

Version

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» User Manual

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ENG

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- 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>

Contents

1. Introduction.....	6
1.1. The application.....	6
1.2. Official website.....	7
1.3. CMDBuild modules.....	7
1.4. Available manuals.....	7
1.5. Applications based on CMDBuild.....	8
2. Getting Started.....	9
2.1. What is a CMDB.....	9
2.2. What's CMDBuild.....	9
2.3. Use guidelines.....	10
3. Roles and features.....	11
3.1. Operators' roles.....	11
3.2. Features of Data Management Module.....	11
3.3. Base and application features.....	12
4. User Interface.....	13
4.1. Technology.....	13
4.2. General design criteria.....	13
4.3. Localization.....	15
5. Accessing the application.....	16
5.1. General Information.....	16
5.2. Computer requirements.....	16
5.3. Authentication.....	16
6. Cards: consultation features.....	18
6.1. Card List.....	18
6.2. Card TAB.....	21
6.3. Details TAB.....	22
6.4. Notes TAB.....	24
6.5. Relations TAB.....	25
6.6. History TAB.....	27
6.7. Emails TAB.....	29
6.8. Attachments TAB.....	30
7. Cards: updating features.....	33
7.1. Card-modification-popup.....	33
7.2. Card TAB.....	35
7.2.1. Guide to compilation.....	36
7.2.2. Lock of a card in edit.....	39
7.2.3. Widget.....	40
7.2.4. Cloning with relations.....	41
7.3. Details TAB.....	42
7.3.1. Guide to compilation.....	43
7.4. Notes TAB.....	45
7.4.1. Guide to compilation.....	46
7.5. Relations TAB.....	48
7.5.1. Creation of a new relation.....	50
7.6. History TAB.....	52
7.6.1. Guide to consultation.....	52
7.7. Emails TAB.....	53
7.8. Attachments TAB.....	56

7.8.1. Upload of attachments.....	58
7.8.2. Versions of attachments.....	59
8. Cards: advanced features.....	61
8.1. Advanced search filter.....	62
8.1.1. Filter on attributes.....	62
8.1.2. Filter on relations.....	64
8.1.3. Change a filter.....	65
8.2. Contextual menu.....	66
8.2.1. Use of contextual menu.....	66
8.3. Schedule.....	68
8.3.1. Generation of deadlines when cards are updating.....	68
8.3.2. Consultation and manual supply of the scheduling.....	70
8.4. Views from join.....	76
8.4.1. Access to features.....	76
8.4.2. Creation of view from join.....	76
8.4.3. Consultation of view from join.....	82
8.4.4. Modification and cancellation of view from join.....	83
8.5. Data Import / Export.....	85
8.5.1. Access to features.....	85
8.5.2. Import / export from files.....	86
8.5.3. Import from relational databases.....	87
8.5.4. Import from DWG files (2D planimetries).....	90
8.5.5. Import from IFC files (3D BIM models).....	92
8.6. Massive modification and cancellation.....	94
8.6.1. Massive modification.....	94
8.6.2. Massive cancellation.....	97
8.7. Relation graph.....	98
8.7.1. General design criteria of the user interface.....	98
8.7.2. Upper toolbar.....	99
8.7.3. Lower toolbar.....	100
8.7.4. Text area.....	101
8.8. Georeference on geographical maps.....	106
8.8.1. Navigation tree TAB.....	107
8.8.2. Card list TAB.....	108
8.8.3. Card TAB.....	109
8.8.4. Layers tab.....	111
8.8.5. Thematic maps.....	113
8.8.6. Visualization of vector maps and 3D models.....	117
8.9. 2D georeference on planimetries.....	119
8.10. Georeference on 3D models.....	120
8.10.1. TAB Objects.....	122
8.10.2. TAB Layers.....	123
8.10.3. TAB Cards.....	126
8.10.4. TAB Properties.....	126
8.10.5. Graphic toolbar.....	127
9. Workflow.....	130
9.1. List of processes.....	130
9.2. Card TAB.....	132
9.2.1. Guide to compilation.....	132
9.2.2. Lock of an advancing process.....	133
9.2.3. Widget.....	134
9.3. Notes TAB.....	142
9.4. Relations TAB.....	143
9.5. History TAB.....	144
9.6. Emails TAB.....	145
9.7. Attachments TAB.....	146
9.8. Interaction with external tools.....	147
10. Dashboard.....	149

10.1. Dashboard consultation.....	149
11. Report.....	152
11.1. Print of a report.....	152
12. Custom pages.....	154
12.1. Examples of custom pages.....	154
13. Service features.....	157
13.1. User preferences.....	158
13.2. Password change.....	160
13.3. Chat.....	161
14. Appendix: Glossary.....	164

1. Introduction

1.1. The application

CMDBuild is an open source web environment for the configuration of custom applications for the Asset Management.

On the one hand, it provides native mechanisms for the administrator, implemented in a "core" code which has been kept separated from the business logic, so that the system can be configured with all its features.

On the other hand, it generates dynamically a web interface for the operators, so that they can keep the asset situation under control and always know their composition, detachment, functional relations and how they update, in order to manage their life-cycle in a comprehensive way.

The system administrator can build and extend his/her own CMDB (hence the name of the project), modelling the CMDB according to the company needs; a proper interface 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.

Using external visual editors, the administrator can design workflows, import them into CMDBuild and put them at operators' disposal, so that they can execute them according to the configured automatisms.

Similarly, using external visual editors, the administrator can design various reports on CMDB data (printouts, graphs, barcode labels, etc.), import them into the system and put them at operators' disposal.

The administrator can also configure some dashboards made up of charts which immediately show the situation of some indicators in the current system (KPI).

A task manager included in the user interface of the Administration Module allows you to schedule various operations (process starts, e-mail receiving and sending, connector executions) and various controls on the CMDB data (synchronous and asynchronous events). Based on their findings, it sends notifications, starts workflows and executes scripts.

The interoperability with other systems is managed through the CMDBuild BUS Service, called WaterWAY.

Thanks to document management systems that support the CMIS standard (Content Management Interoperability Services) - among which there is also the open source solution Alfresco - you will be able to attach documents, pictures, videos and other files. It is possible to define document categories differentiated by class and sets of metadata differentiated by category.

There is also a Scheduling, which can be supplied both automatically when filling in a data card and manually. This Scheduling will manage single or recurring deadlines related, for example, to certifications, warranties, contracts with customers and suppliers, administrative procedures, etc.

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

The system also includes a REST webservice, so that CMDBuild users can implement custom interoperability solutions with external systems.

Furthermore, CMDBuild includes two external frameworks:

- the Advanced Connector CMDBuild, which is written in Java and can be configured in Groovy: it helps the implementation of connectors with external data sources, i.e automatic inventory systems, virtualization or monitoring ones (supplied with non-open source license to the users that subscribe the annual Subscription with Tecnoteca)
- the CMDBuild GUI Framework, which helps the implementation of additional graphical interfaces, i.e. web pages (simplified for non technicians) that have to be published on external portals and that are able to interact with the CMDB through the REST webservice

CMDBuild includes a mobile interface (for smartphone and tablet). It is implemented as multi-platform app (iOS, Android) and is able to interact with the CMDB through the REST webservice (supplied with non-open source license to the users that subscribe the annual Subscription with Tecnoteca).

CMDBuild is an enterprise system: server-side Java, web Ajax GUI, SOA architecture (Service Oriented Architecture), based on webservice and implemented by using the best open source technologies and following the sector standards.

CMDBuild is an ever-evolving system, which has been released for the first time in 2006 and updated several times a year in order to offer more features and to support new technologies.

1.2. Official website

CMDBuild has a dedicated website: <http://www.cmdbuild.org>

The website gathers a lot of documents on technical and functional features of the project: brochures, slides, manuals (see next paragraph), testimonials, case histories, newsletters, forums.

1.3. 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.

1.4. Available manuals

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 and dashboards, 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")

1.5. Applications based on CMDBuild

Tecnoteca has used the CMDBuild environment in order to implement two different pre-configured solutions:

- CMDBuild `READY2USE`, for the management of assets and IT services, oriented to internal IT infrastructures or services for external clients (www.cmdbuildready2use.org) according to the ITIL best practice (Information Technology Infrastructure Library)
- `openMAINT`, for the inventory management of assets, properties and related maintenance activities (www.openmaint.org)

Both applications are released with open source license, except for certain external components (data sync connectors, Self-Service portal, mobile APP, etc.), that are reserved to the users that subscribe the annual Subscription with Tecnoteca.

2. Getting Started

2.1. What is a CMDB

A CMDB (Configuration Management Data Base) is a storage and consultation system that handles the asset information of a company.

The idea of CMDB was born in an IT environment (it is a fundamental component of ITIL best practice - Information Technology Infrastructure Library). In this manual it is extended and applied in a general context where you have to know, manage and control assets (Configuration Items or CIs).

It is the official central repository and provides a consistent view of the items that have to be managed.

It's a dynamic system that represents the current situation and knowledge of the inventory of assets and the related connections.

2.2. What's CMDBuild

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, attributes and relations (domains), of workflows, reports, dashboards, interoperability solutions with external system, etc.

Since there are not two organizations that manage their assets in the same way, we decided to set, as the primary CMDBuild feature, the system flexibility, developing features to configure the whole system (see the CMDBuild Overview Manual, chapters 4, 5 and 6) and to optimally design the application according to your needs.

From a technical point of view, the configurability is based on a wide use of "metadata".

The CMDBuild "core" code interprets metadata creating also the web interface for operators, who have the possibility of updating the CMDB, start and advance processes, execute reports, view dashboards, etc.

Despite of its name, CMDBuild is not only a Modeling Environment for CMDB applications, i.e. limited within the management of a database of items (Configuration Item).

CMDBuild mechanisms allow you to manage Configuration Items within the entire life cycle by using workflows, business rules, documents, reports, georeferences, interoperability with other systems, etc.

Thanks to CMDBuild you can implement complete Asset Management applications in the various application contexts.

A system based on the configurability has its clear advantages:

- it can adapt to your organization and work procedures
- possibility of a gradual carrying out of the system, reducing the organizational impact
- easy response to organizational and technological editing
- more independence for users
- same "core" code (managed "per product") used in different vertical solutions

2.3. Use guidelines

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:

3. Roles and features

3.1. Operators' roles

A CMDB is a system used by complex organizations to manage data and processes, with the support of reports, dashboards, sync connectors with external systems, etc.

The involved roles depend on the features of each organization and on the use of CMDBuild, for example:

- asset manager, change manager, helpdesk, expert in jobs, expert in servers, etc., in case of IT management
- technical office, maintenance technician, energy manager, etc., in case of Facility Management
- others, depending on the application context, in case of various customizations of CMDBuild

It is important to identify correctly the roles and to profile users accurately, in order to grant that each one work on the relevant items according to the procedure.

3.2. Features of Data Management Module

The Data Management Module interface allows you to process all daily Asset Management operations.

According to each role, this means:

- consult and update data of assets (items and hierarchy depending on the applicable domain) and of related entities (company, employees, buildings, customers, suppliers, orders, etc.)
- execute your activities according to the company processes helped by collaborative workflows specifically projected
- execute the control activities by opening dashboards and printing reports specifically configured

The main features of the data management module include:

- consultation and update of cards:
 - inserting, creation, change, cloning of cards
 - master view detail
 - consultation, creation and change of relations among cards
 - consultation of the changes of cards
 - upload and consultation of documents attached to cards, with possibility of populating metadata according to the document category
 - exportation and printing of cards, choosing columns and row filter
 - printing of current card with relations
- advanced features for the card management:
 - searches through set criteria or through filters previously saved

- contextual menus
- schedule
- data import / export
- massive modification and cancellation
- open relation graph
- consultation of assets on cartography, vector maps, 3D models
- process management
 - consultation and research
 - start and advance using the provided widgets
- dashboard
 - consultation of graphs configured in the system and control of related KPI
- reports
 - report printing (tabular, with graphs, documents, etc.)
- other features:
 - change of group / change of tenant
 - password change
 - user preferences
 - chat to communicate with other users

3.3. Base and application features

This manual describes base user interface feature of CMDBuild Management Module, used by operators to view and edit data.

This manual presents screenshots with a limited and simplified configuration of CMDBuild, aimed to the management of some IT assets.

This configuration should not be confused with CMDBuild `READY2USE` and `openMAINT` applications, referred to the previous paragraph 1.5 or other custom applications developed for specific operational areas.

4. User Interface

4.1. Technology

The web desktop user interface of CMDBuild, both in the Administration Module and in the Data Management Module, is implemented through the framework Sencha ExtJS, a JavaScript library for the building of web interactive applications with AJAX technology.

Every operation the user carries out on the web interface is transmitted to the server code, written in Java language, through calls to the standard REST webservice methods of CMDBuild.

After that, the server carries out the user's requests converting them in operations on the PostgreSQL database.

4.2. General design criteria

The user interface of the Management Module includes the following main elements:

- header
- The user interface of the Administration Module includes the following main elements
- central work area, which includes the information in cards or tables
- popup window, to manage in a completely mode the information of the row selected on the grid presented in the central area
- footer

The screenshot displays the CMDBuild web interface. At the top, the header includes the CMDBuild logo, the text 'CMDBuild demo', and user information 'SuperUser'. A navigation sidebar on the left lists various categories like Employees, Locations, Customers, etc. The main content area shows a 'Cards Internal employee' view with a search bar and a grid of items. A modal window titled 'Card Internal employee Anderson Aaron' is open, displaying a form with two sections: 'General Data' and 'Administrative Data'. The 'General Data' section includes fields for Code (a.anderson), Number (IE0211), Last name (Anderson), First name (Aaron), E-mail (a.anderson@example.com), Mobile, Phone, and State (Active). The 'Administrative Data' section includes fields for Type, Start of contract, Company, and Organizational unit (Quality Assurance). At the bottom of the modal, there are 'Save', 'Save and close', and 'Cancel' buttons.

The header includes:

- on the left, the application logo (which has to be kept according to the distributing license of CMDBuild), the user's logo and the instance name
- on the right the access to the Scheduling, the user's name, the access to the preference menu, the access to the notification list, the transition to the Administration Module and the exit from the application

The panel on the right offers:

- the menu configured for the user's role, that can include folders, classes, processes, views, dashboards, reports and custom pages
- access to the chat

The central working area includes:

- on the top, the controls:
 - buttons for actions on the type of item to manage, for example adding elements, starting processes, etc.
 - other controls for operations on the type of item to manage, for example the quick search, the complete selection filter, the contextual menu, the map page, etc.
- after that, the proper information organized in cards or grids (tables), with the possibility of working:
 - in the header: to organize in one column, select the columns
 - on rows: to highlight, expand the detail information, select
 - on the detail information: to open a popup window and execute the following operations through the available icons:
 - entering in editing mode (also by double clicking)
 - consulting all card information (data, details, notes, relations, history, attachments)
 - deleting the card (in logic mode)
 - cloning the card (with or without relations)
 - open the relation graph
 - printing the card
 - accessing directly to one type of the additional card information (details, notes, relations, history, attachments)

The popup window presents a card to display, insert, edit information on various components of the selected card: data, details, notes, relations, history, emails, attachments.

The footer includes:

- the official website URL
- a page with useful links and credits
- the copyright notice

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

4.3. Localization

In CMDBuild there are two localization typologies, i.e. translation into the user's language:

- first-level localization, related to the only base CMDBuild user interface (menu texts and standard buttons, headers, footers, etc.)
- second-level localization, related to all elements configured for each vertical application implemented on the base environment (class names, attributes, domains, lookups, etc.)

