

Preface

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The information contained in this document represents the current view of Qualiant Software on the issues discussed as of the date of publication.

Because of this, the information should not be interpreted to be a commitment on the part of Qualiant Software, and Qualiant Software cannot guarantee the accuracy of any information presented after the date of publication.

Document history

Date	Author	Version	Comments
10-AUG-1997	D. Oberkofler	0.1	Initial draft.
26-AUG-1998	D. Oberkofler	0.2	Added Remote Access Options.
09-SEP-1998	D. Oberkofler	0.3	Added the Version Information for SQL*Net.
20-SEP-1999	D. Oberkofler	1.0	Added the Y2K readiness changes for Oracle.
16-FEB-2000	D. Oberkofler	1.1	16Bit applications are no longer supported.
11-AUG-2000	D. Oberkofler	1.2	Adapted to the new application requirements.
23-NOV-2000	D. Oberkofler	2.0	Added general information about db server.
03-AUG-2001	D. Oberkofler	2.1	Added information on Macintosh OS X support
18-SEP-2001	D. Oberkofler	2.2	Revised for Oracle 8.1.7 and de-support of 8.0.
24-JAN-2002	D. Oberkofler	2.3	Added new supported configurations
28-MAR-2002	D. Oberkofler	2.4	More information on Instance configuration
25-MAR-2003	D. Oberkofler	3.0	Additional platform and version support
08-MAY-2003	D. Oberkofler	3.1	Format has been adjusted.
31-MAY-2004	D. Oberkofler	3.2	Smaller version support notices.
12-JAN-2005	D. Oberkofler	4.0	Additional versions support/de-support notices.
24-JAN-2005	D. Oberkofler	4.1	Merged with the separate Periscope TN.
23-MAR-2005	D. Oberkofler	4.2	Oracle 8i no longer supported.
28-APR-2005	D. Oberkofler	4.3	Oracle 10gR1 Server now supported.
14-OCT-2005	D. Oberkofler	4.4	Oracle 10gR2 Server and Linux now supported.
08-NOV-2005	D. Oberkofler	4.5	Support for 64Bit Server has been added.
02-FEB-2006	D. Oberkofler	4.6	Windows NT no longer supported.

11-DEC-2007	D. Oberkofler	5.0	Support for Apple OSX added.
22-JAN-2007	D. Oberkofler	5.1	Support for Windows Vista added.
18-MAR-2007	D. Oberkofler	5.2	OS9 no longer supported.
07-JAN-2008	D.Oberkofler	5.3	Support for Apple OSX 10.5 Leopard
08-JAN-2008	D.Oberkofler	5.4	Resolutions smaller 1024x768 no longer supported on Win
20-JAN-2009	D. Oberkofler	5.5	Support for 64bit and OSX Intel. De-support of Oracle 9R2, OSX 10.3 and older browser.
14-APR-2009	D. Oberkofler	5.6	Added support note for OSX Intel only for 10.5 or higher.
12-MAY-2009	D. Oberkofler	5.7	Windows 2000 no longer supported for Oracle Server
25-FEB-2010	D. Oberkofler	5.8	Support for Windows7, OSX 10.6 and Oracle 11gR2.
23-MAR-2011	D. Oberkofler	5.9	Microsoft IE 6 and FF2 no longer supported.
08-JUL-2011	M.Sedlacek	5.10	Added information on Oracle inst. within virtual machines
19-AUG-2011	D. Oberkofler	6.0	Added Oracle Lifetime Support. Added Crystal Reports Support matrix. Added LEADING Job 7 support matrix.
14-OCT-2011	D. Oberkofler	6.1	Added support for Google Chrome browser
11-AUG-2012	D. Oberkofler	7.0	Added support for OSX 10.8 and some de-support notices from Oracle.
18-SEP-2013	D. Oberkofler	7.1	Added support matrix for LJ itself.
23-MAR-2014	D. Oberkofler	8.0	Added support for Oracle 12c and cleaned up version of LJ and Oracle no longer supported.
05-DEC-2014	D. Oberkofler	8.1	Changes the minimum memory requirements for Oracle. Changed OSX support matrix.
10-APR-2015	D. Oberkofler	8.2	Support for OSX 10.7 to 10.10
01-APR-2016	D. Oberkofler	9.0	Added Support for Oracle 12.2, Windows 10, OSX 10.11 and Edge.
22-MAY-2016	D. Oberkofler	9.1	Desupport of Windows XP starting with LJ 8.2.
11-MAY-2017	D. Oberkofler	10.0	Dropped support for IE 7-10 due to market share and lack of support from Microsoft.
6.11.2017	D. Oberkofler	11.0	Dropped support for Microsoft Internet Explorer
10.1.2019	D. Oberkofler	12.0	Added next major LJ release.
25.3.2020	D. Oberkofler	13.0	Added support for macOS 10.15
16.11.2020	D. Oberkofler	14.0	Added support for macOS 11

