

Installation Guide

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Installation Architecture

Joget DX runs on industry standard technologies, and can be deployed on a standard web application architecture either on-premise, on public/private cloud platforms (Amazon AWS, Microsoft Azure, Google Cloud Platform, etc), or on cloud-native hybrid cloud platforms (Kubernetes, Red Hat OpenShift,

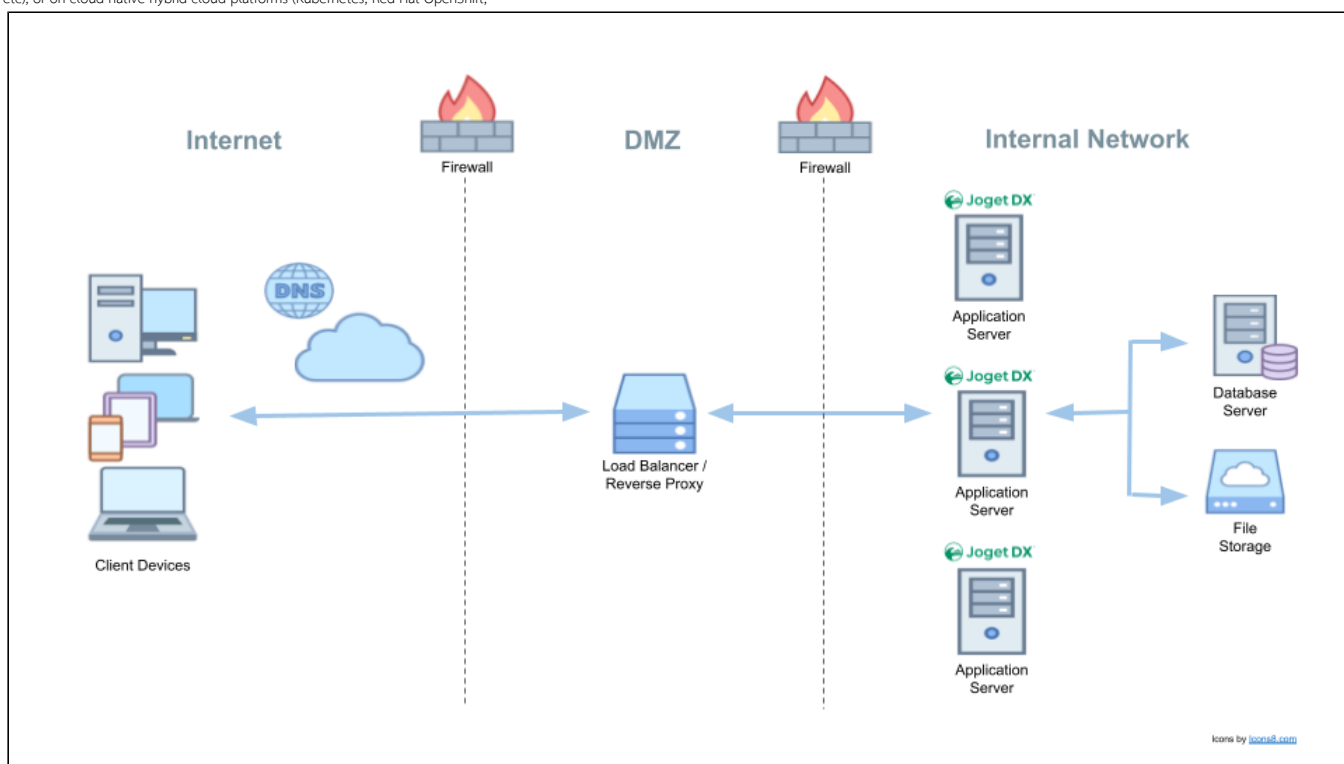


Figure 1: Standard Infrastructure Architecture

- **Load Balancer or Reverse Proxy:** Forwards external requests to the application servers, and performs load balancing if required.
- **Application Server:** Java EE compliant application server, running on any Java-supported operating system.
- **Database Server:** Main relational database (RDBMS) for platform and application data.
- **File Storage:** Shared file storage for configuration and runtime files.



IMPORTANT NOTE: The architecture presented above is only for reference, and may vary according to requirements and environment. The Joget DX platform itself is packaged as a Java WAR file that is deployed to one or more Java EE application servers.

Installation Requirements

Joget DX is highly open and flexible and can be deployed in a large variety of environments.

Supported products are listed below. It is strongly recommended to use products that are still actively supported by the respective vendors.

