Version



» User Manual

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www.cmdbuild.org

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CMDBuild ® is a project of Tecnoteca Srl. Tecnoteca is responsible of software design and development, it's the official maintainer and has registered the CMDBuild logo.



In the project also the Municipality of Udine was involved as the initial customer.



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- cannot be used as a corporate logo, nor the company that uses it may appear as author / owner / maintainer of the project
- cannot be removed from the application, and in particular from the header at the top of each page

The official website is http://www.cmdbuild.org

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Introduction

CMDBuild is an Open Source web application designed to model and manage assets and services controlled by the ICT Department, therefore it handles the related workflow operations, if necessary according to ITIL best practices.

The management of a Configuration Database (CMDB) means keeping up-to-date, and available to other processes, the database related to the components in use, their relations and their changes over time.

With CMDBuild, the system administrator can build and extend its own CMDB (hence the project name), modeling the CMDB according to the company needs; the administration module allows you to progressively add new classes of items, new attributes and new relations. You can also define filters, "views" and access permissions limited to rows and columns of every class.

CMDBuild provides complete support for ITIL best practices, which have become a "standard de facto" by now, a non-proprietary system for services management with process-oriented criteria.

Thanks to the integrated workflow engine, you can create new workflow processes with external visual editors, and import / execute them inside the CMDBuild application according to the configured automatisms.

A task manager integrated in the user interface of the Administration Module is also available. It allows to manage different operations (process starts, e-mail receiving and sending, connector executions) and data controls on the CMDB (synchronous and asynchronous events). Based on their findings, it sends notifications, starts workflows and executes scripts.

CMDBuild includes also JasperReports, an open source report engine that allows you to create reports; you can design (with an external editor), import and run custom reports inside CMDBuild.

Then it is possible to define some dashboards made up of charts which immediately show the situation of some indicators in the current system (KPI).

CMDBuild integrates Alfresco, the popular open source document management system. You can attach documents, pictures and other files.

Moreover, you can use GIS features to georeference and display assets on a geographical map (external map services) and / or an office plan (local GeoServer) and BIM features to view 3D models (IFC format).

The system includes also a SOAP and a REST webservice, to implement interoperability solutions with SOA.

CMDBuild includes two frameworks called Basic Connector and Advanced Connector, which are able - through the SOAP webservice - to sync the information recorded in the CMDB with external data sources, for example through automatic inventory systems (such as the open source OCS Inventory) or through virtualization or monitoring systems.

Through the REST webservice, CMDBuild GUI Framework allows to issue custom webpages on external portals able to interact with the CMDB.

A user interface for mobile tools (smartphones and tablets) is also available. It is implemented as multi-platform app (iOS, Android) and linked to the CMDB through the REST webservice.

CMDBuild modules

The CMDBuild application includes two main modules:

- the Administration Module for the initial definition and the next changes of the data model and the base configuration (relation classes and typologies, users and authorization, dashboards, upload report and workflows, options and parameters)
- the Management Module, used to manage cards and relations, add attachments, run workflow processes, visualize dashboards and execute reports

The Administration Module is available only to the users with the "administrator" role; the Management Module is used by all the users who view and edit data.

Available documentation

This manual is dedicated to the Management Module, through which the IT service operators will be able to update and view cards, run processes, execute reports, georeference items and perform other utility features.

You can find all the manuals on the official website (http://www.cmdbuild.org):

- system overview ("Overview Manual")
- system administration ("Administrator Manual")
- installation and system management ("Technical Manual")
- workflow configuration ("Workflow Manual")
- webservice details and configuration ("Webservice Manual")
- connectors to sync data through external systems ("ConnectorsManual")

Getting Started

CMDBuild philosophy

A CMDB is a storage and consultation system that handles the information assets of a company.

It is the official central repository and provides a consistent view of IT services.

It is a dynamic system that represents the current situation and knowledge of information technology assets and related entities: hardware (computers, peripherals, networking, telephone equipment), software (basic, environment, application software), documents (projects, contracts, manuals) and other resources, internal and external.

It is a monitoring system for the processes executed, described and managed through the workflow functions.

CMDBuild is a robust, customizable and extensible CMDB solution.

Providing an extensible solution means providing an open and dynamic system that can be easily designed, configured and extended by the system administrator in different phases in terms of types of objects to manage, attributes and relations.

Since there are not two organizations that operate exactly on the same set of objects (assets) and, for each object, on the same information, we decided to set, as the primary CMDBuild feature, the system flexibility, developing features to configure the whole system: data model, processes, reports, external systems connectors, etc.

To be more precise, the management features available in CMDBuild allow you to:

- display the data cards of a class or a view according to the available permissions (on the whole class or on subsets of rows and columns)
- carry out researches through the filter mechanisms available in the system, with the possibility of storing a search filter and reuse it later
- use the configured widgets to run specific card functions
- consult the relations among cards with a graphic tool or simply browsing the system
- insert or update data card, including the notes field with HTML editor
- create or edit relations among cards, including relations attributes
- upload card attachments
- georeference objects, maps or 2D plans through proper GIS functions
- georeference objects on 3D models through proper BIM functions
- view the list of pending and completed processes (workflow)
- · refer to the dashboards defined in the system
- run predefined and custom reports (designed with IReport)
- change password
- import or export data in CSV format
- edit multiple cards at the same time
- enter the Administration Module (administrator role)

Here is a diagram that explains terms and concepts introduced above in relation to the configuration of the data model.



General Criteria

The use of the Management Module assumes that the system administrator has defined, using the Administration Module, an initial data model for the system.

It is not necessary for the initial model to describe all the properties managed by the organization, it is indeed important to adopt a policy to gradually develop the system through successive phases in terms of cards and relations between them.

We recommend you to start by managing a small but complete set of objects and relations and then extend the system once the knowledge and requirements have become clearer.

CMDBuild expects that operators use the Management Module to manage cards according to the rules defined by the system administrator with the Administration Module.

We recommend you to use CMDBuild:

- · respecting procedures and permissions
- properly recording data cards: a database with missing information is not useful
- recording the new information, as soon as they are available, and updating the existing ones: an outdated system is not useful to anyone

How to use CMDBuild

The main purpose of CMDBuild is to:

- get updated information on each individual asset and relations with other assets or other elements of the system
- find out the state of each asset and of each relation in any previous time
- update the information stored in the system cards and documents either individually or with advanced functions for multiple changes
- assist the operator by defining processes and implementing wizards
- · refer to the dashboards for the control of basic management parameters
- create useful reports for the analysis of daily operations or historical trends and statistics
- carry out automatic activities (notification e-mails, workflow launch, script implementation) that follow operations (such as e-mail receiving, workflow launch, check on synchronous and asynchronous events) configured through the Task Manager available in the Administration Module

The most widely used features, grouped in the "data cards" section, are :

- the consultation of the data cards of a class or a view, according to the available permissions (on the whole class or on subsets of rows and columns)
- the card search, specifying filters both on the data cards of the current class and on those of the relation classes, with the possibility of storing and reusing them
- card data overview, card relations and history
- perform specific functions (widget) configured for that card
- single or multiple card print
- graphical navigation of card relations
- card data update
- relations definition, including relations attributes
- card attachments upload
- card georeference (GIS)
- 3D model georeference

The "Processes tab" has a powerful workflow engine for:

- process overview
- editing of pending processes

The "Dashboard" section allows to:

- display the dashboard list configured in the system
- display the grids found in every dashboard, with the possibility of consulting the generated numbers

The "Report" tab also provides a powerful print engine for:

- custom designed reports (iReport)
- data export in CSV format or as a SQL query

The "Utilities" tab includes some wizard to handle operations such as:

- edit all class attributes
- import data from external CSV files
- export data to CSV
- password change

User Interface

The user interface uses Ajax technology.

This solution, part of the new Web 2.0 paradigm, provides a more intuitive application, improves interaction and gets faster responses from the system.

General design criteria

The user interface includes the following main elements:

- left side menu "accordion" style to access menus of Management and Administration modules
- data area in the top right corner, containing:
 - add new card button
 - sort options and column list (limited to the Management Module)
 - Page functions, basic and advanced filters, print and export grid data (only for the Management Module)
- data area in the bottom right corner, containing:
 - dedicated TAB to access specific card sections
 - buttons to manage the selected item in the grid
 - complete card information and labels
 - buttons to confirm or cancel the current operation
 - links to related cards with the ability to insert, modify and delete (logical delete) data
 - buttons on the right side corresponding to the widgets configured for the card

On top of the page, in the header:

- CMDBuild logo (registered trademark Tecnoteca Ltd) on the left
- a central information panel with the current user and group; the panel shows the link to the Administration Module (only to system administrators) and Management Module
- button to logout (center panel)
- application name on the right

A footer, containing:

- Official website URL
- application credits
- the copyright notice

The details above are part of a standard setup but may differ in case of specific installations.

We present now the details of the Management Module since the Administration Module has a dedicated manual.

Here are two screenshots of the Management Module (blue shades) and Administration Module (shades of gray).

Management Module:

User Manual

CMDBuild Demo		Group	User : Administrator : SuperUser Adminis	<u>Logout</u> stration_module			Open So 1	urce Configuratio Management Dat	on and tabase
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Lo cations	PC0003	Hp - A6316		Misco	HP	A6 3 16	Davis Michael	Smith James	
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Computer	PC0004	Sony Vajo F	TY 747687		Sony	Vajo F	Wilson Bar	Smith James	
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Server	Id d Page				h filter all ch	Print .		1-1	4 of 4
Monitor	in a ruge		1	and an search				1	1011
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- 🔲 Rack	•							Ding	
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🗷 🦲 Report	6	orialnumbor: 42424							
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		Room: Office Building	A - Floor 3 - Room 00	1					
		Assignee: Williams John							
		Workplace:							
Classes	+								
Processes	+								
Views	+								
Dashboard	+ General data	Administrative data	Fechnical data						
Report	+	· Management of the second		Grand					
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Administration Module:

CMDBuild Demo				User : Group : Super	Administ User <u>Da</u> i	rator <u>Loqout</u> ta management me	odule			Open Source Configur Management	ation and Database
Classes	-	Manage classes									
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Computer	- 11	Properties Att	ributes Domains	Widget	Layers	Geographica	lattributes				
Notebook		Add attribute	Set sorting							Include in	nherited
PC.		Name	Description	Type		Display in list	Unique	Mandatory	Active	Editing mode	
	- 11	Code	Code	STRING						Editable	
Monitor		Description	Description	STRING						Editable	
Network device		SerialNumber	Serialnumber	STRING			(C)			Editable	
Printer		Supplier	Supplier	REFERENCE					V	Editable	
Rack		PurchaseDate	Purchase date	DATE						Editable	
UPS		AcceptanceDate	Acceptance date	DATE					V	Editable	
	-	FinalCost	Final cost	DECIMAL			877			Editable	
Domains	+	Modify Attribute	🔀 Delete attribute								
/iews	+	Base properties					Type Propertie	s			
Search filters	(+)	Name:	Code				Type:	ST	RING	~	
Navigation trees	(+)	0	and a				1	10			
ookup types	+	Description:	code				Length;	10	U 😜		
Dashboard	+	Group:	General d	lata	~						
Report	(+)	Display in list:	$ \nabla $								
Menu	(+)	Unique:									
Jsers and Groups	+	Mandatanu									
Task manager	+	Planuatory.									
E-mail	(+)	Active:									
GIS	(+)	Editing mode:	Editable		~						
BIM	(+)										
Localizations	+										
Setup	(+)					Save	Cancel				

Control elements

Navigation chronology

Top right there is an icon to access the chronology of those actions performed in the system starting from the last login and to enter a card you have already visited:

navigation chronology



This list shows the sequence of actions and the related type, function and detail. It allows even to return to the same position of the chosen row.

