



**akuiteo**

BUSINESS SOFTWARE

General Guide

# TECHNICAL RECOMMENDATIONS

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# 1 Preface

## 1.1 REVISIONS

<b>Revision 2</b>	Published in December 2021 <ul style="list-style-type: none"><li>• Added PWA compatibility in the <a href="#">Equipment settings (p. 15)</a> chapter.</li><li>• Global update.</li></ul>
<b>Revision 1</b>	Published in March 2021

## 1.2 HELP DESK

Akuiteo S.A.S. highly values your satisfaction.

To share your feedback or contact the help desk, feel free to visit our website page:

<https://www.akuiteo.fr/akuiteo.clients/>

## 2 Introduction

The infrastructure template described below is for informational purposes. The purpose of these recommendations is to reach an optimal use of the applications, whether in separate or virtualized hardware environments.

Akuiteo advises using different servers to execute the Akuiteo business server and to host the database. Such a structure enables to better distribute the use of resources and offers more flexibility to develop the infrastructure in the long run.

For any other configurations, please contact Akuiteo.

# 3 Infrastructures

## 3.1 DATABASE

The database can be hosted on a physical or virtual environment.

Regarding MS SQL Server Express Edition and Oracle XE versions:

Free available versions made by Oracle and Microsoft are limited to a single Tablespace of 10GB for SQL Server Express and of 11GB for Oracle XE. Akuiteo software uses about 50% of database space for its own data, the remaining 50% are used by indexes. Finally, the Express and XE versions only use a single CPU on the host monitor.

These versions are only suitable for small structures.

Number of users / Feature	< 25	25 to 100	> 100
CPU (core)	1 (2 recommended)	2	2 (4 recommended)
RAM	4 GB	8 GB	16 GB
Storage	10 GB	10 GB	20 GB
OS	Windows 2016 64 bits Windows 2019 64 bits Windows Server 2022 Compatible with Linux (Oracle)	Windows 2016 64 bits Windows 2019 64 bits Windows Server 2022 Linux – Oracle only (Oracle-certified or Free distributions)	Windows 2016 64 bits Windows 2019 64 bits Windows Server 2022 Linux – Oracle only (Oracle-certified or Free distributions)
DBMS To choose	Oracle 18c (64 bits) Oracle 19c (64 bits) MS SQL Server 2014 MS SQL Server 2016 MS SQL Server 2017 MS SQL Server 2019 MS SQL Server Managed Instance (Azure)	Oracle 18c (64 bits) Oracle 19c (64 bits) MS SQL Server 2014 MS SQL Server 2016 MS SQL Server 2017 MS SQL Server 2019 MS SQL Server Managed Instance (Azure)	Oracle 18c (64 bits) Oracle 19c (64 bits) MS SQL Server 2014 MS SQL Server 2016 MS SQL Server 2017 MS SQL Server 2019 MS SQL Server Managed Instance (Azure)

The Oracle version must be the last patchset provided by Oracle.

## 3.2 APPLICATION SERVER

The table below is for infrastructures based on the Apache Tomcat application server. To use any other application server, please contact Akuiteo.

The business server must also be able to store uploaded or generated documents; therefore disk space takes this into account for "office documents" storage.

If the document database is stored on a dedicated server (NAS, etc.), only the location in brackets must be taken into account.

Number of users / Feature	< 25	25 to 100	> 100
CPU (core)	2	2	2+
RAM	4 GB	6 GB	12 GB+
Storage	10 GB (500 MB)	20 GB (500 MB)	50 GB (500 MB)
OS	Windows Server 2016 Windows Server 2019 Windows Server 2022 Linux 32 or 64 bits	Windows Server 2016 Windows Server 2019 Windows Server 2022 Linux 64 bits	Windows Server 2016 Windows Server 2019 Windows Server 2022 Linux 64 bits
Java	<a href="#">OpenJDK 1.8 (32 or 64 bits)</a>	<a href="#">OpenJDK 1.8 (64 bits)</a>	<a href="#">OpenJDK 1.8 (64 bits)</a>
Software	<a href="#">Apache Tomcat 8.5*</a>	<a href="#">Apache Tomcat 8.5*</a>	<a href="#">Apache Tomcat 8.5*</a>

\* is not certified Tomcat 9 and 10

## 3.3 WEB SERVERS

The following data are detailed for RAM and storage, by application. Applications can be shared on the same Tomcat server and instance.