The first-level localization is managed through external system files (json format), while the second-level localization is managed by the Administration Module.

In case the related localization is available (i.e. if it exists in the base release or it has been prepared by the Administrator) and it has been activated, each operator will access the translated application, by choosing a language when logging-in.

Each operator can also choose in the preferences a default language to access the application, so that he/she will find it already selected in the login form, otherwise he/she can have the possibility that it is not even shown.

5. Accessing the application

5.1. General Information

The Data Management Module is reserved to CMDBuild operators who can use it to view and update the cards, run activities based on workflows, execute reports, view dashboards, etc.

These uses are available only if the CMDBuild instance has been correctly configured using the Administration Module.

5.2. Computer requirements

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

The user must have a recent web browser (Mozilla Firefox, Google Chrome, Microsoft Edge, Apple Safari).

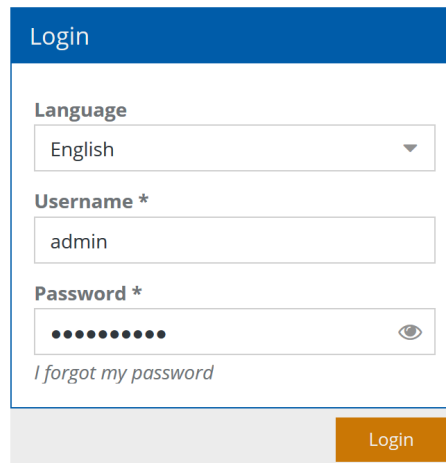
A recent CPU and appropriate RAM is also required (at least 4 GB).

The web architecture ensures complete usability to any organization that operates in multiple locations; any entrusted client can connect and interact with the system.

5.3. 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)

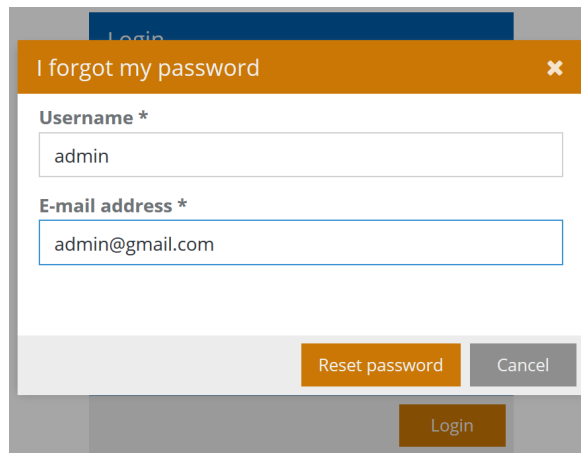


The screenshot shows a login form titled "Login" with a blue header. It contains three input fields: "Language" with a dropdown menu showing "English", "Username *" with the text "admin", and "Password *" with a masked password field and an eye icon. Below the password field is a link that says "I forgot my password". At the bottom right of the form is an orange "Login" button.

In case the user has been enabled to work with various roles (i.e. belongs to various users' groups), while the multi-group modality has not been enabled, the user is asked to do the access by selecting the group among the available ones.

In case the user has been enabled to work with various tenants and the multi-tenant modality has not been configured, the user is asked to do the access by selecting the tenant among the available ones.

In case users forgot their password, they can access the following form by clicking on the link "I forgot my password":



The screenshot shows a web form titled "I forgot my password" with a close button (X) in the top right corner. The form contains two input fields: "Username *" with the value "admin" and "E-mail address *" with the value "admin@gmail.com". Below the input fields are two buttons: "Reset password" (orange) and "Cancel" (grey). At the bottom of the form, there is a "Login" button (orange).

The system checks that the email address corresponds to the one registered in the database and sends then an email with a temporary code (token). By inserting that code in the password space, the form for changing the password will appear. At this point, the user can regularly access the application with the new password. Please note that the password has to meet the security policies defined in the proper page for the system configuration.

CMDBuild is released with a preconfigured administrator account, with username "admin" and password "admin". You can use this for the first access to the application. It is necessary to edit the password to avoid unauthorized access and any following security issue.

6. Cards: consultation features

Through the available menu (navigation tree) you can access the various classes configured in the system and operate in the central area of the screen on the list of cards contained in that class.

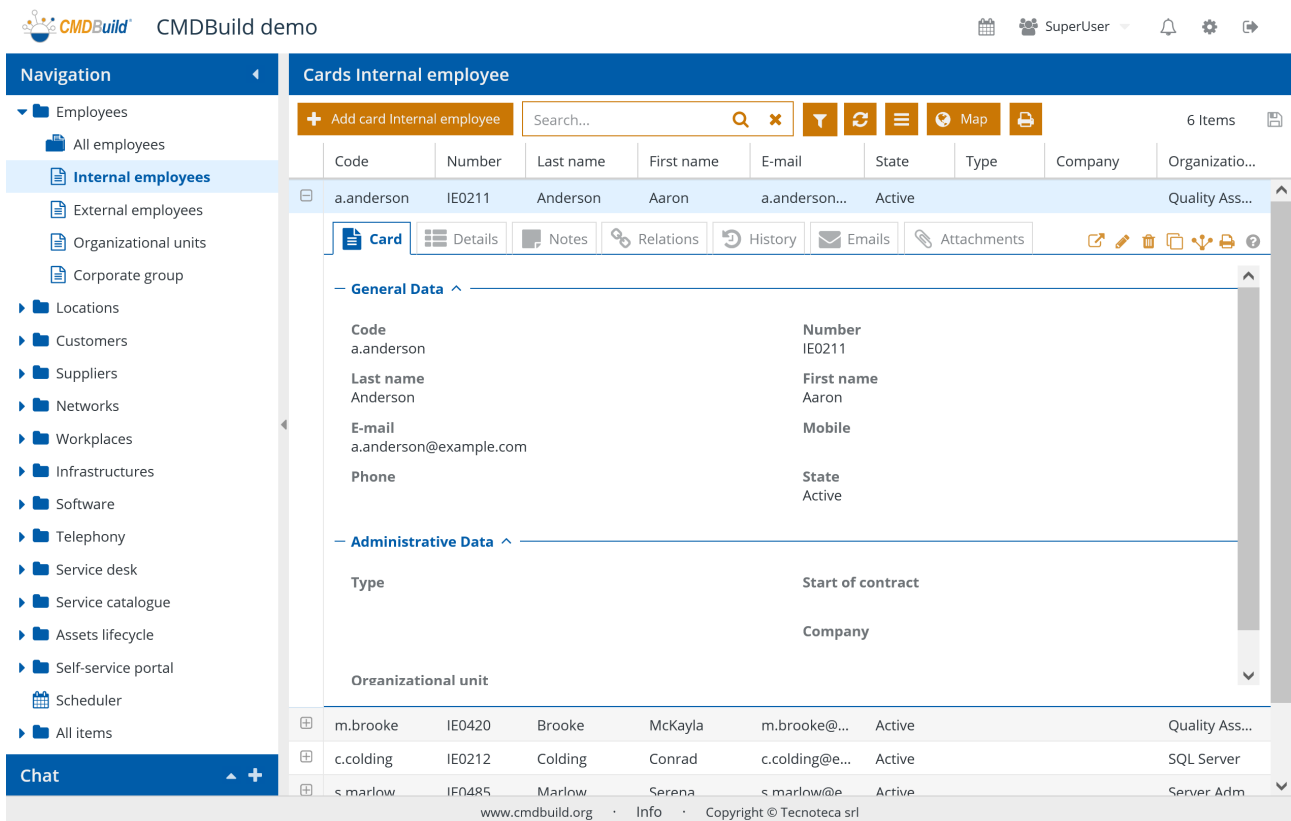
There is the menu configured by the system administration for the operator's user group.

This menu can be freely organised with folders and subfolders where users can place classes, processes, reports, dashboards, views, custom pages.

The menu can be configured by type of element, but also to navigate on element levels, starting for example from the building class and viewing its name, by accessing their list of floors, then the list of rooms and finally the list of IT assets included in each room.


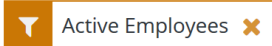





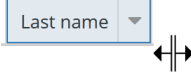
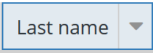
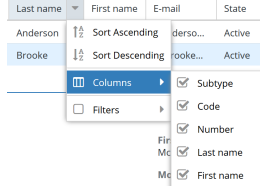
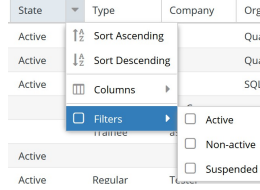




6.1. Card List

The data of the current class are presented initially in a table.



In the table it is possible to perform the following operations:

<ul style="list-style-type: none"> create a new card 	
<ul style="list-style-type: none"> perform free text searches on data displayed in the table 	<input type="text" value="Search..."/>

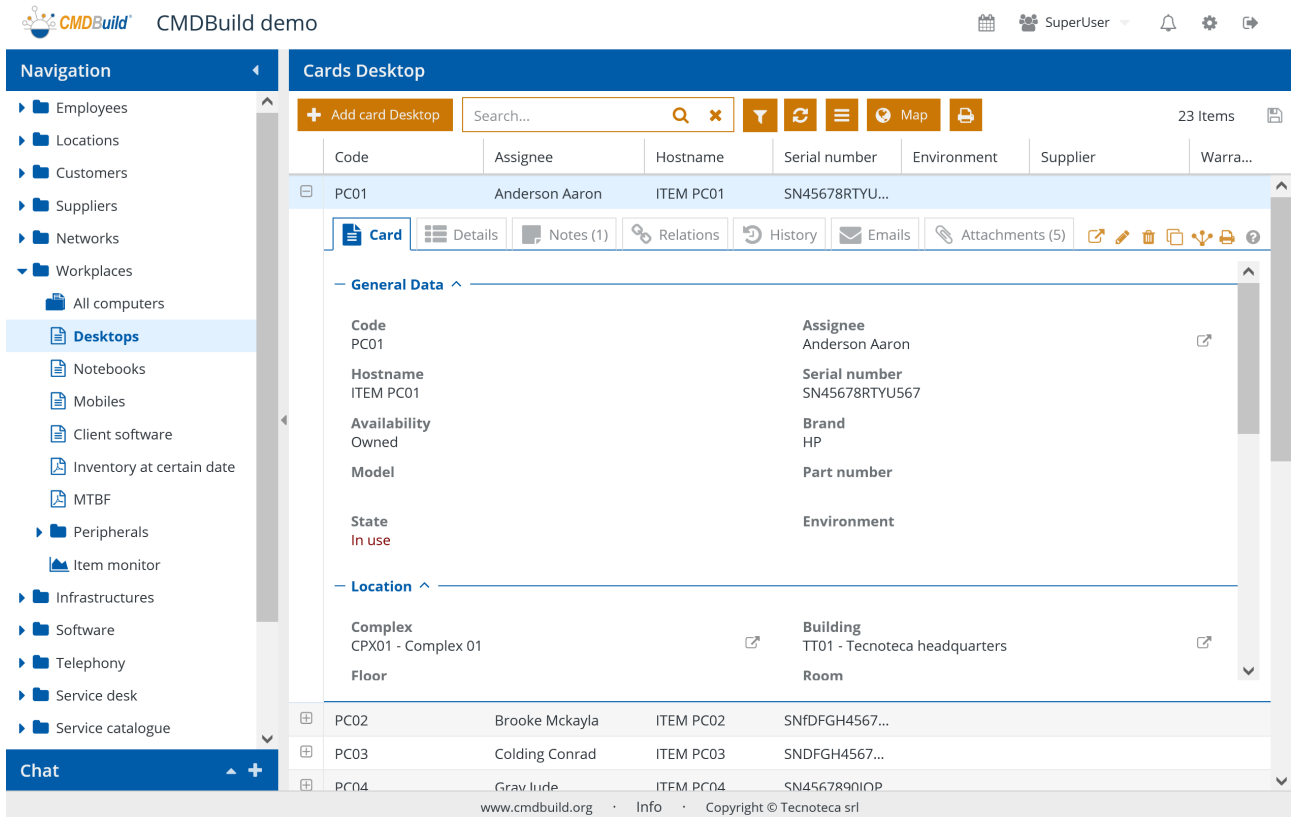
<ul style="list-style-type: none"> access the filter management (for more details please see the paragraph 7.1) 	
<ul style="list-style-type: none"> display the current filter 	
<ul style="list-style-type: none"> disable the current filter 	
<ul style="list-style-type: none"> update the page 	
<ul style="list-style-type: none"> print the cards displayed in the table (in PDF or CSV format) 	
<ul style="list-style-type: none"> access the contextual menu, where you can find useful features in the current context 	
<ul style="list-style-type: none"> access the Map view to display the cards georefered on maps, plans and 3D models (for more details please see the paragraphs 7.4, 7.5 and 7.6) 	
<ul style="list-style-type: none"> work on the column width of the table 	
<ul style="list-style-type: none"> sort the table by clicking on column header (the first click will sort ascending, the second descending) 	
<ul style="list-style-type: none"> add attributes in the table (the default columns are defined in the Administration Module) 	
<ul style="list-style-type: none"> set filters on each table column 	
<ul style="list-style-type: none"> save settings on the grid with the features described above (it will be the default configuration for the current user and will appear again at the next access to the page) 	
<ul style="list-style-type: none"> expand the current row and display its data on TABs 	
<ul style="list-style-type: none"> activate from the contextual menu a selection box on each table row, in order to identify the rows where a specific feature of the contextual menu has to be applied 	
<ul style="list-style-type: none"> select the tab with the various available information: base card page, detail page, note page, relation page, history page, email page, attachment page 	

Below a sample of the menu configured to navigate on element levels, starting in this case from the class of buildings.

The screenshot shows the CMDBuild demo interface. On the left is a navigation menu with categories like Employees, Locations, Buildings, Floors, Rooms, Building Items, AC - Aon Center, F00 - Floor F00, F01 - Floor F01, F02 - Floor F02, R01 - Room R01, R02 - Room R02, LMT - Legg Mason To..., TT01 - Tecnoteca hea..., Locations with assets, Customers, Suppliers, Networks, Workplaces, and Infrastructures. The 'R02 - Room R02' item is selected. On the right, the main area is titled 'Configuration item of R02 - Room R02' and contains a table with 4 items. The table has columns for Subtype, Code, Assignee, Serial number, Supplier, and Warrant... The data rows are: Desktop (729232-10, Spencer Adam), Notebook (56843-03, Gray Jude), Desktop (729232-12, Colding Conrad), and Desktop (729232-11, Smith Tom). The interface also includes a search bar, a 'Map' button, and a footer with 'www.cmdbuild.org · Info · Copyright © Tecnoteca srl'.

6.2. Card TAB

It allows you to display the card with all its attributes divided in various fieldsets (attribute groups).