Resizing the main areas

The three main areas described above can be resized by clicking and dragging the layout borders.

On pages with a standard layout (divided into upper and lower area) you can (only in Management Module) act more quickly using buttons located on the top right to:

•	expand to full-height card details area	_
•	expand to full-height the data grid	
•	restore standard layout	8

"Accordion" menu

The menu on the left side is accordion-style and allows the user to open / close each item of the first level with a simple click.

Opening / closing a menu entry toggles the sub-elements of the selected entry.

Grid management

The standard data grid management (Management Module only) permits to:

- sort on a specific column with a mouse click
- see additional columns in the grid (among available ones)

In some cases you can call special features associated with a row of the grid simply by double clicking on the item (open relations, open document in the attachments tab, etc.).

There is also a button to print (PDF or CSV) data (rows and columns) that's currently displayed in the grid.

Finally, using the "Map" button it is possible to switch between textual and geographical modes.

Quick action on grid elements

In some cases you can call special features associated with a row of the grid simply by double clicking on the item (open relations, open document in the attachments tab, etc.).

Selection filter

The selection filter, if defined, is available in two modes:

- quick search on all card attributes (not just those shown on the grid)
- advanced search filter, which provides advanced filtering (included the storing and the filter reuse) and will be described in individual use cases

📸 Search filter	📸 Clear filter	8
🗿 Add		
HP computer	list 📄 🥔 🐚 🕻	×

Interactive help

In some cards (in particular in the process management) there is a button in the lower right corner that displays a panel with some compilation tips.

Filling in forms for data editing

Data cards compilation requires different fields:

- numeric or string type with simple content
- multiline text
- date type, with interactive calendar
- simple list select
- advanced list select (with filtering options)
- formatted text (with editor)

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• qu • pr	uality: rices:	good	d I						

you can then use the widgets (buttons) configured for the card.

Every insert operation includes confirmation and cancellation buttons

Menu

Both Administration and Management modules work on the same objects, the first to set configuration options (data structures), the second to manage the information stored in these objects (cards).

Both modules have an "Accordion" style menu and include the same entries, however for each entry there are different options in the two modules:

lookup tables, definition of filters and views, users and groups, definition of menu, GIS configuration, configuration of base parameters in the Administration Module

9

• navigation menu (list of items available to the current user, ordered in folders in a coherent and organized way) views, dashboards and utilities in the Management Module

The Management Module provides an additional menu - the navigation menu - that includes a list of items available to the current user; it's possible to define a custom navigation menu using the Administration Module.

Simplified user interface

Through proper configuration parameters set in the Administration Module (Groups Management – Configuration User Interface), you can define a simplified interface for those users' Groups that demand it.

In particular, you can:

- hide one by one the headings of the accordion Menu placed in the left side of the page
- hide one by one all TABs of the cards and of the processes
- hide the accordion Menu itself when opening the page
- set an alternative display mode of the cards / processes list and of the insertion or update form of a card / process

	Demo		User : Group : Supe	Administrator <u>Log</u> er User Administration	ut n module			Open So I	urce Configuration and Management Database
Navigation	List - Asset								
The Wigdoon									Mar.
🗄 🦲 Basic archives	Add Card Asse	et •	Devertation	Cardahamhan	Constitute	Durad	and all	/	Technical as f
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🕀 🧰 Locations	Monitor	MON0001	Acer - AL 1716			Acer	AL 1716	Taylor Wil.	
Assets	Monitor	MONUUU2	Acer - B243WCydr	PRI 576		Acer	B243WCydr	Miller Linda	
Asset	PC	MONDOOD	ALEF - NEIDOOK D/250	+0+0+		ALET	U230	William Da	Smilli Ja
Computer	Printer	PDT0001	Acer - V 193HQD	VTCOT		Acer	A 19200	Wilson Ba	
Notebook	Printer	PRT0001	Canon - IX 5000	T1067		Encon	ELD 62001	Williame 1	
Server	Monitor	MON0004	Epson - W10246 -PN	KID373		Epson	W10246 PM	Meero Eli	
Monitor	PC	PC0003	Hp - 46316	NR37007	Misco	но	A6316	Davis Mic	Smith la
Printer	Monitor	MON0007	Hp - V220	SR6576	1413CO	нр	V220	Johnson	Sinter Ja Dog
NetworkDevice	Printer	PPT0003	HP Design let 72100	VI 6874		нр	Designalet 72100	bnes Pat	
Rack	PC	PC0002	Intel Pentium P4	100071			Pentium P4	Miller Linda	Taylor Wil
UPS	PC	PC0004	Sony Vaio F	TY 747687		Sony	Vaio F	Wilson Ba	Smith la
	Network device	ND0685	Switch Papel CISCO	YEGE87	Misco	(Isco	Catalyst 3750		
Workfau	Network device	ND0654	Switch Panel CISCO	YRTU87	Misco	Gisco	Catalyst 3750		
CMDBuild	Demo		User : Group : Supe	Administrator <u>Log</u> er User <u>Administratio</u>	ut n module			Open So I	urce Configuration and Management Database
Navigation -	List - Asset								8
Dashboard Dashboard	Card								
	Modify card	💢 Delete card	🗋 Clone card 🚮 Relation g	raph 🛛 🔒 Print card	•				
									Ping
🖃 🔂 Assets		Code	PC0003						ring
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PC Notebook Server Monitor Printer NetworkDevice Rack UPS License	s	erialnumber: Room: Assignee: Workplace:	Office Building B - Floor 1 - Roo Davis Michael × × P	m 002 🔻 🗶 🔎					
⊕ Report ⊕ Workflow									
	General data	Administra	tive data Technical data	Save Can	el				

Accessing the application

The Management Module is used by IT service operators and can be used to view and update the cards, run processes, execute reports and perform other utility operations.

Obviously, the above activities are available only if the system has been correctly configured using the Administration Module.

PC Requirements

CMDBuild is a web-based application, so both modules are available using a standard web browser.

The system user has to arrange on his/her processor only an updated web browser (Firefox up to version 43, Chrome up to version 48, Microsoft Explorer 8 or more recent up to version 10).

The web architecture ensures complete usability to any IT organization that operates in multiple locations (ie collaborative workflow); any entrusted client can connect and interact with the system using a standard web browser.

Authentication

You must login to use the application.

The login form requires a username, a password and eventually a language selection (if the application has been configured to handle multiple languages)



Open Source Configuration and Management Database

Lingua:	Italiano	~
Username:	admin	
Password:	•••••	
	Accedi	

Once the user has logged in, the system starts with the Management Module and only the users that have the required role can switch to Administration Module by clicking on the link on top of the page (visible by clicking on the information panel located in the center)

User : Administrator Logout
Group : SuperUser Administration module

Relations graph

Since this is a feature available in many situations, we describe now the details of the relation graph.

The purpose of the function is to:

- supply a 3D visual and interactive representation of the graph of relations stored in CMDBuild for the displayed node(s)
- allow interactive analysis through filters on cards and relations, graph explosions, application of pre-defined filters (navigation trees), application of other pre-defined functions

By designing the new displayer, we were looking for a solution that could grant an optimal result when viewing graphs that include (even high) number of nodes and relations. At the end we opted for the 3D choice, which offers one more spatial dimension to work on.

The user interface is divided into a graphical area on the left and a text area on the right, which are synchronized.

Furthermore, there are two toolbars, one on the top right and one at the bottom right.



Visual area

The visual representation of the graph includes:

- nodes, corresponding to the card "root" (to request the graph opening) and to the correlated cards. All of them are represented with a defaul icon or with icons that are previously uploaded into the system according to their class
- archi, corresponding to the relations among the nodes

For each node and transition there is a tooltip with the main information related to the item.

The selected nodes are highlighted in yellow.

Available features in the visual area:

- selection of a node (click the right mouse button), with contextual presentation of the cards and of the relations in the text area on the right
- selection of adding nodes (click the left mouse button and hold CTRL)
- "explosion" of a node (double click), and opening of children nodes for the number of levels set in the toolbar at the bottom right
- "explosion" of the whole graph, and opening of all children nodes for the number of levels set through the slider of the toolbar at the bottom right
- zoom in the graph (mouse wheel), in order to explore some areas
- moving the whole graph (right button of the mouse)
- 3D rotation of the graph (click the right button and move the mouse on the page area)

In the following screenshot you can see the result of the 3D rotation on the graph viewed on the previous page.



In the following screenshot you can see that, after double-clicking on a node, its relations are opened.



Toolbar in the top right

The toolbar available in the top right includes the following tools:

•	"Undo": it cancels the last operation	2
•	"Apply the current layout": it sets the layout of the first opening page	4
•	"Stop the current operation": it stops the current operation	8
•	"Center the image": it centers all nodes	91 12 21 55
•	"Center the layout on selection": it centers the graph onto the current element	342 215
•	"Select all nodes": it selects all nodes	
•	"Delete selected nodes": it deletes the selected nodes	10
•	"Delete unselected nodes": it deletes the non-selected nodes	
•	"Oped selected nodes": it opens the relations of all selected nodes for the number of levels set in the toolbar at the bottom right	: #
•	"Reopen the graph from this node": it re-opens the graph from the selected node	×
•	"Select the subgraph that contains the selected elements": it selects the minimum sub-graph including the selected nodes	2
•	"Choose navigation tree": it applies one of the pre-defined navigation graphs	
•	"Print the 3D image": it prints the image of the 3D-graph and the information of the selected node and its relations	-

In the two following screenshots you can see the result when applying a navigation tree to a graph.





Text area

In the text area you can see:

- the card with the main attributes (attributes "Base display", defined in the Administration Module) and list of relations defined for that card
- the card with all attributes, if necessary divided on various pages
- the list of cards corresponding the nodes displayed on the graph
- the list of classes owning the nodes displayed on the graph

In the following screenshots you can view those data related to the node selected on the graph in the TAB Card, only with the main attributes and relations (first image) and with the complete card attributes.

Note the opening of the relations with five levels (through the slider of the toolbar at the bottom).





In the three following screenshots there are the nodes related to the cards selected in the TAB Cards list.



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Through the proper icon (character "minus"), you can view only the selected data cards in the list (in the example, 7 elements out of 19):



Through the field for the text search, you can even reduce the selected cards:



In the following screenshot there are all nodes belonging to the classes selected in the TAB Classes .



Below, under the text area, there are reiterative data above the number of nodes and the displayed relations.

Toolbar at the bottom right

The toolbar available at the bottom right includes the following tools:

"Open the properties panel": access to the configuration page • "Open the filter panel": access to the page of the filter setting • "Enable / disable" tooltips on graph": enable / disable tooltips on nodes and • relations "Levels": number of relation levels to open if required Levels: • 2 . "Slider levels": another way to select the number of levels • Labels "Labels": to show on no nodes, only on selected nodes or on all nodes • No Sel All

Through the filter functions, you can select / deselect one or more classes and one or more domains and view the related results on the graph.

