LYNQ

System Requirements

LYNQ MES GEN 2

January 2025

Contents

About LYNQ

LYNQ is reinventing manufacturing execution systems (MES) software for small to midsize manufacturers looking for a configurable, plug-and-play offering to digitalise and drive their factory performance. Formed **around international standard IEC62264, LYNQ's all**-in-one solution can plan, track, automate, analyse, and optimise factories to increase efficiency, productivity, and profitability.

Introduction

This document addresses the minimum suggested requirements for deploying LYNQ on-premise and may also be used to calculate the system requirements for hosting LYNQ in a private cloud environment. Due to multiple industry changes and rapid equipment obsolescent, it is recommended that you seek the advice of a hardware specialist as well as a knowledgeable license specialist before making purchase commitments.

You must ensure that you take into consideration any third-party software products such as Microsoft Windows Server, Microsoft SQL Server as they have their own system requirements that might be different from the system requirements of LYNQ. Moreover, note that LYNQ follows a support life cycle policy. In this policy Microsoft provides guidelines for product support availability throughout a product life cycle. For more information, see the Microsoft support life cycle policy on the Microsoft Website.

LYNQ is not supplied with client access licenses for operating systems or Microsoft SQL Server. These must be purchased separately. This document is provided as a guideline only and LYNQ cannot guarantee the accuracy of any information presented after the date of publication. LYNQ make no warranties, express, implied, or statutory, as to the information in this document.

Solution Components

LYNQ MES is a hybrid product combining web based and desktop applications to provide the best possible customer and experience.

MOM – Manufacturing Operations Management

LYNQ mom is a web-based application used in production and hosted on Internet Information Services. Unlike LYNQ aps, which is deployed just to planners, an instance of LYNQ mom is required per ERP company (database). Meaning if you have a production company and need to deploy a sandbox instance, two installations of LYNQ mom are required.

APS – Advanced Planning and Scheduling

LYNQ aps is a desktop finite capacity-based planning and scheduling tool used by planners. The application is typically deployed to a PC. Alternatively LYNQ aps may be deployed via Windows Virtual Desktop, Remote Desktop Services or Citrix in environments where centralised deployment is required.

API – Application Program Interface

LYNQ api is a web-based application providing connectivity to the ERP application and other third-party applications. LYNQ api supports multiple instances of ERP companies and therefore the application only needs to be installed once. LYNQ api is typically only accessed by System Administrators.

Client Requirements

LYNQ mom

Users access the application using one of the supported web browsers on a personal computer, laptop or tablet device.

Minimum Software Requirements

Operating Systems	
Operating Systems Supported	Supported
Android & iOS	Yes
Microsoft Windows 11	Yes
Microsoft Windows 10	Yes
Microsoft Windows 8 and 8.1	Yes
Microsoft Windows 7 (Professional, Ultimate and Enterprise)	Yes
Microsoft Windows Server 2022	Yes
Microsoft Windows Server 2019	Yes
Microsoft Windows Server 2016	Yes
Microsoft Windows Server 2012 R2	Yes
Microsoft Windows Server 2012	Yes

Web Browsers	
Web Browsers Supported	Supported
Internet Explorer	No
Microsoft Edge	Yes
Google Chrome	Yes
Safari	Yes

Minimum Hardware Requirements

- **10" high resolution screen**
- Intel i5 or equivalent
- 2 GB RAM
- WIFI/100MB/1GB Network Interface
- Barcode scanners (optional)
- Mounting devices (optional)

LYNQ mom

Client Requirements

LYNQ aps

If there are any remote APS users, (user located on a different network to the database server) then additional consideration should be made as to how the remote user will run LYNQ aps. Running the application over a VPN is usually the preferred option as it is more secure, but it may not be the best option for performance and stability. Publishing LYNQ aps in a thin client environment may provide a better user experience, in this case.