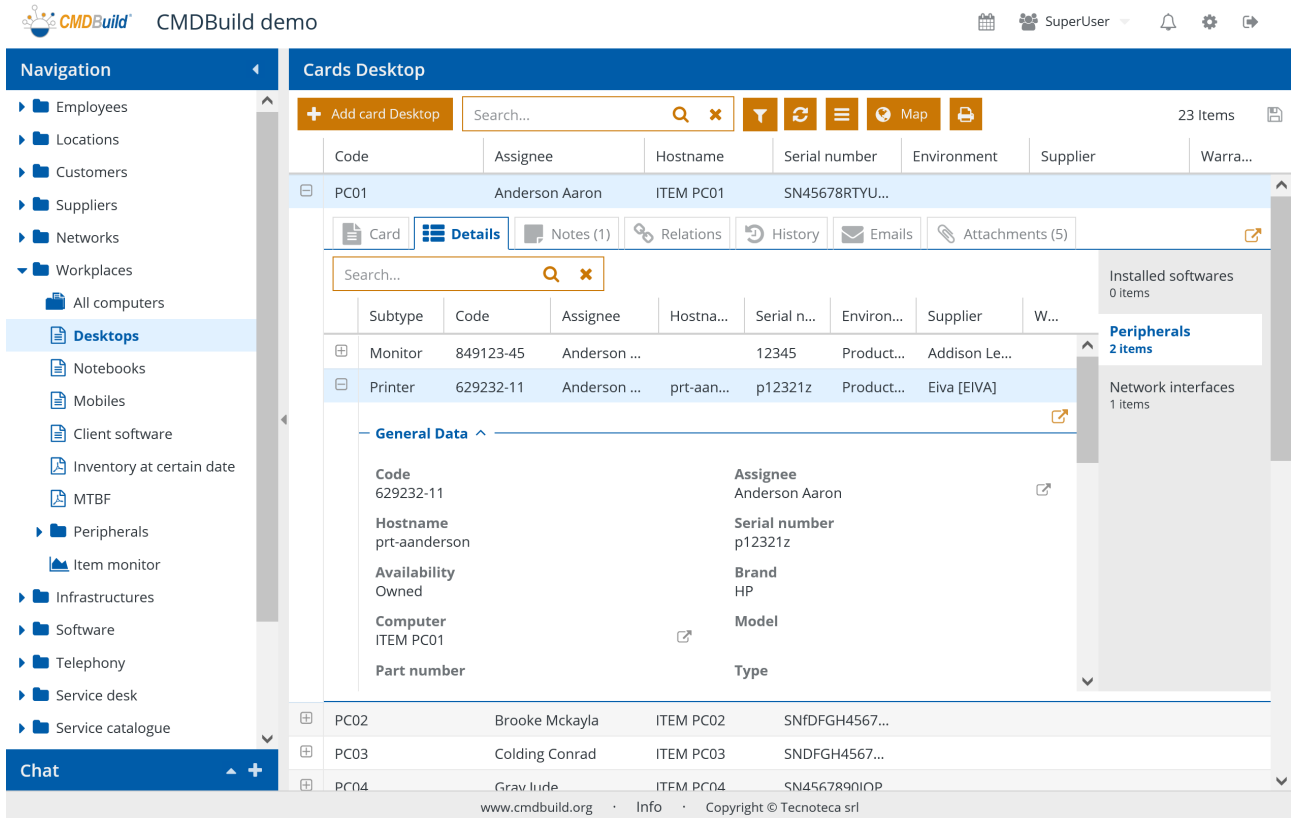
There is the possibility of performing the following operations:

<ul style="list-style-type: none"> access, and in case edit, the selected card opening a specific popup window 	
<ul style="list-style-type: none"> edit the selected card through the specific popup window 	
<ul style="list-style-type: none"> delete the selected card (logical delete) 	
<ul style="list-style-type: none"> clone the selected card, with the possibility of copying only the card or also its relations 	
<ul style="list-style-type: none"> open the relation graph (for more details please see the paragraph 7.3) 	
<ul style="list-style-type: none"> print the selected card (in PDF or ODT format) 	
<ul style="list-style-type: none"> view in a popup window the text of any available help 	

For more detailed information about the card management, please refer to the paragraph 7.2.

6.3. Details TAB

It allows you to display the cards linked to the current card through one or more types of Parent-Child relation (or Master Detail), which are also grouped on the right in different tabs.



There is the possibility of performing the following operations:

<ul style="list-style-type: none"> access, and in case edit, the children cards opening a specific popup window 	
<ul style="list-style-type: none"> display the type of detail 	<ul style="list-style-type: none"> Installed softwares 0 items Peripherals 2 items Network interfaces 1 items
<ul style="list-style-type: none"> expand the selected row and display the detail data 	
<ul style="list-style-type: none"> close the selected row 	

If well configured in the Administration Module, you can also get the sum of any numerical columns available in the detail grid.

Navigation

- Employees
- Locations
 - Buildings
 - Floors
 - Rooms
 - Building Items
 - Locations with assets
- Customers
- Suppliers
- Networks
- Workplaces
- Infrastructures
- Software
- Telephony
- Service desk
- Service catalogue
- Assets lifecycle
- Self-service portal
- Scheduler
- All items

Chat

Cards Building

+ Add card Building Search... 3 Items

Code	Name	Postcode	City	Country
AC	Aon Center		Chicago	United States of Am...

Card Details Notes Relations History Emails Attachments

Search...

Code ↑	Name	Level ↑	Surface
F00	Floor F00	0	sqm 180
F01	Floor F01	1	sqm 120
F02	Floor F02	2	sqm 150

Base data

Complex	Building AC - Aon Center
Code F02	Name Floor F02
Level 2	Surface sqm 150

sqm 450

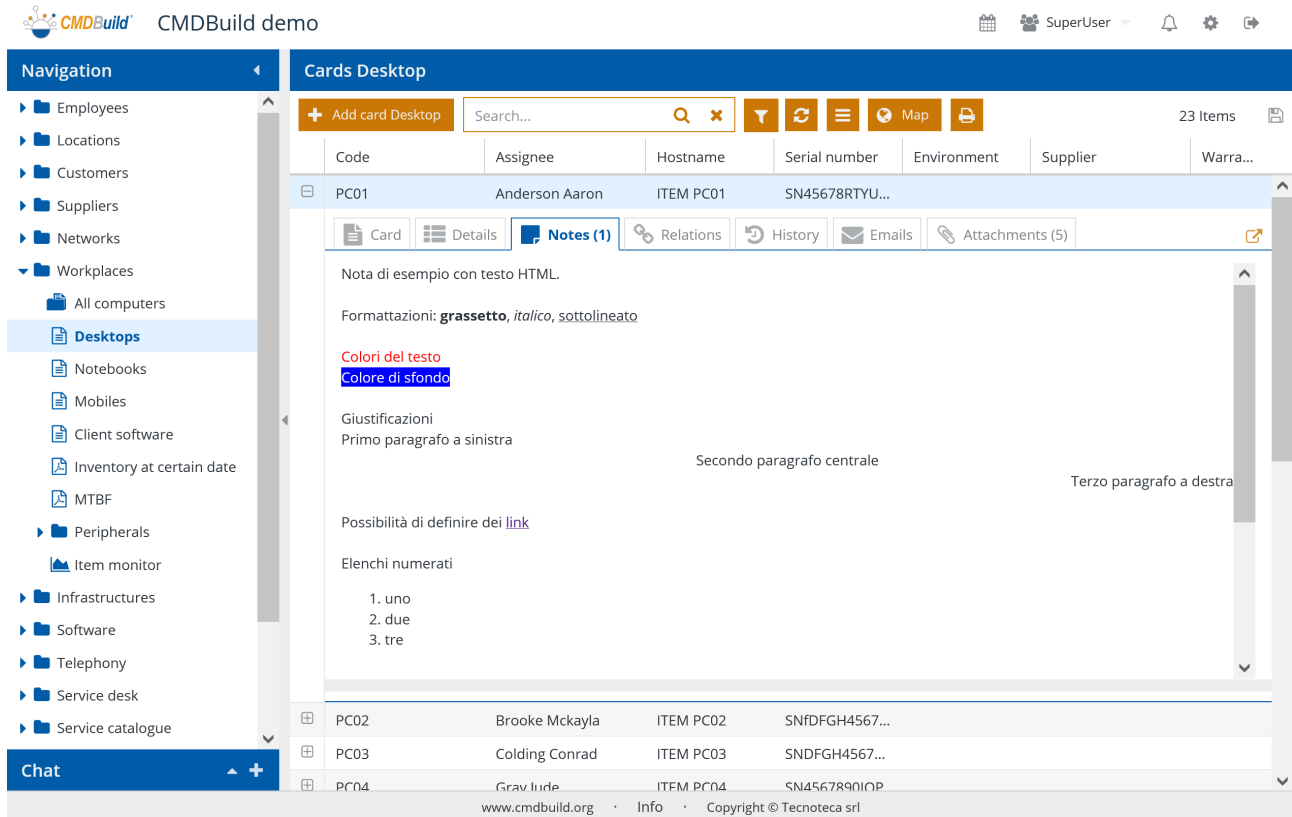
LMT	Legg Mason Tower	Baltimore	United States of Am...
TT01	Tecnoteca headquarters	Tavagnacco	Italy

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For more detailed information about the management of the children cards, please refer to the paragraph 7.3.

6.4. Notes TAB

It allows you to display the page of the notes related to the current card.



There is the possibility of performing the following operations:

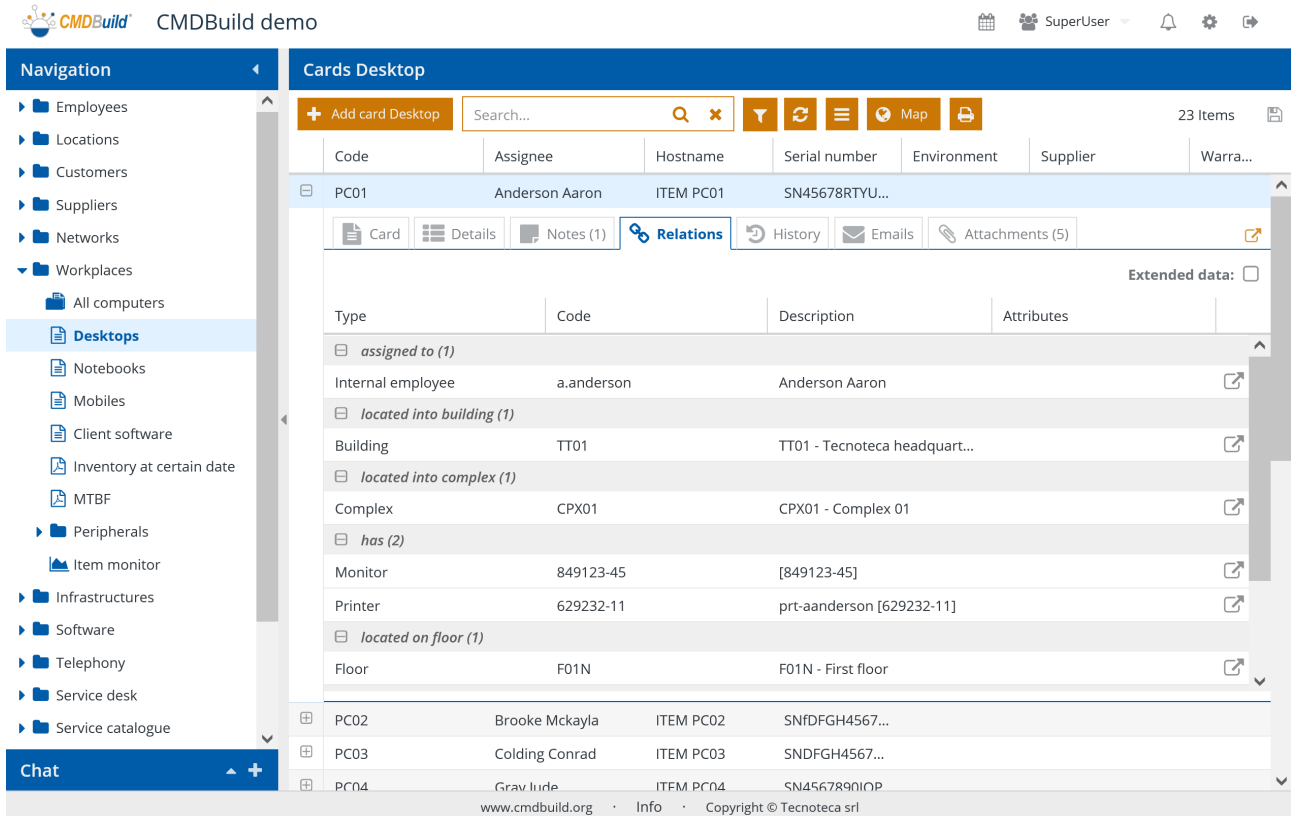
- access, and in case edit, the notes related to the current card opening a specific popup window 

The presence of compiled notes is highlighted with the number "(1)" in the TAB.





For more detailed information about the management of the notes related to the current card, please refer to the paragraph 7.4.

6.5. Relations TAB

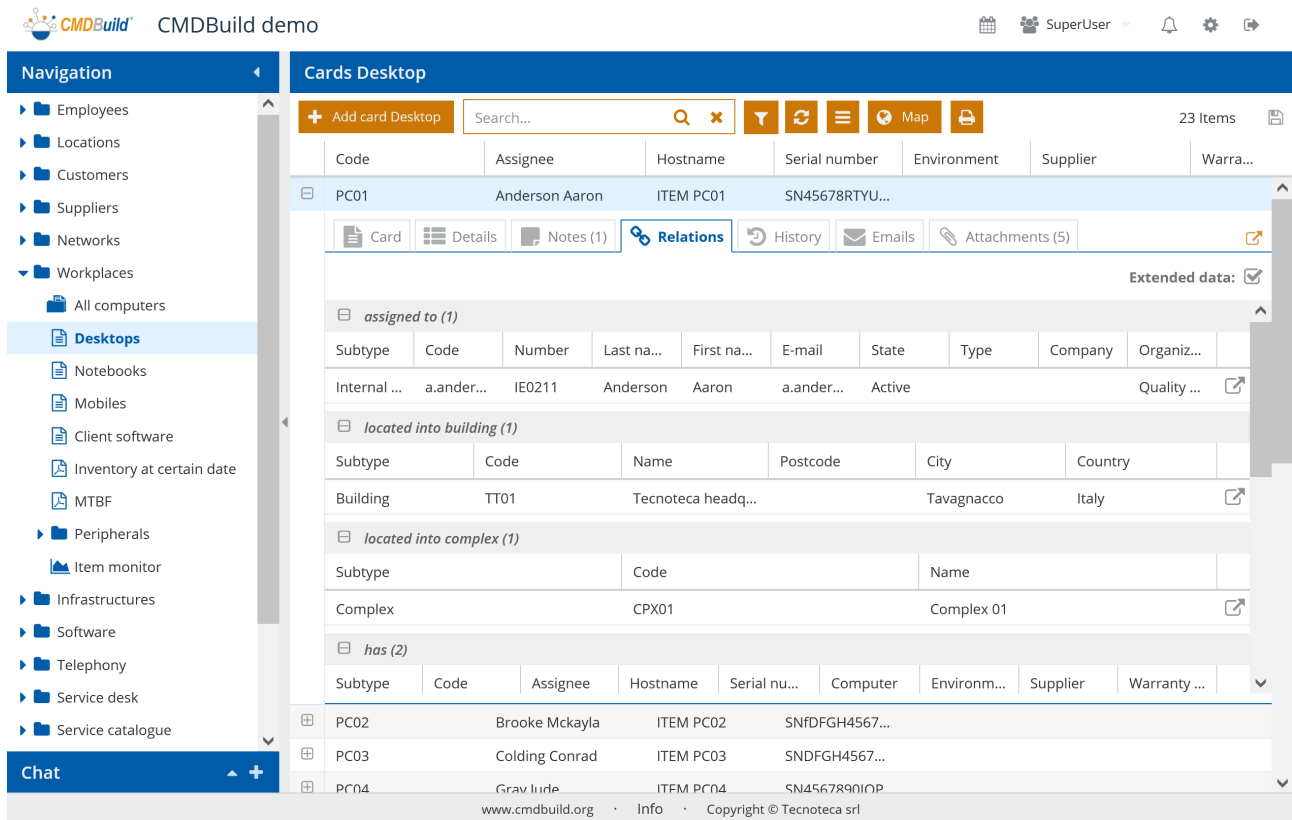
It allows you to display all cards related to the current card, independently from the type (1:N, N:1, N:M).