Selection of classes:

200	Relation graph				× ase
Na	1115	Filters		×××××	- 8
Ð	11/1	Classes	Domains		
E	1///		Class		0
	11/1	v	Employee	(///)	100
	0////	7	Floor		
	11/1/	V	Network device	0////	
	(///)		Office		f4
	1///	V	PC	(///)	
	0////		Room		
	11/1	V	Supplier	1111	
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Results on the graph:



Filter on domains:

Nat	Filters					x X % *
± [Tinters					
B [Classes	Domains				
		Class:		×		
		Class	▲ Relat	ion 🗘	Class 🗘	9 00 1 9 00 1 9 00 1
_7///		Employee	< assigned to	has in assignment≻	Asset	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
1///		Employee	< has technical reference	technical reference for assets \geq	Asset	f4
		Employee	< has supervisor	supervisor of ≻	Office	
		Hoor	< belongs to floor	includes room s ≻	Room	
1///	0	Office	< is member of	includes >	Employee	ar
. (Office	 used by office 	uses room s >	Room	1111
		Request for change	< change manager for	has changemanager ≻	Employee	bor 1 - Room 0
		Request for change	< Perform	Executed by >	Employee	*
		Request for change	< Requests	Requested by >	Em ployee	of 1 (records 4)
Cla		Room	< located in room	contains assets ≻	Asset	7775
Da			P X		10 e	
Rej	- 112			1	Page 1 of 2 (records 16)	en levels



Here's the result after the application of labels on all graph nodes.

The following screenshot shows the Setup panel (the settings are still valid during the current session, but they can be made persistent by the Administration Module).



Cards

Using the Management Module it's possible to access the information stored in the system, perform searches, update cards, create relations, see card history.

Card List

For all the entries in "Cards" menu (or for classes available in the navigation menu) the Management Module offers, on the top right, the list ("grid") of cards of the selected class. The details of the single highlighted card are shown on the bottom right corner.

CMDBuild Demo			User : Administrator Logout Group : SuperUser Administration module				Open Source Configuration and Management Database					
Navigation	- List - Asset								(=) (-	_ (0)(a		
🗉 🦲 Dashboard	() Add card	Asset 👻								💹 Map		
🗄 🦲 Basic archives	Subclass	Code	Description	Serialnum ber	Supplier	Brand	Model	Assignee	Technical re			
🖽 📃 Purchases	Monitor	MON0001	Acer - AL 1716			Acer	AL 1716	Taylor		-		
🖽 🔜 Locations	Monitor	MON0002	Acer - B243W Cvdr	PRT 576		Acer	B243W Cvdr	Miller Linda		-		
Assets	PC	PC0001	Acer - Netbook D	43434		Acer	D250	William s	Smith Ja			
Asset	Monitor	MON0003	Acer - V193HQb			Acer	V193HQb	Wilson B				
Com puter	Printer	PRT0001	Canon - IX 5000	YT687		Canon	IX5000	Wilson B		-		
PC Notebook	Printer	PRT0002	Epson - ELP 6200L	RTD 575		Epson	ELP 6 20 OL	Wi l iam s				
- Server	IN I Pag	ge 1 of 1 🕨	N 2	。 × 2 齢	Search filter	🛱 Clear filter	🔒 Print 🔹		1 -	15 of 15		
Monitor												
Montor Printer NetworkDevice Rack UPS License Dia Report	Card De	etail Notes Rela rd X Delete card Code: MOP Description: Acer Serialnumber: Room: Assignee: Tayl Workplace:	itions History E- Cone card in Relation N0001 r - AL1716 Ior Willam	mail Attachmer	card 🔻							
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Monitor Printer NetworkDevice Rack UPS License Classes Processes	Card De Modify car	etail Notes Rela rd X Delete card Code: MOP Description: Acer Serialnumber: Room: Assignee: Tayl Workplace:	itions History E- Cone card iii Relation N0001 r - AL1716 lor William	mail Attachmer	card •							
Monitor Printer Rack UPS License Warkflow Classes Processes Views	Card De Modify car	etail Notes Rela rd X Delete card C Code: MOI Description: Acer Serialnumber: Room: Assignee: Tayl Workplace:	itions History E- Cone card iii Relate N0001 r - AL1716	mail Attachmer	card •							
Monitor Printer NetworkDevice Rack UPS License Classes Processes Views Dashboard	Card De Modify car	ta Administration	Ations History E- Cone card and Relate N0001 r - AL1716 Ior William	mail Attachmer	card •							
Classes Processes Views Dashboard Montor Printer Printer Printer Report Printer Printe	+ + + + + + + General da	etail Notes Rela rd X Delete card C Code: MOI Description: Acer Serial number: Room: Assignee: Tayl Work place: Ita Administrative	tions History E- Cone card The Relate N0001 r - AL1716 lor William	mail Attachmer	card •							

Cardlist management allows to:

- sort cards by clicking on column header (the first click will sort ascending, the second descending)
- add columns to the grid (the default columns are defined in the Administration Module). The list of available columns-attributes is shown by clicking on the column arrow (screenshot)
- use the page controls to move one page forward or backward, move reacting to the first / last page, move to a specific page number
- reload grid data (refresh)
- access the "advanced" search system



- define a new search filter, selecting attribute values for the card or search filter is card for the related cards (see next paragraph)
- store the new search filter
- edit an existing filter
- clone an existing filter
- delete an existing filter
- delete a search filter
- perform a quick card search (seach on all class attributes, included those that are not displayed)
- print (PDF or CSV) data (rows and columns) currently displayed in the grid
- change the page layout by clicking and dragging the layout borders
- switch to map view to display cards position on a map / plan

Definition of a new advanced search filter

A filter lets you search for cards using multiple search criteria:

- search on all the attributes of the current class (the conditions must be simultaneously valid, that is "AND") with different operators and also by applying more conditions on the same attribute (in this case it will be considered as "OR")
- search on all the attributes of the classes related to the current card, either by selecting individual rows in the TAB "List" or by applying filters on the attributes of the related class
- search on all the attachments (text-based attachments)

In the next example we extract computers having "Epson" or "Canon" brand and containing the string "Monitor" in their description.

The search can be saved as filter and then reused by the same or other users who shared that filter with the administrator.

8

Q X

8

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1	HP computer list 👝 🔗 🕞 🤟
1	HP computer list

📸 Clear filter

🚔 Print 💌

🔰 Map

User Manual

9						(
-	Seam	ch filter - N ew search	filte	r 2 - Asset								3	sno se
Nav	Attrib	outes										6	. 8
Ð	O c	hoose an attribute 🝷											ар
Ð	Des	scription											-
田田	×	Contains	~	monitor							Input Para	ameter	
	- Bra	nd											-
	×	Equals	~	Epson	🗙 🗶 🛄 Int	out Parameter or							15
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Util						Appl	/ Save a	and apply	Cancel				

In the next example we extract all computers assigned to by "Mary Johnson" or "Michael Davis" (the selected domain is "AssetAssignee").

2	p		ſ								
	Search filter - N ew search filt	ter 3 - Asset									×
Na	Attributes Relations										+
•	Domain		Direction		Dectination			Relations			
Ð	Doman		Diecton		DEstination		N	one	Any	FromSelec	tion
H	Asset assignee		assigned to		Em ployee					V	
	Asset reference		has technical reference		Em ployee						
	Room asset		located in room		Room				ETT)		
	Supplier asset		provided by supplier		Supplier				100	E	
	Workplace composition		belongs to workplace		Workplace				m		
	Num ber 🔺	Surname	Name	Туре	Qualification	Em ail	Office	Phone		State	
	01 :	Sm ith	Jam es	External co	Clerk	jam es.sm ith@exam pl	Office 01	565675		Active	2.
	02	Johnson	Mary	Employee	Head office	mary.johnson@exa	Office 02	76543		Active	2
	03	Williams	John	Stage	Clerk	john.wiliam s@examp	Office 02	64646		Active	0.00
	04	lones	Patricia	Em ployee	Manager	patricia.jones@exam	Office 01	76543		Active	110
	05 1	Brown	Robert	External co	Clerk	robert.brown@exam	Office 03	65432		Suspended	-
	☑ 06	Davis	Michael	Employee	Head office	michael.davis@exam	Office 03	45556		Active	
E	07 1	Miler	Linda	Em ployee	Head office	inda.miler@example	Office 02	5757578		Active	100
Ŧ	08	Wilson	Barbara	Em ployee	Head office	barbara.wilson@exa	Office 01	644353		Inactive	
	09 1	Moore	Elizabeth	External co	Clerk	dizabeth.moore@exa	Office 03	76545		Inactive	-
	10	Taylor	William	Employee	Clerk	willam.taylor@examp	Office 02	23456		Active	100
	1234 1	Mario	Rossi								
	5678	Giovanni	Bianchi								100
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Da Rej	4 Page 1 of1	× H &	× م	器 Search filter	🔒 Clear filter	🖨 Print 🔹				1 - 12	of12
Uti				Apply Save	and apply	Cancel					
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Also in this case, you can save and reuse the search.

The following example extracts all the computers in one of the two data center rooms (the domain is set to "Room asset").

Attributes							
Relations							
						Relations	
Doman	Drection	Destinat	on		No one	Any	FromSelectio
Asset assignee	assigned to	Employe	e			(FT)	
Asset reference	has technical reference	Employe	e 🛛				[77]
Room asset	located in room	Room					V
Supplier asset	provided by supplier	Supplier				(FT)	F
Workplace composition	belongs to workplace	Workpla	ce				m
Code	Description	Floor	Usage type	Surface		Office	
V DC01001	Data Center - Floor 1 - Room 001	Data Center - Floor 1	Office	28		Office 0	3 - Legal De
V DC01002	Data Center - Floor 1 - Room 002	Data Center - Floor 1	Laboratory	62		Office 0	2 - Administ
B101001	Office Building A - Floor 1 - Room 0	Office Building A - Fl	Office	18		Office 0	3 - Legal De
B10 1002	Office Building A - Hoor 1 - Room 0	Office Building A - Fl	Office	18		Office 0	3 - Legal De
B101003	Office Building A - Floor 1 - Room 0	Office Building A - Fl	Office	18		Office 0	3 - Legal De
B102001	Office Building A - Hoor 2 - Room 0	Office Building A - Fl	Meeting room	48		Office 0	3 - Legal De
B102002	Office Building A - Floor 2 - Room 0	Office Building A - Fl	Training room	48		Office 0	3 - Legal De
B103001	Office Building A - Hoor 3 - Room 0	Office Building A - Fl	Warehouse	128		Office 0	1 - Headqu
B20 100 1	Office Building B - Floor 1 - Room 0	Office Building B - Fl	Office	18		Office 0	2 - Administ
B20 1002	Office Building B - Floor 1 - Room 0	Office Building B - Fl	Office	18		Office 0	2 - Administ
B20 1003	Office Building B - Hoor 1 - Room 0	Office Building B - Fl	Training room	18		Office 0	3 - Legal De
B202001	Office Building B - Floor 2 - Room 0	Office Building B - Fl	Office	26		Office 0	2 - Administ
B202002	Office Building B - Floor 2 - Room 0	Office Building B - Fl	Office	24		Office 0	1 - Headqu
B20 20 03	Office Building B - Floor 2 - Room 0	Office Building B - Fl	Office	24		Office 0	2 - Administ
A Page 1 of 1	>>	Search filter 🛗 Clear I	lter 🔒 Print 🔹				1 - 14 of

The two selection types ("List" and "Filter" tabs) can be used simultaneously, i.e. it is always possible to narrow the list extracted by clicking on the checkboxes of the rows displayed.

When the user confirms the search filter, the application searches matching cards; the columns shown are the ones defined in the Administration Module.

Card TAB

In addition to the card list (common to all subpages of this menu section), the Card TAB shows the list of attributes of the selected card.