Minimum Software Requirements

Operating Systems	Supported
Microsoft Windows 11	Yes
Microsoft Windows 10	Yes
Microsoft Windows 8 and 8.1	Yes
Microsoft Windows 7 (Professional, Ultimate and Enterprise)	Yes
Microsoft Windows Server 2022	Yes
Microsoft Windows Server 2019	Yes
Microsoft Windows Server 2016	Yes
Microsoft Windows Server 2012	Yes

Web Browsers	Supported
Internet Explorer	No
Microsoft Edge	Yes
Google Chrome	Yes
Safari	Yes

Other Software Requirements

- Domain Joined for Windows Authentication
- Microsoft .NET Framework 3.5

Minimum Hardware Requirements

- **21" – 24" high resolution screen**
- Intel i5 or equivalent
- 2-4 virtual cores or 1 physical processor
- 8 GB RAM
- 100 MB/1 GB Network Interface

Note: LYNQ aps uses random access memory (RAM) to temporarily store data whilst processing. The amount of memory is based on the workload.

- Light to Medium Workload 8 GB RAM
- Heavy Workload 16 GB RAM

Server Requirements

LYNQ mom Web Server

A typical installation of LYNQ comprises of these components

- LYNQ mom Web Site (Instance installed per ERP Company)
- LYNQ api Web Site (Supports Multiple ERP Companies)

Hardware requirements are based on the number of instances installed and the number of resources configured for scheduling and data collection. In multi company scenarios, the hardware requirements are scaled up by the number of instances installed.

Minimum Software Requirements

Operating Systems	Supported
Microsoft Windows 11	Yes
Microsoft Windows 10	Yes
Microsoft Windows 8 and 8.1	Yes
Microsoft Windows 7 (Professional, Ultimate and Enterprise)	Yes
Microsoft Windows Server 2022	Yes
Microsoft Windows Server 2019	Yes
Microsoft Windows Server 2016	Yes
Microsoft Windows Server 2012	Yes

Note: LYNQ web sites may be installed on a windows client for demonstration and training purposes only. Production environments must be installed on a Microsoft Windows Server environment.

Other Software Requirements

- Web Server Role enabled (Internet Information Services)
- Microsoft .NET Framework 4.8
- SSL Certificate (optional and not supplied by LYNQ)

RAM Requirements

RAM is calculated based on the number of resources licensed and the number of instances installed.

Allow for:

- 80MB per resource (Named & Automated)
- 2GB RAM per MOM instance
- 2GB RAM for the Windows Operating System

(Named Resources + Automated Resources) x (RAM per Resource) + (Instance RAM) + (Windows RAM)

CPU Requirements

CPU is calculated based on the number of resources licensed.

Allow for:

- 30MHz per resource (Named & Automated)
- 2GHz for the Windows Operating System

(Named Resources + Automated Resources) x (CPU per Resource) + (Windows GHz)

Examples

ERP Companies	Named Resources	Automated Resources	RAM	CPU	Disk Space
1	50	50	14GB	5GHz	1GB
2	100	100	22GB	8GHz	2GB

Disk Space Requirements

The default size of the program files folder following an installation of MOM, is approximately 1GB in size. Except for any media attached in MOM by using the Document Library Feature, nearly all data is stored on the SQL Server. By default, media attached using the Document Library is stored on the C drive on the Web Server. The location can be changed to a different network drive from the LYNQ api global settings menu option.

Server Requirements

Database Server

Minimum Software Requirements

Microsoft SQL Server	
SQL Server 2008 R2	Yes
SQL Server 2012	Yes
SQL Server 2014	Yes
SQL Server 2016	Yes
SQL Server 2017	Yes
SQL Server 2019	Yes
SQL Server 2022	Yes

Note: Web, Standard and Enterprise editions are supported. SQL Server express edition may be used for training and demonstration purposes only. Due to the restrictions enforced by Microsoft, it is not recommended to use the SQL Server express edition in production environments.

RAM Requirements

RAM is calculated based on the number of resources licensed.