There is the possibility of performing the following operations:

<ul style="list-style-type: none"> • access, and in case edit, the relations of the current card opening a specific popup window • view in the grid the extended data of related cards • open (move to) the related card (double click on the card row), so that you can freely navigate in the database • expand the selected row and display the detail data • close the selected row 	 <p>Extended data: <input checked="" type="checkbox"/></p>   
--	--

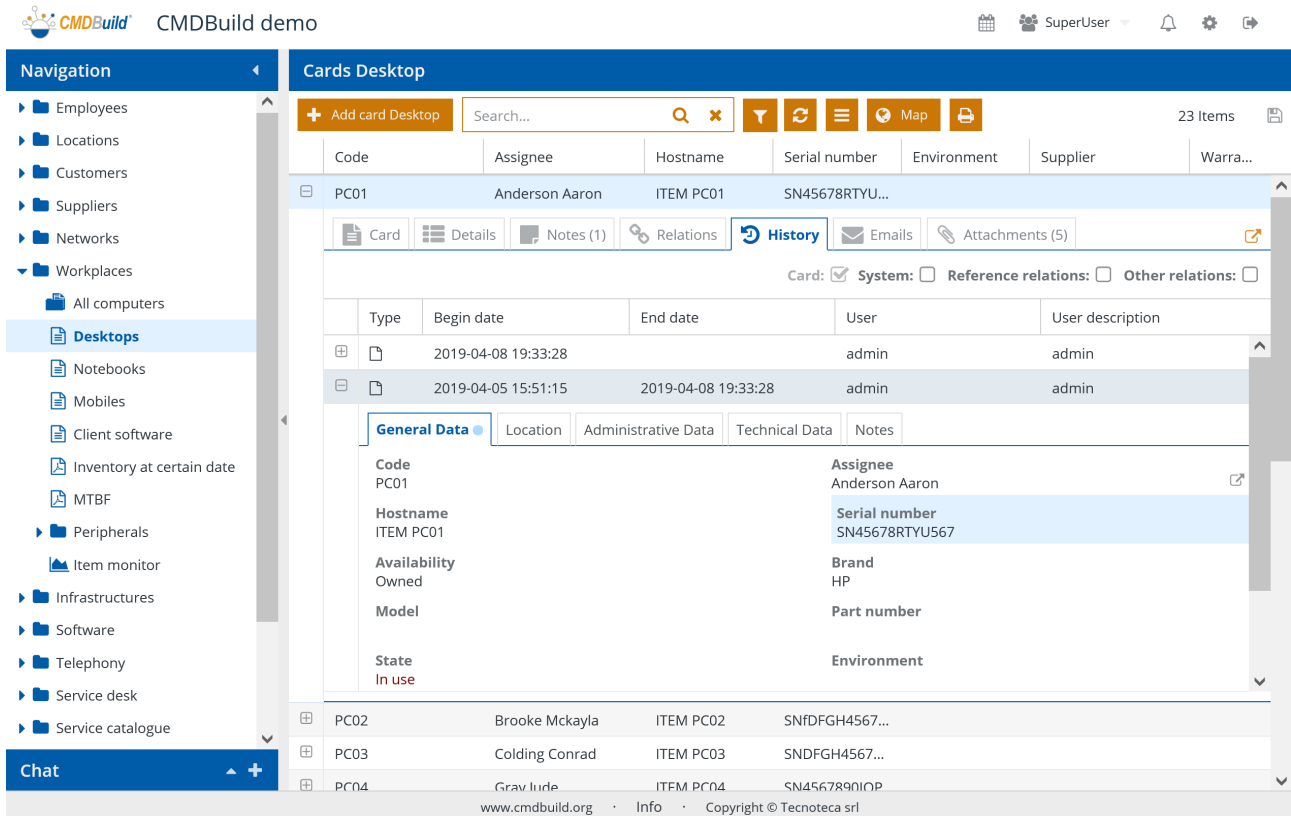
This is an example of the interface in case you select the flag to view extended data.






For more detailed information about the management of the relations of the current card, please refer to the paragraph 7.5.

6.6. History TAB

It allows you to display all versions of the current card that have been edited over time, with the possibility of showing for each version validity starting and ending date, the user that made the change and the values of all its attributes valid at that time (with highlighted background if edited after the previous version).



There is the possibility of performing the following operations:

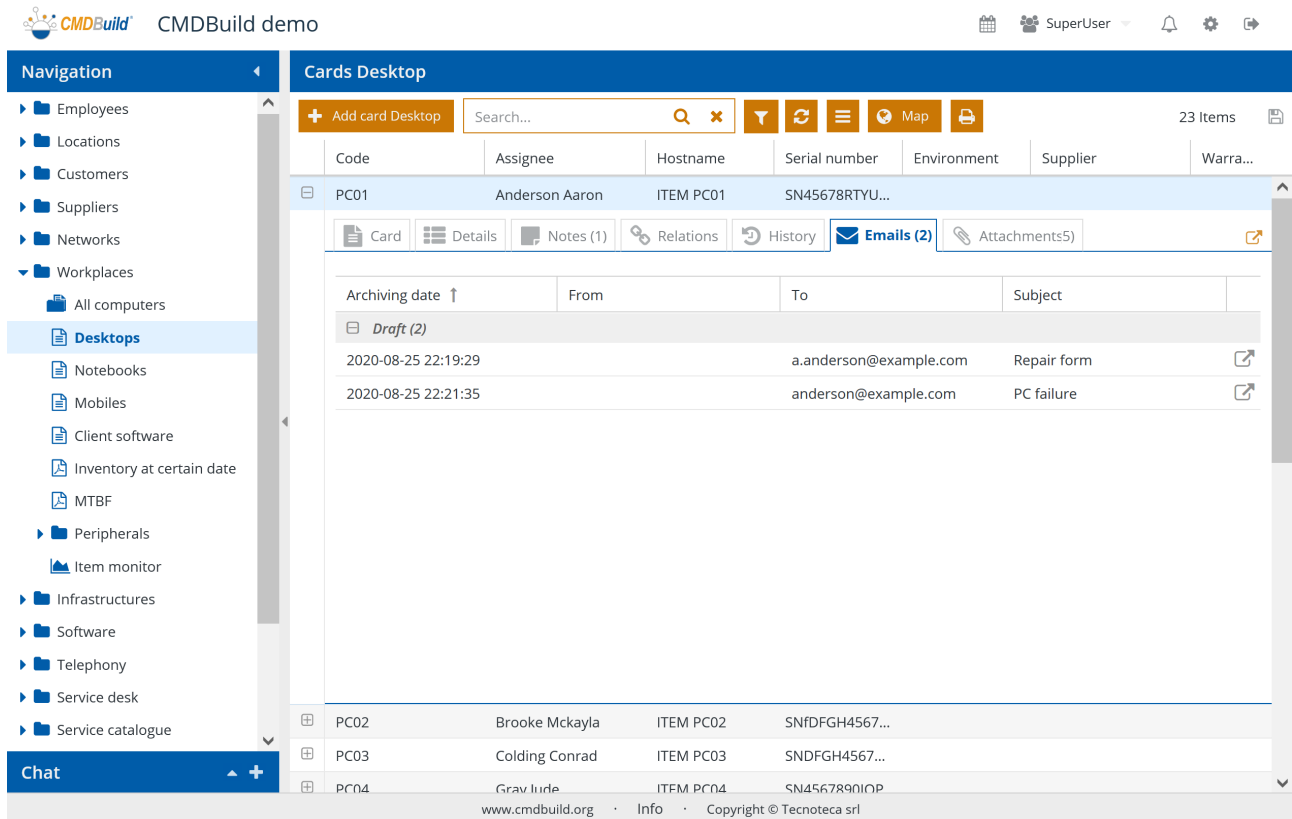
<ul style="list-style-type: none"> • access the history of the current card by opening a specific popup window • view in the grid the modifications of card made by operators • view in the grid the modifications depending from system operations • view in the grid modifications made to the reference relations • View in the grid modifications made to other relation types • expand the selected row and display the detail data • close the selected row 	<div style="text-align: right;">  </div> <div style="text-align: right; margin-top: 20px;"> Card: <input checked="" type="checkbox"/> </div> <div style="text-align: right; margin-top: 10px;"> System: <input type="checkbox"/> </div> <div style="text-align: right; margin-top: 10px;"> Reference relations: <input type="checkbox"/> </div> <div style="text-align: right; margin-top: 10px;"> Other relations: <input type="checkbox"/> </div> <div style="text-align: center; margin-top: 20px;">  </div> <div style="text-align: center; margin-top: 10px;">  </div>
--	--

For more detailed information about the management of the history of the current card, please refer to the paragraph 7.6.





6.7. Emails TAB

It allows you to display the list of sent emails by clicking on the current card, which is linked to them.

They are distinguished between sent email, inbox and drafts.



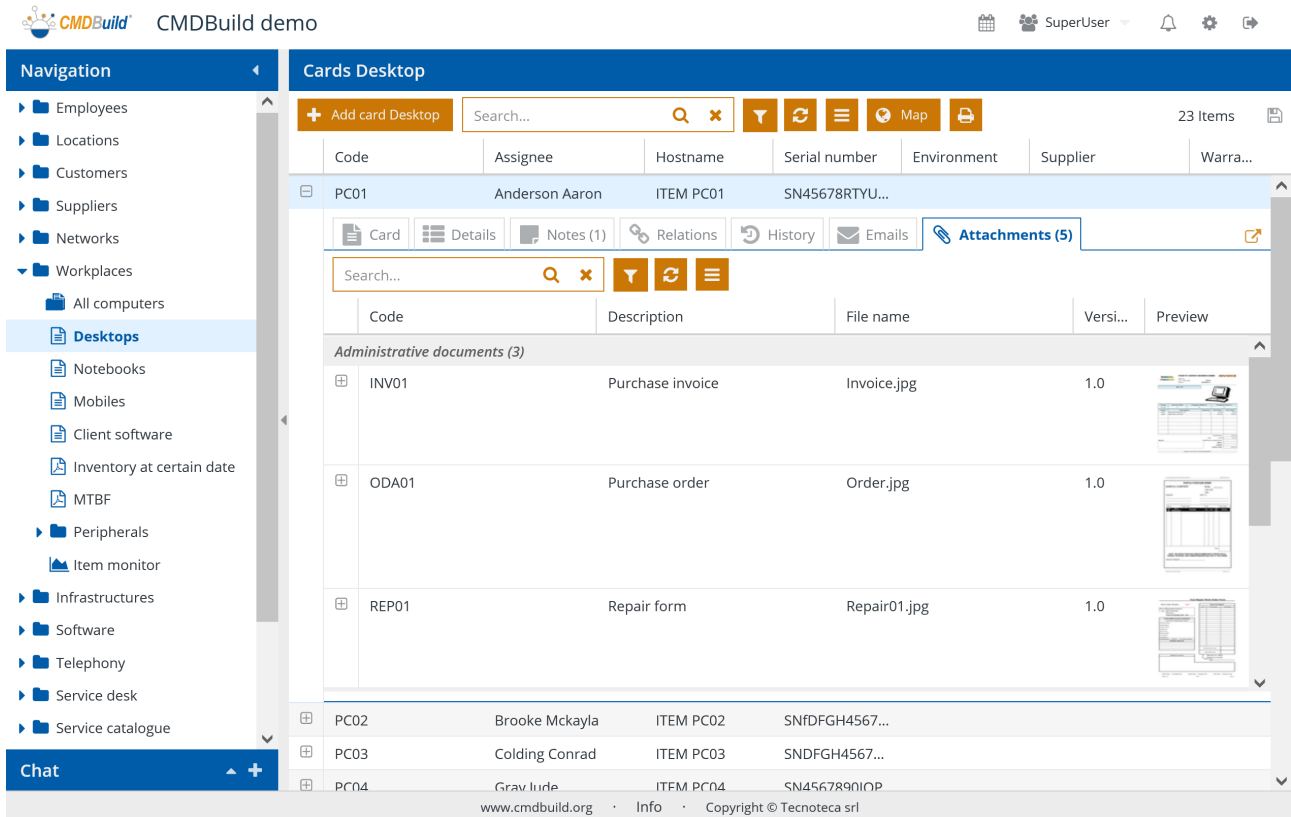
There is the possibility of performing the following operations:

<ul style="list-style-type: none"> • access the history of the linked email by opening a specific popup window 	
<ul style="list-style-type: none"> • expand the selected row and display the detail data 	
<ul style="list-style-type: none"> • close the selected row 	
<ul style="list-style-type: none"> • display the complete text of the selected email 	









For more detailed information about the management of the emails of the current card, please refer to the paragraph 7.7.

6.8. Attachments TAB

It allows you display the list of documents and file attached to the current card.

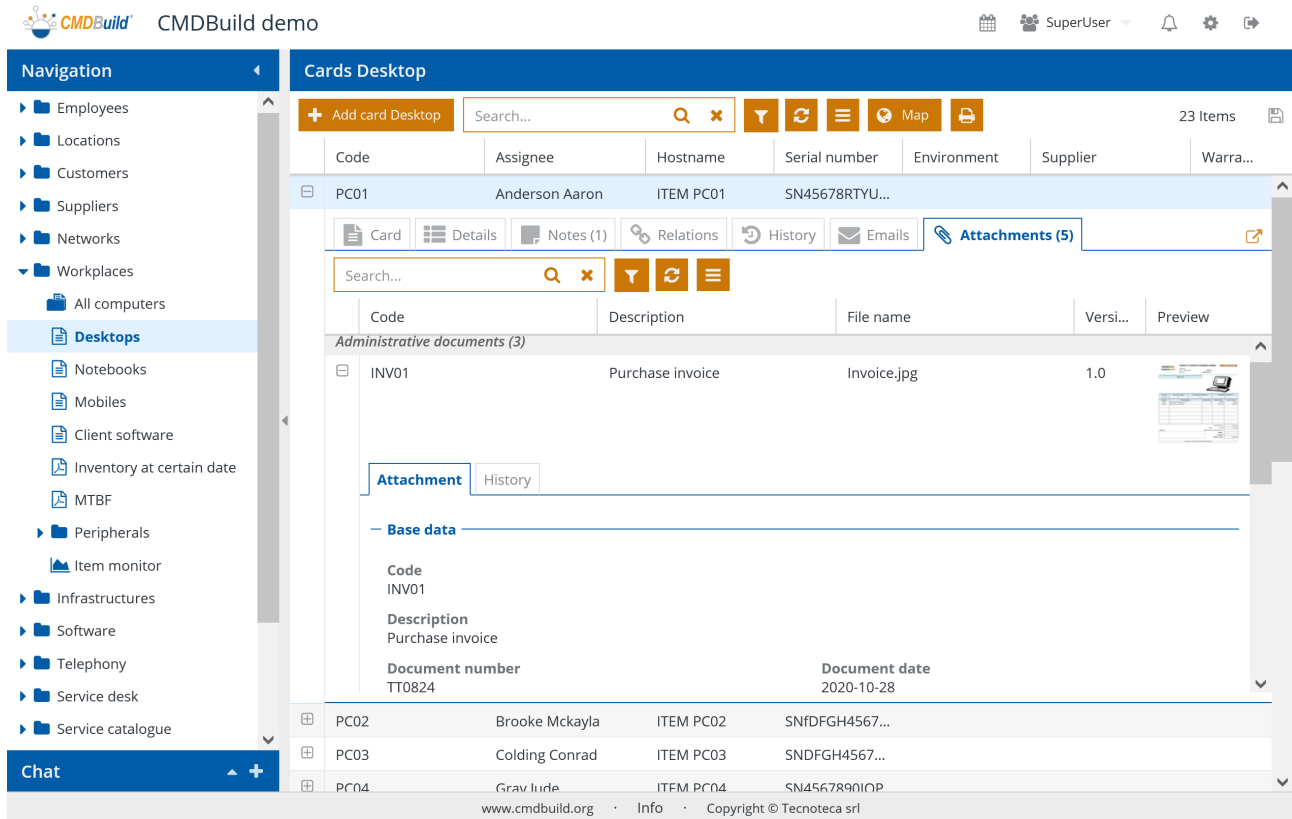


There is the possibility of performing the following operations:

