



Requirements for Aleph Installation

Version 23

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Overview

This document describes the requirements for the installation and use of Aleph 23. Before purchasing and installing the hardware and operating system, you must receive confirmation from Ex Libris regarding the hardware and operating system requirements. In addition, you must consult the specific Operating System Requirements document for the selected hardware, in order to verify that all the operating system components comply with Aleph requirements. Note that these requirements may change as a result of Ex Libris' development needs.

To request an Aleph 23 installation at your site, complete the *Request for Aleph Installation* form and send it to your Ex Libris representative.

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Server Hardware and Software Requirements

This section includes:

- **Server Requirements** on page 7
- **File System and Disk Space** on page 8
- **Native C Compiler** on page 10
- **Media for Data Exchange** on page 10
- **Backup and Recovery Media and Procedures** on page 10
- **Additional Server Software** on page 11
- **Optional Server Software** on page 11

Server Requirements

Aleph and the Oracle database should be installed on a dedicated server.

NOTE:

Other Ex Libris products can be installed on a server running an Aleph installation, provided due care and attention are taken to ensure adequate performance of all applications. Consult with your Ex Libris representative. If other Ex Libris products are going to be installed on the same server, you must take into account the requirements detailed in these products' Requirements for Installation documents, and confirm that your system answers the requirements of all systems. Note that many of the software and hardware resources are shared by Aleph and other Ex Libris products. However, disk space requirements are accumulative. See **File System and Disk Space** on page 8.

Operating System/Platform for Aleph

Refer first to *Operating System Requirements for Red Hat Enterprise Linux* and *Operating System Requirements for the Sun Platform* for basic and detailed requirements.

Ex Libris recommends that you install the latest OS update level.

The minimum requirement for the Aleph installation is 4 GB RAM.

For the exact production server specifications, including the required number of CPUs and required RAM as a function of the database size and the number of concurrent users, contact your Ex Libris representative.

NOTE:

Customers using old SPARC models (UltraSPARC II, III, IV) may experience performance degradation and should consider upgrading their hardware to the newest SPARC model. Recommended hardware configurations can be obtained by contacting your Ex Libris office or distributor.

It is recommended to install a second instance of the Aleph system on a separate test server. For details, contact your Ex Libris representative.

Ex Libris supports installations in virtualized server infrastructure. Refer to *Guidelines for Using Virtual Environments for Ex Libris Products* located in the Cross Product Information section of the Documentation Center for more information.

IMPORTANT:

Ex Libris cannot guarantee response times and performance on Sun T-series servers. Although the Sun T-series is a supported and certified SPARC platform, we have tested the platform and found it not suitable for Ex Libris products in terms of performance. These servers should be used for test environments only.

File System and Disk Space

Each physical disk that will be used by Ex Libris should be mounted on a separate file system. The names of the file systems should be `/exlibris`, `/exlibris1`, `/exlibris2`, and so forth.

A file system named `/exlibris`, with a minimum size of 40 GB, is mandatory. It will be used exclusively for all software and configuration tables and files that will be installed by Ex Libris. The `/exlibris` file system must be mounted directly to the server, and cannot be a soft or symbolic link to any alternatively named file system.

The Aleph database and Aleph scratch files can be installed on separate file systems: /exlibris1, /exlibris2, and so forth. Installations with more than 500,000 bibliographic records must have at least 50 GB on separate file systems.

Table 1 lists the minimal disk space requirements for running and maintaining Aleph software and data.

Table 1. Disk Space Requirements

Usage	Size	File System
Aleph and Oracle software and configuration files	25 GB on one dedicated disk	/exlibris
Aleph Database	20 GB minimum (DEMO only)	/exlibris /exlibris1, /exlibris2, etc.
Scratch Files	5 GB minimum (DEMO only)	/exlibris /exlibris1, /exlibris2, etc.
Swap Space	Twice the amount of RAM or at least 8 GB, whichever is greater	/exlibris
/tmp	2 GB	

The above information is meant to provide general guidelines for determining the minimal disk space requirements. The exact disk space required will be determined in conjunction with your Ex Libris representative. Any deviation from the above guidelines must be confirmed by Ex Libris.

The above disk space requirements include the ability to support the following activities:

- Full conversion
- Reorganization of the database (as part of the periodic maintenance of the database) with minimal downtime
- Full re-indexing of the database with minimal downtime
- Aleph standard backup for small sites (see the **Backup and Recovery Media and Procedures** on page 10)
- Upgrade to a new Aleph version or revision with minimal downtime.