Allow for:

- 80MB per resource (Named & Automated)
- 8GB RAM for the Windows Operating System

(Named Resources + Automated Resources) x (RAM per Resource) + (Windows RAM)

CPU Requirements

CPU is calculated based on the number of resources licensed.

Allow for:

- 30MHz per resource (Named & Automated)
- 2GHz for the Windows Operating System

(Named Resources + Automated Resources) x (CPU per Resource) + (Windows GHz)

Examples

ERP Companies	Named Resources	Automated Resources	RAM	CPU	Disk Space
1	50	50	16GB	5GHz	See Microsoft
2	100	100	24GB	8GHz	See Microsoft

Disk Space Requirements

Refer to the SQL Server System Requirements documentation.

Minimum Database Size by Component

The following table provides a guide for the initial size and expected database growth over a 3-year period.

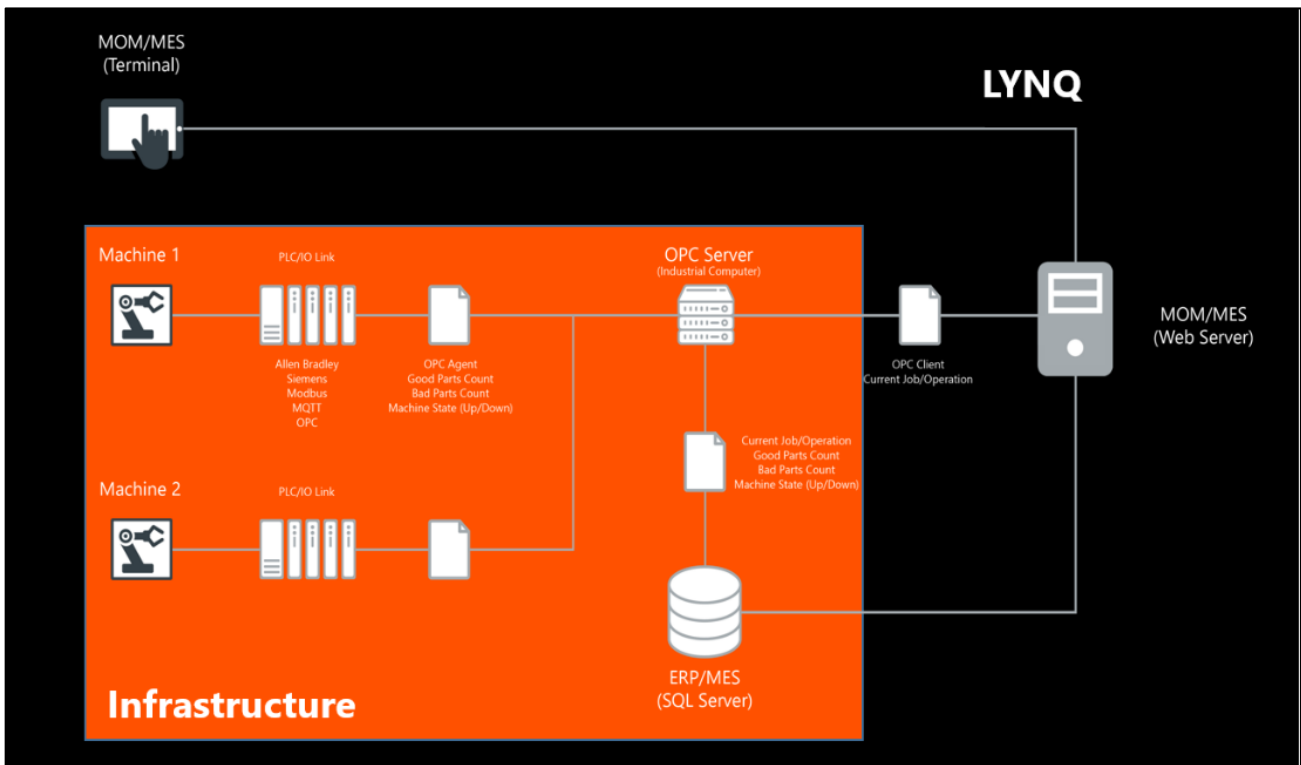| Component	SQL Database(s)	Initial Size	Purpose	Growth Expectations
LYNQ aps	ERP or Staging Database	100 MB	Refer to the Integration Whitepaper to understand where LYNQ aps data is stored. Depending upon the ERP integrated ERP application, data may be stored in the ERP database or in a staging database	The tables created in the ERP/Staging database will be minimal in size and minimal in growth.
LYNQ mom	MOM Data	100 MB	Stores all LYNQ mom application transactional data	Expected growth over a 3-year period 1 GB to 100 GB. Largely dependent upon the number of transactions generated in the workbench feature.
	MOM Data Live	100 MB	Stores live statistics for reporting purposes	Expected growth over a 3-year period 1 GB to 5 GB. Largely dependent upon the number of transactions generated in the workbench feature.
	MOM Config	100 MB	Stores all LYNQ mom configuration data	Expected growth over a 3-year period 100 MB to 1 GB.
	MOM Logic	100 MB	Stores all LYNQ mom logic data	Expected growth over a 3-year period 1 GB to 50 GB. Largely dependent upon the number of transactions generated in the workbench feature.
	MOM FA	100 MB	Stores all data relating to Factory Automation, if in use	Expected growth over a 3-year period 1 GB to 100 GB. Largely dependent upon the number machines automated and the level of data collected.
LYNQ api	LYNQ api	100MB	Stores all configuration data related to the integration with ERP	The LYNQ api database is unlikely to increase in size over time.