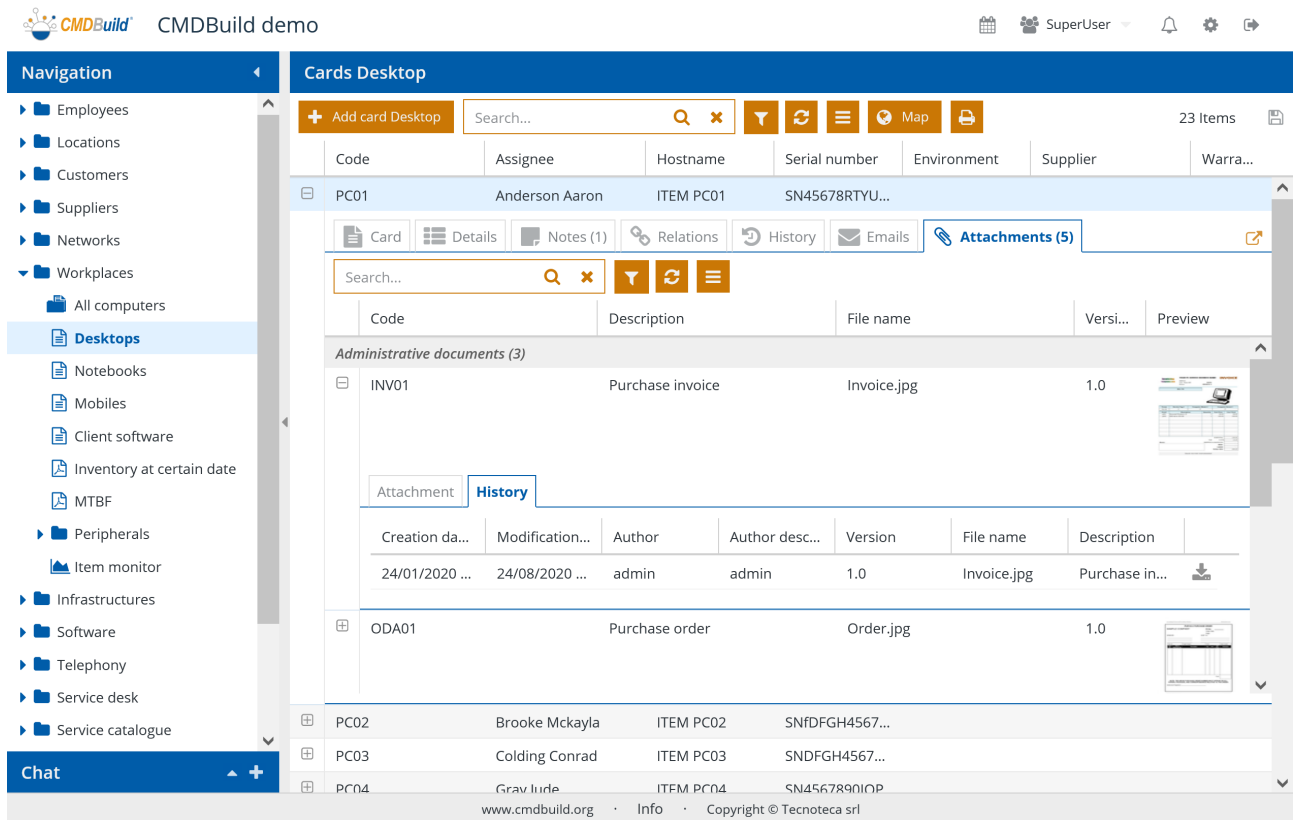
<ul style="list-style-type: none"> • access, and in case edit, the list of files attached to the current card by opening a specific popup window • search for the cards that include the text specified in textual files attached • define a filter on metadata (same way of defining attributes of a card) • refresh the grid • access the contextual menu defined for attachments • expand the selected row and display the detail data • close the selected row • download the selected attachment 	 <input type="text" value="Search..."/>        <p>CLICK ON PREVIEW</p>
---	--

In case you configure custom metadata for a document category (in the following example the

attributes "Document number" and "Document date" were created for the category "Administration documents"), you can consult the values of all metadata.



The History TAB of attachments allows you to view the details of any file versions uploaded over time and associated to the selected attachment.



For more detailed information about the management of the attachments of the current card, please refer to the paragraph 7.8.

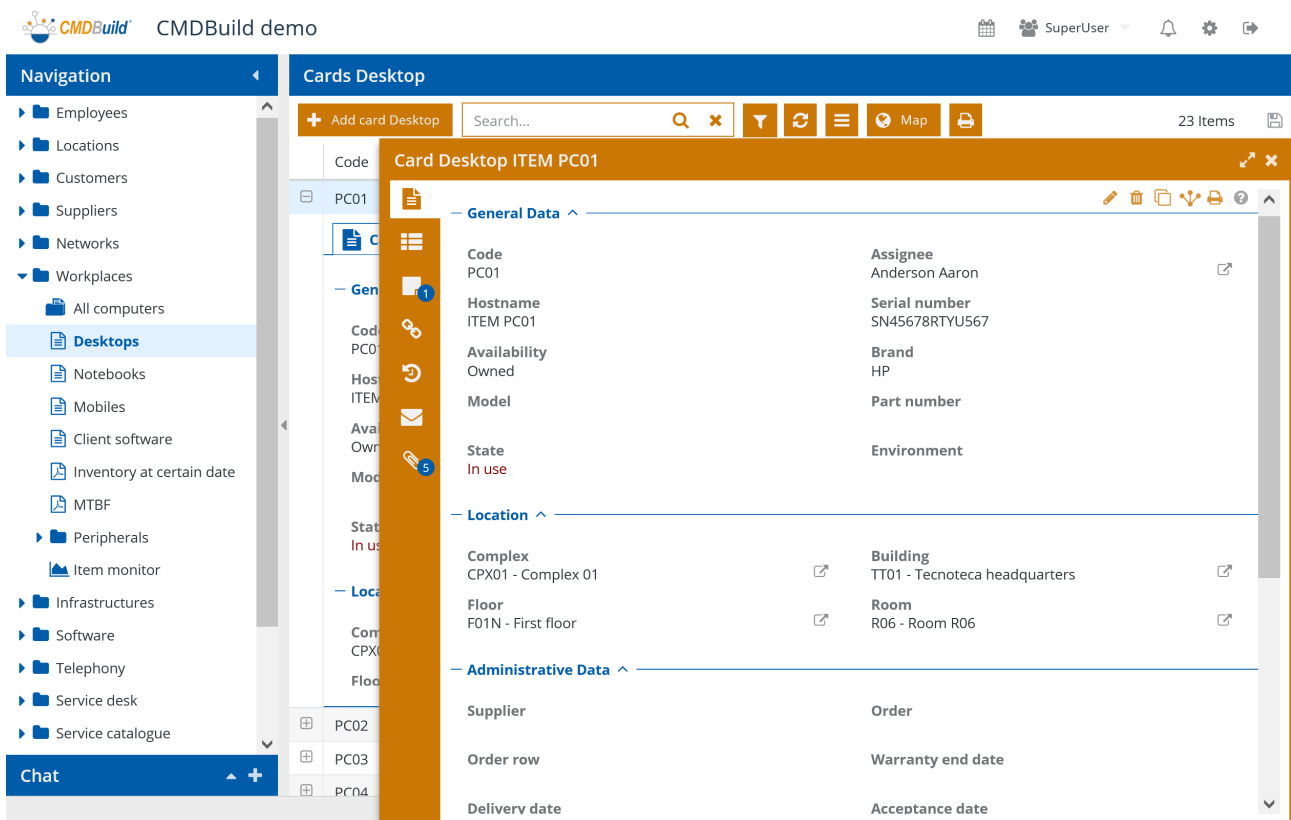
7. Cards: updating features

From the list of cards of a class you can access the change features of the selected card, that will be opened in a specific popup window.





The updating features available in CMDBuild allow you to insert, update and consult the cards, create and view the relations, consult what has been changed, send and view emails, upload and view attachments.


7.1. Card-modification-popup

The first view of the updating popup of a card is the following.

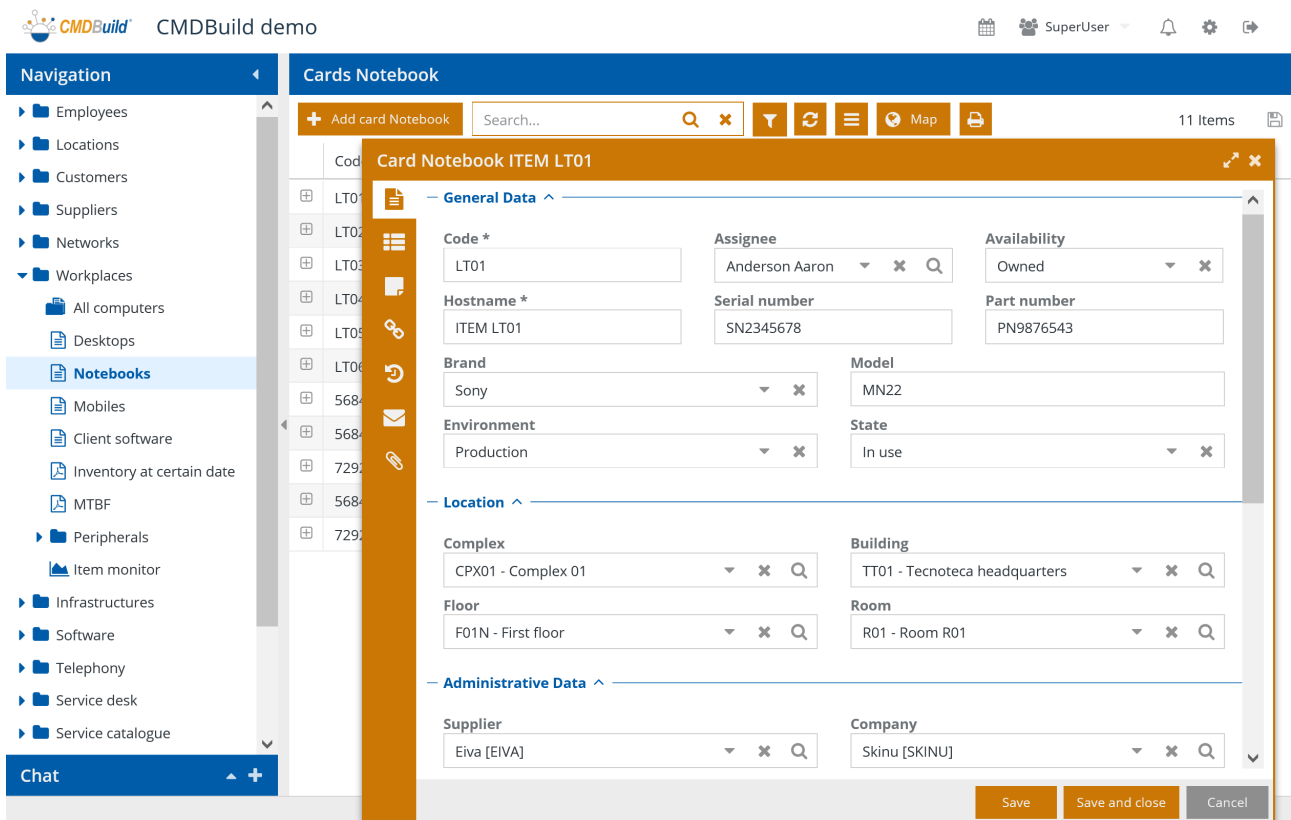


In the popup window it is possible to perform the following operations:

<ul style="list-style-type: none"> • view and update the card information • view and update the children card information (details) • view and update the card notes • view and update the card relations 	   
---	---

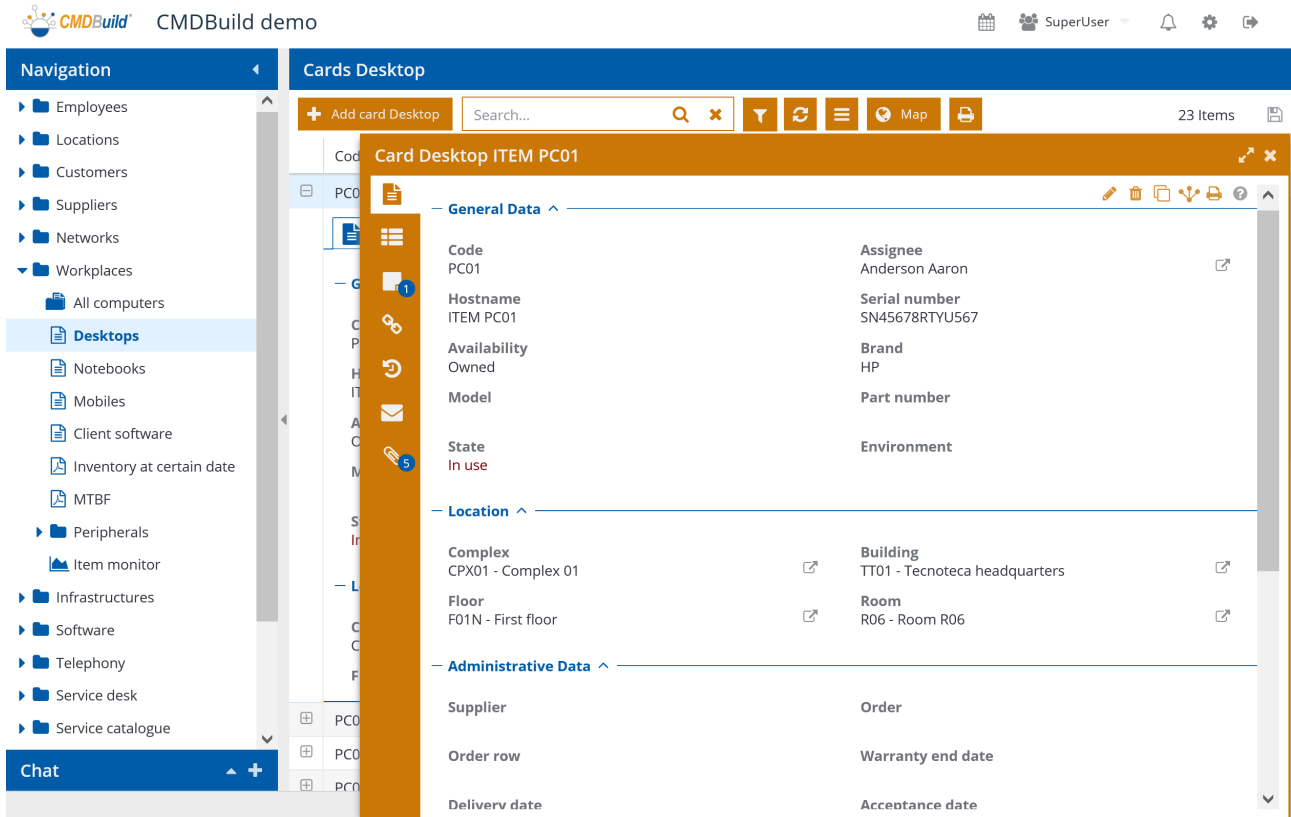
- view and update the card history
 - view and update the emails referred to the card
 - view and update the card attachments
- 

CMDBuild usually arranges the attributes for each card on two columns. Having configured a custom layout in the Administration Module, you can get a custom arrangement of fields, as shown in the following screenshot.









