



PeopleFluent Learning

Hardware and Software Requirements

For installing and hosting PeopleFluent Learning 23.11

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About the Hardware and Software Requirements

Purpose

This document provides details of the hardware and software requirements for installing and hosting PeopleFluent Learning. It includes supported operating systems, web servers and database servers, and recommended storage capacities for the application and database operations.

Audience

This document is intended for:

- System administrators
- PeopleFluent Professional Services and reseller staff
- Implementation consultants

It assumes that you are familiar with the supported operating systems, database servers, web browsers and network configuration.

Notice to Users

This document provides detailed information about the hardware and software you will need to use PeopleFluent Learning. You will need to consult the documentation for any third-party application that requires configuration as listed in this document.

This document is subject to revision based on external hardware and software changes; it may be updated periodically to reflect those changes.

PeopleFluent supports and provides defect fixes for PeopleFluent products under valid Support and Maintenance Agreements on only those operating systems and third-party systems that have been certified and published by PeopleFluent. PeopleFluent will not be responsible for providing any defect fixes for non-certified distributions.

Document Information

This section lists any changes or updates that occur following initial publication.

Table: Document Revision

| Revision Information | |
|----------------------------------|----------------------|
| Revision Date: | October 26, 2023 |
| Revised Document Version Number: | 1.0 |
| Details of Revision: | Initial publication. |

Hardware and Software Requirements

Summary of Requirements

PeopleFluent Learning installation is flexible and can be implemented on any number of tiers. PeopleFluent recommends an application server and separate database server so that they do not compete for resources. The application server is the web and application host, and runs the web server (for example, Apache) and servlet engine (for example, Tomcat). It is also the host from which learning content is served. The database server hosts the LMS database, which can run on Windows, Linux or Unix operating systems.

PeopleFluent Learning application setup supports different types of web servers, application servers and database servers. The software components required to install and host the LMS are:

- A supported web server
- A supported servlet engine
- A supported database server
- JDBC driver for the database server
- A supported Java Development Kit (JDK)

PeopleFluent Learning requires an SMTP mail server for email communications.

Hardware requirements depend on:

- Anticipated resources required by application, web and database servers
- Network bandwidth required by the courseware
- Courseware storage requirements and anticipated growth

High availability and load balanced configurations require:

- SAN storage with redundant disks and controllers
- SAN or NAS Storage with redundant hardware as mapped drive
- Duplicate application and database server
- Hardware load balancer

To install the Rustici Engine for SCORM on a separate server to the LMS, see the system requirements in the *Rustici Engine Installation Guide*.

Operating Systems

PeopleFluent supports PeopleFluent Learning installation on the following application server operating systems:

- Windows Server (Microsoft supported versions are required)
- Linux (vendor-supported versions of Ubuntu, Red Hat Enterprise Linux, or Rocky Linux 8.5+ are required)

Web Application Servers

PeopleFluent Learning natively implements most of the enterprise level services such as database connection pooling and object caching, making it possible to employ a wide range of web servers and transaction servers to support the web interface. PeopleFluent supports the LMS with the following web server components:

- Apache 2.4
- Tomcat version 9.0.64 or later



From version 15.2 onwards PeopleFluent Learning does not work with Tomcat 7. Customers and partners who have been using Tomcat 7 must upgrade. See <http://tomcat.apache.org/> for instructions.

While previous versions of the LMS have been tested with Tomcat 8.0, this version has reached its end-of-life and is no longer supported by Apache Software Foundation. PeopleFluent advises customers and partners who host their instances of the LMS using Tomcat 8.0 to consider upgrading to Tomcat 9.

PeopleFluent Learning 15.2 and later are tested exclusively using Tomcat 9.0.64. You can download Tomcat 9.0.x from <https://tomcat.apache.org/download-90.cgi>.

If you need to use a web or application server not listed above, please contact PeopleFluent Customer Support for advice.

Database Servers

PeopleFluent Learning supports for following database servers:

- Microsoft SQL Server 2016 or later
- MySQL 8

Note that Microsoft SQL Server on Amazon RDS (Relational Database Services) is not supported and known to be problematic when used with PeopleFluent Learning. SQL Server on EC2 (Elastic Compute Cloud) is fully supported.