Operating System

- Windows 2016 and above
- Linux - Any Linux distribution that supports Java 11 and above

Java

- Java 11 LTS
- Java 17 LTS

Application Server

- Apache Tomcat 9
- JBoss EAP 7.4 and above
- IBM Websphere Liberty 19 and above
- Oracle Weblogic 12c and above

Database Server

- MySQL 8 and above
- MariaDB 10 and above
- MS SQL Server 2016 and above
- Oracle 12c and above
- PostgreSQL 10 and above

File Storage

- Local disk for non-clustered installation
- NFS / SMB network share for clustered installation

Load Balancer / Reverse Proxy

- Apache HTTP Server 2.4 and above
- NGINX 1.2 and above
- Any hardware or software load balancer or reverse proxy that transparently forwards requests to the application server



IMPORTANT NOTE: Please note that there is minimal configuration required in Joget DX itself and most of the configuration are on the separate infrastructure components, so it is vital to ensure that you have sufficient expertise in your chosen products. Alternatively, consider hosting at [Joget Cloud](#) to outsource the infrastructure management.

Installation Sizing Guide

There are many factors involved in determining the server specifications needed to run Joget DX effectively, for example:

1. Total number of users
2. Maximum expected concurrent users
3. Complexity of apps running on the platform
4. Complexity of the processes running on the platform
5. Amount of data generated
6. Integrations points
7. Network Infrastructure

Every environment is different and the following are base guidelines for high-level reference only.

Deployment	Description	CPU Cores	RAM (GB)	Solid-State Drive Storage (GB)	Servers
Small	100 users, Simple processes, Simple integrations.	2	8	20	1
Medium	500 users, Processes of normal complexity, Standard integrations.	4	16	40	2
Large	1,000 users, Complex processes, Complex integrations.	8	32	80	4

Extra Large	5,000 users, Highly complex processes, Highly complex integrations.	16	64	160	8
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RECOMMENDATIONS:

- To determine actual requirements, conduct performance tests on specific use cases and environments.
- Start small and plan to scale.
- For large-scale implementations, consider using [Kubernetes](#) or [Red Hat OpenShift](#), but ensure that you have sufficient expertise and support to manage the platform.

Development / QA Environment Installation

Self-Hosted Installation:

- To install on a local developer machine, development environment, or QA test environment, download and install the pre-packaged local machine installers from [Downloads](#) or [Enterprise Support](#).
- OS-specific instructions are available at [Installation on Windows](#) and [Installation on Linux](#).



IMPORTANT NOTE: These installers come bundled with several infrastructure components for convenience and easy installation, but are NOT suitable for staging or production environments.

Other Deployment Options:

- Other deployment options, including container deployments and public cloud marketplace images, are available at [Get Started - Other Deployments](#).

