

PAPER-LESS

MANUFACTURING EXCELLENCE THROUGH SOFTWARE

PAPER-LESS 5.4.16 HARDWARE & SOFTWARE REQUIREMENTS GUIDE

- Paper-Less 5.4.16 Hardware & Software Requirements Guide2
- About Paper-Less 5.4.163
 - Web/Application Server.....3
 - Data Storage.....3
 - Client.....3
- System Requirements.....4
 - Paper-Less Server Software4
 - Paper-Less Server Minimum Hardware Requirements5
 - Paper-Less Database Software Configuration5
 - Paper-Less Client Hardware5
- ERP System Requirements5
 - Replication Software6

ABOUT PAPER-LESS 5.4.16

Paper-Less is a web-based Manufacturing Execution Solution for ERP (Enterprise Resource Planning) software such as INFOR XA, SAP, and Microsoft Dynamics.

In addition to workflow focused integration, the Paper-Less application provides real-time production reporting, quality control, shorter manufacturing cycle times, faster inventory turnover, on-time deliveries, and enhanced cash flow for ERP users. Paper-Less has three primary elements:

WEB/APPLICATION SERVER

The Web/Application Server contains the application business logic, web services, and infrastructure to support Paper-Less. The server also contains several utilities (Windows programs) for use in configuring and maintaining databases, environments, and ERP connections and data synchronization.

DATA STORAGE

Paper-Less uses a Microsoft SQL Server database to store data. The Web/Application Server uses the database to store and retrieve information related to configuration, users, production data, and quality data. To deploy Paper-Less effectively, a separate IIS Application and SQL database server are highly recommended.

CLIENT

The Paper-Less Client can be run from any computer that has Intranet Access and a Web Browser - Microsoft Edge, Google Chrome, and Mozilla Firefox. Note: Other web browsers may work but are not yet certified for use with Paper-Less.

Paper-Less has 3 primary user interface styles:

- **Portal** – This interface is designed to be used like a traditional PC application using a keyboard and mouse. The Portal screen size was designed for screens 1024x768 and up. This interface works well with most tablets using a stylus.
- **Touchscreen** – This interface is designed to be used with a touchscreen monitor as an operator panel – without a keyboard or mouse. The interface is designed around workflow – with emphasis on both speed and accuracy of data entered. The screen size is designed for a 1024x768 touchscreen and will not work with a screen of lower size. A screen size of 1280x1024 or higher also works well. This interface expects to use the web browser in either full-screen or kiosk mode. This interface works well with most tablets using touch, and on larger screen smart phones using a stylus.
- **Mobile** – This interface is designed primarily to be used with Windows mobile wireless handheld barcode scanner/computers (such as Intermec or Motorola). It is also compatible with similar mobile device web browsers. The interface is simple and designed for use with limited screen real estate and computing power.

These primary elements work together to provide seamless interoperability with the ERP system by pointing the browser of any potential workstation to the Web Server "<http://servername/PaperLess>" to access the login page.

SYSTEM REQUIREMENTS

PAPER-LESS SERVER SOFTWARE

To deploy Paper-Less effectively, a separate IIS Application and SQL database server is recommended. The following minimal software is required for server functions:

IIS Application Server

- Windows Server 2016/2019/2022 Standard Edition or higher.
- Microsoft Edge
- Google Chrome
- Mozilla Firefox
- .NET Runtime v 4.8
- IIS - Internet Information Services
- Static IP address or client resolvable DNS Name
- ERP or Database specific driver\connector\provider

SQL Database Server

- Windows Server 2016/2019/2022 Standard Edition or higher.
- Microsoft SQL Server 2016/2017/2019 Standard or higher.
 - SQL Express is **NOT** a supported version
- It is highly recommended that OS, Database Files, and SQL Transaction Log files be kept on separate drives.

*For MSSQL on a VM – download and follow the latest Microsoft installation guidelines:

Ex. Search Microsoft.com for "Running SQL Server in a Hyper-V Environment", or "Running SQL Server in a VMWARE Environment"

Important Note: For Infor XA 7.x, and 9.x - IBM System i Client Access v7.1 SP SI47412 minimum.