There is the possibility of performing the following operations:

- create a new card by clicking on the "Add card" button
- edit an existing card by selecting the row and clicking the "Modify card" button
- delete an existing card by selecting the row and clicking the "Delete card" button (logical delete)
- clone the current card
- · open the relations graph for the selected card
- print current card

	0		Group	User : Administrator : SuperUser Adminis	Logout stration module			Open So I	urce Configuration Nanagement Data	n and abase
Navigation	Ξ	List - PC								0 8
🗉 📃 Dashboard		Add card PC							X	Мар
🗄 🦲 Basic archives		Code	Description	Serialnum ber	Supplier	Brand	Model	Assignee	Technical refer	
🖽 📃 Purchases		PC0001	Acer - Netbook D 250	43434		Acer	D250	William s Jo	Smith James	
🖽 📃 Locations		PC0003	Hp - A6316		Misco	HP	A6316	Davis Michael	Smith James	
Assets		PC0002	Intel Pentium P4				Pentium P4	Miller Linda	Taylor W ii	
Asset		PC0004	Sony Vajo F	TY 747687		Sony	Vajo F	Wilson Bar	Smith James	-
Computer										
PC										
Server Monitor Minitor Printer Radk UPS License Workflow	4	Card Detail	Notes Relations H Delete card Cone car Code: PC0001 escription: Acer - Netbook ialnumber: 43434 Room: Office Building . Assignee: Williams John Vorkplace:	Listory E-mail d State graph D250 A - Floor 3 - Room 00	P X mail Search Attachments	+ filter 🏦 Cle	er filter 🔒 Print 🔹		1 - 4 Ping W arranty calen	hof4
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Processes	+									
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Utility	+			Save	Cancel					
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The layout of cards containing a lot of attributes can be rearranged by splitting the information into data groups (in the screenshot the groups are "General", "Administrative data" and "Technical data"); using then the tabs (located on the top / bottom area - it depends on settings in the Administration Module) it's possible to open only the selected group of attributes.

The fields shown during an insert or update operation are configured using the Administration Module. There are two "Editing modes" you can set in the Administration Module: "Editable" for editable attributes and "Read Only" for read-only attributes.

Add card

Modify card

Delete card

Clone card

Relation graph

🚔 Print card 🔻

Depending on the attribute type, the system uses in the form:

- standard input fields
- selection lists ("Lookup" fields type)
- reference fields with several options (see example below):
 - select a value directly from the corresponding list or open the pop-up window to use advanced features ("list" and "filter" tabs as described in the previous paragraph)
 - set values for domain attributes (those set in the Administration Module as "base display")
- date fields, with calendar widget

When the list of attributes exceed the visible area height, a scroll bar on the right helps you scroll down the whole list.

Using the form buttons you can confirm or cancel current operation.

Any validation errors are highlighted using the current user language.

In the example below there's a card with an HTML field and a reference field ("Supplier"); on the right there are four icons:

- the first opens the list with the names of the suppliers and lets you choose an option
- the second allows you to reset the value
- the third opens the advanced pop-up window (see below)
- the fourth provides access to the relation attributes (see below)

CMDBuild Demo		Group :	lser : Administrator SuperUser Administ	Logout ration module			Open Sou N	irce Configuration and Ianagement Database
Navigation	- List - PC							=
🗄 📃 Dashboard	Add card PC							💹 Map
🗄 🦲 Basic archives	Code	Description	Serialnum ber	Supplier	Brand	Model	Assinnee	Technical refer
🗄 🦲 Purchases	PC0001	Acer - Netbook D 250	43434	copped	Acer	D250	William s 1o	Smith lames
🕀 📃 Locations	PC0003	Hp - A6316	0.01	Misco	HP	A6316	Davis Michael	Smith James
🖯 🤁 Assets	PC0002	Intel Pentium P4				Pentium P4	Miller Linda	Taylor W ii
Asset	PC0004	Sony Vajo F	TY 747687		Sony	Vajo F	Wilson Bar	Smith James
Com puter								
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Server	H d Dogo 1	of the Milon	0	V Mb Carach	flam the class	Drint -		1 4054
Monitor	IN N Page 1		~	C DD Search		er moer i i i i i i i i i i i i i i i i i i i		1-4014
Printer	Card Detail N	otes Relations Hi	story E-mail A	ttachments				
NetworkDevice	Modify card X D	elete card Cone card	Relation graph	A Print card	*			
Rack								
- III UPS	Su	ipplier: Misco	×× P				<u>_</u>	Ping
License	Purchas	e date: 03/04/2011	9					Warranty calendar
🖽 🧾 Report	Assessments	- + - 20/04/2012						
🕀 📃 Work flow	Acceptanc	e date: 29/04/2013					=	
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		Townserver and the						
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Processes	+						-	
Views	+		III					
Dashboard	+ General data Ar	Iministrative data	chnical data					
Report	+ Generalitata At							
Utility	+		Save	Cancel				
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Below you can find the popup for "Assignee" reference field value, with advanced filter functionalities:

9		40 A		í.)				1440	and
2	List	: - Employee									×	ase
Ma	0	Add card Employee •										-
INA		Number 🔺	Sumame	Name	Type	Qualification	Em ail	Office	Phone	State		
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-		01	Smith Jakasan	James	External co	Uerk Head	James smiringexampi	Office 02	365673	Active	000	
		02	Johnson Williama	Mary	Employee	Chark	indry.jonnson@exa	Office 02	70343 64646	Active	000	nan
		0.5	vv liams	John	Stage	Cerk	john.willan sigexamp	Office 02	70540	Active	000	-
a.		04	Jones	Patricia	Employee	Manager	patricia.jones@exam	Office 01	/6543	Active	000	
		05	Brown	Robert	External co	Clerk	robert.brown@exam	Office 03	65432	Suspended	000	
9		06	Davis	Michael	Employee	Head office	michael.davis@exam	Office 03	45556	Active		
9		07	Miler	Linda	Employee	Head office	inda.miler@example	Office 02	5757578	Active		
		08	Wison	Barbara	Employee	Head office	barbara.wilson@exa	Office 01	644353	Inactive		1235
		09	Moore	Elizabeth	External co	Clerk	dizabeth.moore@exa	Office 03	76545	Inactive	-	114
		10	Taylor	William	Employee	Clerk	william.taylor@examp	Office 02	23456	Active	000	
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Below you can see a sample of management of those attributes defined on the "domain" where the Reference field "Technical reference" is configured (in the example the role of the asset's referent):

	Group	Jser : Administrator SuperUser <u>Adminis</u>	Logout tration module	Open Source Configurati Management Dat				
Navigation	List - PC							= 8
🗷 📃 Dashboard	Add card PC							💹 Мар
🖻 🧱 Basic archives	Code	Description	Serialnumber	Supplier	Brand	Model	Assignee	Technical refer
Em ployee	PC0001	Acer - Netbook D 250	43434	Cappie	Acer	D 250	Williams In	Smith lames
Office	PC0003	Hp - 46316	10 10 1	Misco	HP	A6316	Davis Michael	Smith lames
Workplace	PC0002	Intel Pentium P4		T IDEO		Pentium P4	Miler Linda	Taylor Wili
🗄 📃 Purchases	PC0004	Sony Vaio E	TY 747687		Sony	Vaio E	Wilson Bar	Smith lames
🕀 🦲 Locations								
🖃 🚞 Assets								
Asset	1000 10 2000							
Computer	Page 1	of 1 🕨 🕅 🎅	5	○ × 間 Search	n filter 📸 Cle	ar filter 🛛 🖨 Print 🔹		1-4of4
PC	Card Detail	Notes Relations H	istory F-mail	Attachments				
Notebook								
Server	Modify card	Cone card	Relation graph	Print card	*			
Monitor	4	Duranda A are						Ping
Printer		Brand: Acer					. 61	
NetworkDevice		Model: D250						w arranty calendar
Rack	Technical I	eference: Smith James	v x p					
UPS								
License		Role: Hardware	× ×				=	
🗄 🔜 Report		RAM: Hardware						
🗄 🦲 Workflow	11 comb	Systemistic						
	N UMD	Applicative						
Classes	Spe	ed of CPU: Security						
Processes	Harddisk total	size (GB): 1						
Views +								
Dashboard +	I	PAddress: 127.0.0.1						
Report	Generaldata	Administrative data Te	echnical data					
Utilty +			Save	Cancel				
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Widget

Widgets - which can be configured using the Administration Module - can be used to perform specific functions useful for the current card.

On a common card, the following widgets can be configured:

- · Create report: it allows to print a report
- · Calendar: it shows the specified deadlines on a calendar
- Navigation tree: it allows to select one or more datacards through an interface based on a preconfigured navigation tree (subset of the domain graph)
- Start workflow: it allows to start the specified workflow by using a popup window (the workflow will then go ahead with the common CMDBuild functions)
- Ping: it performs a ping on the specified host
- Create or modify card: it allows to insert / edit a data card into a class that is different to the current one

Further widgets can be used just within the workflows (see the Workflow Manual).

Below you can see examples of pop-up windows that CMDBuild creates in case of "Ping" and "Calendar" widgets.

<u>Ping</u>

Using the "Ping" widget, you can run a "ping" command on the IP address of the current computer card and verify its reachability.

Se		and
2	Ping	Xase
Nav E [Esecuzione di Ping 127.0.0.1 con 32 byte di dati: Risposta da 127.0.0.1: byte=32 durata<1ms TTL=128 Risposta da 127.0.0.1: byte=32 durata<1ms TTL=128 Risposta da 127.0.0.1: byte=32 durata<1ms TTL=128	æ
E	Statistiche Ping per 127.0.0.1:	0000
	Pacchetti: Trasmessi = 3, Ricevuti = 3, Persi = 0 (0% persi),	
	Tempo approssimativo percorsi andata/ritorno in millisecondi: Minimo = Oms, Massimo = Oms, Medio = Oms	
-		208
-		100
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Pro		
Dat		
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Util	Close	
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<u>Calendar</u>

Using the "Calendar" widget, you can check the warranties by opening the calendar at the end of the warranty date of the current computer card.

9								340	nd
-	Warranty calendar							×	se
Nat	Jump to:	🖪 Go				Day	Week 2 Weeks Mo	onth	8
	Feb 28, 2016	Mon 29	Mar 1	Wed 2	Thu 3	Fri 4	Si	at 5	p a
	6	7	8	9	10	11		12	
									F4
	13	14	15	16	17	18		19	312
⊞(20	21	22	23	24	25	Today 12:5	i0pm	
Cla Pro Vie Dar	27	28	29	30	31	Apr 1		2	
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Create report

It allows to print a report among the ones designed with IReport and imported into CMDBuild. If the report includes certain parameters, they are required at rendering time.

2		÷:			ſ)				and
-	Report									×	ase
Na										Do wnload	8
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Ŧ			аўс см	DBuild		Location list with ass	sets	CMDBuild		Î	11 +
				Asset Brand Asset Assignee	Asset Description Assignee email						
			Building:	Office Building A							
9			Floor:	Office Building A - Flo	or 1						
			Root	m: B101002	Office Building A -	Floor 1 - Room 002					14
				Epson Williams John	Epson - ELP 6200L john.wiliams@example.com	m					
			Floor:	Office Building A - Flo	or 2						
			Roo	m: B102002	Office Building A -	Floor 2 - Room 002					ts
				HP Johnson Mary	Hp - V220 mary.johnson@example.co	am				111	
			Floor.	Office Building A - Flo	or 3						
			Root	m: B103001	Office Building A -	Floor 3 - Room 001					
				Acer Williams John	Acer - Netbook D250 john.wiliams@example.com	m					
			Building:	Office Building B							
			Floor:	Office Building B - Flo	ior 1						
-			Roo	m: B201001	Office Building B -	Floor 1 - Room 001					
Pro				Acer Wilson Barbara	Acer - V193HQb barbara wilson@example.c	som					
Vie											
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Create or Modify Card

It allows you to enter (read-only or writable) a data card of interest in spite of the current one

In the following example, starting from the card of a PC you can refer to every assignee's personal data

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Ð (Surname:	Viliams
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	Level:	siver × ×
	Email:	ohn.wilams@example.com
	Office:	Office 02 - Administration
	Phone:	34646
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Lock of a card in edit

If the CMDBuild instance is configured with the active lock function and a user asks for a data card or a workflow to be edited ("Edit card" button), the system reserves the card / process instance to that user for the period defined in the configuration parameters.