While PeopleFluent Learning will continue to work with Oracle 11g and later, from PeopleFluent Learning 15.2 onward, release testing with Oracle is limited to automation testing.

Java Development Kit (JDK)

PeopleFluent Learning requires JDK 8 (Oracle JDK or OpenJDK).

RAM and Disk Space

There is no simple formula for calculating the system configuration required to support a given number of users as the system performance is often determined more by the courseware activity and network bandwidth than by the LMS server.

Note that the size of the database depends on the amount of course activity tracking (for example, SCORM data) and the amount of time that users' training records are retained.

Example System Configurations

The examples below indicate the types of configuration appropriate for small, medium and large scale implementations. Note that the largest example does not require an increase in capacity proportional to its user population size as compared to the smaller installations. Larger installations' capacity requirements tend to increase on an ever-shallower curve as they move past the 10,000 user mark. Your installation may be different.

These examples use Amazon Web Services EC2 instance types. If you need to translate these instance sizes into a hardware spec for on-premises equipment, please refer to the [Amazon EC2 Instance Types documentation](#).



The figures in this section represent estimations of likely systems based on measurements from live production sites. These estimates gloss over numerous technical variations between sites. Each site's workload (number of concurrent users), course types (media types, size, tracking requirements), degree and frequency of reporting, and hours of operation will vary from the 'average' on which these figures are based.

Table: CPU, Disk IOPS and RAM Example Configurations

| Total User Population | 1,000 | 5,000 | 90,000 |
|---------------------------|----------|-----------|-------------|
| Training Records | 15,000 | 180,000 | 3.3 million |
| Active Users | 500 | 2,250 | 50,000 |
| Application Server | t3.large | t3.xlarge | t3.2xlarge |
| CPUs | 2 | 4 | 8 |
| Disk IOPS | 800 | 1,800 | 1,800 |
| RAM | 8 GB | 16 GB | 32 GB |
| Database Server | t3.large | t3.xlarge | r5.xlarge |
| CPUs | 2 | 2 | 4 |
| Disk IOPS | 1,000 | 1,800 | 3,000 |
| RAM | 8 GB | 16 GB | 32 GB |

Database Disks

On a large database system, the volume of disk I/O is considerable. PeopleFluent recommends storing your database files on a separate partition from your OS and database logs. An example configuration is shown below for a database server that is serving a community of 100,000 users.

Table: Example Disk Configuration

| Drive | Use | Allocated I/O (IOPS) | Storage |
|-------|--------------------|----------------------|---------|
| C | System/OS | 1,800 | 120 GB |
| D | Database files | 3,000 | 500 GB |
| E | Database log files | 3,000 | 500 GB |
| F | Database backups | 3,000 | 500 GB |

For smaller communities, there will be fewer input/output operations per second (IOPS) for each drive, but a similar partitioning scheme is recommended.

Network Configuration

Domain

PeopleFluent Learning requires a fully qualified domain name, in the format: **hostname.domain.extension** (for example, PeopleFluentLMS.myDomain.com).

The domain name will need to resolve via DNS to an address that points at the application server host for PeopleFluent Learning. This will also be the domain name from which all of your SCORM, xAPI, AICC, and other standards-based content will be served.

Security

To provide secure communications for your PeopleFluent Learning deployment, you will need a TLS certificate.

Ports

The application server host for PeopleFluent Learning uses port 443 for HTTPS traffic, port 25 for SMTP email transfer to the SMTP relay service, and (optionally) port 22 for local file transfer using SFTP and SSH.

Web Browser Support Policy

To provide the best security and performance for our users, PeopleFluent recommends that clients use one of the following browsers to access PeopleFluent applications.

Older browser versions may have rendering or compatibility issues. When such issues are reported, PeopleFluent will attempt to recreate on recent browser versions and in the event this cannot be replicated, the remedy will likely be a recommendation for clients to upgrade to one of the following browsers.

