise-Level Database Drivers

You can add enterprise-level database drivers to the FX Server. These drivers allow you to export archived data in the FX Server to the desired enterprise-level database format. The optional database drivers include:

- Microsoft® SQL Server® database
- Oracle IIG® database driver
- MY SQL database driver
- Microsoft® Excel® and .csv files data import driver

FX Workbench

FX Workbench is a software tool that lets you configure the FX Server station. FX Workbench is fully integrated into the FX Server software, letting you configure the FX Server station directly or remotely through a web browser connection.

FX Workbench includes many labor-saving configuration features, such as:

- online discovery of LonWorks and BACnet devices and points
- a check box method to enable and disable points and create point extensions, such as alarms, histories, and totalizations
- intuitive managers for grouping points, creating master schedules, and linking points
- a library of predefined systems with associated graphics, points list, and default features
- automated graphic view creation

Ordering Codes

Table 1: FX Server Ordering Information

Product Code Number	Description[2]
FX-SL000-0	License enabling FX Server with 0 Niagara network connections. For use with TCP/IP.
FX-SL001-0	License enabling FX Server with 1 Niagara network connection.
FX-SL002-0	License enabling FX Server with 2 Niagara network connections.
FX-SL003-0	License enabling FX Server with 3 Niagara network connections.
FX-SL010-0	License enabling FX Server with 10 Niagara network connections.
FX-SL100-0	License enabling FX Server with 100 Niagara network connections.
FX-SLUNL-0	License enabling FX Server with unlimited Niagara network connections.
FX-SLAX-0	License server license that allows you to run Niagara AX
FX-SL000M1-0	License enabling FX Server with 0 initial software maintenance for 1 year.
FX-SL001M1-0	License enabling FX Server with 1 initial software maintenance for 1 year.
FX-SL002M1-0	License enabling FX Server with 2 initial software maintenances for 1 year.
FX-SL003M1-0	License enabling FX Server with 3 initial software maintenances for 1 year.
FX-SL010M1-0	License enabling FX Server with 10 initial software maintenances for 1 year.
FX-SL100M1-0	License enabling FX Server with 100 initial software maintenances for 1 year.
FX-SLUNLM1-0	License enabling FX Server with unlimited initial software maintenances for 1 year.
FX-SLDEMO-0	Engineering/demo license for FX Workbench client software. Enables all features needed to engineer and demonstrate FX Supervisory Controllers and FX Server stations. Intended for installing contractors. Requires support fee. Expires yearly.
FX-DVD-COPY	FX Supervisory Controller family software, delivered on DVD. Contains latest installation images for FX Server and FX Workbench. Licenses not included—order licenses separately.[1]

1 At Facility Explorer 14.x, there is no equivalent to the Alarm Console. However, the Facility Explorer Alarm Console Release 6.x will communicate with and display alarms from Facility Explorer Servers and Supervisory controllers running Facility Explorer 14.x).

2 Maintenance cannot be purchased for any period beyond December 31, 2025.

FX Server Device Licensing Information

FX Server Release 14.0 and later do not require additional licenses for BACnet, LonWorks, Modbus, oBIX, KNX, or SNMP integrations.

FX Server device licenses are now required when the FX Server manages TCP/IP field controllers. Select multiple device licenses to total the amount of TCP/IP field controllers. For example, if the FX Server manages 58 TCP/IP field controllers, select FX-SLDL050-0 and FXSLDL010-0 for a total of 60 TCP/IP controllers.

Select the FX Server license FX-SL000-M#-0 for systems made up of **only** TCP/IP Field Controllers and do not require an FX Supervisory Controller. FX Server device licenses are not restricted to just that model of FX Server.

Table 2: FX Server Device License Ordering Information

Product Code Number	Description
FX-SLDL010-0	License enabling 10 IP device support for FX Server
FX-SLDL025-0	License enabling 25 IP device support for FX Server
FX-SLDL050-0	License enabling 50 IP device support for FX Server
FX-SLDL100-0	License enabling 100 IP device support for FX Server
FX-SLDL200-0	License enabling 200 IP device support for FX Server

Table 2: FX Server Device License Ordering Information

Product Code Number	Description
FX-SLDL500-0	License enabling 500 IP device support for FX Server
FX-SLDL1000-0	License enabling 1,000 IP device support for FX Server

Table 3: FX Server Software Accessories Ordering Information

Product Code Number	Description
FX-SLMYSQL-0	License enabling MYSQL database support for FX Server
FX-SLSQL-0	License enabling SQL database support for FX Server
FX-SLCSV-0	License enabling CSV support for FX Server
FX-SLORCL-0	License enabling Oracle database support for FX Server
FX-SLOPCCL-0	License enabling OPC client support for FX Server

FX Server Upgrade Ordering Information

FX Server upgrades are required to increase the number of FX Supervisory Controllers that an existing FX Server can manage.

Table 4: FX Server Upgrade Ordering Information

Product Code Number	Description
FX-SLU001-6	License enabling 1 additional Niagara network connection for FX Server.
FX-SLU100-6	License enabling 100 additional Niagara network connections for FX Server.
FX-SLUUNL-6	License enabling unlimited additional Niagara network connections for FX Server.

