



docebo®
TECHNICAL WIKI

www.docebo.com

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1. INTRODUCTION

In this document we provide guidelines to support our clients and partners Technical units, in addition to the Training team, and/or anyone else who may be concerned during the implementation activities of Docebo, such as:

- Setting-up the in-house (also referred as “behind the firewall”) on which Docebo will be installed;
- Setting-up data import/export procedures to and from 3rd party software and other data sources integrating with Docebo;
- Migration from and to Docebo from other E-Learning systems;
- Selection criteria and characteristics of Learning Content (Learning Objects, Assets, Legacy);
- Planning and management of a training plan in the initiation phase.

2. SERVER AND NETWORKING

Docebo is a three-tiered software, composed of:

- user interface
- business logic (PHP)
- databases (MySQL)

The following details are related to the infrastructure needed in order to install and deploy the Docebo E-Learning platform.

2.1 Hardware requirements

In-House scenario: should the client want to install Docebo in its pre-existing HW. infrastructure, in order to properly calculate the size of the server on which to install Docebo, it is preferable that you know the number of users that will be registered (enrolled), as well as some other factors that can modify the average workload of the system infrastructure/application.

Such factors are:

Bandwidth and peak bandwidth management: this factor is influenced by the type of Content being used (weight of the content) and by the number of users that are utilizing such content (students, versus administrators) . Multimedia assets will likely generate more traffic than standard legacy content such as PDF, PPTs etc.

Workload on memory and CPU: This factor is influenced by the number of simultaneous users and the type of features in use.

The disk space is used according to the following criteria :

Docebo installation files: 50 Mb MAX

E-Learning Content : The disk space is related to the number and duration of active courses, but also to the type of media (audio, video, text, etc.).

User Generated Content : This scenario occurs in collaborative mode usage, when students need to create, upload and share documents among each other.

Concurrent users refers to :

users with an open session in the system at the same time.

Registered users	CPU	RAM 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
Up to 28.000	Cloud/Cluster	-	-	-
Up to 50.000	Cloud/Cluster	-	-	-
Up to 100.000	Cloud/Cluster	-	-	-

* Estimated value for 50 multimedia courses (1 hour each)

** Estimated value related to objects weight, average simultaneity and statistics

2.2 Bandwidth consumption

We calculate the bandwidth consumption for 20 minutes of use as follows:

- HTML object (text + pictures) - Between 8 and 14 MB
- Flash audio object (no video) - Between 20 and 30 MB
- Flash object (audio + video) - Between 100 and 200 MB
- For news program-style video or conferencing, Flash FLV with resolution of 354 x 266 - Between 90 and 110 MB.

As you can see, bandwidth consumption is sustainable by optimizing the use of the content.

This can be accomplished through policy standards, such as not requiring all users to access the content at the same date and time, or by staggering official deadlines in order to avoid a "last minute rush" that risks overloading the system.

The proposed solution guarantees contemporaneous server calls per minute for 1,200 simultaneous connections. This guarantee takes into account both traffic bandwidth and server load.

2.3 Practical Tips

To prevent an excessive oversizing of the hardware infrastructure is good to avoid the schedule of self-training events in which many users are required to log-in at the same time or day.

To avoid too many concurrent users, do not allow users to complete the course immediately before the deadline. Use video-assets only when needed, especially in the case of shared bandwidth.

2.4 Software requirements

Operative System: the Linux- or a Windows-based OS

MySQL 5.0 or later (collation database and utf-8 tables)

Apache 2.x or IIS6 or later

PHP 5.2.x or later

PHP configuration

Gd Extension

Dom Extension

Mbstring Extension

Zlib Extension

short_open_tag = On

Max Upload filesize configured at a minimum of 128M (depending on the total size of the Learning Objects you want to load)

Max Post Size configured at a minimum of 128M (depending on the total size of the Learning Objects you want to load)

Max Execution time configured to at least 90 Seconds

PHP dedicated memory: at least 64 M

Active MySQL and FTP modules

SMTP server installed and configured also on PHP side as well

FTP server installed and configured with access permissions at least for localhost

Right to assign permissions to directories also in a recursive mode

SSH access

SFTP-SCP access (SSH and FTP must have the same user)

PHPMyAdmin available

2.5 In-House installation, Security Policies

In the case of installation of Docebo in the customer infrastructure we suggest that you :

Always keep your PHP and MySQL up-to-date

Assign the correct permissions to directories and files (the only directory with write permission must be "files")

Verify that the .htaccess file placed in the files directory prevents the webserver from running the following extensions (.php, .php3, .ph3, .ph4, .php4, .ph5, .php5, .pl, .py, .cgi, .rb, .asp, .aspx) for files placed in that directory and its sub-directories.

In-house Installation, suggested back-up policies

Docebo manages 3 data types that have different levels of criticality:

LMS system files: Low impact

Files uploaded by users (Learning Objects and more): Critical (stored in "files")

Database (training and users data): Highly critical

System files may be backed up with a low frequency, or it is possible to follow policies that store two backup copies of each changed file.

For files uploaded by users we suggest at least a weekly backup, increasing the frequency to once a day within the limits of possibility.

For database maintenance we suggest at least a daily backup, increasing the frequency to once every 8 hours (avoid starting the backup during heavy server-traffic hours).

2.6 Software as a Service, Network description

In order to support at best our customer and enable their business to grow dynamically, all the architecture solutions adopted by Docebo are designed to scale up dynamically and transparently to the final user.

This means your bandwidth demands will not increase frequently, and you will not need to interrupt your business to add more server space for your content.

The cloud solutions adopted by Docebo are the best of the breed, in order to assure to our client the best SLA on service availability and the most modern technology.

Our careful selection of suppliers and peering policies optimize the visibility of Docebo's services from all networks. The highest performance is ensured by a redundant availability of the computational unit of the cloud. The network is also designed for the maximum reliability possible based on completely redundant lines and redundant carriers.

This level of performance and availability is achieved by using independent webfarms across the globe, which reduces latency in content retrieval and improves fault tolerance in case of failure.

Content distribution is performed through the usage of Amazon Cloudfront service, fully integrated with the Docebo content network.

Our goal is to improve the experience of the end user.

Server located in 5 different regions: (USA, Europe, Middle East, Far East and South America)

Optimized peering for data transfer between the 5 regions

Total Bandwidth Available: 9 Gbps coming from 4 different suppliers (Telecom, Global Crossing, Cogent, Sprint)

Backup system is managed by Docebo ERP with 2 different technologies:

IBM Tivoli system

Docebo custom made disaster recovery system

Thanks to cloud technology, the infrastructure works like a single machine with the power of a clustered solution, with high performance and transparent failure recovery on every single node

2.7 Solutions

Cloud E-Learning "As a service"

The Docebo Cloud infrastructure dedicated to Docebo Premium SAAS is designed to provide reliability, ease of use, scalability, and speed. From the incoming HTTP request to the delivery of E-Learning content, we have focused on redundancies and optimizations in every piece of the software and hardware stack to deliver reliability and speed.

Our E-Learning platform service (from 100 to 1,000 users), for projects with a shared cloud instance of up to 1,000 users, includes:

Unlimited bandwidth traffic and peak management up to 9 Gbps

Up to 1,000 simultaneous users

Data backup every 4 hours

Help desk available 24/7

Remote help desk

Unlimited tickets

Phone help desk after ticket opening

Cloud E-Learning Premium

The Docebo Cloud infrastructure dedicated to Docebo Premium is designed to provide reliability, ease of use, scalability, and speed. From the incoming HTTP request to the delivery of E-Learning content, we have focused on redundancies and optimizations in every piece of the stack to deliver reliability and speed.

Our E-Learning platform Premium service supports projects up to an unlimited amount of users, that have a dedicated cloud instance, and includes:

Unlimited users and DB scalability

Unlimited bandwidth traffic and peak management up to 9 gbps

Data backup every 4 hours

Help desk available 24/7

Remote help-desk service

Support and Maintenance management through Trouble Tickets

Phone help-desk service whereas requested (Privileged Help-Desk)

Client Sandbox Service:

Shall the client require so, a second Docebo instance can be made available for testing purposes of new content, or functionalities developed by the client or Docebo.

2.8 Monitoring and Uptime

To monitor its installations, Docebo uses the international monitoring network Pingdom, which provides numerous advantages, such as:

Monitoring of its installations through servers distributed throughout the world (even on different continents)

Monitoring and alerts performed by servers external to the infrastructure and resources to be monitored for complete reliability and independence.

Interrogation of each single installation every 60 seconds, checking the correct operation of the web and the database server.

Alarm activated every 5 interrogations and notification to Docebo's technical staff by e-mail and to Docebo's technical managers by SMS.

Uptime and downtime reports for the single installations.

2.9 Contingency plan

Our clients' data is stored on high-performance RAID1 or SAN hard disks as part of our cloud services. The primary backup is an IBM Tivoli SAN (Storage Area Network) at the main data center. An additional backup is performed in a secondary data center every night, 365 days per year. Upon request, clients can autonomously access 5 days of backup history via FTP service.

Physical locations

Primary data centre: Seeweb, Frosinone, Italy (web and database servers)

Secondary data centre: Seeweb, Milan, Italy (Backup server)

Back-up policy

Docebo manages 3 types of data that have different levels of criticality:

LMS system files: Low impact

Files uploaded by users (Learning Objects and more): Critical (stored in "files")

Database (training and users data): Highly critical

Docebo normally performs a total backup of all 3 types of data every 4 hours.

Control methods

Docebo monitors its installation using the Pingdom® service. This service performs checks every 60 seconds from servers located in different data centres. The services monitored are:

Web servers

Databases

If a service cannot be reached for more than 4 minutes, the system alerts Docebo's technical resources 24/7 via SMS and phone call notification.

Restore method

First, Docebo attempts to restore the server from a logical perspective.

Second, Docebo attempts to restore the server from a physical perspective.

Third, Docebo will activate a second, backup server.

2.10 Monitoring services and logical security

Installations are protected by IPS (intrusion prevention systems) and firewall and constantly updated to align them to the latest version available. The constant update of the system and the configuration of the basic operating system reduces the possibility of harmful actions.

Other hardening techniques used are:

Configuration of the PHP interpreter based on current security directives

Blocking of all calls external to the server

Blocking the execution of files whose extensions taht are considered potentially damaging and/or not useful to the operation of the system

Constant monitoring of the system

IPS / Firewall-side blocking

For the monitoring of its installations, Docebo uses the Pingdom international monitoring program with the following rules:

Interrogation of each single installation every 60 seconds by calling a pre-defined page on port 8 (HTTP sensor), which checks that both the web server and the database can be reached.

Alarm activated every 5 interrogations and sending notification by e-mail to Docebo's technical support and SMSs to 6 mobile phones hosted on a circuit that is independent from the supplier of the network architecture.

2.11 Physical security of the servers

Access to the premises

Access to the data centre is exclusively reserved to the ISP employees and suitably-authorized third-party personnel; the general public or clients are not granted autonomous access to this infrastructure.