NOTE:

In special cases, an upgrade may require temporary additional disk space.

The above disk space requirements do not include:

- System disk requirements
- Disk space needed for running Oracle in archive-log mode (see **Backup and Recovery Media and Procedures** on page 10)
- Disk space requirements for backup on large sites (see **Backup and Recovery Media and Procedures** on page 10)
- Any type of data redundancy, such as RAID 1, RAID 5 or RAID 0 solutions

Native C Compiler

Operating systems other than Linux require an installed native C compiler with ANSI support.

Purchase and installation of the native C compiler is the customer's responsibility. The native C compiler is supplied by the hardware and operating system vendor.

This compiler is in addition to gcc, which is required as well, and will be installed by Ex Libris (see **Additional Server Software** on page 11).

NOTES:

- The latest supported version is Sun Studio 12.3 or later.
 - The Solaris 10/11 installation uses the gcc supplied by Solaris 10/11 and not the one installed by Ex Libris.
 - Customers must install the OS using the developer group to include the gcc required packages.
-

Media for Data Exchange

FTP and an Internet connection are prerequisites for Aleph implementation (see **Communication Requirements** on page 17). You should also have a CD-ROM drive for data and software exchange with Ex Libris in case FTP is temporarily unavailable, or if Ex Libris has approved work without an Internet connection.

Backup and Recovery Media and Procedures

Backup and recovery procedures and their selected media are the customer's responsibility.

Aleph includes a backup procedure that is mainly used by small sites. It is recommended that large sites should use third-party backup and recovery tools.

NOTES:

- Backup and recovery may require additional disk space.
 - Disk space required for Oracle archive-log mode depends on the backup strategy and procedure.
-

Additional Server Software

The following are add-on software products required for Aleph. Ex Libris will install all this additional software in order to ensure full compatibility with Aleph.

- Oracle 12
- MF Cobol
- gsort (on non-Linux platform)
- gzip
- Perl
- Apache Server
- OpenSSL (if required by the customer)
- Tomcat
- tcsh (on non-Linux platform)
- GNU tar (on Solaris platform)
- GNU Make

Optional Server Software

top (on non-Linux platform)

An installation of top (system performance monitoring tool) by the customer is highly recommended. top must be installed by the customer's system administrator. (top is part of the standard Linux operating system.)

IBMJava (on Linux platform)

If the IBMJava2 rpm packages are installed, verify that the packages' version is 1.3.1-5 or later.

NOTE:

Installation of this package is not mandatory.

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Client Hardware and Software Requirements

This section includes:

- [Staff PC Configuration](#) on page 13
- [Unicode Font](#) on page 14
- [CJK Support/IME](#) on page 14
- [Java Virtual Machine](#) on page 15

Staff PC Configuration

Table 2. Minimum System Requirements

Operating System/ Browser	Requirement
Windows XP/Vista/7/8/10	CPU: Pentium IV, 1GHz minimum Memory: 512 MB (recommended: 1024 MB) Disk: 10 GB
Browser for Windows XP	Internet Explorer 6.x, 7.x, 8.x or Firefox
Browser for Windows Vista	Internet Explorer 7.x, 8.x, or Firefox
Browser for Windows 7/8	Internet Explorer 8.x, 9.x, 10.x, 11, or Firefox
Browser for Windows 10	Internet Explorer 11 or Firefox

NOTES:

- Administrative rights are required in order to install or update the Aleph client.
- The system drive (C:) must have at least 250 MB of free space.

- Windows 64-bit is supported.
-

Display

The minimum recommended monitor size is 17"; 19" is preferable.

The critical parameter is resolution:

- Minimum Recommended Configuration for version 22 is 1024x768

Miscellaneous

The Aleph 23 client also requires the following:

- Network Interface Card with Internet/LAN connection
- TCP/IP installed and connection to server tested
- Telnet or terminal emulator client
- FTP
- Mouse

OPAC Client Configuration

An OPAC workstation should be able to run the minimum supported version of an approved browser. Hardware requirements are minimal and are based only on the need to run the stipulated browsers in a given operating system.

Unicode Font

Aleph works in Unicode. We recommend the installation of an appropriate Unicode font on both the PC and browser. The chosen Unicode font should include all characters that you use.

NOTE:

If you use a CJK character set, the fonts are quite heavy and the load time of pages may be slow. Therefore, if you use only Latin characters, choose a Latin Unicode font for better performance.