If another user tries to edit the same card / process instance in the same period, the following error message appears:

"The user [username] has edited the card for [n] seconds".

The card or process instance will be automatically released as soon as the first user leaves the editing modality, through the button "Confirm" or "Cancel".

🔥 Warning	×
The user admin is editing the card to 169 seconds	9

Details TAB

For certain classes it can be useful to manage cards using a "master-slave" schema, where "slave" cards are hierarchically related to "master" cards.

This option can be enabled by using the "Master Detail" checkbox on the corresponding domain, and defining in the detail (slave) class a reference field that refers to the main class (master).

In the following example we have configured a domain so that the assets located in a given room are connected, with a Master-Detail domain, to the room itself.

As a consequence, the master card will show a further selection list (on the right) called "Details", which may include the name of one or more classes related to the "Master" class.

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When accessing the card list, an entry called "Asset" (the domain description) will appear, and when selecting that entry we will get, in the tab "Details", the list of assets located in the current room.

There is the possibility of performing the following operations:

•	create a new card using the button on the top of the screen	📀 Add detail
•	edit card	a de la calegra
•	delete card (logical delete)	×
•	open the relations graph for current card	
•	displays and allows the editing of the "Notes" field	5
•	displays and allows you to manage documents attached to the card	Ð

Notes TAB

Using the "Notes" tab you can browse and update the "Notes" field, a field containing a description of the selected card.



The "Notes" field is managed using an HTML editor that allows various formatting options (type, size and font color, text alignment, lists).

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Relations TAB

The "Relations" TAB allows you to manage the relations of the current card.

open (move to) the related card (double click on the card row)

There is the possibility of performing the following operations:

create a new relation for the current card

edit relation linking a different card

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The relations are grouped by domain, with the possibility of collapsing or expanding each group.

By default, the groups containing a number of relations minor than the threshold set in the Administration Module are automatically expanded.

The application shows also the attributes defined for the domain (if any).

The relations tab is disabled if no domains involve the current class (directly or through a superclass).

Add relations

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Create new relation

To create a new relation you can click the "Add domain" button that shows the list of domains (relationship type) available for the current class.

The application opens a popup window with a list of cards, so you can select a card to be connected either directly or by applying some filters in the "Filter" tab.

Depending on the domain cardinality, you might be able to select more elements using checkboxes.

In the next example we chose a card from the "Asset" class, then we selected the domain "provided by supplier" and then we selected the "Misco" entry from the list of available suppliers.

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User Manual

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By confirming the operation, we will have a relation between the asset and the supplier.

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Move to related card

By clicking on the green arrow on the right or by double-clicking the row, the application moves to the "Relations" TAB of the related card.

Edit relation

The edit function uses the same tool described for the creation of a new relation.

In this case, however, the domain maintains the original value.

Delete relation

Relation is deleted, but logical delete is performed (thus history is still available).

Display related card

The application shows in a pop-up window the related card with all its attributes.

For example, this is the visualization of the supplier card connected to the PC.

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Open relations graph

Please refer to the specific chapter at the beginning of this manual.

History TAB

Thanks to the "versioning" feature included in CMDBuild, the "History" TAB allows you to browse the history of the selected card.

The card "versions" are displayed one per line, and you can expand / close the card details.

For each "version" of the card the system shows:

- the starting date for that version
- the ending date for that version
- the user who made the change
- · an icon to recognize attributes change or relations change
- in the first case, the attributes of the card for that specific "version", with highlighted changes (in green)
- in the second case, the code and description of the related card at that time ("version")

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Using the check "Include relations" you can consult the relation history.

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Attachments TAB

The "Attachments" TAB allows you to view the documents attached to the current card.

The application uses Alfresco DMS as storage system, however standard operations (such as attach, open, delete, etc.) take place using CMDBuild standard interface.

When loading a new attachment, the user must select a document type from a drop-down list; this list must be defined using Administration Module (administrator has to create a specific Alfresco Lookup and set all the parameters into the Alfresco configuration page).

There is the possibility of performing the following operations:

- · upload a new attachment
- download attachment (open)
- display the history of the document versions
- edit attachment description
- delete attachment



The integration of Alfresco DMS requires the creation of a specific CMDBuild area inside the Alfresco repository, creating a folder dedicated to the first level, a subfolder for each class and, inside, a subfolder for each card.

The attachment feature is completely integrated in CMDBuild, so the use of Alfresco interface is not necessary. However, those wishing to use the Alfresco interface will find the same documents available in CMDBuild.

Attachments upload

The upload takes place using a file upload form, the fields are:

- attachment category (related to a specific lookup see the configuration parameters in the Alfresco section of the Administration Module)
- file
- attachment description

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Attachments display

The files attached to the current card are presented in this way:

CMDBuild Demo				User : Admin	istrator	Logout	Þ			Open S	ource Configu Management	ration an Databas
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Asset	Mo	nitor	MON0003	Acer - V193HQb				Acer	V193HQb	Wilson B		
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In case you edit an uploaded document through the proper icon, CMDBuild will create a new version asking if it has to be enumerated as "minor version" (1.1, 1.2, etc) or as "major version" (1.0, 2.0, etc).

For every document version it will be then possible to consult the following data in a proper popup window:

- the creation date
- the date of the last change
- · the expiry date
- the author
- the version
- name
- description

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Map management

By clicking on the "Map" button you can see or change the position of an object on the map (or plan); let's see how to configure the GIS feature in CMDBuild.

The prerequisites are:

- PostGIS installation (please refer to technical documentation for version number)
- activation of PostGIS operations in your database (SQL scripts provided in the PostGIS documentation)

The CMDBuild configuration requires:

- configuration in the Administration Module of at least one geographical attribute
- activation of a map service (Open Street Map or Google Maps or Yahoo! Maps) and / or activation of GeoServer GIS server for raster / vector files (plans, etc.)



The GIS features available in CMDBuild, once you switch to map mode (button "Map" on the grid), include:

•	switch to map mode	💹 Мар
•	back to "List" mode	🔟 List
•	address research on the map	P Find
•	print of the map	🚔 Print
•	list of thematic maps	O Thematism •

- "zoom in" / "zoom out", using the mouse wheel or by using the map controls
- "pan", by moving the mouse on the map
- "control layer", to activate a preconfigured map service and show one or more layers for the current class

GIS navigation tree, to go into details of an item and to display those GIS Navigation Layers List-Fice

card by clicking on the green arrow on the right

elements contained in the lower levels; you can also go into the related

- list of elements of the current class, to display those elements GIS Havigation contained and to go into the related card by clicking on the green arrow on the right
- "info", i.e. display the list of those elements set in a certain point of the map, which can be reached by pressing the left button more than two seconds; also in this case you can place into the related card by clicking on the green arrow on the right
- zoom level and current coordinates of the mouse cursor

On the other side the GIS features available by editing the current cards include:

- display the editing toolbar by entering card editing mode
- select the geographical attribute (if the current class has more than one)
- add a new geographic element or move an existing one (the addition of a new element automatically removes the previously

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 Office Builder A - Floor 3
 Office Builder B - Floor 1
 ✓ Office Builder B - Floor 2
 ✓ Office Builder B - Floor 3

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defined element, causing its replacement)

• delete the existing geographic element for the current card

X Remove

Through the described functionalities, you can get an advanced management of the asset georeference.

Sample of items set onto the plan:

CMDBuild Demo	User : Administrator Logout Group : SuperUser Administration module			Open Source Co Manage	nfigurat ment D	ion and atabase
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Address research

The research of an address on the map (available on Open Street Maps) can be done through the popup window shown in the following image.

CMDBuild presents the list of those addresses corresponding to the description and, after the confirmation, sets the map on that address.



Print of the map

The function to print the map produces a PDF file that includes both the displayed image and the legend of the thematic maps.

An example:



Displaying customers differentiated by state

Thematic Legend: Stato clienti

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Pg. 1

Management of the thematic maps

The management of the thematic maps allows to represent graphically on the map, with colours and forms defined by users, information included in the cards, such as the status of an item, the item classification according to duration, classification of buildings or compartments according to the content tipology or to the content compared to the dimension, etc.

Through the proper function you are able to:

- configure a new thematic map
- edit a thematic map present on the map
- hide the current thematic map
- hide the legend of the current thematic map
- activate / disable one of the thematic maps available on the map

In order to configure a new thematic map, the following steps are necessary.

Addition of a new thematic map



Add

Edit

Office

Hide Current

Hide Legend

Configuration of thematic map - step 1:

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You are required to specify:

- the name of the thematic map
- the type of the thematic map, that is:
 - "Interval": in the graphic representation the colour depends on the interval where the value to represent is located
 - "Punctual": in the graphic representation the colour depends on the value to represent (it is possible only for numerical values)
 - "Graduated": in the graphic representation the dimension depends on the value to represent (it is possible only for numerical values)
- the origin of the value to represent:
 - an attribute of the card
 - a value returning from a specific SQL function predefined in the database
- the layer (corresponding to the geograhical attribute) where you have to work

Configuration of thematic map - step 2:

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You are required to specify:

- the name of the attribute of the card where you want to set the thematic map (otherwise the name of the SQL function)
- setting mode

Cards

Configuration of thematic map - step 3:

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The system shows the various values acquired by the attribute of the thematic map, the related size and the colour chosen by the system for the graphic representation.

The choice of colours can be edited by the user.

Configuration of thematic - final result:



With the next versions of CMDBuild you will be able to save those thematic maps that you want to use more often.

BIM viewer

The visible IFC models should be imported in advance into CMDBuild (or into its dedicated BIMserver repository), through its proper function available in the Administration Module.

The IFC files include entities and relations of the represented model, starting from a root class (e.g. Building)

Such root class is recognized in the UI of CMDBuild. In the card list it is supported by a special icon that starts the viewer.

Once it starts, the 3D viewer will show you a pop-up window like the following one.



The functions available in the 3D viewer of BIM are subdivided into the three headings of the accordion menu on the left:

• various controls described in the following table



- list of layers that include the elements of the model, with the possibility • of showing / hiding each of them
- hierarchical tree of each element of the model, with the possibility of • showing / hiding each of them and moving in the card of the element closing the viewer window

The detail functions available in the heading "Controls" (first heading of the previous table) include:

- Camera:
 - Reset: restore the initial checkpoint •
 - Front: show the model from the front checkpoint •
 - Side: show the model from the side checkpoint •
 - Top: show the model from the top checkpoint •
- Mode
 - Pan: it allows the movement of the model •
 - Rotate: it allows the rotation of the model •
- Zoom: it zooms the model •
- Expose: by selecting a building floor, you can extract • horizontally from the building body and efficiently view its features and its elements

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Pan	Rotate

Mode

Zoom

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Workflow cards

CMDBuild workflow user interface provides, for all kinds of workflow:

- list of open / closed process instances (depending on the value selected in the combo)
- process details, in both read and write
- buttons to open sub-cards of the current workflow step to execute context-dependant operations (view, create or edit data cards, create relations, select related cards, upload attachments, etc.)
- a panel to display instructions for current workflow step (button on the right)

We provide a Specific manual (Workflow Manual) dedicated to the configuration and use of the workflow system. In this chapter there are only some general information and screenshots related to the directions for use through the Management Module



This is a sample of form for a step that is part of a RfC management workflow.