Access to the data centre requires access to the ISP's office via physical key and badge/recognition secret code. In addition, access to the data centre is further subordinated to authorization via smart card/secret only possessed by personnel authorised to work in the data centre.

All access to the premises is logged by computer. Any third parties entries take place exclusively in the company of in-house personnel and are recorded by checking the reason/access authorization. Any authorization granted is only valid for the access period, which does not exceed the work day.

Surveillance of the premises

The premises are monitored 365 days a year, 7 days a week, 24 hours a day by our security personnel or by remote monitoring systems.

External perimeter video-surveillance is provided by TV cameras and recorded with (1) the image-retention required by law, (2) movement detection in critical areas, and (3) consequent activation of an alarm circuit. There is also video-surveillance with recording and image-retention inside the operational and technical areas of the data center.

Intrusion detection

An intrusion-detection system monitors accesses to hallways and provides volumetric monitoring of all rooms of the office and data centre, with local optical/acoustic signals and remote notification via radio alarm to a private guard service.

Air-conditioning of the premises

The air-conditioning system provides air-filtration and internal ventilation and cooling, thus guaranteeing the correct temperature and sufficient exchange of air.

The air-conditioning system has a protected, 2+1 redundancy architecture extended to water chilling units, outside condensers and the Air Treatment Units (ATU) of the data centre. The unprotected system is over-dimensioned by 20% compared to the data centre maximum capacity.

In the case of total breakdown, there is a manually operated system for washing the air through the emission/expulsion of outside air (free cooling).

Its operating parameters are constantly measured at 5-minute intervals with local and remote alarms (remote alarms to the guard service) when critical values are exceeded.

The system maintains the following standard environmental parameters:

Uninterruptible power supply

The power supply system is completely redundant on double EIE-CE standard lines for each row of cabinets with anti-tear, fireproof plugs and sockets. Each cabinet containing equipment receives power from two different lines. There is static switching of the power source for each cabinet serving equipment that does not have dual power supplies.

There is static power supply conditioning through 2 static UPS units on 2 x 100 kVA (Chloride) units with frequency reference. There also is a high-autonomy diesel generator with capacity of 200kVA, autonomous start-up, and automatic bi-weekly diagnostic cycles (Deutz-General Electric).

The safety of the power supply is provided by a certified earth system conforming to Legislative Decree 626/1994.

Physical network infrastructure

The network infrastructure inside the data centre has three levels, which are all completely redundant in both the equipment involved and in their connections to the rack. The backbone and aggregation levels are allocated in a specific area of the data centre and suitably protected; the level of destruction is localized to the single row of racks. Both connections comprising the redundant pair are always active, and their operation is monitored.

The data center is served by backbone connections to Rome (Namex interchange point and also SPC node) and Milan (Seeweb office), and transit connections to Rome (Telecom Italia). All connections are made with two-way fiber optic cables, certified independent for all the paths involved.

The Milan data center is interconnected to the Mix (interchange point and SPC node) and has transit connections with several international operators.

Accidental events and catastrophes

Our data centers are equipped with high-sensitivity fire and smoke detection with double intervention thresholds (alarm and self-extinguishing). An environmental-saturation gas fire-fighting system with ceiling and floor sensors is also installed.

There is a flood detection system using sensors installed in the raised floor. The data center is located above ground level and far above historic flood levels. Nevertheless, there is a percolation system to protect against any water leaking from the chilling plants.

A highly-redundant geographic replica of the services between the Frosinone and Milan data centers capable of supporting any catastrophic event can be established as long as the at either office remains intact.

A default Disaster Recovery plan that provides for the execution of off-site backups has already been established as the current rule.

2.12 Infrastructure SLA, risk matrix

(indices: 1 low/none; 2 moderate; 3 sensitive; 4 high)

Type Of Risk	Probability	Countermeasure	Residual Risk
--------------	-------------	----------------	---------------

	of the Event		
criminal intrusion	2	guard, video-surveillance and perimeter and volumetric alarms. Radio alarm connected to guard service	1/2
abusive access or unauthorised personnel	3/4	guard, access control through badge, smart card and password	1
exceeding critical temperature and ventilation values	2/3	redundant air-conditioning and ventilation system, double-level, independent monitoring and alarm system with remote notification to several assigned personnel	1/2
Brief power outages (< 8h)	4	Power conditioning system with UPS and automatic-start diesel generator	1
Power outage following a catastrophe (blackout, flood, etc.) (> 8h)	2	Automatic-start diesel generator with high-autonomy and possibility of refuelling diesel from street level.	1/2
Fire of moderate extent starting inside the data centre	2	High-sensitivity, dual-level fire and smoke detection system and intervention of self-extinguishing fire-fighting system	1
Fire of great extent starting inside the data centre	1	High-sensitivity, dual-level fire and smoke detection system and intervention of self-extinguishing fire-fighting system	3
Fire of great extent involving the entire building	1	-	4
Interruption of the data centre's geographic connections	3	Completely redundant ring fibre optic connections on different physical routes with different operators	1

2.13 Responsibility assigned matrix

Task Name	End customer staff	Docebo IT staff	Docebo Multimedia staff	Docebo Training staff
Project	I	I		

governance				
Customer interface	I	I		
Server facilities	R	C		
Installation	C	R		
Customization	C	R		
Updates	I	R		
Project validation	A	I		

R = Responsible

A = Accountable

C = Consulted

I = Informed

3. REQUIREMENTS FOR USERS' WORKSTATIONS

Docebo does not require clients to install any plugins, and it has been tested on the following Operative Systems and Browsers:

Operative Systems

Windows (XP, Vista, 7)

Linux

Mac OS

Browsers

Internet Explorer 8 and above

Mozilla Firefox 4 and above

Google Chrome

Apple Safari 4 and above

Course Resolution

The minimum supported resolution is : 1024 x 768

Courses developed by Docebo are based on Adobe Flash technology with the following requirements:

Adobe Flash Player 9.0 or greater

Even in the case of third-party providers it's important to consider that 90% of E-Learning contents are based on Adobe technology. We suggest to check with your provider the requirements of each Learning Objects.

3.1 Hardware Requirements

Hardware requirements are immaterial to the correct use of the platform, as Docebo is based on typical websites technology. Regarding the requirements related to the Learning Objects, the following suggestions provided by Adobe.

Win	Mac	Linux
Intel® Pentium® II processor (or equivalent) @ 450 MHz or higher	PowerPC® G3 processor @ 500 MHz or higher Intel Core™ Duo processor @ 1,33 GHz or higher	CPU @ 800 MHz or higher
128 Mb Ram	128 Mb Ram	512 MB RAM, 128 MB video memory

For optimal playback of audio and video assets included on Learning Objects, we suggest the following hardware configurations:

Resolution	Win	Mac	Linux
852x480 (480p), 24 fps	Intel® Pentium® 4 @ 2,33 GHz or equivalent 128 MB RAM 64 MB VRAM	PowerPC® G5 @ 1,8 GHz or higher Intel Core™ Duo @ 1,33 GHz or higher 256 MB RAM 64 MB VRAM	Intel® Pentium® 4 @2,33 GHz or equivalent 128 MB RAM 64 MB VRAM

Source:

<http://www.adobe.com/products/flashplayer/systemreqs/>

4. DOCEBO LEARNING MANAGEMENT SYSTEM

4.1 Description of the system and general introduction

Docebo is an E-Learning platform, Learning Management System (LMS) and Learning Content Management System (LCMS), entirely created and developed by Docebo.

The Docebo E-Learning platform is simple to configure and manage: any type of user can use all the software functions without difficulty over a normal Internet connection. Its reliability and ease of use, together with the possibility of personalizing the didactic model, make Docebo usable in any corporate and educational context :

Supports SCORM 1.2 and SCORM 2004

Supports any file type (Word, Excel, Multimedia assets etc.)

User notifications via SMS or e-mail

Videoconferencing, chat and forums

Tests and surveys management

FAQs, Help, Link Lists, Glossaries, Wikis, E-portfolios

Reporting and Certificaton engine

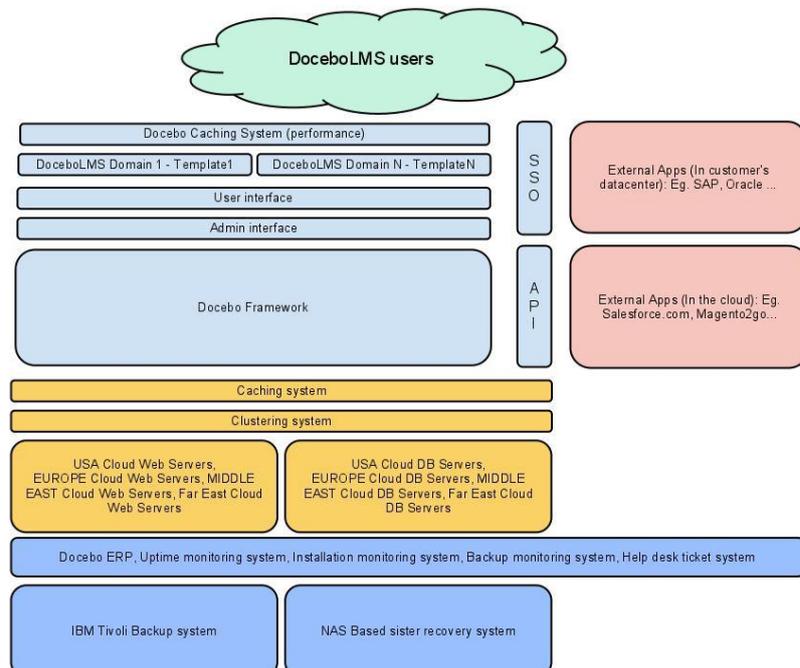
Organization chart management

Advanced Users and Groups management

Interfaces/Integrates with 3rd party tools, like HR and ERP applications. Examples of integration are: as SAP HR, Google Apps, and authentication systems such as LDAP, Active Directory and others.