FX Server Maintenance Ordering Information

FX Server Release 14.0 and later requires a software maintenance license that must be purchased in addition to the server software. Additional software maintenance is available for when the original period is set to expire.

We recommend that you keep the FX Server software maintenance up-to-date. However, if the FX Server software maintenance lapses and it is desired after it has lapsed, the software maintenance must cover the lapsed period plus the period you wish to purchase.

Table 5: FX Server Software Maintenance

Product Code Number	Description[2]
FX-SL000M1-6	License enabling 1 additional year of software maintenance for FX Server with 0 Niagara network connections.
FX-SL000M3-6	License enabling 3 additional years of software maintenance for FX Server with 0 Niagara network connections.
FX-SL000M5-6	License enabling 5 additional years of software maintenance for FX Server with 0 Niagara network connections.
FX-SL001M1-6[1]	License enabling 1 additional year of software maintenance for FX Server with 1 Niagara network connection.
FX-SL001M5-6[1]	License enabling 3 additional years of software maintenance for FX Server with 1 Niagara network connection.
FX-SL001M3-6[1]	License enabling 5 additional years of software maintenance for FX Server with 1 Niagara network connection.
FX-SL002M1-6	License enabling 1 additional year of software maintenance for FX Server with 2 Niagara network connections.
FX-SL002M3-6	License enabling 3 additional years of software maintenance for FX Server with 2 Niagara network connections.

Table 5: FX Server Software Maintenance

Product Code Number	Description[2]
FX-SL002M5-6	License enabling 5 additional years of software maintenance for FX Server with 2 Niagara network connections.
FX-SL003M1-6[1]	License enabling 1 additional year of software maintenance for FX Server with 3 Niagara network connections.
FX-SL003M3-6[1]	License enabling 3 additional years of software maintenance for FX Server with 3 Niagara network connections.
FX-SL003M5-6[1]	License enabling 5 additional years of software maintenance for FX Server with 3 Niagara network connections.
FX-SL010M1-6	License enabling 1 additional year of software maintenance for FX Server with 10 Niagara network connections.
FX-SL010M3-6	License enabling 3 additional years of software maintenance for FX Server with 10 Niagara network connections.
FX-SL010M5-6	License enabling 5 additional years of software maintenance for FX Server with 10 Niagara network connections.
FX-SL100M1-6[1]	License enabling 1 additional year of software maintenance for FX Server with 100 Niagara network connections.
FX-SL100M3-6[1]	License enabling 3 additional years of software maintenance for FX Server with 100 Niagara network connections.
FX-SL100M5-6[1]	License enabling 5 additional years of software maintenance for FX Server with 100 Niagara network connections.
FX-SLUNLM1-6[1]	License enabling 1 additional year of software maintenance for FX Server with unlimited Niagara network connections.
FX-SLUNLM3-6[1]	License enabling 3 additional years of software maintenance for FX Server with unlimited Niagara network connections.
FX-SLUNLM5-6[1]	License enabling 5 additional years of software maintenance for FX Server with unlimited Niagara network connections.

1 In addition to providing additional software maintenance on FX Servers at or above Release 14.0, these same parts are required to migrate a legacy FX Server at Release 6.x to Release 14.0 and later.

2 Maintenance cannot be purchased for any period beyond December 31, 2025.

Table 6: FX Server - Niagara Analytics

Product Code Number	Description
FX-ASL0250-0	License enabling 250 analytics points for Niagara Analytics on an FX Server at FX Supervisory Family Software Release 14.2 or greater
FX-ASL1000-0	License enabling 1,000 analytics points for Niagara Analytics on an FX Server at FX Supervisory Family Software Release 14.2 or greater
FX-ASL2500-0	License enabling 2,500 analytics points for Niagara Analytics on an FX Server at FX Supervisory Family Software Release 14.2 or greater
FX-ASL010K-0	License enabling 10,000 analytics points for Niagara Analytics on an FX Server at FX Supervisory Family Software Release 14.2 or greater
FX-ASL050K-0	License enabling 50,000 analytics points for Niagara Analytics on an FX Server at FX Supervisory Family Software Release 14.2 or greater.
FX-ASL100K-0	License enabling 100,000 analytics points for Niagara Analytics on an FX Server at FX Supervisory Family Software Release 14.2 or greater.
FX-ASLUNL-0	License enabling unlimited analytics points for Niagara Analytics on an FX Server at FX Supervisory Family Software Release 14.2 or greater.

Technical Specifications

Table 7: FX Server

Processor	Intel® Xeon® CPU E5-2640, 64-bit (or better), compatible with dual and quad core processors
Operating System	64-bit: Windows® 10, Windows 8.1 Enterprise, Windows Server 2012 R2 Standard
Web Browser	Windows Internet Explorer® version 5 or later or Mozilla® Firefox®
Memory	1 GB minimum; 4 GB recommended for large systems, 8 GB or more recommended for Windows 64-bit version
Hard Disk	4 GB or more
Display	Graphics card and monitor capable of displaying 1024 x 768 pixel resolution or greater
Network Support	Ethernet 10/100 MB with RJ-45 connector
Connectivity	Always on, high-speed Internet Service Provider (ISP) connection recommended for remote site access (DSL, T1, or cable modem)

Building Technologies & Solutions
507 E. Michigan Street, Milwaukee, WI 53202

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