Just like the standard cards, workflow cards provide attributes, notes, relations and history.

It's possible to interact with the CMDBuild workflow using simplified interfaces that might be easier to use for non-technical users. They can be used to open a new support ticket or to subscribe IT services or to validate any activities in authorisation workflows.

Talking of this, CMDBuild provide a tool for the implementation of external interfaces called CMDBuild GUI Framework, which interacts with CMDBuild through the webservice REST. It allows an (almost) unlimited freedom when projecting the graphic layout, defined through an XML

descriptor and with the possibility of intervening on the CSS, and it allows you to use it in portals based on different technologies, since it is developed in javascript / Jquery environment.

On the other side, the GUI Framework configuration needs a javascript code customisation, that is simplified thanks to predefined functions (communication, authentication logics, etc.) and to native graphic solutions (forms, grids, upload buttons and other widgets)

Sample of interface for the advancement of a process.

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• Navigation	left Submit a service request	• •
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You are now logged into the IT Self Service Portal. Please select an option from the menu. If you have any problems using this support system, please email support@myfirm.com The ICT Helpdesk is open from 8.30 am to 18.30 pm Monday to Friday.	Send	al Cancel
www.cmdbuild.org - Copyright⊚Tecnoteca srl		Povered By Liferay

As an alternative, CMDBuild provides a standard solution to issue some features in the form of Portlet (standard JSR 268) in the open source Liferay portal.

The portlet is able to access to CMDBuild through the SOAP webservice, adapting to the configuration of the related instance (menu, authorizations, data card structure, process flows, reports).

The portlet includes the starting and progressing of a process, with consultation of active instances or completed instances, of data card management, (input, edit, cancellation) and report execution .

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Liferay Welcome						
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This solution is very advantageous because it can adapt to the related CMDBuild instance without developing a code for the management of the interaction between two environments. Its limit is its "self adaptability" itself that does not allow any kind of customisation.

Card TAB

By selecting the function of RfC process management, the system shows the RfC as open (or in the selected status chosen in the upper list: open, suspended, complete, aborted, all).

Through the button "Start Request for Change" the Helpdesk can register a new request.

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Navigation	- List - Request for change				=
🖽 🚞 Dashboard	📀 Start Request for change	e Open 🗸			
Basic archives	Request number	Start date	Status	Category	Requester
Purchases	0	18/03/2016 22:31:01	Analysis requested	Create new ERP user	Wilson Barbara
Asset	Specialist: RFC cost an Specialist: RFC impact	nalysis tanalysis 18/03/2016 22:33:56	Analysis requested	External software installation	Miler Linda
Com puter	3	26/03/2016 15:01:28	Registered	Internet access	Brown Robert
PC	4	26/03/2016 15:17:14	Registered		Moore Elizabeth
- Server - Monitor - Printer	Activity Note Rela	tions History E-mail Atta	タ× 齢 Search filter 齢 indiments	Clear filter 🔒 Print 🔹	1-4of4 («
Printer NetworkDevice Rack UPS License Report Request for change Classes Processes	Edit activity X Abort Start da Request numb Request Descriptio * Catego * Formal evaluatio Impact analysis reque	te: 26/03/2016 15:17:14 er: 4 er: Moore Elzabeth on: I need a new CRM account ry: Create new CRM user on: Accepted 🗙 🗙 st:	▼ X	ChangeManager Formal evai	Attachments Requester card
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www.cmdbuild.org		Info & Su	port		Copyright © Tecnotec a sr

Prior to fill in the form, the operator can refer to the operative instructions associable with every user activity (by working in the XPDL file which describes the process flow).

User Manual

Workflow cards

		User : Administrato Group : SuperUser <u>Admir</u>	r Logout histration module		Open Source Configuration and Management Database			
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🕀 🦲 Basic archives	Request number	Start date	Status	Category	Requester			
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Computer	± 2	18/03/2016 22:33:56	Analysis requested	External software install	ation Miler Linda			
PC	3	26/03/2016 15:01:28	Registered	Internet access	Brown Robert			
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Widget

Widgets configured using the Administration Module can be used to perform specific functions useful for the current user's activity.

These widgets can be classified as follows:

- Create or modify card: create or modify a datacard in a specified class
- Manage relation: create, edit or link cards (create relations) to the main card
- Link card: select cards from a filtered list (the filter is specified using the CQL language), with a geographical extension to select dots and ploygons on the map
- Webservice: select a record from a list by querying an external webservice (e.g. databases used in the workflow)
- Email management (with parameter substitution, also obtained with CQL query)
- Attachment: attachment management
- Note: notes management with WYSIWYG editor
- Create report: run reports (the report may be attached to the process and sent via mail)
- Edit grid: compiling a table with several rows (data cards) and columns (data card attributes), with the possibility of adding or deleting rows or importing them from CSV files
- Start workflow: starting another selected static workflow (according to the definition of workflow) or a dynamic selected workflow (during the start of the workflow)
- Navigation tree: it allows to select one or more datacards through an interface based on a preconfigured navigation tree (subset of the domain graph)

Example 1: Link card

The widget allows in this example to select one or more cards from a filtered list of assets (located in the predefined office).

In this example, the workflow provides access to the workspace using the button:

Assets list

The work area in the Options TAB has the following interface (the select mode, single or multiple, can be modified):

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www.cmdbuik	d.org		Inf	o & Support			Copyright @	Tecnote	c a srl

Example 2: Manage email

In this example, the workflow provides access to the workspace using the button:

Emails

The work area in the Option TAB has the following interface:

Workflow cards

User Manual

CMDBuild Demo			User : Administ Group : SuperUser A	rator <u>Logout</u> dministration module		Open Source Configuration and Management Database
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🖽 🛄 Locations	Specialist: RFC	cost analysis				
Assets	Specialist: RFC	im pact analysis				
Computer	≝ 2		18/03/2016 22:33:5	6 Analysis reque	ested External software installation	on Miller Linda
	3		26/03/2016 15:01:2	8 Registered	Internet access	Brown Robert
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Printer	📀 Com po se e-mail	Regenerate al	e-mails 🍣 Grid refresh			99
Rack	Archiving date	From	То	Subject		ar ath
UPS	🖃 Outgoing					* Ins
License	11/11/2015 10:1		specialist-hw@exa	Incident Manage	The request IM000007 was assigned to:	. 👒 🖼 🥪 🖾 🖾 🖉 🖉
	🛛 Sent					tion
Request for change	11/11/2015 10:1	test@example.co	m helpdesk-hw@exa	Incident manage	The request IM000007 has been register	
	11/11/2015 10:1	test@example.co	m a.anderson@exa	Incident manage	The request IM000007 has been register	
						# ***
Classes	÷					
Processes	*					
Views	+					
Dashboard	+					
Report	+					
Utilty	±1			Back		
www.cmdbuild.org			Info & S	upport		Copyright © Tecnoteca srl

It's possible to create automatically emails using a preset template, fill it out manually, or incorporate free text in an email automatically generated.

CMD Ruide Demo		User : Administrator Logout	Open Source Configuration and
	Compose e-mail		×
Navigation	Compose from template 🔹		8
🗄 📃 Dashboi	Keep sync:		
🖽 🦲 Basic ari			
🖽 📃 Purchas	Delay: None		
Docation	From:		
Assets	To: m.brooke@exa	mple.com	
Com	Cc:		
PC			
Note	Bcc:		
Serv	Subject: AssetMgt n.AM	000023	f3
Moni	B J U Font Size · A · aby ·	토토코르 = = : : : : : : : : : : : : : : : : :	
Print			9
Netw	Dear Brooke Mckayla,		a a a a a a a a a a a a a a a a a a a
Rack	new hardware has been assigned to you.		tive
UPS	This message was generated automatically l	ov CMDBuild - Readv2Use	Ins
+ Report	For more information please login into the sy	stem.	E.
G Workfo			ŧ
Requ	Attack Re Add attacks and fam DMC		
	Attach lie Add attachments from DMS		
Classes			
Processes			
Views			
Dashboard			
Report		OK Cancel	
Utility	(+)	Back	
www.cmdbuild	l.org	Info & Support	Copyright © Tecnoteca srl

When you are writing an e-mail, you can attach documents by uploading them both from your own file system and from the ones filed in the document system integrated in CMDBuild.

The fields "To" and "CC" can include one or more e-mail addresses; in case of several addresses the separator should be ",".

Example 3: Attachment management

In this example, the workflow provides access to the workspace using the button:

Attachments

The work area in the Option TAB has the following interface:

CMDBuild Demo				User : Administrato Group : SuperUser Admin	r Logout histration module			Open Source Configuration and Management Database
Navigation		List - Request for chang	e					= = = =
🕀 🧰 Dashboard		() Start Request for chang	e Open	~				
🗄 🧰 Basic archives		Request number		Start date	Status	Category		Requester
🕀 📃 Purchases		G 0		18/03/2016 22:31:01	Analysis requested	Create new ERP user		Wilson Barbara
🗄 🦲 Locations		Specialist: RFC cost	analysis	10/00/2010 22101101	renary one real access			
🖃 🧱 Assets	Ad	d attachment					×	
Asset		* Cata annu	T					Miller Linda
Computer		* Category:	Technical Di				n.	Brown Robert
Natebook		* Load a ttachment:			Browse			Moore Elizabeth
Server		* Description:	Application M	fanual				1-4of4
Monitor								
Printer								~
NetworkDevice								pado
Rack								ativ
UPS								eli
License								Istn
🕀 🧱 Report								L dt
🖃 🚞 Work flow								n
Request for change							-	
	3			III			*	4
				OK	Cancel			
Classes	(+)							
Processes	Æ							
Views	-							
Dashboard	t							
Report	(+)							
Utility	t				Back			
www.cmdbuild.org				Info & Suppo	ort			Copyright © Tecnotec a srl

Relations TAB

About the processes cards, you can refer the relations created during the activity progress.

The relations can be manually created from the user interface or direct from the system through automatisms based on APIs configured in the process.

			G	User : Administrato roup : SuperUser Admi	r Logout nistration module		Open Source Configuration and Management Database						
Navigation	- Lis	st - Request for change					= 8						
🗷 🧾 Dashboard	0	Start Request for change	Open	~									
Basic archives Decations Asset		Request number St		Start date	Status	Category	Requester						
	3	∃ o ·		18/03/2016 22:31:01	Analysis requested	Create new ERP user	Wilson Barbara						
		Specialist: RFC cost ana	lysis										
		Specialist: RFC im pact analysis											
	Œ	2		18/03/2016 22:33:56	Analysis requested	External software installation	Miler Linda						
		3		26/03/2016 15:01:28	Registered	Internet access	Brown Robert						
Notebook													
Server													
Monitor	li di di	Page 1 of 1	b bl Z	2	0 x # Caarch filter	A Class from	1-3of3						
Printer		i nage 1 of 1	P PILL			BIG COCCE MALES I FOR FOR IC	1 5015						
NetworkDevice	A	ctivity Note Relati	ons Hist	ory E-mail Attad	nments		«						
Rack	-	Relation graph											
UPS	Cla	65		Begin date	Code	Description	rativ						
License		 Pequested by (1 item)	(eIr						
🗄 🦲 Report	-			18/03/2016 22:31:		Wilson Barbara							
G Workflow		E chipioyee					t di						
🔅 Request for change							9						
Classes	+												
Processes	+												
Views	+												
Dashboard	+												
Report	+												
Utility	+												
www.cmdbuild.org				Info & Supp	ort		Copyright © Tecnoteca sr						

History TAB

Referring to the History TAB you can know the complete sequence of each single progress activity, their users, beginning and ending date.