CJK Support/IME

Aleph supports CJK (Chinese, Japanese, Korean). An IME (Input Method Editor) is required in order to type CJK characters. IME is an integral part of Windows 2000 and later Windows versions.

To enable the IME:

- 1 From Control Panel, select **Regional and Language Options**.
- 2 Select the **Languages** tab. The following is displayed:



Figure 1: Languages Tab

- 3 Select **Install files for complex script and right-to-left-languages**.
- 4 Select **Install files for East Asian languages**.
- 5 Click **OK**.

Java Virtual Machine

The Aleph GUI printing works using the `Saxon8.jar` utility (requires Sun Java Virtual Machine version 1.4 or later). For more information, refer to the *How to Install a Java Virtual Machine on a PC* document in the Ex Libris Documentation Center.

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Communication Requirements

This section includes:

- **Network Configuration** on page 17
- **Server Access** on page 18
- **Ports and Activity Type** on page 19

Network Configuration

The server must have a fully qualified hostname (include short hostname and domain name) that is registered in the DNS.

When performing a distributed installation, all application servers must have DNS entries.

The server name must be defined in `/etc/hosts` as follows:

- Both the fully qualified name and the short host name must be linked to a physical IP address (internal). In order to make sure the correct name is defined, use the following commands:

```
grep `eval hostname` /etc/hosts
```

This command must return a valid entry with a physical IP address.

- For SunOS, enter the following commands to find the internal IP address:

```
/usr/sbin/ifconfig -a | grep inet | grep -v 127.0.0.1 | awk  
'{print $2}'
```

- For Linux, enter the following commands to find the internal IP address:

```
/sbin/ifconfig -a | grep addr: | grep -v 127.0.0.1 | awk  
'{print $2}'
```

See the following example for `/etc/hosts`:

```
# Do not remove the following line, or various programs
# that require network functionality will fail.

127.0.0.1    localhost.localdomain    localhost
10.1.222.22  ml-inst.corp.metalib.com   ml-inst
```

The first active line should be configured exactly as shown in the example.

The second line should contain the internal IP address, followed by the fully qualified name (hostname + domain name), the short name, and any possible aliases.

Server Access

Ex Libris access to the system via the Internet is required, with a minimum bandwidth of 64 KBp.

Ex Libris staff will require access to the following:

- the Aleph server – for the installation of the Aleph software, setup, support, and troubleshooting during the implementation and maintenance phases
- If a firewall is installed, ssh access must be enabled for Ex Libris Support and Implementation staff for the following IP addresses:
 - HQ Jerusalem Israel:
 - 212.179.71.70
 - 212.179.71.34
 - Local Ex Libris office – USA:
 - Des Plaines 207.56.64.194
 - Boston 12.21.149.130
 - Local Ex Libris office – Germany:
 - Seefeld 217.91.56.60
 - Hamburg 195.37.97.145
 - Cologne 194.8.220.178
 - Local Ex Libris office – France:
 - 195.5.253.245
 - Local Ex Libris office – UK:
 - 88.96.11.121
 - Local Ex Libris office - Australia:

- 203.87.118.110

In addition, where relevant, access must be enabled for IP addresses of the local Ex Libris office or distributor (for details, refer to your local Ex Libris representative or distributor).

Ports and Activity Type

The following ports are required:

Aleph

- Telnet or SSH standard port
- FTP or SFTP standard port
- HTTP port 8991 for the main Aleph installation. We recommended that you switch to port 80 for the main Aleph installation close to STP (Switch To Production).
- TCP/IP port 7991 for running Aleph Z39.50 gate
- TCP/IP port 9991 for running Aleph Z39.50 server
- TCP/IP port 6991 for running Aleph PC server
- For a TWO TASK installation, port 1521 is open between the database server and the Aleph 23 application server.

Aleph 23 Installed in Parallel with Existing Aleph Versions

- HTTP port 899x (with x is the instance copy number to install)
- TCP/IP port 799x for running Aleph Z39.50 gate (with x = instance copy number)
- TCP/IP port 999x for running Aleph Z39.50 server (with x = instance copy number)
- TCP/IP ports 699x and 6993 for running Aleph PC server
- For a TWO TASK installation, port 1521 is open on the database server allowing remote access from the Aleph application server.