GUI template management

4.3 System architecture



4.4 Configuration, graphic layout and flexibility

The graphic layout of the system can be personalized simply by working with the stylesheets (CSS). It is also possible to increase the personalization by:

Assigning a different graphic template to different user groups or to different Docebo domains (aliases)

Assigning a different logo to each course

It is very simple to add new modules by interfacing to a basic system called Docebo Framework, which defines the basic rules for creating modules that are compatible with Docebo. Content management activities take place in the post-login area through the publication of:

Pages

News

In the internal areas, there are tools for the various courses such as notice bulletin boards, newsletter system, messaging, course sheets, etc

4.5 System functionalities

Administration side

Creation of personalised fields

Grouping users in a tree structure

Creating, editing, suspending and deleting users

Creating groups

Role management

Administrators with limited powers (over users, groups of users, branches, functions, courses)

Creating, editing and deleting courses

Configuring menus to be displayed in courses

Creating educational paths (sequences of courses with prerequisites)

Creating course catalogues (a catalogue can be visible/hidden to certain groups of users)

Personalising languages and exporting languages

Managing notification policies

Managing reporting and business intelligence systems

Automatic rules for enrolment in courses

Skills plans

Managing certificates (issuing and printing)

Managing classroom activities

Defining chat rules

Classroom side

User profiles

User notifications

Lists of courses in which a student is enrolled

Catalogue of courses in which a student can enrol

Course sheets

Notices

Messaging

Learning Object area

Loading/Displaying legacy content/files

Creating/Displaying HTML pages

Loading/Displaying SCORM 1.2 and 2004 objects

FAQs

Glossary management

Link lists

Creating/Displaying surveys

Creating/Displaying tests

Forums

Chat areas

Wikis

Videoconferencing

Course statistics

Statistics by users

Statistics by objects

Statistics by tests

4.6 Access and registration policies

During the first access, the configuration of the work environment allows personalising the administration area by simplifying it or activating advanced functions created to satisfy specific needs. Before beginning to populate the user database, it is possible to define whether or not to create additional cataloguing fields, whether or not to create groups, whether or not to have sub-administrators and other policies to improve the process of managing the system.

Importing/Profiling users

Users can be created in various ways:

Direct creation by an administrator

Import by lists in Excel like files (.CSV, .xls etc.)

Self-enrollment in the platform

Interfacing with other systems through a batch procedure or web services

During the importing/profiling process, it is also possible to associate users to groups and units/branches of the organization chart.

Editing/Deleting users

By clicking on the main system of the user management tree, it is possible to perform various operations including:

The users' "suspend"

The users' "delete"

On the other hand, it is possible to edit users from any node of the organization chart. When editing users, there is the option of editing all the fields associated with each users. Keep in mind that some cataloguing fields can be hidden from the users (who, optionally, can edit their own profile information).

Access to the platform

There are three methods for enrolling users in the platform:

Free enrollment: anyone can enroll in the platform

Moderated enrollment: anyone can request enrollment in the platform but must wait for the teacher's approval before their username and password are validated

Enrollment only by the administrators: only the administrators (or the sub-administrators who have permission) can create users

Like all the others, this option is a configuration parameter and does not require changes to the source code of the system.

4.7 Multiple languages

At the interface and support level, the Docebo platform is already translated into the following languages:

Italian
English
French
German
Spanish
Portuguese
Arabic (with right-to-left layout)
Chinese (Simplified Chinese)
Japanese
Bosnian
Croatian
Danish
Dutch
Farsi
Russian
Tamil
Korean

Upon request, Docebo's staff can translate the application into additional languages.

4.8 Notification systems

The E-Learning system sends notices through two types of media, both of which can be turned on or off based on the need:

e-mail

SMS

The text of both can be edited using an intuitive interface. Notices are not limited to user-creation notices; In fact, Docebo's staff has identified various events that can be notified for:

Creation, editing, deletion and suspension of users

Notice to administrators of requests for enrollment in the system or to a specific course

Insertion/removal of users in/from specific groups

User enrolled or removed in/from a course

Changes to course rules

New notice entered for a course

New message receive

New forum/thread entered

Docebo also allows:

Disabling notices not considered useful

Allowing users to enable/disable notices for some events

A third notification media, Fax, can be enabled upon the client's request.

4.9 User management

Defining policies for cataloguing users and roles

Docebo's systems allow cataloguing users in such a way as to better manage searching and cataloguing them and assigning them permissions. Choosing whether or not to use the organisation chart and whether or not to create roles using groups, etc. will greatly facilitate daily operations management

Creation of personalised fields

Personalised fields (which could be used for searching and cataloguing users) can be assigned to all users (if included in the main root) or they can be assigned to groups or to one or more specific levels (nodes) of the organisation chart

Creation of categorisation/role trees and duties

In the case of working in a complex organisation, it is possible to create a diagram through the organisation chart and position users in one of more of its nodes. Note: All users will be shown in the initial node and it is there that changes will be made. Their positioning in one or more nodes is only a logical positioning. If a user is removed from one node, it does not mean that they have been deleted/suspended.

Creation of Groups/Professional Roles

It is possible to create "containers" to hold users for more dynamic management. This module is also useful for defining roles cross-functionally in respect to an organisation chart. For example, a user may be positioned in the Role of "Director" (group) of the "Marketing" office (organization chart node).

User creation

Based on the policies chosen in option management, it is possible to create your own user database; this activity involves the creation of users and filling in the cataloguing fields.

The associated cataloguing fields have the following characteristics:

Obligatory/Non-Obligatory

Editable by users/Non-editable

The various settings for enrollment policies can dictate whether users:

Are only enrolled by administrators

Can self-enrol

Can self-enrol but must, then, wait for the administrator's approval.

Creation of sub-administrators

Super-Administrators can delegate part of their activities to sub-administrators with limited powers. The limitations are at the level of:

Function

Groups or branches of users who are visible to the administrator

Maximum number of users that can be created (through direct or moderated creation)

Maximum number of users that can enrol in a course (through direct or moderated enrollment)

Choice of cataloguing policies

Suitable cataloguing strategies must be implemented based on the complexity of the organization in which you are working. The four alternatives available are:

- Cataloguing using standard fields: These consist in using the basic system fields, which are username, first name, last name and e-mail.
- Cataloguing using additional fields: It is possible to add other previously created fields to the standard fields by associating them to the "root" of the structure. The additional fields can be in text, date, pull-down menu, yes/no, or long-text format. In addition, all these fields can be used as search filters.
- Cataloguing using additional fields + groups: Groups are containers into which users can be placed. Their purpose is cataloguing, but they can also be used to manage roles. Cataloguing fields can be associated to each group. In this way, a user entered in a certain group will have the standard cataloguing fields + the personalized fields + those relative to the group.
- Cataloguing using additional fields + groups + organization chart: If the groups are cross functional, the organization chart allows users to be placed in a tree structure. The nodes of this tree can also have specific cataloguing fields. Based on the policy used, a user can be catalogued in just one branch of the organization chart or in many branches.

Management of groups

In addition to what has already been described, it is important to note that it is possible to associate a group not only to users, but to other groups (groups of groups) or nodes of the organisation chart.

Management of the organisation chart

The cataloguing of users in an organisation chart has immediate visual impact and catalogues users in a very simple way. The organisation chart can also be organised according to the following parameters, based on the need:

Common cataloguing fields for all nodes

Personalised cataloguing fields

Possibility of cataloguing the nodes

Attention: The users in a branch of the organisation chart are "virtual" users that cannot be deleted. The complete list of users is displayed by clicking on the main node.

Entering users

Users can be created in various ways:

Direct creation by an administrator

Moderated" creation by a sub-administrator (requires confirmation by a higher level administrator)

Self-enrollment in the platform

Moderated self-enrollment in the platform (requires confirmation by an administrator)

Importing users from other applications using batch procedures or web services

At the same time that users are created, it is also possible to associate them to groups and branches of the organisation chart (this second option only in an administrative context). During the enrollment phase you will also be asked for the data of the additional fields correlated to the groups or the organisation chart.

Editing/Deleting users

By clicking on the main system of the user management tree, it is possible to perform various operations including:

The "suspension" of users

The deletion (complete) of users

It is also possible to edit users from any part of the organization chart. When you edit users, you are given the option of editing all the fields associated to them. Keep in mind that some cataloguing fields may not be visible to the users (who can usually edit their own profile information).

There are four ways that users can be enrolled in the platform:

Free enrollment: Anyone can enrol in the platform

Moderated enrollment: Anyone can request enrollment in the platform but they must wait for the teacher's approval before their username and password are validated.

enrollment only by the administrators: Only the administrators (or the sub-administrators who have permission) can create users.

Importing users from other applications using batch procedures or web services.

4.10 Roles relative to didactic activities

The roles supporting didactic activities are different. The following roles can be enabled in a course:

- Teacher: The teacher manages the content and is the scientific manager of the project. The functions enabled depend on the configuration of the course.
- Tutor: The tutor supports the student in the capacity of process expert. The functions available to Mentors are configured (Enabled, Partially Enabled or Disabled) at a course level.
- Mentor: This is a subject "tutor", who is an expert in the material who supports the student. The functions available to Mentors are configured (Enabled, Partially Enabled or Disabled) at a course level.
- Guest: This is a guest course supervisor
- Ghost: This is a course supervisor who is invisible to the students and who leaves no trace in the statistics of the LMS and the course.

The roles do not have pre-defined functions and tasks. Different tasks can be assigned to different roles for each course or didactic method. (For example, course 1 could be set so that tutors can moderate the forums, while in course 2, they cannot.)

4.11 Courses, paths, and course catalogues

Creation of courses

The Super-Administrator, or enabled administrators, can add new courses and catalogue them in a tree. With respect to the previous versions, enrollment does not require a different interface but can be made directly from the same interface

By managing menus, it is possible to create specific configurations that allow configuring the didactic area through:

Logical grouping of didactic functions into macro-areas

Disabling some of the didactic functions

Changing usage permissions and displaying some didactic functions and macro-items

Renaming menu items with terms of your choice

This makes the platform very flexible by adapting it to all the didactic models that you want to use

To create our own menu configuration, you can start from a "duplicate" of an already existing configuration.

As was said previously, it is possible to catalogue courses in a tree. Once the folder is selected, it is possible to see only the courses in the parent folder or also in the child folders. The policies of each single course are dynamic. Here are the variables that can be configured:

In the course description and sheet, who can see the list of who is enrolled in this course

Where the course is visible (everywhere, only after login or only to enrolled users)

Completion method: Delegated to the Learning Object or the teacher

Access policies to courses when users finish a course

Maximum number of users that can be enrolled in courses

Budget allocated to the course for sending SMSs

Date by which the course starts and date by which it expires

Days provided for completing the course

Average days for completion (this is an indicator)

Link to an external site of reference for the course

Sponsor logo

Course logo

enrollment of users in courses

Users can enrol in courses through the same interface. This occurs in two steps:

- Selection of users from the interface (it is possible to refine the search using filters)
- Assignment of the level that they will assume in that course.

The subsequent functions will be relative to the change of the level assumed in that course and removal from the course.

4.12 Systems for assessing learning and didactic paths

Docebo provides four systems for monitoring course activities:

- Course statistics: These show the number of pages viewed per day, week, month and year.

- Course statistics – User view: This shows the number of sessions attended by the user, the activities performed, the total time for each session and the total time spent in the course
- Statistics by users: This shows the Learning Objects displayed by the user and, if the object is SCORM or a test, it shows the results achieved for each single object
- Statistics by objects: Based on the Learning Object being considered, statistics show while users displayed it, which completed it, and any results achieved
- Test correction statistics: In a single table, this shows all the tests taken in a specific course and the results achieved by user. It shows the variance, the average and the highest and lowest results. It is also possible to assign points to questions with a subjective assessment (open response and loading file).