Microsoft Edge (latest stable release)

PeopleFluent supports the latest stable release of Microsoft Edge browsers in accordance with Microsoft's support policy.

Mozilla Firefox (latest stable release)

PeopleFluent supports Firefox's latest stable release channel. PeopleFluent's support also extends to Firefox's specialized Extended Support Release (ESR). For Mozilla Firefox release notes, go to: <https://www.mozilla.org/en-US/firefox/releases/>

Google Chrome (latest stable release)

PeopleFluent supports Chrome's latest stable release from Google Stable Channel. For Chrome release updates, go to: <https://chromereleases.googleblog.com/search/label/Stable%20updates>

Apple Safari

PeopleFluent supports Safari browsers in accordance with Apple's support policy. For more information, see: <https://support.apple.com/en-us/HT204416>

Web Browser Configuration

For PeopleFluent Learning to perform as expected, customer organizations need to ensure the following configuration settings are applied to their end-users' browsers. See your browser's documentation for instructions. Administrator permissions may be required to perform browser configuration.

Enable Cookies

PeopleFluent Learning requires browsers to be allowed to store cookies. Users must update their browser settings to allow cookies.

The required domain names provided in this section are subject to change based on your organization's implementation. The Skillsoft domain name is only required if your organization is using Skillsoft integration features. The Google domain name is only required if your organization is using Google Analytics. Contact your PeopleFluent representative for more information.

Cookies must be enabled from the following domains:

- [https://\[*\].peoplefluent.com](https://[*].peoplefluent.com)
- [https://\[*\].peoplefluent.eu.com](https://[*].peoplefluent.eu.com)
- [https://\[*\].skillsoft.com](https://[*].skillsoft.com) (if Skillsoft courses are used)
- [https://\[*\].google.com](https://[*].google.com) (if Google Analytics is used)
- [https://\[*\].linkedin.com](https://[*].linkedin.com) (if LinkedIn sign-in is used)
- The PeopleFluent Learning domain (<https://hostname.domain.extension> or [https://\[*\].domain.extension](https://[*].domain.extension))

Configure Pop-up Blockers

Pop-up blockers must either be disabled or set to allow PeopleFluent sites. The required domain names provided in this section are subject to change based on your organization's implementation. Contact your PeopleFluent representative for more information.



Customers must also configure any third-party pop-up blockers such as NoScript.

Browsers must be configured to allow pop-ups from the following domains:

- [https://\[*\].peoplefluent.com](https://[*].peoplefluent.com)
- [https://\[*\].peoplefluent.eu.com](https://[*].peoplefluent.eu.com)
- [https://\[*\].skillsoft.com](https://[*].skillsoft.com) (if Skillsoft courses are used)
- [https://\[*\].google.com](https://[*].google.com) (if Google Analytics is used)
- [https://\[*\].linkedin.com](https://[*].linkedin.com) (if LinkedIn sign-in is used)
- The PeopleFluent Learning domain (<https://hostname.domain.extension> or [https://\[*\].domain.extension](https://[*].domain.extension))

Add Trusted Sites

The required domain names provided in this section are subject to change based on your organization's implementation. The Skillsoft domain name is only required if your organization is using Skillsoft integration features. The Google domain name is only required if your organization is using Google Analytics. Contact your PeopleFluent representative for more information.

- [https://\[*\].peoplefluent.com](https://[*].peoplefluent.com)
- [https://\[*\].peoplefluent.eu.com](https://[*].peoplefluent.eu.com)
- [https://\[*\].skillsoft.com](https://[*].skillsoft.com) (if Skillsoft courses are used)
- [https://\[*\].google.com](https://[*].google.com) (if Google Analytics is used)
- [https://\[*\].linkedin.com](https://[*].linkedin.com) (if LinkedIn sign-in is used)
- The PeopleFluent Learning domain (<https://hostname.domain.extension> or [https://\[*\].domain.extension](https://[*].domain.extension))

Enable File Downloads

Browsers must be configured to enable file downloads.

Allow Saving of Encrypted Pages

Browsers must be configured to allow encrypted pages to be saved.