Introduction

This document describes all the needed requirements for using LEADING Job.

As the LEADING Job is a client-server-based application system this documents is subdivided into sections that explain the requirements for the client, the server and other requirements.

It also contains a compatibility matrix showing what version of LEADING Job support what Oracle Server and Client combination.

This information is regularly updated to match the currently supported Versions of the Oracle environment.

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System Requirements

Before installation, check the hardware and software requirements.

LEADING Job relies on the major aspects of the computing infrastructure:

- The Database Server for the database administration. (An Oracle Database is used as the Database Server)
- A browser to run Periscope, the web interface of LEADING Job
- The Database Client for the connectivity from client to server. (Oracle's SQL*Net is used)
- The Application. (a desktop application for Windows or Macintosh or a "thin client" running in a web browser can be used as application client)
- The Remote Support Option.
- The Backup and Security Options.

LEADING Job is using Oracle's RDBMS as Database Server.

LEADING Job currently supports most of the available and supported Releases of the Oracle RDBMS.

The connectivity between the clients (where the application runs) and the server (where the database runs) is provided by Oracle's SQL*Net products.

SQL*Net itself consists of a server component (also called listener) and a client component that must be available on every client that needs to access the database.

The installation of the server components is part of the Installation and configuration process of the server itself and is guided by the installation Tools (Oracle Installer) provided by Oracle.

The client part of SQL*Net must be installed and configured on every workstation using the "Desktop Client".

The support policy for LEADING Job

In this chapter we describe the support policy for all LEADING Job releases.

Typically releases stay supported for up to 3 years after the initial release but some widely used releases might have an extended

LEADING Job Release	Released	Support
1.x	1996	de-supported in 1999
2.x	1999	de-supported in 2001
3.x	2000	de-supported in 2003
4.x	2001	de-supported in 2004
5.x	2002	de-supported in 2006
6.x	2004	de-supported in 2009
6.6	2006	de-supported in 2012
6.8	2008	de-supported in 2012
6.12	2009	de-supported in 2013
6.14	2010	de-supported in 2013
6.15	2011	de-supported in 2013
7.0 – 7.7	2012	de-supported in 2014
7.8 or higher	2013	de-supported in 2015
8.x	2015	de-supported in 2020
20.x	2020	supported until 2022

Requirements for the desktop application

Processor	Intel based processor.
Display adapter	1024 x 768 or higher-resolution graphics adaptor, supporting minimum 16-bit colour quality
Memory	16 GB recommended. At least 8 GB free memory should be available for the application.
Network	Installed and functioning Network based on the TCP/IP protocol standards.
Hard disk	50GB of free space
Operating System	macOS 10.14 (Mojave) to 11.1 (Big Sur) or Windows 10

Requirements for the web application (Periscope)

PERISCOPE, the LEADING Job Portal is a web-based "thin client" portal based upon the LEADING Job BackOffice infrastructure.

Browser requirements:

The LEADING Job Portal Software is accessed from the server via a web browser on the client. Most currently available browsers can be used as the client browser.

The LEADING Job Portal utilizes JavaScript; therefore, these features must be enabled in the respective browser.

Supported browser configurations:

For example, the following are possible client configurations:

- Microsoft Edge: latest version and 2 previous ones.
- Mozilla Firefox: latest version and 2 previous ones.
- Apple Safari: latest version and previous ones.
- Google Chrome: latest version and previous ones.