4.13 Community tools

Docebo adapts to different didactic models; specific configurations of the functions can be used to create courses that range from learning to the most extreme collaborative education. In particular, the interaction systems provided are

- Chat areas
- Forums
- Project managers
- Class and group (intraclass) blogs

4.14 Student support material

Docebo is a simple and intuitive tool. The time it takes for students to learn how to use this tool averages less than 7 minutes. The student is provided with:

A flash animation of the application with audio and film clips explaining how to begin working in the LMS

A user's manual

A technical forum where they can ask for help.

4.15 Authoring Tool and Learning Authoring

Docebo manage Learning Object creation with this authoring tools:

- HTML pages: Create and share HTML pages containing formatted text and pictures
- FAQs/Help: Create lists of FAQs that can be consulted as a list or by the correspondence of key words (Windows Help style)
- Link lists: Create lists of sites to visit within an educational context
- Glossaries: Create lists of terms with selection by letter, key word, and search engine
- Surveys: Create surveys with results aggregated by class in the form of a histogram
- Tests:
 - timed tests (time for the total test or time for each answer)
 - single or multiple page
 - questions by weight or percentage
 - tests with random questions based on a "Type/Difficulty" algorithm
 - display/non-display of the results achieved by the student
 - tests support the following question types:
 - single answer

- multiple answer
- fill in the blank
- find the right term
- find the wrong term
- select an option from a pull-down menu
- associate
- load file
- open-answer text

Importing Learning Objects with external tools

Docebo integrates with and supports all of the authoring tools available on the market, including but not limited to:

.Exe Learning (Open Source, University of Auckland)

Reload Editor (Open Source)

Adobe Captivate

Adobe Flash

Adobe Dreamweaver

Courselab

4.16 Synchronous didactic systems

Docebo is already integrates with the best known videoconferencing systems on the market (Teleskill, DimDim, WebEx and Comunicare). Through these interfaces, it is possible to:

- Access videoconferencing rooms with a Single Sign-On login between Docebo and the videoconferencing system
- Create videoconferencing rooms directly from Docebo
- Schedule videoconferencing sessions on a calendar
- Archive statistics about the time spent in the room and usage data (if the function is supported by the videoconferencing system)
- Archive film clips of past videoconferences (if the function is supported by the videoconferencing system)

Docebo's staff is always available to implement new interfaces with other videoconferencing system already used by the client.

4.17 E-Learning platform SLA - Risk matrix

INDICATOR	Purposed value	Taken in charge	Misuration period	Notes
Reachability of the service (excluding upgrade maintenance periods agreed upon with the client)	99.5%	After ticket opened or receipt of an alarm	Monthly SLA	Monitoring of the service through the Pingdom system
Maximum time for restoring services (after taking charge)	2	After ticket opened or receipt of an alarm	Work day	Ref: Contingency Plan
Taking charge of blocking problems	8 hours	After ticket opened or receipt of an alarm	Work day	Resolution of script-side problems
Taking charge of non blocking problems	48 hours	After ticket opened or receipt of an alarm	Work day	Resolution of server-side or script problems or restoring a backup

4.18 Responsibility assigned matrix

Task Name	Client staff	Docebo Help Desk staff	Docebo IT Staff	Docebo Training staff
Project governance	R	C		
Client interface	I		R	
Server facilities	I		R	
Installations	I		R	
Personalization	A		R	
Updates	I		R	
Project validation	A			
Project governance	R	C		
Client interface	I			
Training	C			R
Project validation	A			R
Governance	R	C		
Client interface	I	R		
Software maintenance	I	R		
First level Help Desk	I	I		
Second level Help Desk	I	R		

R = Responsible

A = Accountable

C = Consulted

I = Informed

5. LEARNING OBJECTS

Referring to the compatibility between Docebo and Multimedia Objects.

5.1 General requirements

Learning Objects must be Scorm 1.2 or Scorm 2004 compliant

Learning Objects must support the utf-8 encoding

If pop-up windows are foreseen, you should check that the browser won't block them (enable domain where Docebo is installed)

If the Scorm object has to be opened by Docebo 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)

5.2 Infrastructure requirements

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 the object compatibility with web browsers used in the company.

When the object uses specific plug-ins (ActiveX, Shockwave or other...) check if the users are allowed to install it on their own and give them the instructions 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 elements, please be sure that users have speakers or headphones to listen to the audio section. If users have speakers, check that listening to the course will not annoy other colleagues.

If the object provides vocal recognition (e.g. advanced language courses), check if users have a microphone.

5.3 Bandwidth requirements

In our experience, the use of multimedia contents, even at entry-level, requires an 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 + Images)	between 8 and 14 Mb	11 Kbps
Audio Flash object + animations (No video)	between 20 and 30 Mb	25 Kbps
Flash object (Audio + Video)	between 80 and 120 Mb	90 Kbps
Flash FLV video object with	between 90 and 110 Mb	85 Kbps

354 x 266 pixel resolution		
----------------------------	--	--

5.4 SCORM

SCORM (Sharable Content Object Reference Model) is an international standard created by ADL that integrates a series of technical standards, specifications, and guidelines to ensure accessibility, interoperability and reusability of multimedia contents and E-Learning systems. A SCORM compliant object can be used on every SCORM compatible system that supports the same object version.

Versions

The SCORM standard is supported by Docebo in its two versions 1.2 and 1.3 (also known as 2004) in relation to packaging and tracking features.

SCORM 1.2

The SCORM 1.2 standard defines a model of aggregation and assembly of contents into a single, portable package. This package contains the multimedia files of the object itself and a manifest file (imsmanifest.xml) which defines the contents level.

Docebo supports the 1.2 scorm tracking with a conformity level of 3, as specified by ADL.

SCORM 1.3 (2004)

The 1.3 (or 2004) SCORM standard is the most recent released by ADL. It introduces new parameters related to RTE (Run Time Environment) plus new paradigms about "navigation" and "sequencing".

Docebo integrally supports the loading and the tracking of standard SCORM 2004 objects, while the sequencing features are partially supported at this time.

5.5 SCORM Player

Docebo plays SCORM objects using a dedicated area called "SCORM Player".

This area is composed by 4 main elements:

SCORM Metadata field, Title

The "close" button (to go back to course contents)

Table Of Content (TOC)

Sharable Content Objects (SCOs) in use by student (if SCORM package is multi-sco)

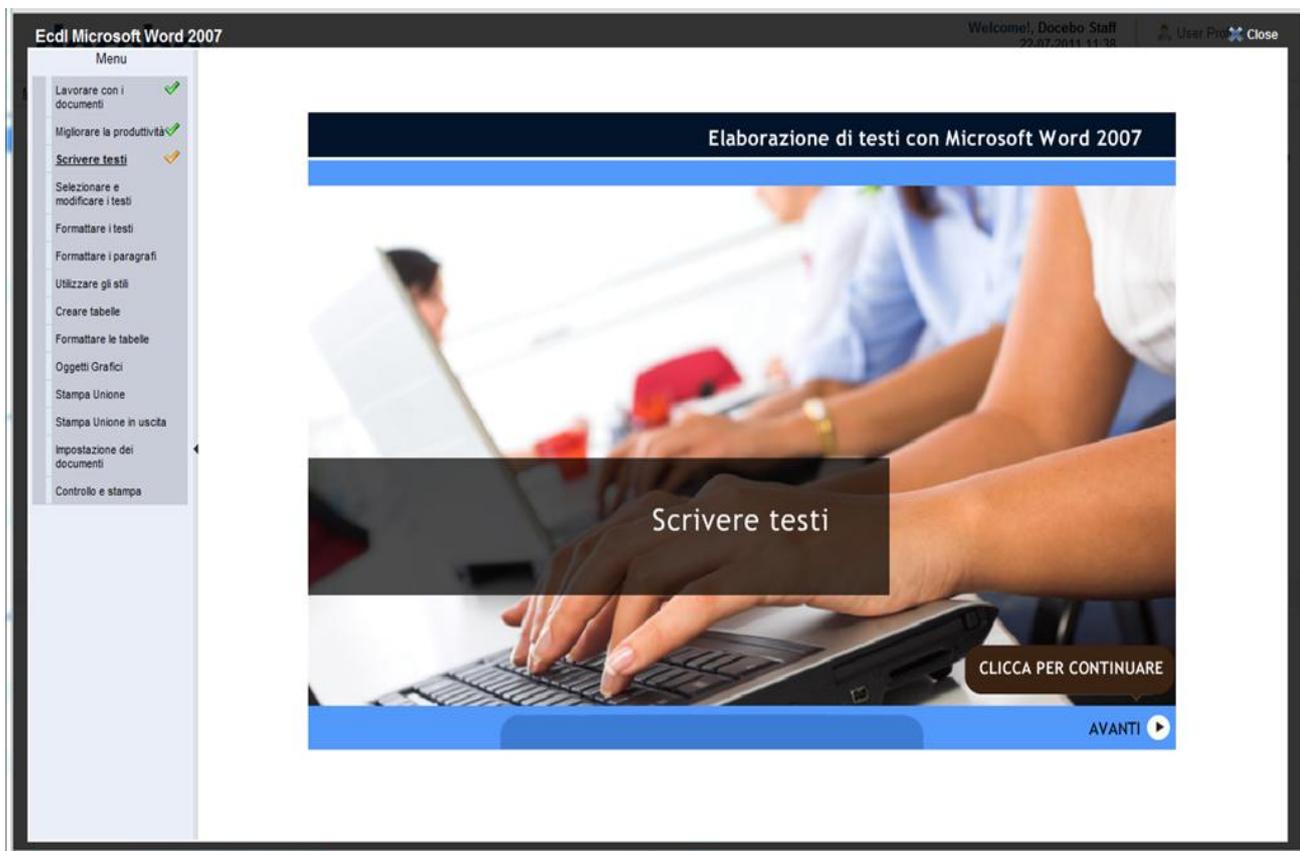
The SCORM player will adapt automatically to the browser resolution: inside this area, all the elements will use a fixed space, while the entire remaining space is used for the object itself.

There are two display modes related to the player: open TOC and closed TOC.