PAPER-LESS SERVER MINIMUM HARDWARE REQUIREMENTS

The table below outlines the minimum requirements for running Paper-Less on the IIS Application and SQL servers.

IIS Application Server	
Processors / Cores	2
RAM	16 GB
SQL Database Server	
Processors / Cores	2
RAM	16 GB

PAPER-LESS DATABASE SOFTWARE CONFIGURATION

The following configuration must be in place by the Microsoft SQL Server instance that holds the Paper-Less SQL databases:

- Install time credentials as a SQL Server System Administrator
- Mixed Mode Security

Note: The Server installation program creates a non-administrative SQL login account that is used by each client for database access.

PAPER-LESS CLIENT HARDWARE

To use the Paper-Less Client effectively, your web browser must have at least:

- **Portal or Touchscreen**
 - 1024 x 768 screen resolution
 - Microsoft Edge, Google Chrome, or Mozilla Firefox.
 - Other web browsers may work – yet are not tested/validated/supported for use with Paper-Less.
 - A PDF reader plug-in must be installed (ex. Adobe Acrobat)
- **Mobile**
 - Android 8.0 or higher, or IOS 14.0 or higher.
 - Chrome, Edge, or Safari.

ERP SYSTEM REQUIREMENTS

Infor XA ERP Systems – The Infor XA database resides and runs on the IBMi OS. Paper-Less as well as Infor XA components must be installed on your IBM Power System for proper operation. This installation requires the following IBMi OS and Infor XA applications to be licensed:

- 5770-WDS IBMi Licensed Programs:
 IBMi 7.2+: 5770-WDS *BASE + options 21, 31, 34 and 35

**BASE = IBM Rational Development Studio for i*
 21 = *Application Development Toolset*
 31 = *ILE RPG*
 34 = *RPG/400*
 35 = *ILE RPG *PRV Compiler*

- The DB2 Query Manager and SQL Development Toolkit is required for some of the CAS Application Maintenance options and user exit programs when compiling RPG source with embedded SQL:

IBMi 7.2+: 5770-ST1 *BASE

- Infor XA Version 7.x, 9.x and 10.x with the following modules:
 - **Note: Users upgrading to XA Version 10, must be on iSeries Operating System V7R2M0 or newer.**
 - Production Monitoring & Control
 - Inventory Management
 - Production Control & Costing
 - Purchasing

REPLICATION SOFTWARE

Paper-Less **requires** standard XA journaling and will add the files below to that journal to detect data changes as part of its sync process. If these files are not journalled then Paper-Less will not receive updates from XA. **Note: If your organization uses replication software then changes may need to be made to work with multiple journals. Please contact your replication software vendor for more information.**

1. EMPMAS
2. EMPMSX
3. FACMST (used in ePDM environments)
4. ITEMASA (used in PDM environments)
5. ITEMBL
6. ITMENT (used in version 9 ePDM environments)
7. ITMRVA (used in version 7/9 ePDM environments)
8. ITMSIT (used in version 9 ePDM environments)
9. MBADREP
10. MBALREP
11. MBATREP (used by Pick to Ship add-on programs)
12. MBAWREP
13. MBAXREP
14. MBBFREP
15. MBB0REP
16. MBCDREP
17. MBCLREP (used by Pick to Ship add-on programs)
18. MBCNREP (used by Pick to Ship add-on programs)
19. MBC6REP
20. MBC8REP (used by Pick to Ship add-on programs)
21. MBDEREP

- 22.MBDJREP (used by Pick to Ship add-on programs)
- 23.MODATA
- 24.MODESC
- 25.MOMAST
- 26.MOROUT
- 27.POBLKT (normally journaled by XA, MPXJRN)
- 28.POITEM (normally journaled by XA, MPXJRN)
- 29.POMAST (normally journaled by XA, MPXJRN)
- 30.REASON
- 31.SITMST
- 32.SLDATA
- 33.SLQNTY
- 34.VENNAM
- 35.WHSMST
- 36.WRKCTR (used in PDM environments)