Hardware requirements:

The LEADING Job Portal has minimal hardware requirements needed to run a Web browser. No additional local hard disk space or memory is required. A minimal display resolution of 1024 x 768 and 256 or more colours is suggested.

Requirements for "Crystal Reports" integration (on Windows)

Crystal Reports	LJ 5	LJ 6	LJ 7	LJ 8 or higher	LJ 9 or higher
8.0	Yes	No	No	No	No
8.5	No	Yes	No	No	No
9	No	No	No	No	No
10	No	No	No	No	No
11	Yes	Yes	Yes	Yes	No
12 (2008)	No	No	No	No	No
14 (2011)	No	No	No	No	No

The Oracle Lifetime Support Policy

In this chapter we describe the lifetime support policy for all Oracle versions that have ever been supported by LEADING Job.

Oracle Product	Support
7.3	de-supported
8.0	de-supported
8.1	de-supported
9.0	de-supported
9.2	de-supported
10.1	de-supported
10.2	de-supported
11.1	de-supported
11.2	de-supported
12.1	de-supported
12.2	de-supported
18	Supported
19	Supported

The Oracle de-support information is based on when the Oracle Premier Support ends.

<http://www.oracle.com/us/support/library/lifetime-support-technology-069183.pdf>

The Oracle Database Client support matrix for the Windows platform

In this chapter we describe the compatibility of the LEADING Job with the Oracle Database products used by the LEADING Job on the Microsoft Windows platform. We typically show the currently available Oracle Products and the 3 (the last, current and next) Versions of the LEADING Job.

The following matrix shows the (supported) compatibility of the LEADING Job to the different Oracle SQL*Net Client Versions:

Oracle SQL*Net Client	LJ from Version 7.0	LJ from Version 7.12	LJ from Version 8	LJ from Version 9	LJ from Version 20	LJ from Version 21
7.3	No	No	No	No	No	No
8.0	No	No	No	No	No	No
8.1	No	No	No	No	No	No
9.0	No	No	No	No	No	No
9.2	No	No	No	No	No	No
10.1	No	No	No	No	No	No
10.2	No	No	No	No	No	No
11.1	No	No	No	No	No	No
11.2	Yes	Yes	No	No	No	No
12.1	No	Yes	Yes	Yes	No	No
12.2	No	No	Yes	Yes	Yes	No
18	No	No	No	No	Yes	Yes
19	No	No	No	No	Yes	Yes

The Oracle Database Server support matrix for LEADING Job

The following matrix shows the (supported) compatibility of the LEADING Job to the different Oracle Database Server Versions:

Oracle Server	LJ from Version 7.0	LJ from Version 7.12	LJ from Version 8	LJ from Version 9	LJ from Version 20	LJ from Version 21
10.2	No	No	No	No	No	No
11.1	No	No	No	No	No	No
11.2	Yes	Yes	No	No	No	No
12.1	Yes	Yes	No	No	No	No
12.2	No	No	Yes	Yes	No	No
18	No	No	Yes	Yes	Yes	No
19	No	No	Yes	Yes	Yes	Yes

The system requirements for the Database Server

The LEADING Job is a client-server application where the database and data intensive processes run on the server and the User Interface and Reporting processes run on the client side.

An Oracle RDBMS must be set up and running in order to successfully installing and using the application on the workstation.

Qualiant Software strongly recommends running the latest stable Oracle Release for the highest level of security and availability.

On certain platforms it is also possible to run the Server and the Client on the same physical workstation as a single user system.

Oracle supports a very large number of Server operating systems where the mostly used ones are Windows or Linux for small and mid-sized and UNIX for larger and very large enterprises.

The Oracle RDBMS can run on server and non-server Versions of the Windows operating systems. Oracle itself recommends running them on a server version of the OS.

Qualiant Software strongly recommends running the Oracle RDBMS on a dedicated server for achieving the best performance and the highest level of security and availability.

The server side processing (often referred to as the 3rd tier in the computing environment) is of key importance to the overall performance of the application system.

The HTTP Server must be an Apache HTTP Server together with the Oracle mod_plsql extension module bundled in the Oracle Application Server (Java Edition) or higher.