Open TOC

In open TOC display mode, these are the fixed spaces used by the platform:

- 17px on each side, 10px (top and bottom) for the frame
- 24px for the header containing the title and the close button
- 170px for the TOC
- 5px for the command to close TOC

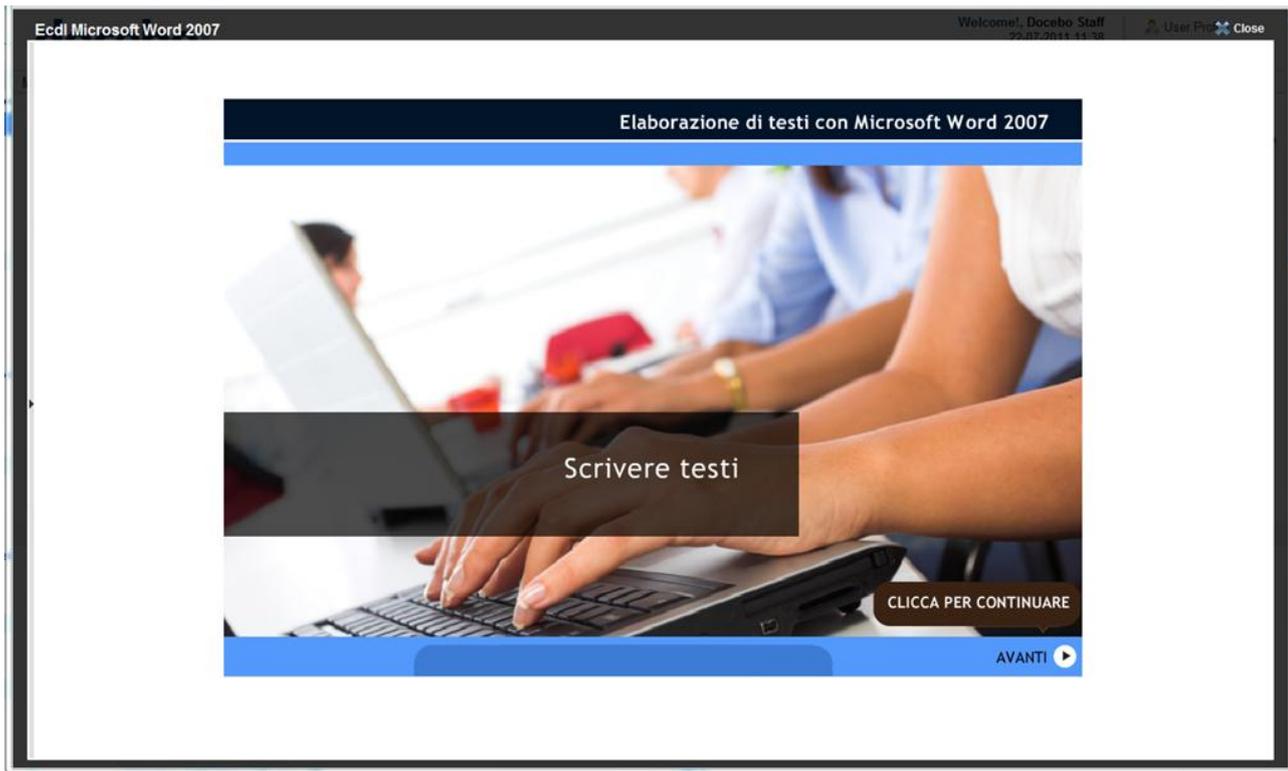


An example of SCORM Player layout with TOC open in frame

Closed TOC

In closed TOC display mode, these are the fixed spaces used by the platform:

- 17px on each side, 10px (top and bottom) for the frame
- 24px for the header containing the title and the close button
- 5px for the command to close TOC



An example of SCORM Player layout with closed TOC

5.6 SCORM Navigation

In this section we will explain the SCORM object navigation using Docebo. These arrangements are critical because they depend on the platform (and are not imposed by the SCORM standard). For this reason, they can be different when you change LMS.

At the opening of a SCORM Package

When a student opens a SCORM Package, the first chapter that they have not yet completed will be opened automatically.

SCORM Package with a single SCO

In SCORM Packages composed by a single SCO, when the SCO is opened the TOC will not be visible, and the SCORM player will be launched in closed TOC display mode.

Browser close commands

Unlike other platforms, Docebo does not use pop-up windows to deliver SCORM objects. Docebo uses a dedicated player instead. Consequently, commands that directly act on browser closing must be avoided inside any Learning Objects.

LMSFinish() command

The request to close a SCORM object brings you, by default, to the automatic loading of the next LO indicated in the TOC. This process can be customized for each SCORM package.

When the SCORM player is closed

When the SCORM player (or the Browser) is closed, a message will request the user for a double confirmation before proceeding.

5.7 SCORM compatibility

The system is compatible with SCORM 1.2 LRTE2 and SCORM 2004 and manages both unpacking and tracking activities, which are made available to teachers in the form of reporting.

If there is more than one organization in the manifest file (IMSMANIFEST.XML) of the SCORM object loaded, these will be considered as a single Learning Object. At this time, objects from the following suppliers have been successfully tested:

- NetG
- Digital Publishing
- DMS
- Percorsi Multimediali
- Corival
- Docebo Multimedia

In addition, we have successfully created and imported objects produced with authoring tools, such as

- Macromedia Robodemo
- Macromedia Captivate
- Articulate Presenter
- Reload Editor
- University of Auckland .EXElearning Tool.

6. DATA SYNCHRONIZATION, IMPORT/EXPORT

Docebo is able to manage data importation and synchronization using different methods.

6.1 Manual mode

The Creation of users and courses, the subscription of users to courses and groups, and the report generation are activities delegated to administrators and subadministrators, also using CSV files to import lists of users.

6.2 Automatic mode

Using the Docebo input/output module, it is possible to schedule activities to read .csv or .xml files uploaded via FTP using an external application so you can synchronize data automatically.

It is also possible to manage this kind of synchronization using Docebo API interfacing.

Instructions to manage data import/export automatically

Activities planning is managed in the administration area, using the I/O module (input output).

CSV files are placed by Docebo (or by the third party application) in the "files/common/iofiles" directory, via FTP.

The importation procedures are performed through Cron or similar scheduler recalling the "doceboCore/tasks.php" file.

File must be encoded in utf-8

The separator field must be , (comma)

The enclosure field must be " (quotation mark)

6.3 Examples of schedules of automated procedures

User Lists importation

Filename: users_aaaammdd.csv (editable)

Informations needed: UserId, Password (eg. "user.name", "password").

It is possible to add more cataloging fields. If the fields must be managed by "drop down menu," they must be "preloaded" in the LMS. When the authentication is managed by SSO, there is no need to import passwords.

Course List importation

Filename: courses_aaaammdd.csv

Information needed: course code, course name (eg. "001", "Math").

It is also possible to add other parameters in the CSV file, such as: difficulty, course stats, enrollment policies, language in which the course is delivered, start date, end date, course duration, estimated time.

Import Automatic users enrollment to courses

Filename: usercourses_aaaammdd.csv

Informations needed: UserId, courseid (eg. "claudio.erba", "001").

It is also possible to add an optional field that is the user level on that course. If not specified, the user is subscribed as student. 1 Ghost, 2 Guest, 3 Student, 4 Tutor, 5 Mentor, 6 Teacher, 7 Administrator

6.4 Interfacing with other applications

Docebo LCMS allows importing data in manual, semi-automatic, automatic and real-time mode.

Manual mode: The entry of users, courses, the enrollment and users in courses and groups, and the generation of reports are delegated to the administrators. It is possible to create profiles with limited permissions for the display of well delimited information.

Semi-automatic mode: The importation of users and users in groups can be managed through the manual importation of files prepared outside the application.

Automatic mode: Through Docebo's input/output module, it is possible to schedule a series of activities that read CVS and XML files loaded via FTP from third-party applications or made available by Docebo to a third-party application. These files will be processed through the setup of suitable overnight processes for the synchronisation of the data.

Real-time mode: Docebo provides APIs for third-party software in REST mode or in the more classic SOAP/WSDL modes to allow the integration of functionality and the recovery/sending of data in real-time itself and third-party applications.

Docebo's staff can also use the directives of external APIs to perform callback operations on these APIs, in this way remotely synchronising the data generated in the platform with the above-mentioned real-time modes.

6.5 Interfacing with SAP

Docebo can effectively exchange data with SAP using the procedures described so far.

The standard practice for working with SAP is to use scheduled transfer of .csv files in order to exchange data in import and export from SAP. This is done especially for the following:

Users

Courses

Enrollments

Completions

Solutions that require a real-time data exchange to and from SAP use SOAP/WSDL based technologies, also supported by Docebo. In these cases, the integration activities are not standard and are made following client's needs.

An important distinction must be made while considering the import of completions on SAP. At the moment, SAP is not able to support pure E-Learning courses without editions. Having to import the completions of SAP users, you cannot import the exact date of completion. All the imports will be enclosed in an dummy SAP edition representing the period of completion. Working in this way the users' date of completion will appear as the end of the edition itself.

7. API SYSTEM

To get more detailed information about the API Integration, please see the attached document at the end of the manual (par. 13)

7.1 What is a REST API

Representational state transfer (REST) is a style of software architecture for distributed hypermedia systems such as the World Wide Web. The terms "representational state transfer" and "REST" were introduced in 2000 in the doctoral dissertation of Roy Fielding, one of the principal authors of the Hypertext Transfer Protocol (HTTP) specification. The terms have since come into widespread use in the networking community.

REST strictly refers to a collection of network architecture principles that outline how resources are defined and addressed. The term is often used in a looser sense to describe any simple interface that transmits domain-specific data over HTTP without an additional messaging layer, such as SOAP or session tracking via HTTP cookies. These two meanings can conflict as well as overlap. It is possible to design any large software system in accordance with Fielding's REST architectural style without using HTTP and without interacting with the World Wide Web. It is also possible to design simple XML+HTTP interfaces that do not conform to REST principles, and follow a model of remote procedure call instead. The difference between the uses of the term "REST" therefore causes some confusion in technical discussions.

Systems which follow Fielding's REST principles are often referred to as "RESTful".

7.2 How REST API are implemented in Docebo

Docebo doesn't implement a strictly RESTful paradigm, but one that is more "REST-like," since it supports either stateless connection or stateful (depending on the Docebo configuration). In order to call a Docebo API you will need to add the method url to the standard platform url, like this:

```
http://<mydomain>/api/<module>/<method>
```

7.3 API Authentication

This is the authentication procedure for Docebo REST API.

The system is based on a pair of keys called: key and secret

The "key" one will be (clearly) exchanged among the systems, while the "secret" will be used to create the concatenation parameter. The call will be executed as described, but in its header must be added the X-Authorization parameter as follows:

```
X-Authorization: Docebo <code>
```

To obtain the "<code>" value (that must be concatenated after the "Docebo" string) it is requested to proceed as follows:

sha1 encoding of this concatenation: post values in the list and separated by comma, the comma itself, the secret key ("secret")

generate the "<code>" through a base64 encoding of the token previously generated.

the "key" concatenation and with the ":" element, plus

This is an example of the pseudo-code generation:

```
$codice_sha1 = sha1(implode(',', $params) . ':' . $secret);
```

```
$codice = base64_encode($key . ':' . $codice_sha1);
```

additional header row for post call:

```
'X-Authorization: Docebo '.$code
```

8. SHARED AUTHENTICATIONS

Docebo allows different ways of authentications, depending on customer needs.

8.1 Authentication through a Token

Docebo authenticates a user through a pre-calculated token (hash) that verifies the request validity.