Enable HTTP 1.1

Browsers must be configured to use HTTP 1.1 and to use HTTP 1.1 through proxy connections.

Enable TLS 1.2 and 1.3

Browsers must be configured to enable TLS 1.2 and 1.3.

Enable JavaScript

JavaScript must be enabled in Browsers. Clients must also configure any third-party plug-ins that block JavaScript, such as NoScript.

Configure Browser Cache

Browsers must be configured to:

- Check for newer versions of stored pages automatically.
- Use at least 512MB of disk space for temporary internet files.



Google Chrome and Firefox do not allow for modification of the browser cache size.

Configure for Proxy Servers

Browsers must be configured for proxy servers if customer organizations use them. If proxy servers are used, they need to use the same proxy server for all protocols.



If Proxy Servers are used, they need to be set so they do not cache any pages from the LMS, as this could cause significant problems. For example, learners' courses may not be marked as *Completed*.



Microsoft Edge uses the same connection and proxy server settings as Windows.

Consult your operating system's instructions to configure the proxy settings for your organization's proxy server.

Configure for Printing

For best results, background colors and images should be included when printing from PeopleFluent Learning.

Open PDF Files Externally

For best results when using PDF-based documents with PeopleFluent Learning, the browser's built-in PDF Viewer must be disabled. This forces PDFs to open using the default application associated with the file format in the user's operating system.

Email

Anti-spamming

Many organizations use email anti-spamming technology to filter out unwanted or suspect emails. Parts of PeopleFluent Learning use built-in email functionality to send information to users. Some enterprise email anti-spamming technology may interpret this type of email as suspect and therefore not deliver the message. This issue is due to the email message containing the organization's domain name (...@organization.com), yet having a corresponding IP address signature that is outside the organization's IP address range.

If your organization has implemented this anti-spam technology or if you are experiencing email difficulties using PeopleFluent Learning, review the following guidelines.

Email Domain Whitelisting

PeopleFluent recommends that customer organizations whitelist emails from any PeopleFluent server.

IP Address Whitelisting

If your organization's spam filtering software is unable to whitelist domains, PeopleFluent can provide the IP addresses from which production email messages are currently sent. PeopleFluent will normally have a primary set of IP address ranges from which emails can be sent, although additional ranges may be used to accommodate load balancing, redundancy, and future expansion. Additionally, PeopleFluent may change one or more of the IP address ranges to accommodate changes in our engineering, architecture or infrastructure. PeopleFluent may also remove or add IP address ranges for the same purpose.

Non-production PeopleFluent environments may send email from separate IP addresses. These IP addresses are subject to change and therefore need to be requested separately. Whitelists and other anti-spam management tools should be configured to accept mail from both production and non-production sources.

PeopleFluent will provide as much notice as possible to customer organizations regarding changes to the IP address ranges.

For these reasons, PeopleFluent recommends that customers whitelist the PeopleFluent domains rather than individual IP addresses.

Desktop Management

Anti-spamming technology can reside on an individual's device as well as at the enterprise level. If your organization relies on anti-spamming technology using an email client, you may also need to modify the policies of these email applications to accommodate the published IP address ranges PeopleFluent uses for email communication.

Sender Policy Framework

Email recipients that have external email addresses may have spam prevention that prevents email from being sent from a domain that does not match the domain that is sending the email. To validate that an email is valid, PeopleFluent recommends adding Sender Policy Framework (SPF) records to your public Domain Naming System (DNS) infrastructure. An SPF record enables email servers to validate that the sender is allowed to send emails from your domain. An SPF record needs to be added to your public DNS to allow any potential recipient's email server to query DNS and validate that the IP address of the sending server is valid for your domain. These public SPF records will need to be added by your DNS administrator.

For more information about PeopleFluent's SPF, please refer to [Client Authorization for Delivery of Email Generated from PeopleFluent Applications](#) on the Customer Community.

Please contact your PeopleFluent representative if you need access to Customer Community.

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Generated: 23.11: 2023-10-26 7:47:19 AM