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## Docebo Tech Draft

(ENG)

### Docebo 4x

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## Introduction

With this paper we want to provide some guidelines to support the technical staff, the training office, the commercial office and all other parties interested in setting up internal activities such as:

- Server setup (preliminary to Docebo installation)
- Support for importing/exporting data from and to HR software or other data sources
- Support for migrating to DoceboLMS from other e-learning systems
- Support for the choice of learning objects
- Tips on how to plan and manage a course during the startup phase of a project

## ***Server and networking***

### **Operating System: Linux or Windows**

- MySQL 5.0 or newer (utf-8 collation for database and tables is suggested)
- Apache 2.x or IIS6 or newer
- PHP 5.2.x or newer
- dom extension, in some Fedora and CentOS distributions there were PHP5 installations without dom extension that has to be included
  - Max Upload file size should be at least 128M (depends on your learning objects total size)
  - Max Post Size should be at least 128M (depends on your learning objects total size)
  - Max Execution time should be at least 300 Seconds
  - Memory dedicated to PHP: at least 64 Mb
  - PHP should be able to send emails (i.e. being connected to an SMTP server)
  - MySQL and FTP modules enabled
  - SMTP server installed and configured to work with PHP
  - FTP server installed and configured with access permission for local host
- Possibility to recursively set permissions to directories
- SSH access
- Sftp-scp access (SSH and FTP should accept the same user)
- PhpMyAdmin available

## ***Security policy e security check***

DoceboLMS is designed to work with the most recent versions of PHP and MySQL. In order to enhance the security level we suggest to:

- Keep PHP and MySQL updated
- Assign correct permissions to directories and files (the only writable directory should be “files”, including all directories below)
- Check that the .htaccess file placed in the files directory denies the web server to execute these extensions: .php .php3 .ph3 .ph4 .php4 .ph5 .php5 .pl .py .cgi .rb.asp .aspx)in files stored inside the directory or its subdirectories

## Backup policy

DoceboLMS manages 3 kinds of data with different critical levels:

- LMS system files: low critical level
- User-loaded file (Learning objects and others): critical (stored in the “files” area)
- Database containing usage data, users, etc.: very critical. Docebo recommends a complete daily backup of all 3 kinds of data, if not possible priority should be given to the more critical ones.

## Server dimensioning

The number of registered users is an important parameter for a correct dimensioning of the server that will host DoceboLMS, but it's important to consider also other factors, such as:

- Bandwidth and peak management: this parameter is influenced by the type of Learning Objects adopted and the number of users that utilize the contents. Video content generates bigger traffic than a textual content.
- CPU and memory load: this parameter is influenced by the number of users connected at the same time and the type of functions used. In particular, in a self-learning context where the users will only use content without intensely working with tools like forum, wiki and chat, the server load will be lighter than a university/master context in which the presence on the system will be more intense and the functions used will generate a heavier load on Cpu and memory.
- Disk space: in a e-learning system space is used by 3 elements:
  - DoceboLMS installation: no more than 50 Mb
  - Learning objects: space used depends on the number of active courses, on their length and the format adopted (audio, video, text ...)
  - Files uploaded by users: this parameter only affects the collaborative didactic model (university, master etc. ...) because the students work creating and sharing files...
- Simultaneous users: for simultaneous users we can mean:
  - Users connected in a given minute
  - Users connected in a given second
  - Users that query the server at the same time
- Even the “didactic model” influences the server load, a user that is utilizing a content (for instance a flash scorm object) will require more resources than another one chatting or posting on a forum, because the number of server queries in the former case is much higher.

## Dimensioning

Registered users	CPU	Memory	Disk space*	Bandwidth*
Up to 500	1 Core	1 Gb	30 Gb	1.5 Mbit
Up to 3500	1 CPU	4 Gb	30 Gb	10 Mbit
Up to 7000	2 CPU	8 Gb	60 Gb	20 Mbit
Up to 10.000	3 CPU	12 Gb	60 Gb	30 Mbit
Up to 14.000	4 CPU	16 Gb	100 Gb	40 Mbit
Over 14.000	Cloud/Cluster	-	-	-

\* Estimated for 50 Multimedia courses delivered (1 hour each)

## Tips & Tricks

- Avoid planning self-learning events that require users to be connected at the same time or the same day.
- Try to have a few users completing courses close to the deadline in order to avoid too many users connected in the same time.
- Use video when really necessary only.

## Client requirements

DoceboLMS does not require additional plugins to install on the client and it's tested on the following operating systems:

### OS

- Windows (Xp, Vista, 7)
- Linux
- Mac OS

### Browser:

- Internet explorer 6 or above
- Mozilla Firefox
- Google chrome
- Apple Safari

The Courses developed by Docebo are based on Adobe Flash technology and the relative requirements are as follows:

Flash Player version 8.0 or higher

## Hardware Requirements

As per the hardware requirements, you can refer to the following table provided directly by Adobe.