NOTES:

- Use of other ports must be coordinated with Ex Libris.
 - If SSL installation is required, then HTTPS port 443 must also be open. It is the customer's responsibility to purchase an SSL certificate before Aleph is installed.
 - The settings for all ports, except the HTTP and Z39.50 ports, must be defined so that they can only be accessed from outside the firewall by valid Ex Libris IPs.
-

E-Mail Setup

For normal Aleph functionality, the ability to send e-mail from the server via SMTP is required. The `sendmail` routine is recommended.

Aleph can be configured to use secure communications (TLS/SSL) for sending E-mails to the SMTP server.

The configuration of secured communications between Aleph and the SMTP server is done in the E-Mail Settings section of the ALEPHADM GUI module or in `Alephcom.ini` in the `[Mail]` section.

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Requirements for Ex Libris Installation

This section includes:

- [Server Access](#) on page 21
- [Root Access](#) on page 21
- [List of Operations that Should Be Available for sudo](#) on page 22
- [Additional Requirements](#) on page 22

Server Access

In order to log on to the server, an initial `exlibris` user with permission to `su` or `sudo` is required. This user can be deleted after the installation is complete.

Root Access

Ex Libris staff require a root password to:

- create the following users:
 - `aleph` with group ID `exlibris`
 - `oracle` with group ID `dba`.
- Enable the users listed above to create directories and files under the file systems `/exlibris`, `/exlibris1`, `/exlibris2`, and so forth.
- Install Aleph and the additional software listed in [Additional Server Software](#) on page 11.
- Add the automatic activation of Aleph servers, Oracle, and Apache to the machine's boot process.
- Reboot the machine to make effective the new values of system parameters that were modified during the installation process and to test the automatic

activation of Aleph, Oracle, and Apache. The reboot will be coordinated with the customer.

List of Operations that Should Be Available for sudo

- 1 Create the following users and groups:
 - useradd
 - groupadd
 - vipw
- 2 Change the following system parameters:
 - for Sun Solaris servers – `/etc/system` file
 - for Linux – `/etc/rc.d/rc.local` and `/etc/security/limits.conf` files
- 3 Create directories and change permissions using the following:
 - mkdir
 - chown
- 4 In the `/etc` directory, create files necessary for the autostartup mechanism.
- 5 Ensure that Micro Focus Cobol is installed in the following directories:
 - `/opt/microfocus` – License Manager SW installation
 - `/etc/mflmrcscript` – License manager startup script

Additional Requirements

- `csch` must be available. Ex Libris products and the users listed above work under `csch`.
- The system manager must be available throughout the installation. If Oracle is already installed, the DBA must also be present during installation.
- The system manager must define an alias for the hostname in `/etc/hosts`.
- Due to an Oracle 12 security change, the Oracle's database passwords are now case sensitive. The upgrade to Aleph 23 automatically changes the database passwords to uppercase. After the upgrade to Aleph 23 is completed, the passwords can either stay uppercase or be changed according to your security policy.

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Responsibilities Checklist

The following table summarizes the requirements described in this document.

Table 3. Responsibilities Checklist

Details	Purchase and Installation Responsibility	Page
Server Hardware and Software		page 7
Server and OS	Customer	page 7
Disk space	Customer	page 8
Native C compiler (on non-Linux platform)	Customer	page 10
Media for data exchange	Customer	page 10
Backup media	Customer	page 10
Additional software	Ex Libris	page 11
Oracle 12	Ex Libris	page 11
MF Cobol	Ex Libris	page 11
gsort (on non-Linux platform)	Ex Libris	page 11
gzip	Ex Libris	page 11
Perl	Ex Libris	page 11
Apache server	Ex Libris	page 11
OpenSSL (if required)	Ex Libris	page 11
Tomcat	Ex Libris	page 11
tcsh (on non-Linux platform)	Ex Libris	page 11
GNU tar (on Solaris platform)	Ex Libris	page 11
GNU Make	Ex Libris	page 11
top (on non-Linux platform)	Ex Libris	page 11

Table 3. Responsibilities Checklist

Details	Purchase and Installation Responsibility	Page
Client Hardware and Software		
Staff PC and OS	Customer	page 13
Browsers	Customer	page 13
OPAC PC & OS	Customer	page 14
Unicode fonts	Customer	page 14
IME (for CJK input)	Customer	page 14
Java Virtual Machine	Customer	page 15
Communication Requirements		
Open ports	Customer	page 19
SSL certificate (if required)	Customer	page 19

Ex Libris will install the additional software listed above (see [Additional Server Software](#) on page 11) in order to ensure full compatibility with Aleph.