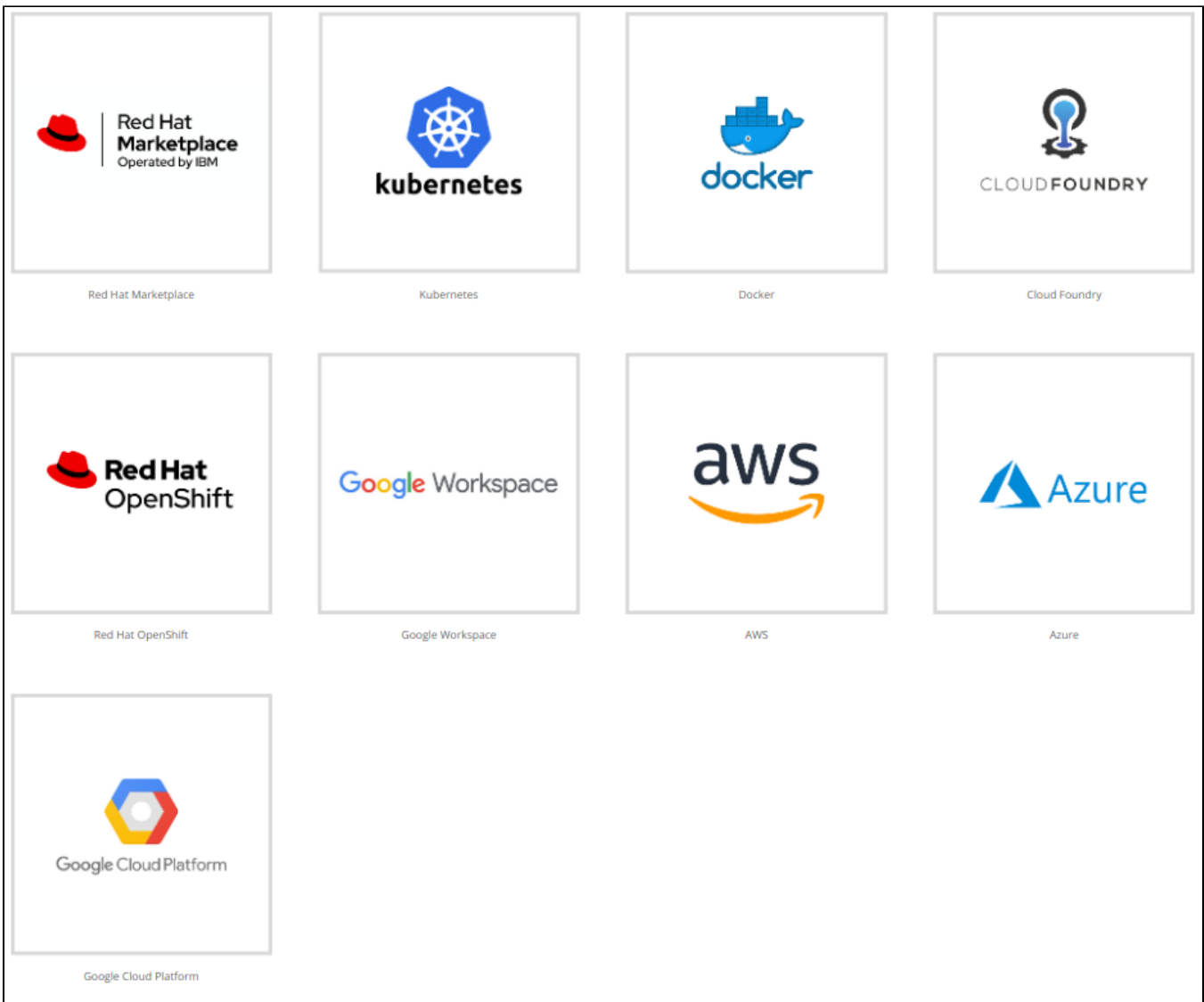


Figure 2: Deployment options

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- For large-scale implementations, consider using [Kubernetes](#) or [Red Hat OpenShift](#), but ensure that you have sufficient expertise and support to manage the platform.

Comprehensive Production Environment and Troubleshooting Checklist Guide

This guide is designed to assist you in ensuring a smooth setup of your production environment and addressing common issues that may arise during the process of installing and using the Joget DX Platform. By following these checklists and instructions, you can enhance the stability, security, and performance of your system.

Production Environment: Pre-Installation Prerequisite Checklist

For production environments, prepare the following infrastructure prerequisites before the actual Joget DX installation. General instructions are available in the [Server Clustering Guide](#), but actual steps depend on the product used

Item	Description
Operating System	Prepare a supported Windows or Linux OS environment.

Java	Install a supported Java LTS version i.e. Java 11 or Java 17.
Application Server	Install a supported Java EE application server e.g. Apache Tomcat 9.
Application Server Service Startup Configuration	Configure the application server to startup automatically e.g. Installing Apache Tomcat as a Windows Service. Ensure that the service user has full read and write permissions to the file storage.
Database Server	<p>Install a supported RDBMS server and obtain the database connection credentials for Java JDBC:</p> <ul style="list-style-type: none"> • JDBC URL • JDBC Username • JDBC Password <p>Ensure that the database user has full permission to create tables in the database.</p>
File Storage	<p>Prepare file storage for the Joget "wflow" directory to store configuration and runtime files.</p> <p>Ensure there are sufficient read and write permissions for the application server OS user.</p> <p>For clustering, this directory must be shared between all servers e.g. using NFS or SMB.</p>
Load Balancer / Reverse Proxy Configuration	Configure the load balancer or reverse proxy to forward requests to the application server e.g. NGINX as Reverse Proxy or Apache HTTPD as Reverse Proxy.
DNS Configuration	Configure the DNS to map domain names to the load balancer or reverse proxy.
HTTPS Configuration	Configure HTTPS for secure traffic. Highly recommended to configure HTTPS at the load balancer or reverse proxy instead of the app server.
Application Server Session Replication	For clustering, configure session replication in the application servers e.g. Configure Apache Tomcat Session Replication.
LDAP / Active Directory Connectivity	If applicable, ensure that network connectivity is established to the LDAP or Active Directory server.

Production Environment: Joget DX Platform Installation Checklist

Ensure that all the prerequisites have been completed before beginning.