The server must therefore be carefully sized for each implementation. The exact system requirements for the database server are dependent on the number of users, the sizing and the exact workflow of the client and must be analysed for every client and implementation.

It is also very important to decide the version of the Oracle RDBMS to be used. Especially the differentiation between the Standard and the Enterprise editions of the Oracle Products must be carefully evaluated.

A typical Oracle Database Server

For small and mid-sized agencies with up to 20-30 users the use of a Windows Operating System or Linux for the Oracle RDBMS Server seems to be appropriate and very common.

The following requirements describe the typical requirements for such a server but can very much vary depending on the exact sizing and workflow of each client.

Processor	Personal computer based on an Intel Core 2 Duo or Quad core processor with 2 GHz or higher. 64bit and multi-core processors and multi-processor boards based on Intel or AMD are supported and recommended.
Display adapter	1024 x 768 or higher-resolution graphics adaptor, supporting minimum 16-bit colour quality
Memory	64 GB or more recommended.
Network	Installed and functioning Network based on the TCP/IP protocol standards.
Hard disk	2 TB or more on a RAID 1 drive array connected with Ultra2/3 SCSI is recommended.
Backup Device	A Backup device that allows backup all the data on the server is needed.
Operating System	Windows Server 2016 or higher (supported by Oracle)

The Oracle Instance

The database objects of the LEADING Job themselves must be installed in a dedicated instance within the physical Oracle Database.

We strongly recommend using (at least) two separate schemas or instances:

- PROD for production
- TEST for testing purposes

This (for example) allows testing the latest (and greatest) version of LEADING Job on the test system without affecting the production system.

An Oracle Instance has a large variety of setting and options that allow the DBA to configure and tune the instance. Most of them do not directly influence LEADING Job but might significantly affect the system performance.

We automatically set all of the above settings during the installation of a new Oracle Instance.

Only an authorized Oracle support technician or a certified Oracle DBA should change any configuration options or perform any tuning on an Oracle production system.

Oracle databases in a virtualized environment

We generally still recommend a native physical installation to avoid any possible decrease in performance or maintainability.

It is possible to install an Oracle database on a virtual machine with the same system requirements as for physical server and we have no negative experience in doing so.

Currently virtualization solutions provided by Oracle itself, VMWare solutions and Microsoft Hyper-V have been used and tested by our clients.

The system requirements for the "Remote Support Option"

Qualiant Software offers a tailored "Remote Support Option" that allows us to do most maintenance tasks like updates or upgrades to the Database and to the application.

We are using standardized telecommunication options like using the Internet as a transport layer, a VPN connection or any other connection that allows routing the SQL*Net protocol.

The LEADING Job itself fully relies on the connectivity options provided by the underlying Oracle SQL*Net Protocol adapter and therefore only needs a connection that is able to route TCP/IP or any other transport protocol supported by Oracle.

We strongly recommend the use of an Internet-based connection for achieving the highest security and best performance at a moderate price.

System requirements when using an Internet connection:

Hardware	Router to access the internet from your local Oracle Server
Software	Internet access software, like Router, Firewalls etc. (optional)
Connection	An online connection to the internet with at least 1 MB bandwidth.

The system recommendations for the server backup

Qualiant Software expects the client to take care of the general backup and the backup of the RDBMS himself.

We only give suggestions of how and when to perform backups and offer several standardized backup options of the backup of the RDBMS.

These are our recommendations for the backup of your system:

Resource	Requirements
Hardware	<ul style="list-style-type: none">• DAT drive or DLT drive required for more than 10 GB or• Others...
Software	<ul style="list-style-type: none">• Native Backup software shipped with the OS• 3rd party backup software• Imaging software• Others...

The backup of the database itself can be done in two different ways:

Physical File Backup:

You might do a complete backup of the Oracle RDBMS by backing up all the files in the Oracle Installation directory. This needs to stop all running Oracle services before performing the physical file backup because Oracle would not allow you to access the database files while the RDBMS is still running.

Logical Backup of Exported Files:

The second options you have, is to first export the contents of the database to one single export file and the to only backup this file. This can be done without having to shut down the RDBMS. We will provide you with a simple script that performs the export of the database system.