These are standard values that need to be adapted according to the actual activity of each site and the actual number of users.

Number of users / Feature	25 to 100	> 100
CPU (core)	2	4+
RAM	1.5 GB / application	2 GB+ / application
Storage	200 MB / application	200 MB / application
OS	Windows Server 2016 Windows Server 2019 Windows Server 2022	Windows Server 2016 Windows Server 2019 Windows Server 2022

	Linux 64 bits	Linux 64 bits
<b>Java</b>	<a href="#">OpenJDK 1.8 (64 bits)</a>	<a href="#">OpenJDK 1.8 (64 bits)</a>
<b>Customer Portal browser</b>	Firefox, Safari, Chrome or Microsoft Edge Chromium	Firefox, Safari, Chrome or Microsoft Edge Chromium
<b>Web Portal browser</b>	Firefox, Safari, Chrome or Microsoft Edge Chromium	Firefox, Safari, Chrome or Microsoft Edge Chromium
<b>Software</b>	<a href="#">Apache Tomcat 8.5*</a>	<a href="#">Apache Tomcat 8.5*</a>

\* is not certified Tomcat 9 and 10

## 3.4 APPLICATION DESKTOP

### Font expansion on Windows

On Windows, the Application Desktop is designed to display characters with a font size of 100%. Akuiteo does not recommend using the **Make text bigger** feature and a display of 125% to 150%.

### Application Desktop's automatic updates

The Application Desktop offers an automated update feature. To make sure this feature works, the user must have reading / writing permissions on the repository where Akuiteo has been installed.

<b>Monitor</b>	Monitor able to display a minimum resolution of 1280x1024
<b>CPU</b>	2Ghz Dual Core or equivalent
<b>RAM</b>	2GB (4GB recommended)
<b>Hard drive space</b>	512 MB  This size corresponds to the space needed for Akuiteo's Application Desktop on the hard drive, as well as all the space needed to manage the software's updates and use.
<b>OS</b>	Windows 7 32 or 64 bits  Windows 8 32 or 64 bits  Windows 8.1 32 or 64 bits  Windows 10 32 or 64 bits  Windows 11 32 or 64 bits  Mac OS 10.10 (Yosemite) to MacOS 12 (Monterey). M1 or Intel architecture.
<b>Software</b>	Microsoft Office (Word, Excel, Outlook) 2003 / 2007 / 2010 / 2013 / 2016 / 2019 / O365 or 2011 / 2016 / O365 (Mac)  Adobe Reader (7, 8, 9, X, DC) or any other PDF reader



**Note**

The choice made for the Office Suite or a PDF reader depends on the report formats set up in Akuiteo. If the Office document format has been chosen, it is required that each monitor is equipped with the Microsoft Office Suite to be able to preview and publish documents generated by Akuiteo.

# 4 Resource sharing and environment virtualization

## 4.1 RESOURCE SHARING

Installing Akuiteo requires several environments to be set up. There are 3 of them, generally speaking:

- The test environment: it is used to validate Akuiteo deliverables before getting into production processes.
- The configuration environment: the environment is the same as the production one to validate the setup. This environment is usually not the final one, and often used at the beginning of a project.
- The production environment

To ideally meet these needs, it is not necessary to install separate hardware environments. Test and configuration environments are generally little used and do not require the same resources as the production environment.

The production environments can be designed so as to host test and configuration environments as well.

### 4.1.1 Database (shared environments)

It is strongly advised to create two separate instances, either on Oracle or SQL Server, to divide test environments from production environments. Therefore, we are going to have a Production instance and a Configuration/Test instance.

If an Oracle XE Express or an SQL Server Express version is used, it is impossible to share multiple databases on the same instance. A second installation on a different machine is therefore necessary.

Number of users / Feature	25 to 100	> 100
CPU (core)	2	4+
RAM	4 GB	8 GB +
Storage	30 GB	80 GB RAID5
OS	Windows 2016 64 bits Windows 2019 64 bits Windows Server 2022 Linux (Oracle-certified or Free distributions)	Windows 2016 64 bits Windows 2019 64 bits Windows Server 2022 Linux (Oracle-certified or Free distributions)

<b>DBMS</b>	Oracle 18c (64 bits)	Oracle 18c (64 bits)
To choose	Oracle 19c (64 bits)	Oracle 19c (64 bits)
	MS SQL Server 2014	MS SQL Server 2014
	MS SQL Server 2016	MS SQL Server 2016
	MS SQL Server 2017	MS SQL Server 2017
	MS SQL Server 2019	MS SQL Server 2019
	MS SQL Server Managed Instance (Azure)	MS SQL Server Managed Instance (Azure)

### 4.1.2 Business server (shared environments)

For sharing business server's environments, it is strongly recommended to have two separate Tomcat instances. This way, testing and configuration environments will not impact production.