For example:

```
http(s)://[application_url]/doceboLms/index.php?modname=login&op=confirm&login_user=username&time=200812151414&token=85773353BFF5FACFF8761270D7B5A06E
```

The token creation is done through the following function:

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

The secret code is an alphanumeric string whose content is pre-agreed between the applications involved in the interaction

The time parameter is: `yyyymmddhhmmss`

The username used to create the hash must be in lowercase

The hash must include the commas

The token obtained through "get" is case-insensitive

8.2 Authentication using REST API

It is accessible through API, whose authentication parameters have a recognition code (token) that can be unique for the platform, or run-time generated for each login, with a limited-time duration. Once the API access is obtained, it is possible to recall the appropriate method to authenticate a user.

More details on RestAPI use are available in the dedicated document.

8.3 Kerberos and NTLM Authentication

This authentication systems are supported through respective Apache and IIS modules. Docebo is able to authenticate a user who has been properly recognized by the web service.

8.4 Shared authentications

Docebo is able to support Single Sign-On and Single-Login functions with 3rd party systems, through standards and ad-hoc configurations/APIs/Methods.

Authentication through POST

Using the POST method (such as with a form), it is sufficient to send the parameters "login_userid" and "login_pwd" (the user's username and password) to an address of the Docebo platform of reference and the user will be normally and transparently authenticated.

Authentication through POST with access token

Docebo validates a user's credential based on a pre-calculated token (hash) that is sent at the time of the passage from the external application to Docebo.

The information contained in the token guarantees the validity and authenticity of the authentication request. If the check is positive, the user is transparently authenticated on the Docebo system as well

Authentication through SOAP/WSDL API

Once the SOAP/WSDL APIs are enabled, it is possible to pre-authenticate a user with a server/server communication through suitable calls provided by the API itself.

In particular, the SOAP/WSDL API login method creates a unique token for the user for whom the SSO is being requested to be included in the subsequent redirect of the user to the platform.

Authentication by API SOAP/WSDL

Once the SOAP / WSDL APIs are enabled, you can pre-authenticate a user with a communication server using the appropriate token provided by the API itself. In particular, the REST API login method creates a unique token for the user, which requires SSO to be included in the next redirect of the user to the platform.

Authentication through Kerberos/NTLM/SAP

These authentication systems are supported through the respective Apache modules that implement the respective protocols for Single Sign-On. Docebo is able to authenticate a user that is correctly recognised by Apache through the communication methods provided by the latter.

Authentication via OAuth (for Google Apps Integration)

OAuth authentication systems are based on an extension of the OpenID specification for Single Sign-On between different applications that support this standard.

Among the most famous web applications that support this type of authentication :

- Google (Apps)
- LinkedIn
- Twitter

9. MIGRATION FROM OTHER SYSTEMS

The migration activity from an old LCMS to Docebo requires a cooperation between the Docebo staff and the previous provider.

Data importation is generally related to:

- Users
- Courses List
- Users - Courses relation
- Basic courses tracking data (status, scoring, date of courses completion)

Once excel or CSV files are provided to Docebo staff, these files will be normalized and uploaded in the LMS.

9.1 Importation Examples

Below are some examples of data import patterns.

Course List

Essential Data

Course Code

Course Name

Optional Data

Course Language

Difficulty (Very Easy, Easy, Medium, Hard, Very Hard)

Course Type (E-learning, Blended, Classroom)

Status (Under Construction, Available, Confirmed, Concluded, Cancelled)

Description

Course Subscription (Closed Subscription, Open Subscription, Available from [date] to [date])

Display mode Options (Everyone, Only for logged users, Only users subscribed to the course)

Access Options (Only admins can subscribe users, moderated subscription, free subscription).

Users List

Essential Data

Username

Password

Optional Data

Any cataloguing field considered useful (it is necessary to specify the field format such as data, free text, or "drop down menu").

Course subscription and tracking List

Data

UserId

Course Code (eg. "user.id", "001")

Student status related to the course (Subscribed, Ongoing, Completed, Suspended)

Subscription date

Start date

Finish date

Total score at the end of the course

It is also possible to add an optional field that is the user level on that course. If not specified, the user is subscribed as student. (1 Ghost, 2 Guest, 3 Student, 4 Tutor, 5 Mentor, 6 Teacher, 7 Administrator).

10. MIGRATION OF THE "PRODUCTION" INSTALLATION TO OTHER SERVERS

Docebo is available for technical verification and feasibility analysis in the case where the client needs to import data from previous E-Learning platforms or user personal data from third-party systems.

We have performed many migrations of databases and user personal data from various inhomogeneous sources, from the most commonly used systems to custom solutions developed directly by the client in-house.

In particular, we can list the following:

- SAP
- Cézanne
- Lotus Notes
- Client HR software
- SumTotal
- Plateau
- Moodle

These migration activities assume cooperation between Docebo's staff and the staff of the previous supplier (or whoever has access to the data). The imported data usually pertains to:

- Users
- Course lists
- enrollments of users in courses
- "Basic" course tracking data

Other types of data can be imported upon request.

With a short period of service downtime, it is possible to move the complete, functioning installation from one server to another without losing data, files or modifications. In particular, it is possible to:

- Transfer LMS system files to other servers without losing modifications
- Transfer all the data in the database to another server (users, tracking, etc.)
- Transfer Learning Objects and student files to another server

The activities performed by our consulting staff during the migration are:

- Placing the service off-line with a "work in progress" page
- Redirecting DNSs to the new server
- Backing-up the database files (a single .SQL file)
- Backing-up and compressing all the files of both the system (LMS) and objects (SCORM package and other) in a .tar.gz file
- Transfer of the .SQL file and .tar.gz package to the new server
- Unpacking the .tar.gz file
- Loading the .SQL file in the database
- Reconfiguring the access parameters for the new database

11. OUR LMS SERVICES

11.1 Software customization

Docebo is available to personalize procedures or develop new functions in its software.

These types of requests are not handled through technical support but are formalised through a request to your sales representative or Docebo's CTO, which will contact the client's sales representative.

Following a request and subsequent analysis, a document will be generated and delivered to the client containing the requirements for the client's request, a cost estimate and a proposed GANTT chart for the activities.

Depending on their impact on the application and the agreements made, these requests will be made available to the client directly in the production environment or, alternatively, loaded in a test environment provided by Docebo or in the client's test environment, if required, for review before the modifications are put into production.

Docebo's staff will maintain modifications developed by Docebo if the application is upgraded to a later version.

11.2 Graphic personalization

The layout of Docebo's system is primarily based on style sheets. The output code is XHTML 1.1 and CSS2:

• Docebo's graphic engine is based on templates; the templates manage the style sheets and icons. The template directories are stored in:

- DoceboLms/templates/
- DoceboCms/templates/
- DoceboCore/templates/

The main style sheets for modifying colour combinations, the width of the interface, the SCORM player, the main page and other graphic elements are:

- doceboLms/templates/standard/style/style.css
- doceboLms/templates/standard/style/style_scormplayer.css
- doceboLms/templates/standard/player_scorm/default/def_style.css
- doceboCore/templates/standard/style/style_table.css
- doceboCore/templates/standard/style/style_form.css

Docebo is also a "multi-template" system. This means that, after login, groups and categories of users can display a different graphic layout and different content in terms of both functions and in terms of the educational offering.

In very advanced contexts of SCORM content distribution, it is also possible to associate a different template to each SCORM player that manages the display of the single "didactic packets".

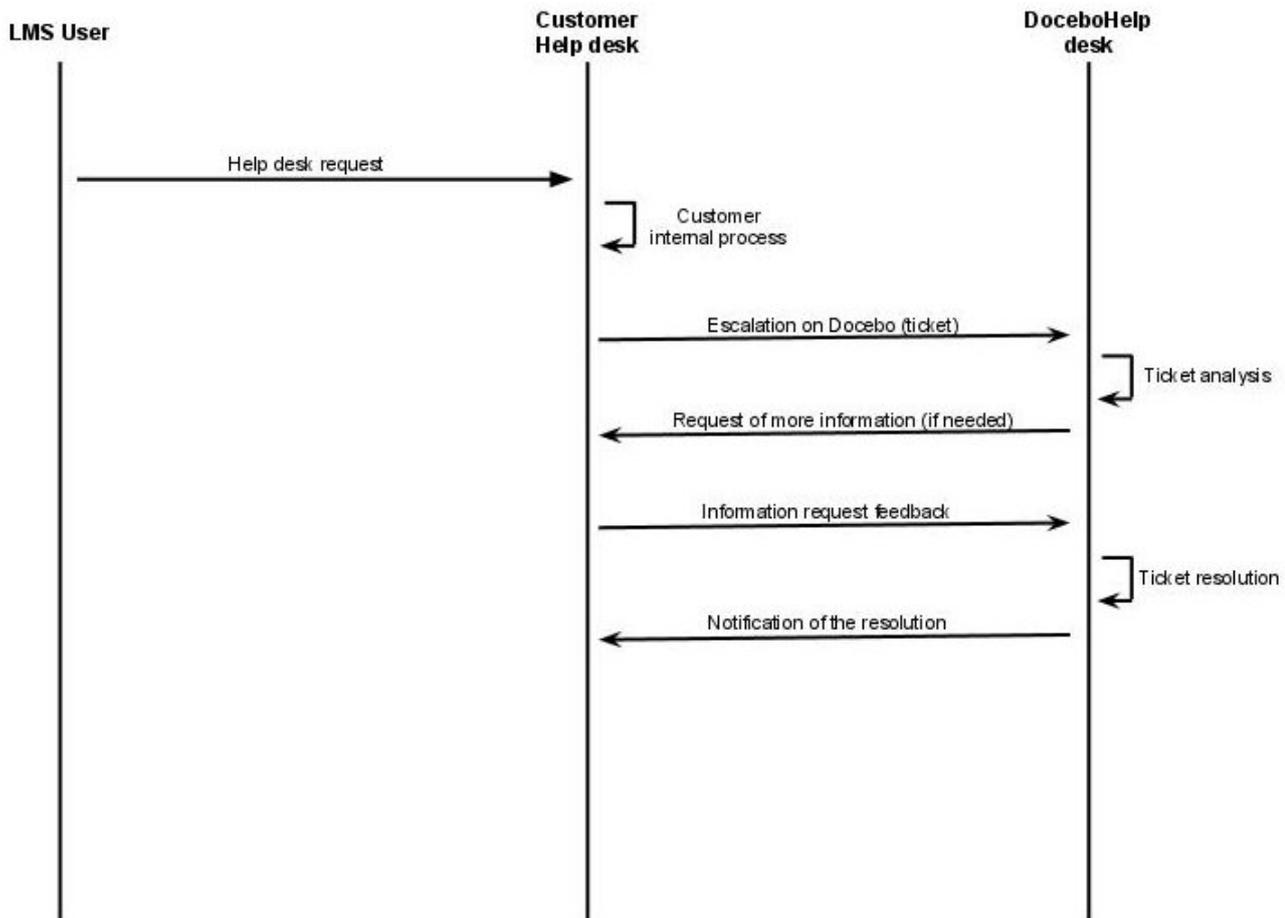
11.3 Help Desk

Docebo provides two Help Desk formulas for clients.