Item	Description
Joget DX WAR Deployment	<p>Deploy the Joget DX WAR file to the application servers.</p> <p>Actual steps depend on the specific application server, e.g. for Apache Tomcat the WAR is deployed in the apache-tomcat/webapps directory.</p> <p>The WAR files can be obtained from Downloads or from Enterprise Support.</p>
Joget DX Java VM Configuration	Ensure that the Java VM configuration is configured according to Deployment and Configuration , with particular attention to the wflow.home directory path and the Java VM memory settings.
Joget DX Datasource Configuration	Connect to the database server following Setting Up Database .
Joget DX License Activation	Activate the license following Activate Joget DX License .

Production Environment: Post-Installation Checklist

Once Joget DX has been installed, perform these post-installation steps. Actual steps depend on the products used

Item	Description
LDAP / Active Directory Configuration	If applicable, configure integration to LDAP or Active Directory following LDAP Directory Manager or Sync LDAP Directory Manager .
Backup Configuration	Configure backup procedures to backup the database and file storage on a scheduled basis e.g. Backup, Restore, and Disaster Recovery .
Monitoring Configuration	Configure monitoring tools to monitor the uptime, resource usage, and performance of the environment.
Security Hardening	Perform the desired security hardening for all infrastructure components.

Troubleshooting: Common Issues Checklist

A list of common issues that may arise during Joget DX Platform deployment or operation

Item	Description
Database Credentials	Ensure that the database authentication credentials are correct and that it can be accessed from the application server.
Database Permissions	Ensure that the database user has full permission to create tables in the database.
Directory File Permissions	Ensure that the shared file storage has full read and write permissions for the application server OS user.
Port Conflicts	Ensure that there are no other services already running on ports for the different infrastructure components.
Network Restrictions	Ensure that there are no network restrictions preventing connections between the different servers.
Disk I/O and Network Latency	Ensure that there are no network latency or disk I/O issues, especially for the shared file storage and connectivity to the database server.
Load Balancer or Reverse Proxy Configuration	Ensure that the load balancer or reverse proxy is forwarding requests to the application server transparently without unnecessarily changing the request body or headers.
Java VM Configuration	Ensure that there is sufficient memory allocated to the Java VM according to planned usage.

Download Checklist

For your convenience, you can download a PDF version of this guide that includes all four checklists mentioned above. Simply click the link below to access the PDF document and have it handy for reference whenever you need it.



Related Articles

Please refer to [Advanced Installation Guide](#) for extra installation options.

- [Installation on Windows](#)
- [Installation on Linux](#)
- [Installation on Mac OSX](#)
- [Advanced Installation Guide](#)
 - [Installing Joget as a Windows Service](#)
 - [Adding MySQL service as a Dependency to Tomcat service](#)
 - [Installing MySQL as a Windows Service](#)
 - [Automated Deployment on Red Hat OpenShift with the Joget Operator](#)
 - [Installation on Other Java EE Application Servers](#)
 - [Installation using the OVA VM Image](#)
 - [Joget DX on Apache Tomcat and PostgreSQL on K8s](#)
 - [Joget Low Code Application Platform for G Suite](#)
 - [Joget on AWS Marketplace](#)
 - [Joget on Amazon Elastic Kubernetes Service](#)
 - [Joget on Azure Marketplace](#)
 - [Joget on Cloud Foundry](#)
 - [Joget on Docker](#)
 - [Joget on Google Cloud Marketplace](#)
 - [Joget on Google Cloud Platform](#)
 - [Joget on Google Kubernetes Engine](#)
 - [Joget on Kubernetes](#)

- [Joget on OpenShift](#)
 - [Joget on Red Hat Marketplace](#)
 - [Joget SharePoint SSO Integration](#)
 - [Joget SSO to Active Directory with Kerberos](#)
 - [Kerberos Auto Redirection From External Navigation](#)
 - [Joget SSO with Azure Active Directory using SAML](#)
 - [Joget SSO with Keycloak using SAML](#)
 - [NGINX as Proxy to Tomcat](#)
 - [Setting Up SSL on Tomcat](#)
 - [Joget on Azure Kubernetes Service](#)
 - [Joget SSO with OpenID Connect](#)
- [Upgrade Guide For DX 8](#)
 - [Joget v6 to Joget DX 7 Upgrade Notes](#)
- [Setting Up Database](#)
 - [Custom Database Configuration](#)
 - [Enabling TCP/IP for MS SQL Server](#)
 - [Preparing Database on Oracle](#)
 - [Using Windows Authentication for Microsoft SQL Server](#)