Win	Mac	Linux
Intel® Pentium® II processor, 450 MHz or more powerful (or equivalent)	PowerPC® G3 processor, 500MHz or more powerful	Intel Core™ Duo, 1.33 GHz or more powerful Up-to-date processor (800MHz or more powerful)
128 Mb Ram	128 Mb Ram	512 MB RAM 128 MB of graphic memory

If the Learning Objects are anticipated to contain videos or film clips, we recommend the following hardware configurations for optimum reproduction:

Resolution	Win	Mac	Linux
852x480 (480p), 24FPS	Intel® Pentium® 4 processor, 2.33 GHz or equivalent <ul style="list-style-type: none"> <li>128 MB RAM</li> <li>64 MB VRAM</li> </ul>	PowerPC® G5 processor, 1.8 MHz or more powerful I  Intel Core™ Duo, 1.33 GHz or more powerful <ul style="list-style-type: none"> <li>256 MB RAM</li> <li>64 MB VRAM</li> </ul>	Intel® Pentium® 4 processor, 2.33 GHz or equivalent <ul style="list-style-type: none"> <li>128 MB RAM</li> <li>64 MB VRAM</li> </ul>

## Learning objects

Regarding DoceboLMS compatibility:

- They should be Scorm 1.2 or Scorm 2004 compliant
- They should handle utf-8 encoding
- If popup windows are foreseen you should check that the browser won't block them (enable domain where DoceboLMS is installed)
- If the Scorm object has to be opened by DoceboLMS player at a 1024 x 768 resolution with standard browser settings (no toolbars installed and application bar no higher than one line) then the LO size should be no bigger than 750 x 505 (Width x Height)

Regarding client's infrastructure:

- If the object is in Flash format please check the version installed on the company clients and compare them with the version used by Learning Object
- Check that the object is compatible with web browsers used in the company
- If the object uses specific plug-ins (ActiveX, shockwave or other...) check if the user is allowed to install them on his own and give him the instructions on how to do it. If this is not possible, talk with the learning object provider and your IT Manager to arrange the installation policies.
- If the object uses audio, please check that users have speakers or earphones to listen to the audio section. If users have speakers check that listening to the course doesn't annoy other colleagues.

- If the object provides vocal recognition (e.g. advanced language courses) check if users have a microphone. In our experience, the use of multimedia content requires even an entry-level, ADSL-type Internet connection. For 20 minutes of use, we calculate the following consumption of bandwidth:

Learning object type	Learning object weight for 20 minutes duration	Required bandwidth
HTML object (text + pictures)	Between 8 and 14 Mb	11 Kbps
Flash audio object + animations (no video)	Between 20 and 30 Mb	25 Kbps
Flash object (audio + video)	Between 80 and 120 Mb	90 Kbps
For news program-style video or conferencing, Flash FLV with resolution of 354 x 266 pixels	Between 90 and 110 Mb	85 Kbps

## ***Import, export and data synchronization***

DoceboLMS allows data importing in manual, semi-automatic or automatic mode.

- **Manual mode:** the insertion of users or courses, the subscription of users to courses and groups and the report generation are delegated to an administrator or a sub-administrator.
- **Semi-automatic mode:** Users and groups import is managed by a manual .csv file import
- **Automatic mode:** Using the input/output module it is possible to schedule a set of activities that read from a .csv or .xml file loaded through FTP by another application or sent by Docebo to another application.

Basic instructions for managing automatic import/export:

- Activities can be scheduled via the administration area using the I/O (input/output) module, which is placed in admin/main/configuration/IO task
- .csv files are placed in the files/common/io files directory by Docebo or third-party applications
- The import procedure is made using a cron function or another scheduler and calling the doceboCore/tasks.php file

### **Example of automatic procedure scheduling**

**User list import (e.g.. filename users\_aaaammdd.csv).**

UserId, Password (e.g. “user.name”, “password”). It is possible to add many other fields. If they should be handled by drop down boxes then the fixed values have to be preloaded in the LMS system.

If authentication is managed with systems like LDAP it is not required to import passwords.

**Course list import (e.g. filename courses\_aaaammdd.csv)** Course code, course name (e.g. “001”, “Math”).

It is also possible to add to the .csv file other fields as: complexity, course status, subscription policies, course language, startdate, end date, estimated time.

**Automatic user-course subscriptions import (e.g. filenameAAAMMDDusercourses\_data.csv)**

UserId, Course code (e.g. “user.name”, “001”). It is also possible to add an optional field that represents the level of the user in the course, if not specified the user will be added as student. This is the list that represents the user level in the course: 1 Ghost, 2 Guest, 3 Student, 4 Tutor, 5 Mentor, 6 Teacher, 7 Administrator.