7.2. Card TAB

The card TAB allows you to display and update the information of the current card.



In the card TAB you can perform the following operations:

<ul style="list-style-type: none"> edit the current card 	
<ul style="list-style-type: none"> delete the selected card (logical delete) 	
<ul style="list-style-type: none"> clone the current card, with the possibility of copying only the card or also its relations 	
<ul style="list-style-type: none"> open the relation graph (for more details please see the paragraph 7.3) 	
<ul style="list-style-type: none"> print the current card (in PDF or ODT format) 	
<ul style="list-style-type: none"> view in a popup window the text of any available help 	

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" and "Administrative data"), through "fieldset".

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.

The fields of each card are displayed on two columns according to the sort established by the Administrator, unless a custom layout has been configured.

The card editing can be facilitated by certain settings of the Administration Module:

- for each field to be filled in you can have a Help through a tooltip activated with an icon located top right
- each field can have validation rules that control the inserted datum
- according to the inserted datum, for each field there is the possibility to display or hide other card fields

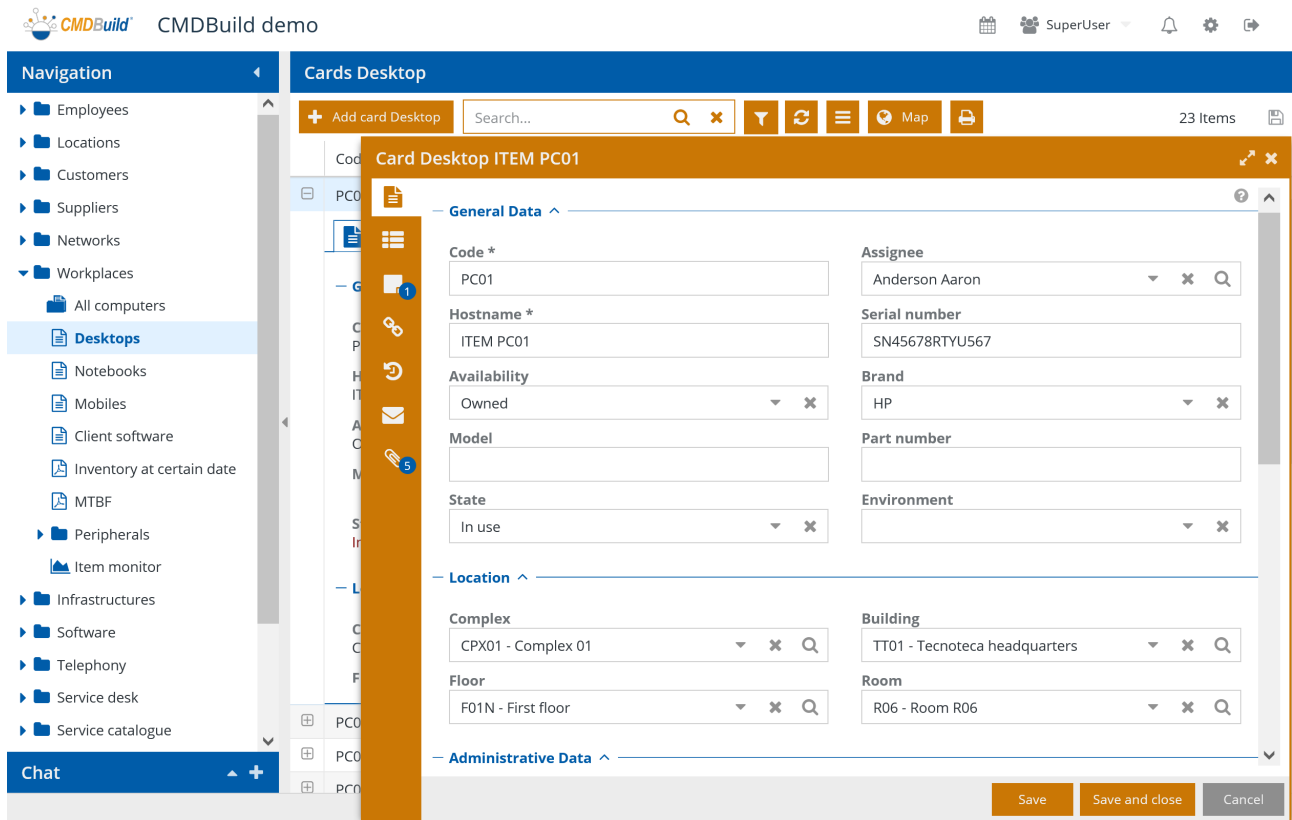
Each reference field include an icon on the right that allows a quick movement to the related card.

Assignee
Anderson Aaron 

The whole card can have the possibility to run automatic operations when opening it and/or at the final confirmation (e.g. to edit other database classes according to the inserted, edited or deleted data).

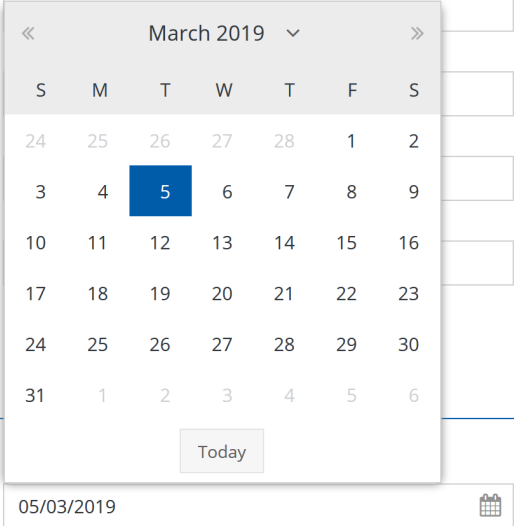
7.2.1. Guide to compilation

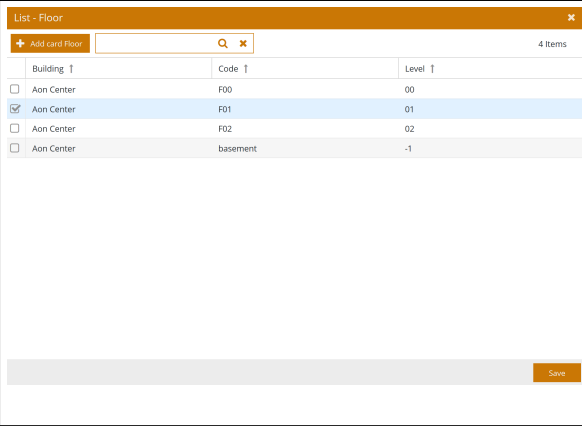
The CMDBuild user interface generates the data editing form of a class according to the configuration modes.



Specifically you will find the following:

<ul style="list-style-type: none"> • standard input fields of strings, numbers or hours 	<p>Last name *</p> <input type="text" value="Anderson"/>
<ul style="list-style-type: none"> • multi-row input text field 	<p>Text *</p> <p>1. Open the control panel and choose Printers, 2. Click to add a new printer, 3. Under the Network printer box select the printer to add among the ones that have been detected or enter the printer ID 4</p>
<ul style="list-style-type: none"> • input fields with formatted multi-row text 	<p>Extended description</p> <p>B I U T[*] T[~] ☰ ☷ ☸</p> <p>This is a description with formatted text: colors, underlined, bulleted lists, links, etc.</p>
<ul style="list-style-type: none"> • password input fields 	<p>Login password</p> <input type="password" value="••••••••"/>
<ul style="list-style-type: none"> • boolean input fields 	<p>Publish</p> <input checked="" type="checkbox"/>

<ul style="list-style-type: none"> IP input fields (IPV4 and IPv6) 	<p>IP address</p> <input type="text" value="10.0.0/8"/>
<ul style="list-style-type: none"> date fields, with calendar widget 	
<ul style="list-style-type: none"> LookUp fields (lists with closed values), with the possibility of: <ul style="list-style-type: none"> choosing a value from the corresponding list, also by typing filter characters resetting the current value 	<p>Type</p> <input type="text"/> <ul style="list-style-type: none"> Manager Regular Trainee
<ul style="list-style-type: none"> LookUp array fields (lists with closed multiple values), with the possibility of: <ul style="list-style-type: none"> choosing more values from the corresponding list, also by typing filter characters resetting the single selected values 	<p>Use</p> <ul style="list-style-type: none"> Documentation activities Project management activities Technical drawing activities Secretarial activity Commercial support activities
<ul style="list-style-type: none"> fields linked to other cards ("Reference", similar to "Foreign Key"), with possibility of: <ul style="list-style-type: none"> choosing a value from the corresponding list, also by typing filter characters accessing the popup window with full list of multiple choice, through the specific icon or automatically in case of lists that are bigger than the specific parameter configured by the Administrator resetting the current value <p>Note: assigning values to a Reference field means creating the corresponding relation in the Relation TAB (see the paragraph 6.5)</p>	<p>Floor</p> <input type="text" value="AC Aon Center - 01"/> <ul style="list-style-type: none"> AC Aon Center - 00 AC Aon Center - 01 AC Aon Center - 02 AC Aon Center - -1

	
<ul style="list-style-type: none"> link fields, with the possibility of specifying a label, besides the URL 	<p>Technical specifications</p> <p>https://www.sony.com/electronics/support/res/manuals/.</p> <p>Specifications</p>
<ul style="list-style-type: none"> file fields, filed in the documental repository but manageable in the main card, with the possibility of preview 	<p>Photo</p> <p>✓ Foto.jpg ✕</p> <p><input type="text"/> Browse...</p>
<ul style="list-style-type: none"> formula fields, with possibility of viewing only information calculated with SQL query or Groovy script (for example for depreciation calculation) 	<p>Depreciation</p> <p>450 €</p>
<ul style="list-style-type: none"> The Save button to save the changes 	Save
<ul style="list-style-type: none"> The Save and close button to save the changes and close the popup window 	Save and close
<ul style="list-style-type: none"> The Cancel button to cancel the changes 	Cancel

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 the operation and stay on the card
- confirm the operation and close the card
- delete the operation

7.2.2. 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 to be edited ("Edit card" button), the system reserves the card to that user for the period defined in the configuration parameters.

If another user tries to edit the same card in the same period, an error message appears.

The card will be automatically released as soon as the first user leaves the editing modality,

through the button "Confirm" or "Cancel".

7.2.3. Widget

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

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

- Calendar: it shows the specified deadlines on a visual calendar
- Create / modify card: it allows to edit a data card belonging to a class that is different to the current one
- Create report: it allows to print a report
- 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)

Further pre-defined widgets can be used just within the workflows (see the paragraph 8.2.3).

It is also possible to implement (ExtJS environment, Javascript language) custom widgets and make them available in order to be used in data forms, besides standard forms.

Here is some further information on the above-mentioned standard widgets.

Calendar

The widget allows to display a calendar that shows certain dates useful for the asset management (for example, the next preventive maintenance activity, an administrative deadline, etc.).

During the configuration step, you have to specify the class from which you want to collect the calendar dates, a possible filter, an approximate visualization date, the field to be shown as activity title on the calendar.

Create modify card

The widget allows you to enter (read-only or writable) a data card of another class of interest in the current context.

During the configuration step, you have to specify the class and the identification code belonging to the card to display, even parametrically (CQL expression) in function of the information of the current card.

Create report

The widget allows you to print a report among the ones designed with JasperStudio and imported into CMDBuild.

During the configuration step, you have to specify the name of the report to print, the type of output (PDF or CSV) and any parameters that the operator will be asked for when printing.

Start workflow

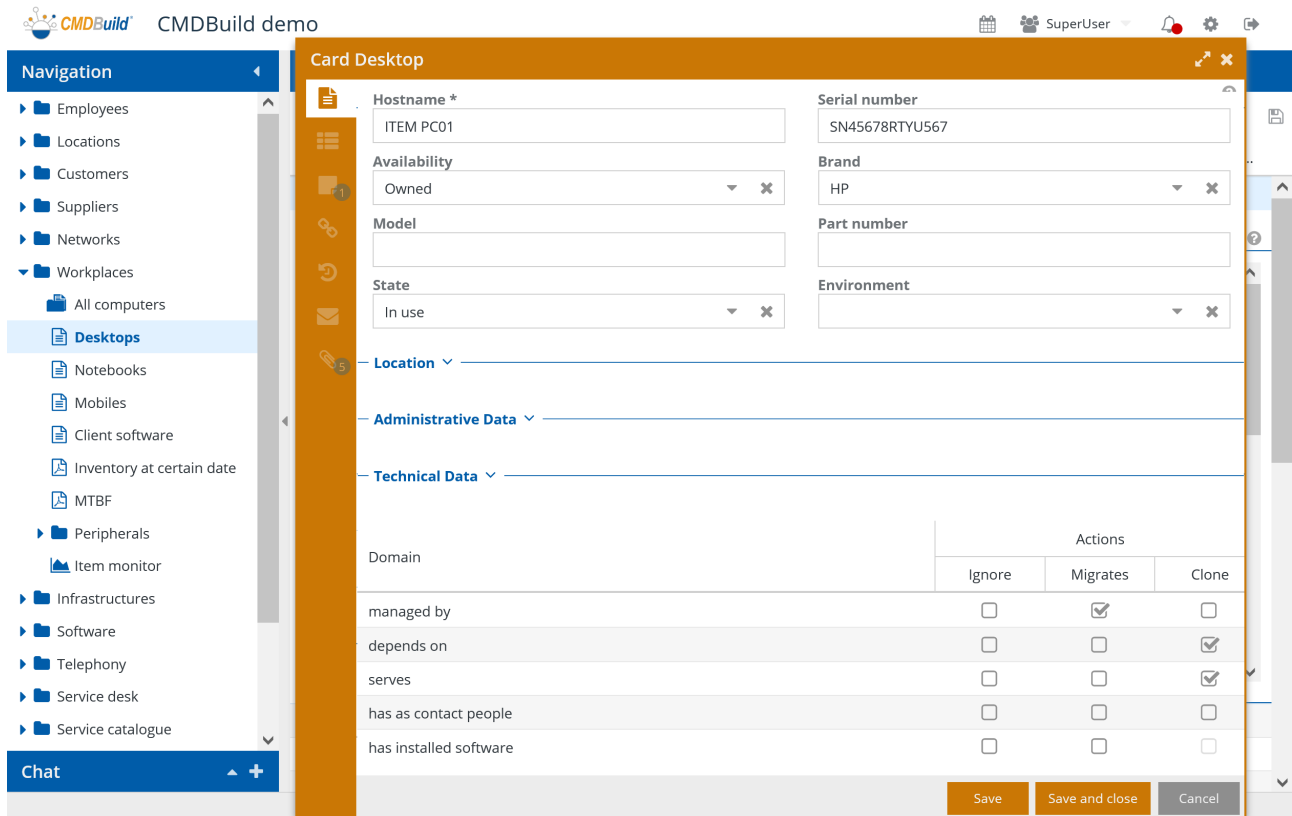
The widget allows you to start a process from the current card, for example a maintenance process starting from the asset card.

During the configuration step, you have to specify the type of workflow to run and the parameters to use for the start.