In this case, the recommendations are as follows:

Number of users / Feature	25 to 100	> 100
<b>CPU (core)</b>	4	4+
<b>RAM</b>	8 GB	16 GB+
<b>Storage</b>	20 GB	50 GB +
<b>OS</b>	Windows 2016 64 bits Windows 2019 64 bits Windows Server 2022 Linux 64 bits	Windows 2016 64 bits Windows 2019 64 bits Windows Server 2022 Linux 64 bits
<b>Java</b>	<a href="#">OpenJDK 1.8 (64 bits)</a>	<a href="#">OpenJDK 1.8 (64 bits)</a>
<b>Software</b>	<a href="#">Apache Tomcat 8.5</a>	<a href="#">Apache Tomcat 8.5</a>

## 4.2 VIRTUAL ENVIRONMENTS

This chapter describes the virtualization of server and client environments.

### Server environments (database / business server)

The recommendations listed above remain the same for the:

- CPU
- RAM
- Storage space
- OS
- Software

## Client environment

The Application Desktop can be installed on an environment like Terminal Server (TSE) or Citrix. In this case, it is necessary to take into account the different elements listed above:

Each virtual desktop must have:

- The office tools needed to display and print the documents generated by Akuiteo: PDF reader, MS Office, etc.
- A temporary storage space of approximately 200 MB to store generated documents. By default, on Windows, it is the TEMP directory.
- Writing permissions on the directory where you installed the Application Desktop. This permission may be granted to an administrator who will be in charge of the client update after an update has been installed.

Read the **Installation Guide** for more information.

# 5 Sending emails

Akuiteo can work in multi-server. Up to the 3.5 version included, a master server had to be designated to be the only one in charge of sending emails. The other (slave) servers cannot send emails.

Since the 3.6 version, in case of a multi-server configuration, every server can send emails:

- Using a trigger
- Through a logged in client on said server

To identify the server which sent the email, Akuiteo uses the IP address and/or the monitor name.

If it is unable to get this information, the server will stop functioning with a specific message in the error log.

In this case, you must give the `akuiteo.hostname` environment variable to Tomcat, with a unique value.

## Example

```
-Dakuiteo.hostname=akuiteoprod1.XXX.lan
```

## 6 Network prerequisites

Number of users / Feature	< 25	25 to 100	> 100
Server network - Database	1 GB	1 GB	1 GB
Client network - Server *	256 Kbits – 1 Mbit	1Mbit – 4 Mbits	4 Mbits +
Client - Server protocol / communication transport	HTTP – TCP (8080 port by default and configurable)		

\* This figure varies depending on the number of users connected simultaneously.

# 7 Equipment settings

CPU	Dual Core 2GHz or equivalent
RAM	2 free GB (4 GB recommended)
Disk space	512 MB  This space corresponds to the space taken by Akuiteo on a disk as well as all needed space for updates and good use of the software in general.
OS	Windows 7 32 or 64 bits  Windows 8 32 or 64 bits  Windows 8.1 32 or 64 bits  Windows 10 32 or 64 bits  Windows 11 32 or 64 bits  Mac OS 10.10 (Yosemite) to MacOS 12 (Monterey). M1 or Intel architecture.
Software	Microsoft Office 2003 / 2007 / 2010 / 2013 / 2016 (PC) or 2008 / 2011 / 2016 (Mac)  Adobe Reader or any other PDF reader  The choice made for the Office Suite or a PDF reader depends on the report formats set up in Akuiteo. If the Office document format has been chosen, it is required that each monitor is equipped with the Microsoft Office Suite to be able to preview and publish documents generated by Akuiteo.
Web browser	Firefox  Safari  Chrome  Microsoft Edge Chromium  If specified, minimal version of browser.
PWA (Akuiteo Mobile application)	PWA application: Android 5.0 or + / IOS 11.0 or +  Camera module for expense reports: Android 10.0 or + / IOS 13.0 or +  Not compatible for tablets
Resolution	1680x1050

Akuiteo offers an automatic update feature. To make sure this feature works, the user must have reading / writing permissions on the repository where Akuiteo has been installed.