Second level Help Desk

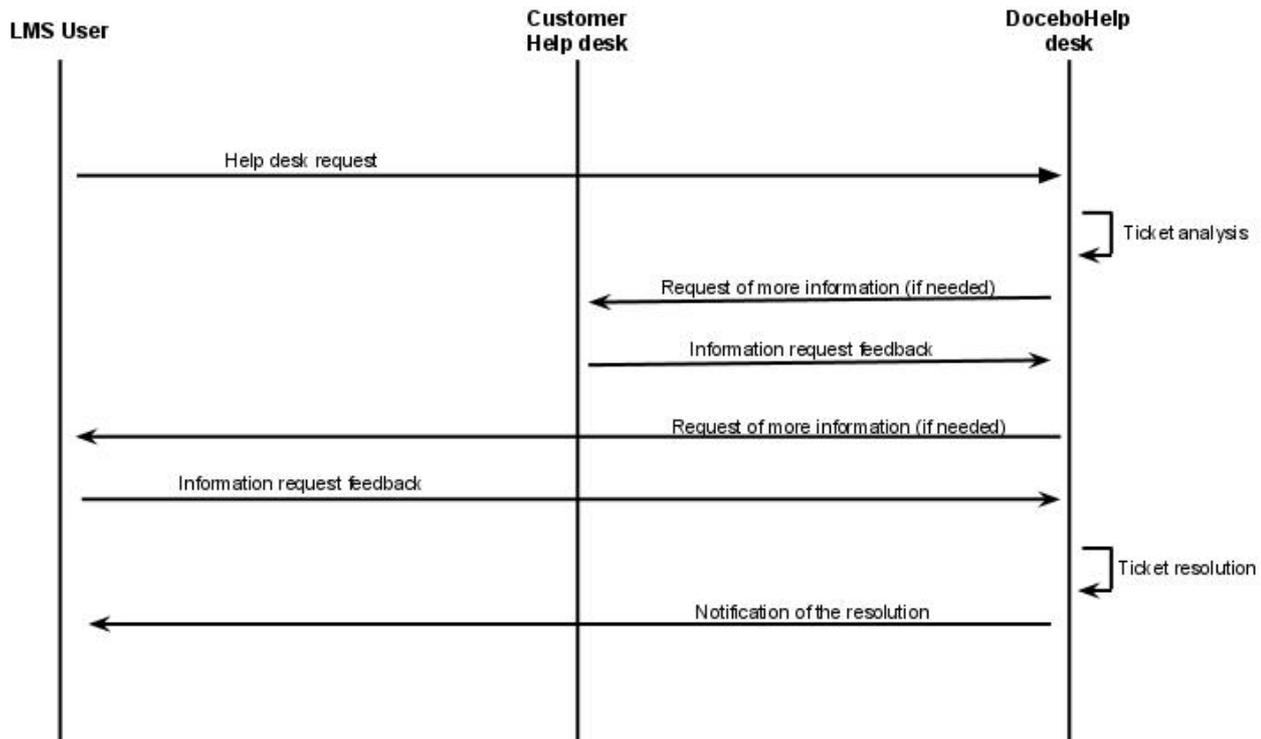
Docebo is in contact with the client's IT, HR, and Help Desk staff, which receive support requests from users. If these requests can be handled by the client (such as lost password, problems with the client not related to the LMS system, etc.), the first-level in-house staff attempts to solve the problem; if this is not possible, the client can give notice via e-mail, which will be taken charge of as soon as possible and, in any case, within the contractually required time.

Docebo's staff will attempt to resolve the problem autonomously and may request clarifications by e-mail or telephone from the client's staff, or the end-user student, if this is possible.



First level Help Desk

An interface is activated on the Docebo system for the direct creation of a technical support ticket and, at the same time, students are provided with a Help Desk number to contact the staff by telephone. Once a notice is sent, it will be stored in the Help Desk system and taken in charge as soon as possible, and, in any case, within the contractually required time. When the problem is solved, the student is notified by e-mail.



Definition of blocking problems

24/7 Availability, Ticket taken in charge: within 4 hours

Blocking problems are those that prevent access to the entire platform or all the Learning Objects to all, or a majority, of the users of the Docebo system. Examples include the inability of all to login with username and password, the inability to reach the site, and the impossibility of seeing all, or the majority, of the Learning Objects loaded.

Definition of non-blocking problems

24/7 Availability, Ticket taken in charge: within 8 hours

Non-blocking problems are those that involve only a few users or non-critical functions. Examples include problems accessing a single function, spelling errors, missing pictures, problems logging-in or browsing content that involve only a few users or particular configurations of peripherals such as unsupported browsers or a single user who is not able to access functions that other users can see, etc.

Notes

“Response time” means the time between the receipt of the ticket and the beginning of the analysis of the ticket by Docebo's technical personnel. Due to the great variety of problems that can occur and the actions necessary to solve them, the response time is not defined as that between the receipt of the ticket and its resolution.

In the case of servers provided by the client, technical support, and the SLA, can only be guaranteed if the server's specifications, and recommendations for the client's server, are respected.

11.4 Planning platform activities

Activities	Man days	Resources involved
Start-up meeting	2	Docebo/Client
Supply of material for corporate identity	2	Docebo/Client
Graphic proposal	2	Docebo
Approval of graphic proposal	2	Client
Server installation	4	Docebo
DNS management	5	Docebo/Client
LMS installation	4	Docebo
Definition of user personal data policies	2	Docebo/Client
Populating user personal data database	2	Docebo
Template installation	2	Docebo
Training	2	Docebo/Client
Go Live!		Docebo

12. LEARNING OBJECTS

12.1 Objectives of the document

The document explains the characteristics of the multimedia objects (LO) supplied to the client, the methodological approach, the production process, and the expected output. The descriptions that follow will also serve as a technical guide for both the technical staff and the end-user.

12.2 Characteristics of the supply

Object of the supply	Description
Storyboard text of personalised objects for 15 hours of content	Course setup (graphic layout and prototyping of the didactic model) Content review, storyboard creation and adaptation of the content to the E-Learning methodology
Development of multimedia objects for 15 hours of content calculated using the parameters provided	Speaker (maximum of 19,500 characters/hour) Multimedia assembly and SCORM conversion Compatibility: Scorm 1.2 Format: Flash animations + Audio Duration: Up to 60 minutes Navigation policies: Bar not draggable Completion policy: Upon completion of all chapters
... hours of catalogue objects	Compatibility: SCORM 1.2 Format: Flash animations + Audio Duration: Up to 60 minutes Navigation policies: Bar draggable Completion policy: Upon completion of all chapters

12.3 Methodological context and best practices

Docebo uses a highly flexible didactic model that is structured around the client's training needs. In general, the theoretical model for self-learning Learning Objects is a combination of two main paradigms: the student-centered transmission model and the experiential model.

The first model transmits knowledge to the learner in an expository and linear manner but, unlike the traditional "transmissive model" concept, Docebo's methodology shifts the focus towards the students who, during use of the object, are continuously stimulated through cognitive activators (a game or small test that awakens the learners' attention, causing them to reflect on what they are actually learning) and monitored in such a way as to make the didactic path truly effective.

The theoretical model of reference is implemented using the most innovative multimedia technologies, associating key images to the exposition of concepts in a way that stimulates all the learners' faculties and totally involves them.

The second, experiential model is combined with the first one: this model proposes the didactic content in the form of experience, drawing its value and epistemological concreteness from "learning by doing" theories.

The system gives the learners situations to analyze, such as case histories, and proposes solutions and actions to implement. The analysis of the initial situation and any theoretical content learned by the students will become the tools they use to make choices during the various phases of the simulation.

The simulation can be used at three different times within an LO:

- at the beginning: to test what the learners already know about the theme being discussed or to awaken their interest in a certain subject of the course that they probably have never thought about
- during: to awaken the learners' attention at a time when their attention is waning
- at the end: to check what has been learned and give the learners food for thought on their course of study

12.4 The SCORM standard and the trackability of multimedia objects

SCORM specifies standards for the Reuse, Tracking and Cataloguing of Learning Objects. SCORM does not address learning platforms directly but rather as E-Learning Objects, which are generally defined as Learning Objects. The E-Learning platform only has the task of dialoguing with the object and interpreting the messages that will be passed to it. The compatibility of the platform is limited to "understanding the language" of the object and, if necessary, being able to respond to it.

A Learning Object could be anything from a sequence of HTML pages or Flash files to proprietary formats that require special plug-ins to be viewed.

For compatibility with the SCORM standard, each Learning Object must have the following characteristics:

It must be possible to catalogue the object using metadata (predefined descriptive fields) so that it can be indexed and searched for within the LMS. There are many requested descriptive fields but not all are obligatory. For example, it requests the author, version and last modification date through to the various levels of aggregation between the various objects, all of which are archived in the <metadata> section, in a file called imsmanifest.xml

It must be able to dialogue with the LMS in which it is included by passing data useful for tracking the learners' activities, such as, for example, the time spent in a certain lesson, the results of a test and the limitations on passing from one object to the next. The dialogue takes place through data passed from the LO to the LMS and from the LMS back to the LO. The communication language is JavaScript, which is interpreted by an API that serves as a bridge for the data that the two elements (LMS and LO) are sending each other.

It must be reusable. The object must be portable to any compatible platform without losing functionality. This principle is the foundation of the standard because, by respecting its construction parameters, the object and platform will not need to be modified to activate the tracking and cataloguing functions.

The proposed objects will comply with the SCORM 1.2 standard and will track the following parameters for each user:

- Course complete
- Time used
- Results obtained in the interactions (only for personalised courses)

12.5 Technical characteristics of the Learning Objects supplied, bandwidth consumption and client characteristics

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

Flash Player version 9.0 or higher

Browser compatibility

Win	Mac	Linux
Explorer 7 or above	Firefox 2.x or above	Firefox 2.x or above
Firefox 2.x or above	Chrome	Chrome
Chrome	Safari	Safari
Safari		

Hardware Requirements

The hardware requirements are detailed in the following table, provided directly by Adobe.

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

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

Resolution	Win	Mac	Linux
852x480 (480p), 24 FPS	Intel® Pentium® 4 processor, 2.33 GHz or equivalent 128 MB di RAM 64 MB di VRAM	PowerPC® G5 processor, 1.8 MHz or more powerful Intel Core™ Duo, 1.33 GHz or more powerful 256 MB di RAM 64 MB di VRAM	Intel® Pentium® 4 processor, 2.33 GHz or equivalent 128 MB di RAM 64 MB di VRAM

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 e 14 Mb	11 Kbps

Flash audio object + animations (no video)	Bitween 20 e 30 Mb	25 Kbps
Flash object (audio + video)	Bitween 80 e 120 Mb	90 Kbps
For news program-style video or conferencing, Flash FLV with resolution of 354 x 266 pixels	Bitween 90 e 110 Mb	85 Kbps

As you can see, bandwidth consumption is sustainable and excessive bandwidth loads can be avoided by optimizing the access of the content by users (such as by not requiring them to all use the content at the same date and time, or not staggering deadlines for the content, thus avoiding a "last minute rush" that risks overloading the system).