Server Requirements

OPC Server (Optional Factory Automation)

Factory automation is entirely dependent on the infrastructure illustrated in the Factory Automation Topology Diagram. You must have LYNQ implemented to utilise factory automation.

Machines that will be configured as automated devices in LYNQ must already be connected to a PLC or IO device and communicating with the OPC Server.

Factory Automation Topology Diagram

Minimum Software Requirements

Operating Systems	Supported
Microsoft Windows Server 2022	Yes
Microsoft Windows Server 2019	Yes
Microsoft Windows Server 2016	Yes
Microsoft Windows Server 2012	Yes

Minimum Hardware Requirements

- Industrial Fanless PC
- Intel i3 or equivalent
- 4 GB RAM
- 2 GB LAN ports
- 2 COM ports (RS-232/433/485)
- 2 HDMI ports / 1 VGA port

Shared Server Infrastructure

ERP Infrastructure

To minimise licensing, hardware, and operating costs, LYNQ may share all or some of the server infrastructure required by your connected ERP application. In cases where the ERP application is hosted and provided in a SaaS deployment, this may not be possible. However, if the ERP application is deployed on-premise and sharing of the infrastructure is a possibility, LYNQ may be deployed on the same Microsoft SQL Server and the same IIS Web Server.

- **Microsoft SQL Server** This could be the same SQL server where the ERP databases are hosted.

- **IIS Web Server** (Windows Server with the Web Server (IIS) Role enabled). The web server does not have to be dedicated to LYNQ, it can be shared with other applications. LYNQ do suggest following Microsoft best practice and advise that the Web Server (IIS) Role is separated from the database services. This will provide better security and performance, but LYNQ do not enforce this recommendation and the application can be installed on the same server that hosts the SQL Database Services.

Note: In a shared infrastructure environment, the overall combined minimum hardware requirements specified in this document for LYNQ and the hardware requirements for the ERP application, may be lower than adding both requirements together. The servers should be monitored to ensure the combined hardware requirements are not over or under specified.

Cloud Hosting of LYNQ

When LYNQ uses the ERP's API for integration purposes, it is possible to host LYNQ in the cloud whist the ERP application is hosted in a separate cloud hosting location. Refer to the Integration Topology diagram in the Integration Whitepaper for further information.

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