7.2.4. Cloning with relations

In case you choose to clone a card with its relations, you can edit the duplicated card with the new data and the list of the available relations, asking for each one which action will be executed:

- Ignore: the relation will not be cloned
- Move: the relation is moved from the starting card to the cloned one
- Clone: the relation is doubled (if compatible with its cardinality)

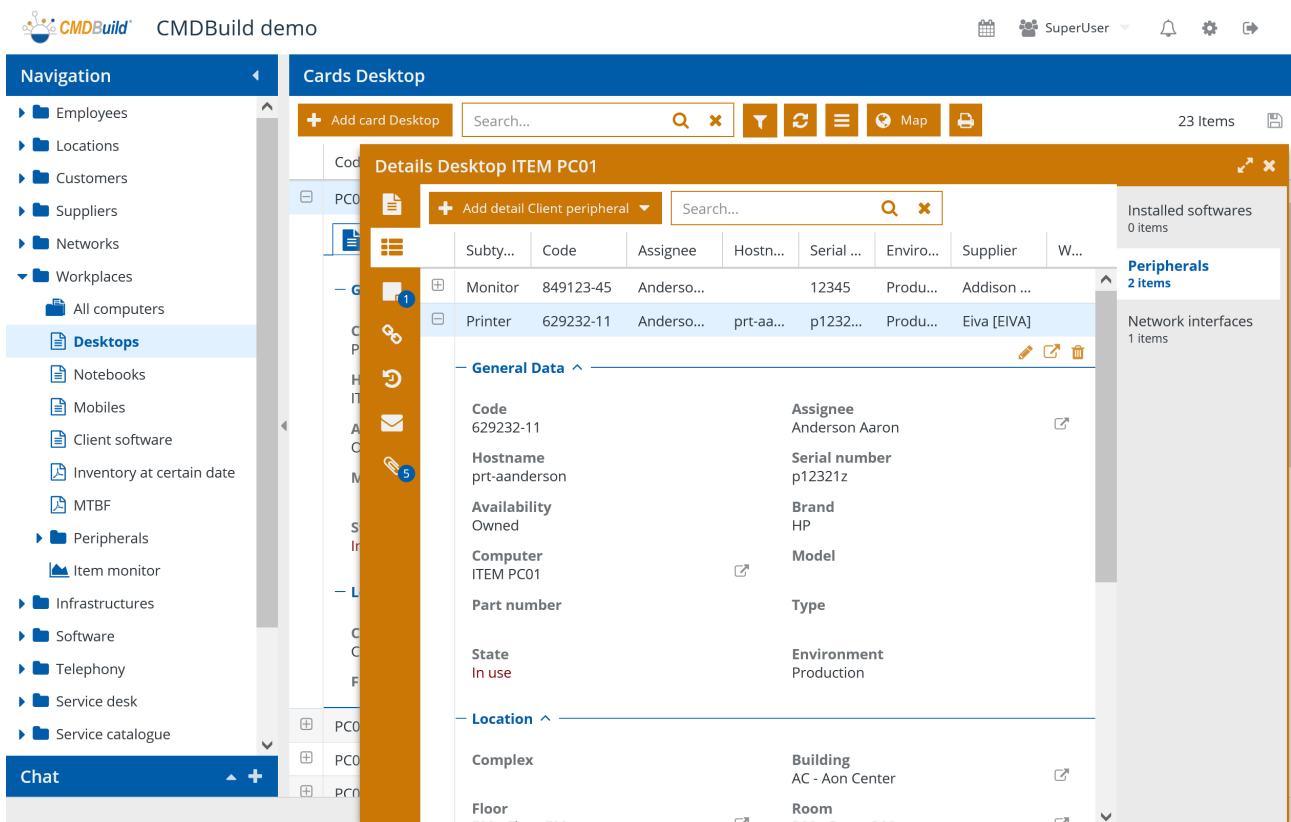


7.3. Details TAB

For certain classes it can be useful to manage a main card 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 domain that connects the classes, and defining in the detail (slave) class a reference field that refers to the main class (master).

Each "master" class can have various "detail" classes linked to it, displayed as TAB on the right column of the popup that manages the main card (in the example below, the list of software installed on a computer, the list of peripherals linked with the computer, the list of network cards installed on the computer).



In the Details TAB you can run the following operations:

<ul style="list-style-type: none"> add a new detail card according to the current type (that will be automatically linked to the current Master card) 	
<ul style="list-style-type: none"> expand the selected row and display its data on TABs 	
<ul style="list-style-type: none"> edit the selected detail card 	
<ul style="list-style-type: none"> display the selected detail card through the specific popup window, with the possibility of accessing the other available features (TABs) 	

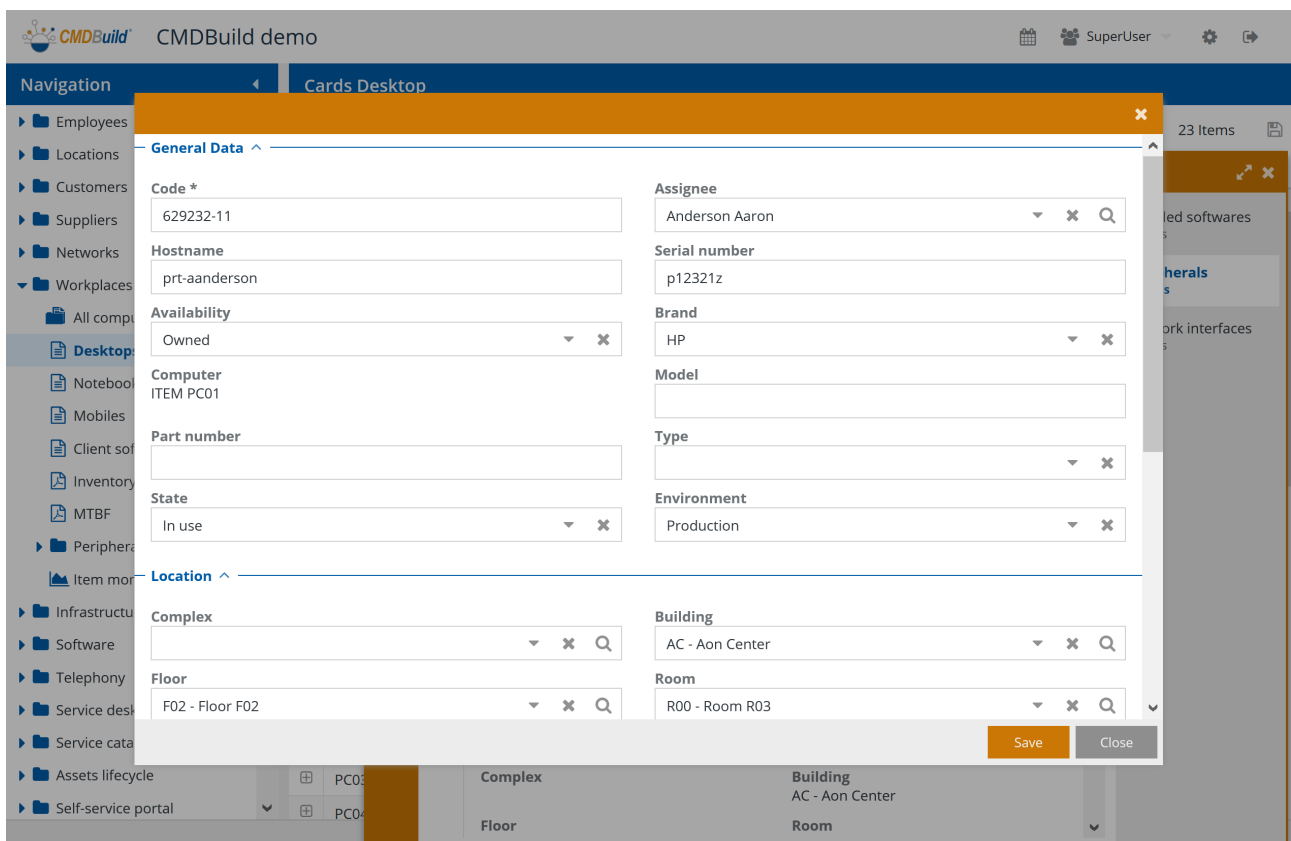
<ul style="list-style-type: none"> delete the selected detail card (logical delete) 	
<ul style="list-style-type: none"> choose a different detail (knowing in advance the number of rows - for that detail - linked to the current card) 	<div style="border: 1px solid #ccc; padding: 5px;"> <p>Installed softwares 0 items</p> <p>Peripherals 2 items</p> <p>Network interfaces 1 items</p> </div>

7.3.1. Guide to compilation

Both when inserting a new detail card and when editing the selected detail card, the system opens an additional popup window with the fields of the chosen detail card.

The same instructions given for the Card TAB can be used also for compiling the form.

The only particular feature is that the reference attribute linking the detail card with the main card is automatically enhanced and cannot be edited. This happens because it is a quick mode of managing detail cards linked to the current Master card.



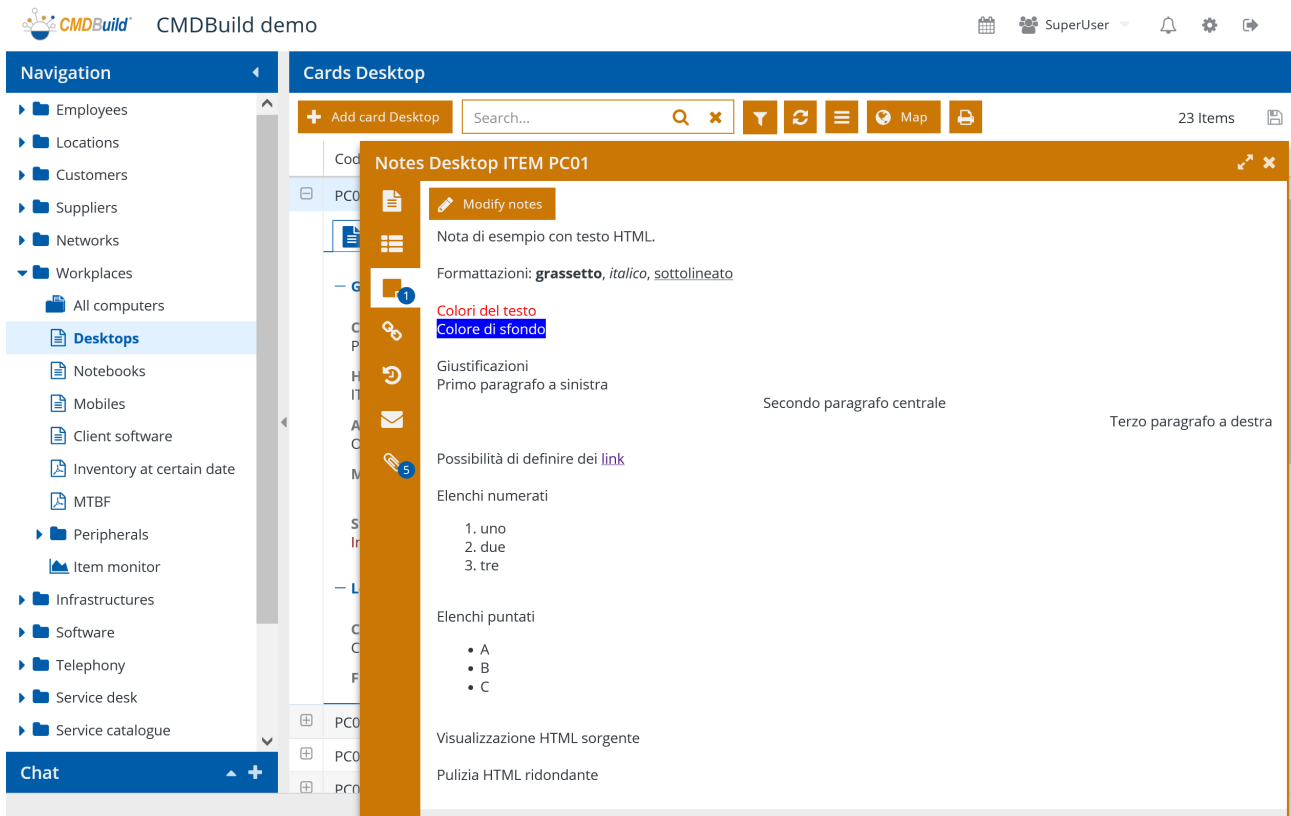
Using the form buttons you can:

- confirm the operation and close the card
- delete the operation

7.4. Notes TAB

Using the "Notes" TAB you can browse and update a page with the notes related to the current card.

The "Notes" field is managed using an HTML editor that allows several formatting options, such as the setting of type, size and font color, text alignment on the right, on the left and centrally, definition of numbered lists, creation of links, etc.




In the Notes TAB you can perform the following operations:

<ul style="list-style-type: none"> • edit the text of notes • save the changes • delete the changes 	<div style="text-align: right;"> ✎ Modify notes Save Cancel </div>
--	---

7.4.1. Guide to compilation

The HTML editor available to edit the text in the Notes TAB includes the following features:

<ul style="list-style-type: none">• choose the font • bold font• italics font• underline font • choice of the font color for the selected text • choice of the background color for the selected text • text alignment on the left• center justification• text alignment on the right• insertion of a link • deletion of a link• numbered list• bullet list	 <p>The screenshot displays the HTML editor's toolbar with the following features:</p> <ul style="list-style-type: none">A font selection dropdown menu with options: "Open Sans", Arial, Courier New, Tahoma, Times New Roman, and Verdana.Buttons for Bold (B), Italic (I), and Underline (U).A text color selection palette with a grid of 30 color swatches.A background color selection palette with a grid of 30 color swatches.Buttons for text alignment: Left, Center, and Right.A link insertion icon (chain link).A dialog box for inserting a link with the text "Please enter the URL for the link:", a text input field containing "http://", and "OK" and "Annulla" buttons.A link deletion icon (chain link with a slash).Buttons for creating a numbered list and a bullet list.
--	--

- visualization of the HTML source
- cleaning HTML tag
- expansion of a window on a full screen
- restoration of a window after expansion



Using the form buttons you can:

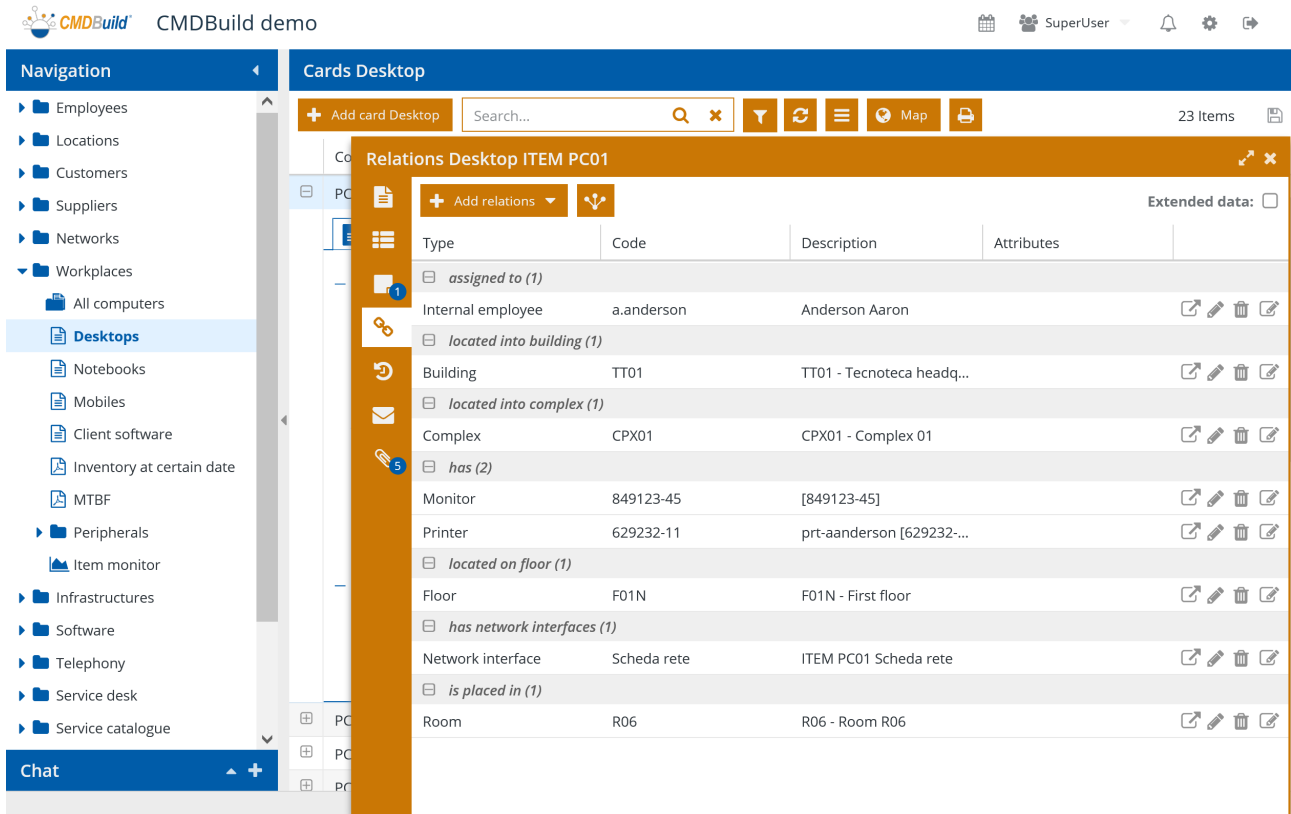
- confirm the inserted text
- delete the operation

7.5. Relations TAB

The "Relations" TAB allows you to consult the relations defined for the current card and create new ones.