## Shared authentication

DoceboLMS supports mutual authentications in different ways, for example:

- **POST based authentication:** through a form (with POST method) you may include and transfer "login\_userid" and "login\_pwd" (username e password) to Docebo LMS.
- **GET/POST Token based authentication:** Docebo LMS validates user login credentials through a given token in the url (hash) generated through some values : userid, time and a secret code shared between the two applications.
- **REST API based authentication:** through a GET or POST call you can have different features. Authentication parameters contemplate a recognition code(token) that can be: a unique recognition code or a runtime generated recognition code ( a code for each access, with expiration).
- **WSDL/SOAP API based authentication:** this method use the same technic of the rest api method but with a wsdl/soap api.
- **Kerberos and NTLM based authentication:** these authentication system are supported by specific Apache modules that implement related protocols. Docebo can authenticate users correctly recognized by the apache module.

### Application examples POST based authentication:

Standard procedure consists in: transmit in "post" authentication data through a form:

```
<form class="std_form" id="login_confirm"
method="post" action="http://www.customerlms.com/doceboLms/index.php?modname=login&op=confirm"><input type="text" id="login_userid" name="login_userid" value="" /><input type="password"
id="login_pwd" name="login_pwd" /><input type="submit" id="login" name="log_button" value="Login"
/></form>
```

### POST/access Token based authentication:

Access requires that a "token" parameter is passed by URL login:

```
doceboLms/index.php?modname=login&op=confirm&login_user=username&time=200812151414&token=
85773353BFF5FACFF8761270D7B5A06E
```

The token is created using the following function:

```
token = hash md5 ( username , time, secret code );
```

The secret code is a string with a pre-defined content (based on applications involved in the interaction), the "hash" must include commas and username (used to create "hash").

User name must be lowercase, token (communicated through "get") is case insensitive.

### REST API based authentication:

An authentication token is not necessarily required if an application uses a unique code for the “REST” feature. Otherwise you must obtain a code through a call using REST "authenticate" method. Output call sample:

```
<?xml version="1.0" encoding="UTF-8" ?><XMLoutput>
<success>true</success><message>You are
authenticated.</message><token>9u579hfbxo3984hg83028fhbw</token><expire_at>2008-10-11
13:28:36</expire_at></XMLoutput>
```

The XML "token" node includes user identification access code. It will be passed as "post" parameter for the next requests. Parameter name is: "auth". Further details about “using REST API features” are described in a separated documentation.

### Kerberos and NTLM based authentication:

Authentication is executed directly by Apache and includes user recognition. DoceboLMS is able to authenticate the recognized user internally.

### Migration from other systems

Migration from another LMS/LCMS to DoceboLMS requires a collaboration between Docebo staff and people skilled with the other system (and with access to the data). Data import is usually limited to:

- Users
- Courses list
- Courses-Users relationships
- Basic course tracking data

As soon as files in Excel or .csv format are sent to Docebo staff, they will be normalized and loaded inside the LMS.

### Import examples

#### Courses list

**Required data:** Course code, Course name

#### Optional data:

- Course language
- Complexity (Very easy, Easy, Average, Hard, Very hard)
- Course type (E-learning, Blended, Classroom)
- Status (Under preparation, Available, Confirmed, Concluded, Cancelled)
- Description
- Course subscriptions status (Subscription closed, Subscription open, Allowed from[date] to [date])
- Display options (Everybody, system users only, subscribed users only)
- Course access options (Only admin can subscribe, moderated subscription request, free subscription).

## Users list

**Required data:** UserID, Password

**Optional data:**

Every cataloguing field you may require (field format has to be specified when it's a date or free text; if it's a drop down field, it is required to import the values before)

## Course subscription list

Data: UserID, Course code (e.g. "user.id", "001"). It is also possible to add an optional field that represents the level of the user in the course, if not specified the user will be added as student. 1 Ghost, 2 Guest, 3 Student, 4 Tutor, 5 Mentor, 6 Teacher, 7 Administrator.

## Users-courses tracking data

**Required data:** UserID, Course ID, Course status

**Optional data:** Subscription date, start participation date, completion date, last access date, status of the student in the course (Subscribed, In progress, Completed, Suspended), initial test score, final test score, number of sessions performed by the user, time spent inside the course.

## Course planning

During the "course planning" phase (and during the preparation of the Learning Objects), it is useful to take into account the following elements:

**Access pre-requisites:** Evaluate the possibility of creating a pre-assessment to check the user's initial competencies and compare them with the final evaluation score.

**Object navigation:** Check if the course is composed by many objects (and so the usage time of each object and the scores are evaluated independently, or if there is a single object, the score and usage time will be total)

**Pre-requisites for the object navigation:** Check that the single chapters are "linked" among them or if they are freely browsable.

**Completion policies of the single chapters:** Check if the completion of the single chapters is bounded to: % of usage, click on a button by the user, test performing, test completion.

**Course completion policies:** Define how to complete the course, according to the course usage or the final test.

**Final test:** Check the possibility of having a final test to evaluate the learning results or link it to the course completion.

**Users' feedback policies:** Creation of a feedback survey