12.6 Personalized Learning Objects

Compatibility: SCORM 1.2 or SCORM 2004

Format: Flash animations + Audio

Duration: Up to 60 minutes, 60 minutes of use equal 19,000 characters of "spoken" audio

Options for configuring the Learning Object (policies referring to the single chapter):

Navigation policies:

Progress bar draggable or non-draggable (the user can or cannot skip slides)

Completion policy:

Upon use of 100% of the chapter

Upon passing the end-of-chapter test

Tracking policy

Time tracking

Test passed or failed

Test score

Interaction

Testing policy:

The student can repeat the test after it is done

Feedback on single questions

Feedback on single answers

The first Learning Objects created using HTML technology were no different than the pages of a book: a few simple images, no navigation, and passive assimilation of the content.

Second-generation LOs consist of multimedia slides with a wealth of pictures and, in some cases, video and audio. They allow navigation within the text but the user's motivation remains low.

The last frontier of multimedia training consists of serious games, didactic multimedia games with a very high level of activity in the learning environment. In addition to developing technical skills and knowledge, they also influence behaviour. The production proposal is a mix of second- and third-generation objects.

Tests, assessments and micro-games

The tests and basic interactions can be:

Tests with single or multiple-choice answers, simple feedback (right/wrong) or extended feedback (each answer is explained) for any single answer

Dragging and dropping elements

Click area: Users click on a certain area that provides positive or negative feedback or information

Development characteristics, 60 user minutes contain:

Up to 19,000 characters of audio

3D avatar for a maximum of 20% of the runtime

An interactive game every 60 minutes of runtime (interactive game means a 3D environment with choices and interactions, for a maximum duration of 3 minutes).

Interactive game does NOT mean micro-games, which there can be a lot more of in each single Learning Object (we recommend no more than 3 per SCO/Chapter)

We recommend that each single chapter last no more than 60 minutes

A Learning Object generally consists of: 40 minutes of runtime (explanation, illustration of concepts) and 20 minutes of interaction (taking tests, micro-games and similar, etc.)

Production flow:

1) Collection of material and briefs with the client

- 2) Docebo staff drafts a design document
- 3) Production of a prototype to submit to the client
- 4) Approval of the prototype and beginning audio production
- 5) Multimedia production
- 6) Delivery to the client
- 7) Revision
- 8) Changes and creation of the "SCORM package"
- 9) Delivery to the client and Go Live!

Activities

Writing content from scratch or methodological revision of material provided by the client

Storyboard and text for audio production

Graphic creativity

Audio production

Multimedia production

Optimisation of Learning Objects to the SCORM 1.2. or SCORM 2004 standard

Support and Help Desk during the production phase

Revision of the contents in agreement with the client

12.7 Production type

Description	Sample
E-Learning platform layout	
Multimedia Learning Object sample	
Multimedia Learning Object content page	

<p>Immersive learning game screenshot</p>	
<p>Emotional movie</p>	

12.8 Content modelling

A course consists of a series of chapters. Each chapter is a self-contained didactic unit, i.e., it exhaustively discusses a specific theme in such a way as to personalize the paths.

Below, we provide an example of how the modules are structured:

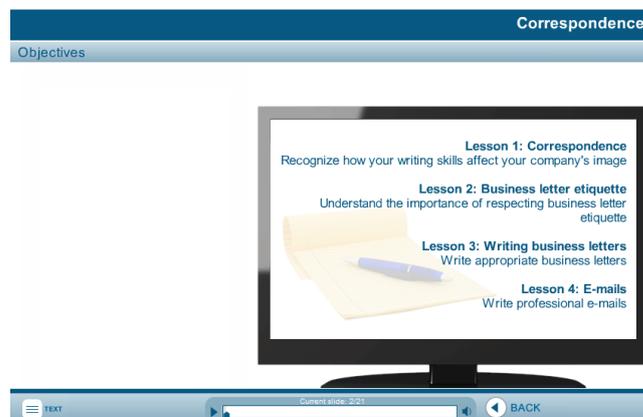
1) Intro

Beginning of chapter: Gives the name of the chapter and any other information supporting the content.



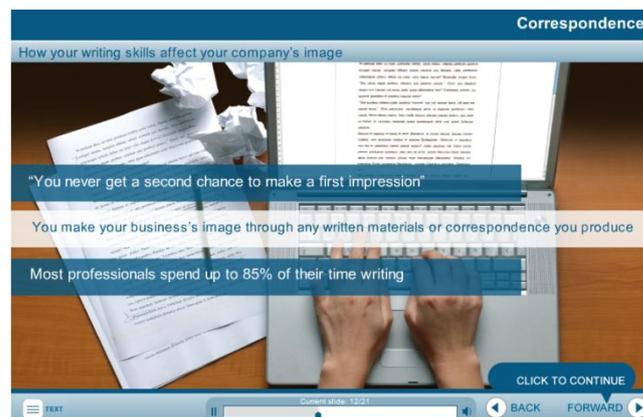
2)Table of Contents of the chapter

Formalization of the educational objectives. This slide explains the content that will be discussed and the educational objectives that the chapter will pursue.



3)Runtime content

In this content page example, the text is synchronized with the audio; there is also a background picture



<p>4) Assessments/Interactions</p> <p>These are tests or other activities that measure the users' learning level or raise their attention threshold by making them interact with the content</p>	
<p>5) Feedback on Assessments/Interactions</p> <p>Feedback can be given at question, at answer, and at the end of the test. The feedback can be succinct (Yes/No, Right/Wrong) or extended</p>	
<p>6) Concluding page</p> <p>Allows concluding the chapter or reviewing it. When the chapter is concluded, the system will send a "completed" status per the SCORM standard.</p>	

Below, we provide an example of how the interfaces are structured:

CLICK TO CONTINUE

Slide num: 2/13

⏪ PREVIOUS NEXT ⏩

Element	Element characteristics
Chapter title	Shown on all slides
Slide title	Tells the student the content of the slide
Central content part	Space for education content (tests, video, diagrams, multimedia, animations, etc.)
"Text" icon	Displays the text version of the didactic content
"Glossary" icon	Provides a glossary of the chapter's terms
"Documents" icon	Used to download attachments (Word, PDF or other documents)
"Pause" icon	Pauses the multimedia content

Progress bar	Shows users their progress through the chapter and the number of slide they are on
Audio icon	Turns the audio on/off
"Previous" and "Next" buttons	Navigation between slides. The "Next" button can be hidden and only made to appear at the end of the slide to avoid "fast-forwarding" and skipping content.
Help caption	Tells users when they can click the "Next" button

Note: Colours and corporate identity, as well as navigation policies, can be completely personalized.

12.9 SLA Learning Object - Risk matrix

INDICATOR	Value	Taken in charge	Measurement period	Notes
Analysis and taking charge of communication problems between the Learning Object and LMS	2	After ticket opened	Working days	Working days
Analysis and taking charge of problems having to do with graphics (pictures, diagrams and spelling errors)	2	After ticket opened	Working days	This type of problem must, of necessity, be revealed in the validation period
Resolution of problems related	2	After ticket opened	Working	This type of problem must, of

to errors in the programming of the Learning Object (navigation, bar and test module)			days	necessity, be revealed in the validation period
Resolution of problems related to audio errors (pronunciation and reading errors)	2	After ticket opened	Working days	This type of problem must, of necessity, be revealed in the validation period
Development of additional multimedia related to topic changes (release of new software versions, new standards, new laws, etc.)				Not part of the project
Reachability of the Learning Object (completely installed in the LMS)	2	After ticket opened	Working days	This object will take into consideration solutions linked to both the LMS and the Learning Object
Reachability of the Learning Object (not completely installed in the LMS)				Not part of the project

12.10 Responsibility matrix (RACI model)

Cod.	Task name	Client multimedia staff	Client IT staff	Docebo multimedia staff	Docebo IT staff	Docebo Training staff
LO	Project governance	A		R		
	Client interface	A		R		
	Project characteristics	C		R		
	Project validation	C		R		
	Storyboarding	C		R		
	Learning Object production	C		R		
	Learning Object validation	R		C		
	Learning Object correction	C		R		
	Learning Object implementation	C		R		
	Validation	R				

R = Responsible

A = Accountable

C = Consulted

I = Informed

12.11 Planning production (example of a Learning Object hour)

Activities	Man days	Resources involved
Definition of graphic layout and course policies	2	Docebo
Collecting materials and kick-off meeting	5	Docebo/Customer
Story writing (prototype)	2	Docebo
Story validation	2	Customer
Audio production (prototype)	5	Docebo
Multimedia assembly (prototype)	5	Docebo
Validation by client	2	Customer
Story writing (course)	5	Docebo
Story validation	5	Customer
Audio production	5	Docebo
Multimedia assembly	5	Docebo
Validation by client	2	Customer
Implementation of revisions	2	Docebo
Course delivery	1	

12.12 Learning Object licensing

LICENSING OF DOCEBO CATALOGUE LEARNING OBJECTS, USERS, AND RESALE

“Learning Object” means the set of files supplied by Docebo Srl to the Client (audio, text, multimedia components, pictures, video and diagrams).

“Supply of the course” means the use of the “Learning Object” in E-Learning mode.

It is forbidden to transfer or distribute (even for free) the Learning Object (or its parts and components) purchased from Docebo Srl to third parties and, in particular, it is forbidden to sell, duplicate, transfer, lease or rent it to subjects not belonging to the company (or group of companies of which it is a part) that purchased the Learning Object.

The course may also be supplied (both for free and for a charge) to users outside the company (or group of companies of which it is a part), without time limits and for an unlimited number of users.

Docebo Srl must be notified of any errors or malfunctions of the Learning Object within, and no later than, 15 days from the delivery of the Learning Object purchased.

Any errors or malfunctions reported by the Client within the terms established in the previous article must be corrected within 7 working days from the time of the report.

The parts, components or any source code that may be acquired of the Learning Object purchased from Docebo Srl may not be reproduced, modified or copied, in whole or in part.

All the previous articles apply even in the case in which the Client acquires or receives the source code of the Learning Object at no charge

LICENSING OF LEARNING OBJECTS CREATED FOR THE CLIENT AND NUMBER OF USERS

The Client is the complete owner of the Learning Object and can do whatever it wants with it and the source code of the files (even reselling it in a catalogue).

There is no limit on the number of users who can use the course and it is even possible to supply the Learning Objects to other companies and educational resellers.

The Learning Object may also be sold to third parties.