Such information can be used through report and dashboard to calculate and provide experience indexes (KPI) of the service effectiveness (SLA control).

CMDBuild Demo			Us Group : :	er : Administrator Lo SuperUser Administra	gout tion module	Open Source Configuration and Management Database						
Navigation	EL	ist - Request for change						=				
🗷 🦲 Dashboard	6	Start Request for change	Open	~								
Basic archives Jurchases Locations Asset Computer PC Notebook		Request number	Start dat	e	Status	Category	Final result	Requester				
	Ξ	0	18/03/20	016 22:31:01	Analysis requested	Create new ERP u		Wilson Barbara				
		Specialist: RFC cost analysis										
		Specialist: RFC im pact analysis										
	G	2	18/03/20	016 22:33:56	Analysis requested	External software i		Miler Linda				
		Specialist: RFC cost ana	lysis									
		Specialist: RFC impact analysis										
		Specialist: RFC risk and	ysis									
Server		3	26/03/20	016 15:01:28	Registered	Internet access		Brown Robert				
Printer												
NetworkDevice	1			0	and a second							
Rack		Page 1 of 1	P PI 6	P	Search filter 📸	Clear filter 📋 Print	•	1-3013				
LIPS		Activity Note Relati	ons History	E-mail Attachmen	ts			«				
License						Inch.	ide system activitie	es Tockude relations				
Report Workflow				- 4 4 4			G System de avia					
		Begin date 🔻	End date	User	Activity name	Activity pe	rformer Sta	tus				
Request for change		18/03/2016 22:35:47		admin	RFC cost ana	lysis, Specialist,S	pecialist,S Avv	viato 📩 🔂				
		Nome Attività : Ri	C cost analysis,					Tuo				
		Description: RFC r	2 created by Miler	Linda date Fri Mar 18 22	:33:56 CET 2016			tion				
		Start date: 18/03/	2016 22:33:56					4 -				
Classee	-	Status: Analysis rea	quested					=				
Processes	+	I need the new version of Autodesk AutoCAD										
News	-	Category: Externa Formal evaluation	software installation									
1/1600/C												
Dashboard	+	Impact analysis m	equest: true									
Dashboard Report	+	Impact analysis n Cost analysis requ Risk analysis requ	equest: true uest: true est: true									
Dashboard Report	+ + +	Impact analysis n Cost analysis req Risk analysis requ Impact analysis n	equest: true uest: true est: true esult:		2449							
Dashboard

CMDBuild includes the possibility of configuring one or more "dashboard" pages; each of them can be addressed to a different typology of aspects which should be controlled: asset situation, service desk performances, cost allocation, etc.

Every dashboard is made up of a number of charts with different typologies: pie, bar, line, gauge chart.

Like all CMDBuild components, also the dashboards are configured in the Administration Module and can be refered in the Management Module, both with the specific Dashboard heading of the accordion menu and in the Navigation Menu.



For every dashboard chart you can perform the following operations:

- display or hide the controls to edit the possible provided parameters
- display the complete list of the values for the chart calculation
- update the chart display
- if required, edit the analysis parameters, and update the chart display



In the following sample you can see how you can edit the valorization of the provided parameter in the bar chart, in this case the analysis class.



In the following sample you can see how the value list for the bar chart calculation can be demanded and shown.



The dashboards are performed through proper components of the Ext JS library, which the whole CMDBuild user interface is implemented with, and include some interaction mechanisms for the data reference.

In the following sample, if you place the mouse on a pie chart area, the area will be highlighted and the corresponding numeric value will be presented.



Report

CMDBuild includes and uses a powerful report engine (JasperReport) able to create dynamic reports that are designed using an external visual editor (iReport) and then imported using the Administration Module.

The report engine supports these formats:

- PDF
- CSV, used to import data into spreadsheets
- ODT, used to import data into a word processor

Report types and features

IReport editor has the following features:

- text formatting options (font, text alignment, space, colour, etc.)
- standard elements definition (header, footer, column headings, summary, etc.)
- data grouping
- expressions evaluation
- computed fields
- advanced subreports management
- barcodes support
- geometric elements (lines, rectangles)
- images and charts (pie, bar, Gantt, etc.)

Using these features it's possible to create and import in CMDBuild:

- tabular reports with groups and totals (multi-level option)
- reports with images and logos
- reports with statistics and graphs
- labels with barcodes

Custom report parameters can be defined and then required at rendering time Before rendering, CMDBuild will present a popup with the required report parameters (i.e. computer name, date range, etc)

Lookup and Reference parameters will be displayed automatically as a dropdown list with predefined values.

Reports imported into CMDBuild can be executed:

- selecting the report from the navigation menu (if available) in the top-left column
- accessing the list of available reports (for the current user) by choosing the "Report" menu in the left column

Screenshot of report selection / execution

User Manual





Utility features

Some of the utility features are:

- password change
- massive card data editing
- CSV export
- CSV import

Password change

This operation allows the user to set a new password; the user has to insert the old password to confirm the change.

User must insert the new password twice (to avoid typing errors).

			User : Administrator <u>Logout</u> Group : SuperUser <u>Administration m odule</u>	Open Source Configuration and Management Database
Navigation	+	Change password		
Navigation Classes Processes Deshboard Report Utilty Change password Change password Multiple update Change password CSV file Export CSV file		Change password Old password: New password: Rety pe new password:		
www.c.mthuid.ocg			Save Cance	Convicts @ Transfer and

NOTE:

The system administrator can set certain criteria to manage the password, by editing the parameters available in the file:

\${tomcat}/webapps/cmdbuild/WEB-INF/conf/password.conf

In particular the administrator will be able to specify:

- the activation of the following criteria (parameter org.cmdbuild.config.password.enablepassword-change-management=true in the file indicated above, if "false" there won't be any password management)
- the expire date of the password (for example org.cmdbuild.config.password.max-passwordage-days=90)
- the number of forewarning days, which will produce a notification via email (for example org.cmdbuild.config.password.forewarning-days=7)
- the form of password, for example:
 - minimum eight characters (org.cmdbuild.config.password.min-length=8)
 - at least one number (org.cmdbuild.config.password.require-digit=true)
 - at least one upper-case letter (org.cmdbuild.config.password.require-uppercase=true)
 - at least one lower-case letter (org.cmdbuild.config.password.require-lowercase=true)
 - different from the previous password (org.cmdbuild.config.password.differ-fromprevious=true)
 - different from the username (org.cmdbuild.config.password.differ-from-username=true)

When the password has expired and you try to login after that, CMDBuild will readdress the user to a new page where a help message will appear (parameter org.cmdbuild.config.password.helper-message='testo di help anche HTML') and the user has to specify:

- the previous password
- the new password (twice), which has to be compatible with the criteria set by the system administrator (see above)

CMDBuild	User : Administrator Logout Group : SuperUser	Open Source Configuration and Management Database
Change password		
	Please reset your password, considering that your new password mu • Have 8 or more characters • Have both uppercase and lowercase letters. • Have at least one number. • Be different from your username. • Be different from your previous password.	ıst:
	Old password: New password: Retype new password:	
	Save	

The system will then update the user account in the database with the new inserted password (encrypted with MD5 algorithm).

Massive card editing

This feature allows you to change the value of one or more attributes of a selected set of cards.

At first you have to select a class from the ones available in the top left menu.

Then you can create filters to select the cards you want to edit using both the quick filter or the advanced one (described on previous pages).

Next you can manually select the single cards to apply the change, or you may select all the cards in the list by clicking the checkbox at the top of the last column.

Once selected the cards, you have to select (checkbox) the attributes you want to change and insert the new value.

Finally, you have to confirm the operation by clicking the "Confirm" button.

Before performing the editing operation, the system shows the number of the cards that will be edited, demanding an acknowledgement or the cancellation of the operation.

In the next example we change all the cards with "HP" brand, setting the "Acceptance date" to 06/09/2011.

CMDBuild Demo			Gro	User : Admin up : SuperUser	istrator Logout Administration m	odule				Open Sou M	rce Configu a nagement	ration and Database
Navigation	+	Multiple up date										E
Classes	+	🗄 🔛 Asset		Sub class	Code	Description	Seriah um ber	Supplier	Brand	Model	Assigne	e Technic
Processes	+	Building		PC	PC0003	Hp - A6316		Misco	HP	A6316	Davi	Sm it
Views	÷	Em ployee		Monitor	MON0007	Hp - V220	SR6 576		HP	V220	John	
Dashboard	+	- Hoor		Printer	PRT 000 3	HP DesignJ	YU6874		HP	DesignJet Z	Jone	
Report	+	Invoice		Notebook	NB0001	Notebook S		HP			Willia	Moor
Utilty	-	Network point										
hange password		Office										
🎥 Multiple update		Room										
m port CSV file		Supplier										
				4 Page 1	of1 🕨 🖗	l 🍣 hp	ļ	ox å	Search f	filter 👸 Clear f	iter 🔒	Print 🔹
				Page 1	of 1 🕨 🖗 ierialnumber: Supplier:	l 🍣 hp	ر ا × ×	ox ä	Search f	filter 📸 Clear 1	iter 🔒	Print •
				4 Page 1 J 5 J 9 J 9	of 1 > > > > > > > > > > > > > > > > > >	i hp	ر م × ×	o∖× a	Search f	filter 📸 Clear I	iter 🔒	Print •
				 Page 1 S P P Accord 	of 1 > > ierial number: Supplier: urchase date: eptance date:	l 🍣 hp 3 4/04/2016 🖸	- × P	°× ₿	Search 1	filter 📸 Clear I	iiter 🔒	Print •
				4 Page 1 j 5 j P j P j According	of1 > Supplier: urchase date: eptance date: Final cost	I & hp □ 4/04/2016	× × ₽		Search f	filter 📸 Clear 1	iiter 🔒	Print •
				4 Page 1 5 9 9 9 9 9 9 9 9 9 9 9 9 9	of 1 idential number: Supplier: urchase date: ptance date: Final cost Brand:	4/04/2016	× × 0		Search 1	fiter 📸 Clear 1	iter 🔒	Print •
				4 Page 1 J .5 J .9 P	of1 > Supplier: urchase date: eptance date: Final cost Brand: Save	4/04/2016			Search 1	Siter 📸 Clear 1	iter 🔒	Print •

Import CSV data

The CSV (Comma Separated Value) file import is a useful feature that allows you to upload data to CMDBuild using a "wizard"; this is a fast way to upload a lot of cards into the application within few steps.

This operation is performed through the user interface, as shown below, and not by querying the database, because we want the application to control and validate data before insertion.

It is important to notice that the import operation always appends data, so imported cards are always added to the existing ones.

The import operation includes these steps.

Step 1

The first step includes:

- class selection (the import operation works only on a single class)
- CSV file selection
- fields separator selection: "," (comma) or ";" (semicolon) or "|" ("pipe")

Confirming the operation with the "Upload" button, the application will import data from the specified file, showing imported cards in the standard grid.

Screenshot of user interface provided by the system.

CMDBuild Demo					Group	User : A : Super	dministr User <u>A</u>	ator <u>Logo</u> dministratior	ut 1 m odule					Орн	en Source Con Mainagen	figuration and Tent Database
Navigation	+	Import CS	/ file													
Classes	+	Select a d	lace.	Comp	tor	V										
Processes	+	Gerecca ci	1033.	Compt												
Views	+	CSV file:								Browse						
Dashboard	+	Separator	:	; `	•											
Report	+															
Utility	Ξ															
Multiple undate																
Import CSV file																
Export CSV file	Colonation (7)								Uploa	d						
		Code	Description	Serialnumbe	Supplie	Purcha	Accept	Final cost	Brand	Model	Room	Assigne	Technical r	Workpl	Unit number	Depth (cm)
		R02	Rack of	YRE9654	Misco	201	201	875	Cisco	Ra/56	DC010		Johnso		12	60
	1	R01	Rack of	TET6465	Misco	201	201	875	Cisco	Ra/56	DC010	-	Moore		12	60
				X Cha	woold	racards	only									
			4	Sho	wrivard	records	U	pdate	ОК		Cancel					
www.cmdbuild.org						I	nfo & Sı	pport						C	opyright © 1	Tecnotec a sr

The first row of the CSV file will include the columns headings.

The system will match only the columns in the CSV file with the attributes names (note: the name,

NOT the description) defined using Administration Module (i.e. the column name in the database table).

The import function will propose the CSV file contents as table on the CMDBuild page, highlighting in red possible invalid rows (column name not identified, compulsory columns not present, data type invalid or not corresponding to the database, etc).

Lookup attributes must match (uppercase/lowercase, blank spaces, etc.) the lookup description as stated, at registration time, in the Administration Module.

Reference attributes must match the "Code" (note: "Code", NOT "Description") field of the related card (uppercase/lowercase, blank spaces, etc.).

Dates must be written using dd/mm/yy format

In the CSV file, only the rows with the column number provided in the heading row are considered valid: you have to pay attention not to insert any additional empty rows or columns in the CSV file.

The example shows some errors on reference fields.

Step 2

The next step is the correction of any highlighted errors, which can be done by double-clicking on the field and changing the value (as shown in the screenshot).

Alternatively, it is possible to modify the CSV file and retry the import operation.

Once resolved the errors, you can press the "Update" button to re-run data validation.

Finally, if there are no errors, you will complete the operation by filing the cards in the database.

Please, remember that the data import operation always appends data, so new cards are always added to the existing ones (otherwise it creates an error if there is a duplicate key).

Below you can find a screenshot of the user interface provided by the system for the final loading.

User Manual

Utility features

CMDBuild Demo				Group	User : /	Administ rUser /	rator La Administra	o <u>gout</u> ation moduk	2			Open Source Mani	Configuration and agement Database
Navigation	+	Import CSV file											
Classes	+	Culture draw											
Processes	+	Select a class:	Compu	Jter	×								
Views	+	CSV file:							Browse				
Dashboard	+	Separator:	; ~	7									
Report	+												
Utility	Ξ												
👘 Change password													
🌸 Multiple update													
🌸 Import CSV file													
Export CSV file								Uplo	ad				
											-		
		R02 Rack of YF	RE9654	Misco	201	201	875	Cisco	Ra/56	Office	Johnso	12	60
		R01 Rack of Th	ET6465	Misco	201	201	875	Cisco	Ra/56	Office	Moore	12	60
		<u>م</u>	Show	w invalio	d record	s only							
							Jpdate	ОК	·) (Cancel			
www.cmdbuild.org						Info & S	upport					Copyright	© Tecnoteca srl

Export CSV data

This feature allows you to create a CSV (Comma Separated Value) file that contains class data, using the selected field separator (possible separators are ",", ";" and "|").

The browser will ask you to save or open the file using the application associated with the file extension "csv".

Screenshot of user interface provided by the system.

CMDBuild Demo		User : Administrator Logout Group : SuperUser Administration module	Open Source Configuration and Management Database
Navigation +	Export CSV file		Ξ
Classes +	Select a class	Computer	
Processes +	ocidect crassi		
Views +	Separator:	; *	
Dashboard +	Export		
Report +			
Utilty			
change password			
- Multiple update			
- Import CSV file			
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APPENDIX: Glossary

ATTACHMENT

An attachment is a file associated to a card.

In order to manage the attachments, CMDBuild uses in embedded mode any document system which is compatible with the standard protocol CMIS (or the DMS Alfresco until the version 3 through its native webservice).

The management of the attachments supports the versioning of those files that have been uploaded a few times, with automatic numbering.

WORKFLOW STEP

"Activity" means one of the steps of which the process consists.

An activity has a name, an executor, a type, possible attributes and methods with statements (CMDBuild API) to be executed.

A process instance is a single process that has been activated automatically by the application or manually by an operator.

See also: Process

ATTRIBUTE

The term refers to an attribute of a CMDBuild class.

CMDBuild allows you to create new attributes (in classes and domains) or edit existing ones.

For example, in "supplier" class the attributes are: name, address, phone number, etc..

Each attribute corresponds, in the Management Module, to a form field and to a column in the database.

See also: Class, Domain, Report, Superclass, Attribute Type

BIM

Method with the aim to support the whole life cycle of a building: from its construction, use and maintenance, to its demolition, if any.

The BIM method (Building Information Modeling) is supported by several IT programs that can interact through an open format for data exchange, called IFC (Industry Foundation Classes).

See also: GIS

CI

We define CI (Configuration Item) each item that provides IT service to the user and has a sufficient detail level for its technical management.

CI examples include: server, workstation, software, operating system, printer, etc.

See also: Configuration

CLASS

A Class is a complex data type having a set of attributes that describe that kind of data.

A Class models an object that has to be managed in the CMDB, such as a computer, a software, a service provider, etc.

CMDBuild allows the administrator - with the Administration Module - to define new classes or delete / edit existing ones.

Classes are represented by cards and, in the database, by tables automatically created at the definition time.

See also: Card, Attribute

CONFIGURATION

The configuration management process is designed to keep updated and available to other processes the items (CI) information, their relations and their history.

It is one of the major ITIL processes managed by the application.

See also: CI, ITIL

DASHBOARD

In CMDBuild, a dashboard corresponds to a collection of different charts, in this way you can immediately hold in evidence some key parameters (KPI) related to a particular management aspect of the IT service.

See also: Report

DATABASE

The term refers to a structured collection of information, hosted on a server, as well as utility software that handle this information for tasks such as initialization, allocation, optimization, backup, etc..

CMDBuild relies on PostgreSQL, the most powerful, reliable, professional and open source database , and uses its advanced features and object-oriented structure.

DOMAIN

A domain is a relation between two classes.

A domain has a name, two descriptions (direct and inverse), classes codes, cardinality and attributes.

The system administrator, using the Administration Module, is able to define new domains or delete / edit existing ones.

It is possible to define custom attributes for each domain.

See also: Class, Relation

DATA FILTER

A data filter is a restriction of the list of those elements contained in a class, obtained by specifying boolean conditions (equal, not equal, contains, begins with, etc.) on those possible values that can be accepted by every class attribute.

Data filters can be defined and used exceptionally, otherwise they can be stored by the operator and then recalled (by the same operator or by operators of other user groups, which get the permission to use them by the system Administrator) See also: Class, View

GIS

A GIS is a system able to produce, manage and analyse spatial data by associating geographic elements to one or more alphanumeric descriptions.

GIS functionalities in CMDBuild allow you to create geometric attributes (in addition to standard attributes) that represent, on plans / maps, markers position (assets), polylines (cable lines) and polygons (floors, rooms, etc.).

See also: BIM

GUI FRAMEWORK

It is a user interface you can completely customise. It is advised to supply a simplified access to the application. It can be issued onto any webportals and can be used with CMDBuild through the standard REST webservice.

See also: Mobile, Webservice

ITIL

"Best practices" system that established a "standard de facto"; it is a nonproprietary system for the management of IT services, following a process-oriented schema (Information Technology Infrastructure Library).

ITIL processes include: Service Support, Incident Management, Problem Management, Change Management, Configuration Management and Release Management.

For each process, ITIL handles description, basic components, criteria and tools for quality management, roles and responsibilities of the resources involved, integration points with other processes (to avoid duplications and inefficiencies).

See also: Configuration

LOOKUP

The term "Lookup" refers to a pair of values (Code, Description) set by the administrator in the Administration Module.

These values are used to bind the user's choice (at the form filling time) to one of the preset values.

With the Administration Module it is possible to define new "LookUp" tables according to organization needs.

MOBILE

It is a user interface for mobile tools (smartphones and tablets). It is implemented as multi-platform app (iOS, Android) and can be used with the CMDB through the REST webservice.

See also: GUI Framework, Webservice

PROCESS

The term "process" (or workflow) refers to a sequence of steps that realize an action.

Each process will take place on specific assets and will be performed by specific users.

A process is activated by starting a new process (filling related form) and ends when the last

workflow step is executed.

See also: Workflow step

RELATION

A relation is a link between two CMDBuild cards or, in other words, an instance of a given domain.

A relation is defined by a pair of unique card identifiers, a domain and attributes (if any).

CMDBuild allows users, through the Management Module, to define new relations among the cards stored in the database.

See also: Class, Domain

REPORT

The term refers to a document (PDF or CSV) containing information extracted from one or more classes and related domains.

CMDBuild users run reports by using the Management Module; reports definitions are stored in the database.

See also: Class, Domain, Database

CARD

The term "card" refers to an element stored in a class.

A card is defined by a set of values, i.e. the attributes defined for its class.

CMDBuild users, through the Management Module, are able to store new cards and update / delete existing ones.

Card information is stored in the database and, more exactly, in the table/columns created for that class (Administration Module).

See also: Class, Attribute

SUPERCLASS

A superclass is an abstract class used to define attributes shared between classes. From the abstract class you can derive real classes that contain data and include both shared attributes (specified in the superclass) and specific subclass attributes.

For example, you can define the superclass "Computer" with some basic attributes (RAM, HD, etc.) and then define derived subclasses "Desktop", "Notebook", "Server", each one with some specific attributes.

See also: Class, Attribute

ATTRIBUTE TYPE

Each attribute has a data type that represents attribute information and management.

The attribute type is defined using the Administration Module and can be modified within some limitations, depending on the data already stored in the system.

CMDBuild manages the following attribute types: "Boolean", "Date", "Decimal", "Double", "Inet" (IP address), "Integer", "Lookup" (lists set in "Settings" / "LookUp"), "Reference" (foreign key), "String", "Text", "Timestamp".

See also: Attribute

VIEW

A view not only includes the whole content of a CMDB class, it is a group of cards defined in a logical way.

In particular, a view can be defined in CMDBuild by applying a filter to a class (so it will contain a reduced set of the same rows) or specifying an SQL function which extracts attributes from one or more related classes.

The first view type maintains all functionalities available for a class, the second one allows the sole display and search with fast filter.

See also: Class, Filter

WEBSERVICE

A webservice is an interface that describes a collection of methods, available over a network and working using XML messages.

With webservices, an application allows other applications to interact with its methods.

CMDBuild includes a SOAP and a REST webservice.

WIDGET

A widget is a component of a GUI that improves user interaction with the application.

CMDBuild uses widgets (presented as "buttons") that can be placed on cards or processes. The buttons open popup windows that allow you to insert additional information, and then display the output of the selected function.