You can view relations grouped by domain (type of relation). New relations can be created only within the available domains for the current class.

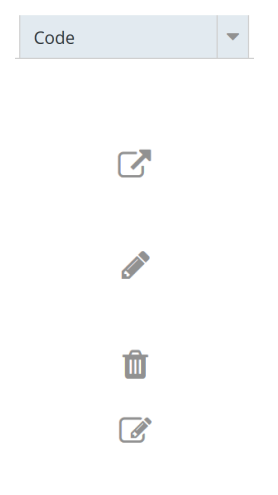
The application shows also the attributes defined for a domain (if any).



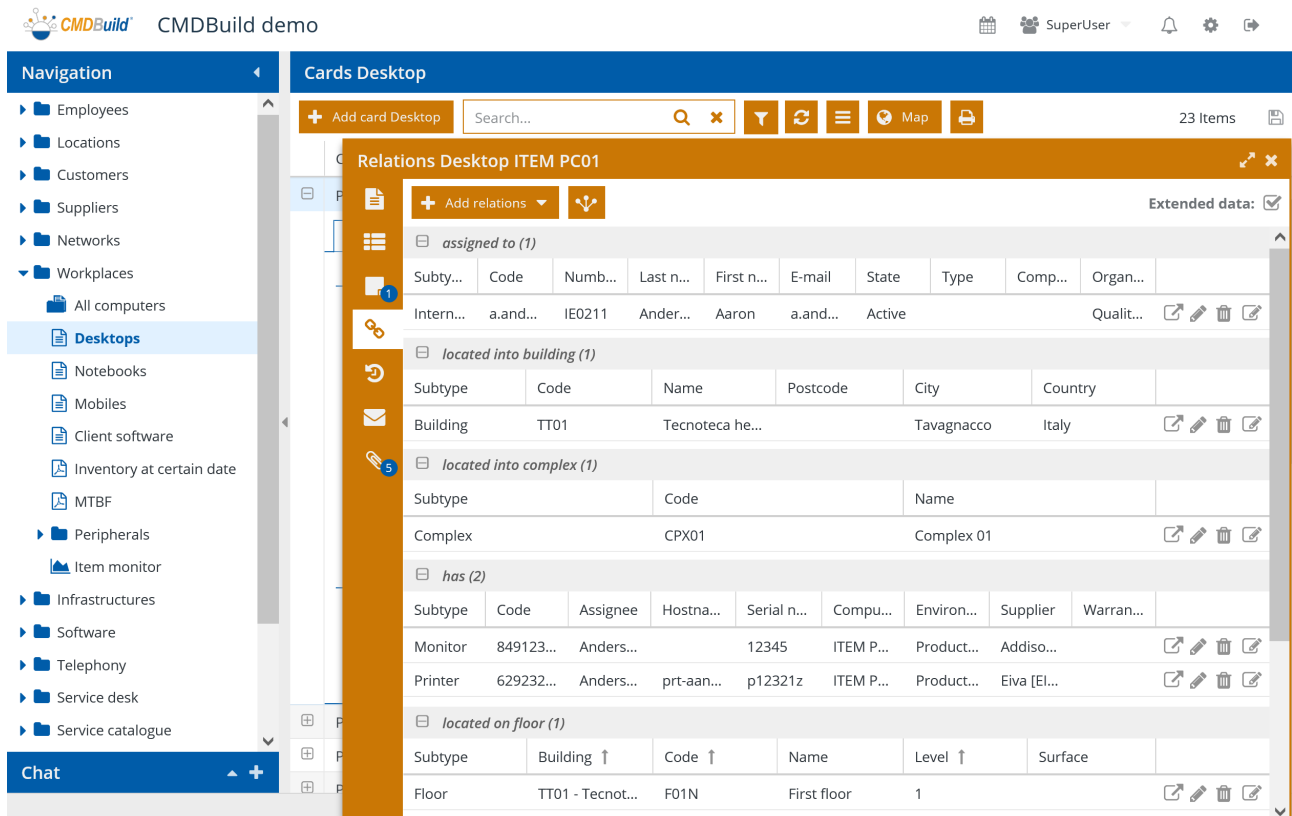
In the Relations TAB you can perform the following operations:

<ul style="list-style-type: none"> • create new relations • display the Relation Graph centered on the current card • view in the grid the extended data of related cards • expand the relation list for a specific domain (the list is presented as closed if the number of relations for that domain is higher of the specific parameter specified in the Administration Module) • work on the column width of the relation table 	<p> <input type="checkbox"/> Add relations <input checked="" type="checkbox"/> Extended data </p>
--	--

- sort the table with the relation list according to the value of a column, by clicking on column header (the first click will sort ascending, the second descending)
- move the context onto the linked card (corresponding to a double click on the relation row)
- edit the relation (linking a different card or editing the value of any relation attributes)
- delete the current relation (logical delete)
- display or edit the linked card, with all its attributes divided in fieldsets (if any).

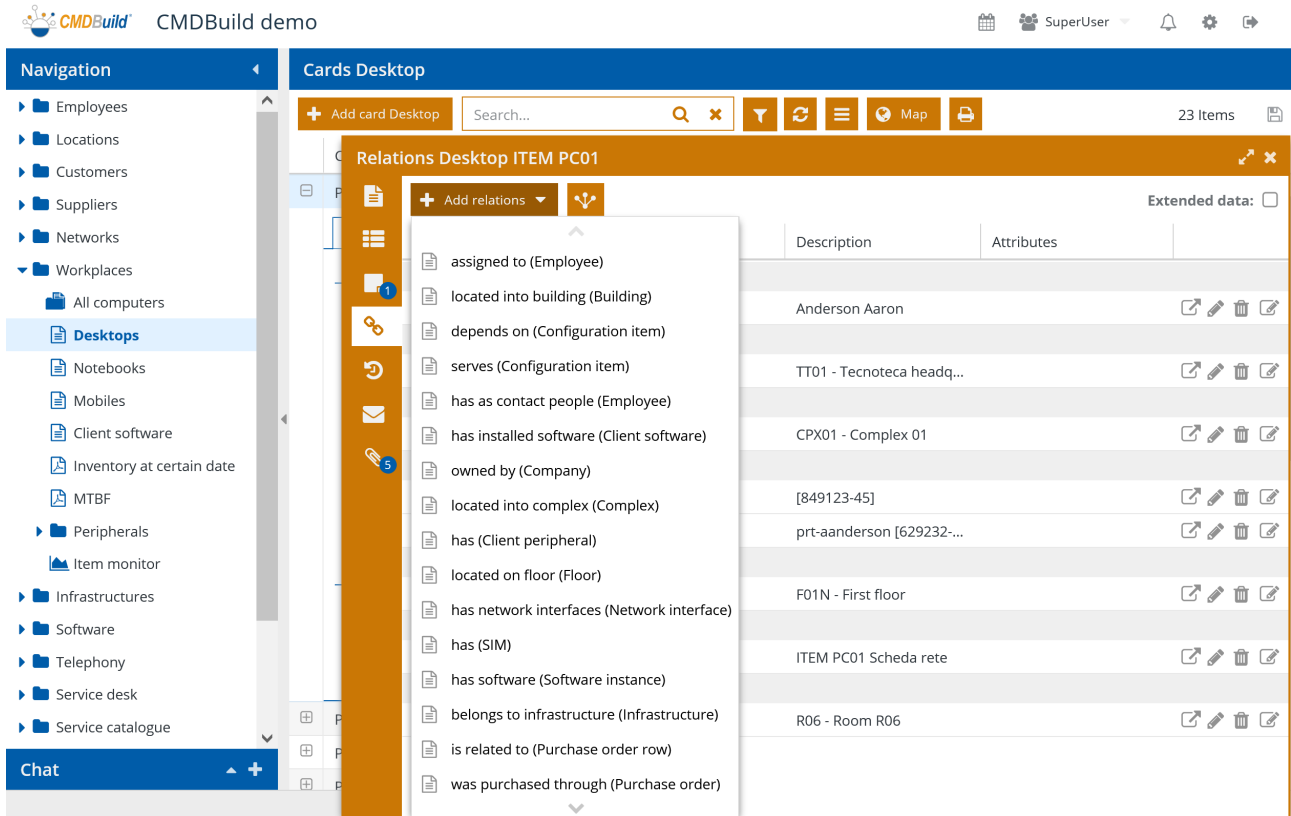


This is an example of the interface in case you select the flag to view extended data.

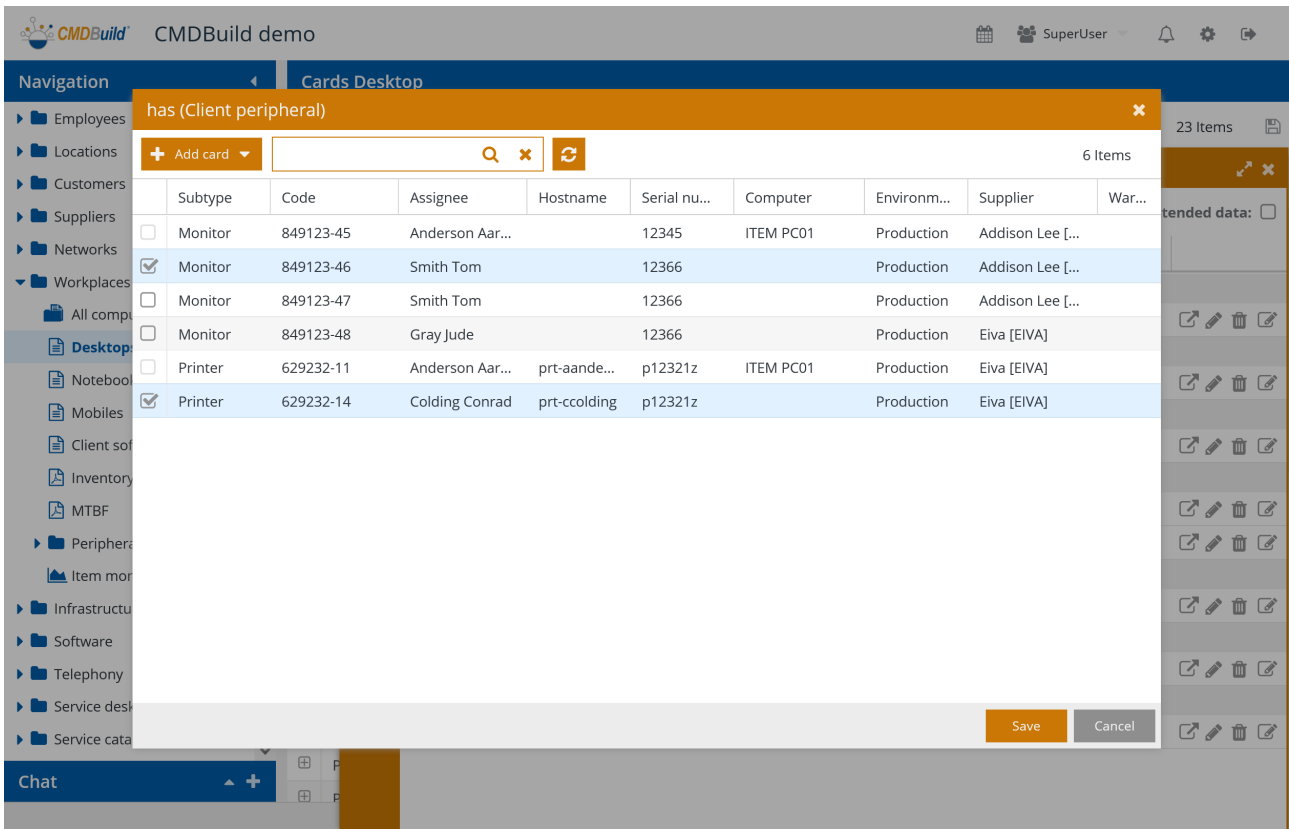


7.5.1. Creation of a new relation

The button "Add relation" shows the drop-down list of domains (types of relations that can be created) available for the current class.



Once the domain has been chosen, the application opens a popup window with the list of cards that can be connected through that domain. According to the domain cardinality you can select one or more cards to be connected.



The Save button completes the operation creating the new requested relations.

7.6. History TAB

The History TAB allows you to display the history of changes done on the current card through the usual update features of data available in the CMDBuild system.

CMDBuild includes a complete “versioning” mechanism, which is useful both to check any irregular changes and to retrace the situation of information valid at a previous date.

The screenshot shows the CMDBuild demo interface. On the left is a navigation sidebar with categories like Employees, Locations, Customers, Suppliers, Networks, Workplaces, All computers, Desktops, Notebooks, Mobiles, Client software, Inventory at certain date, MTBF, Peripherals, Item monitor, Infrastructures, Software, Telephony, Service desk, and Service catalogue. The main area is titled 'Cards Desktop' and contains a search bar and a table of history entries for 'ITEM PC01'. The table has columns for Type, Begin date, End date, User, and User description. Below the table are two detailed card views for 'ITEM PC01' with tabs for General Data, Location, Administrative Data, Technical Data, and Notes. Edited fields in the card details are highlighted in blue.

Type	Begin date	End date	User	User description
[Icon]	2019-04-08 19:33:28		admin	admin
[Icon]	2019-04-05 15:51:15	2019-04-08 19:33:28	admin	admin
[Icon]	2019-04-05 15:50:20	2019-04-05 15:51:15	admin	admin

7.6.1. Guide to consultation

The card "versions" are displayed one per line, and you can:

- expand and close the card
- switch the card TABs

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

- the starting date for that version
- the ending date for that version
- the user who did the change

When displaying the complete card, you will see the edited information on a blue background.

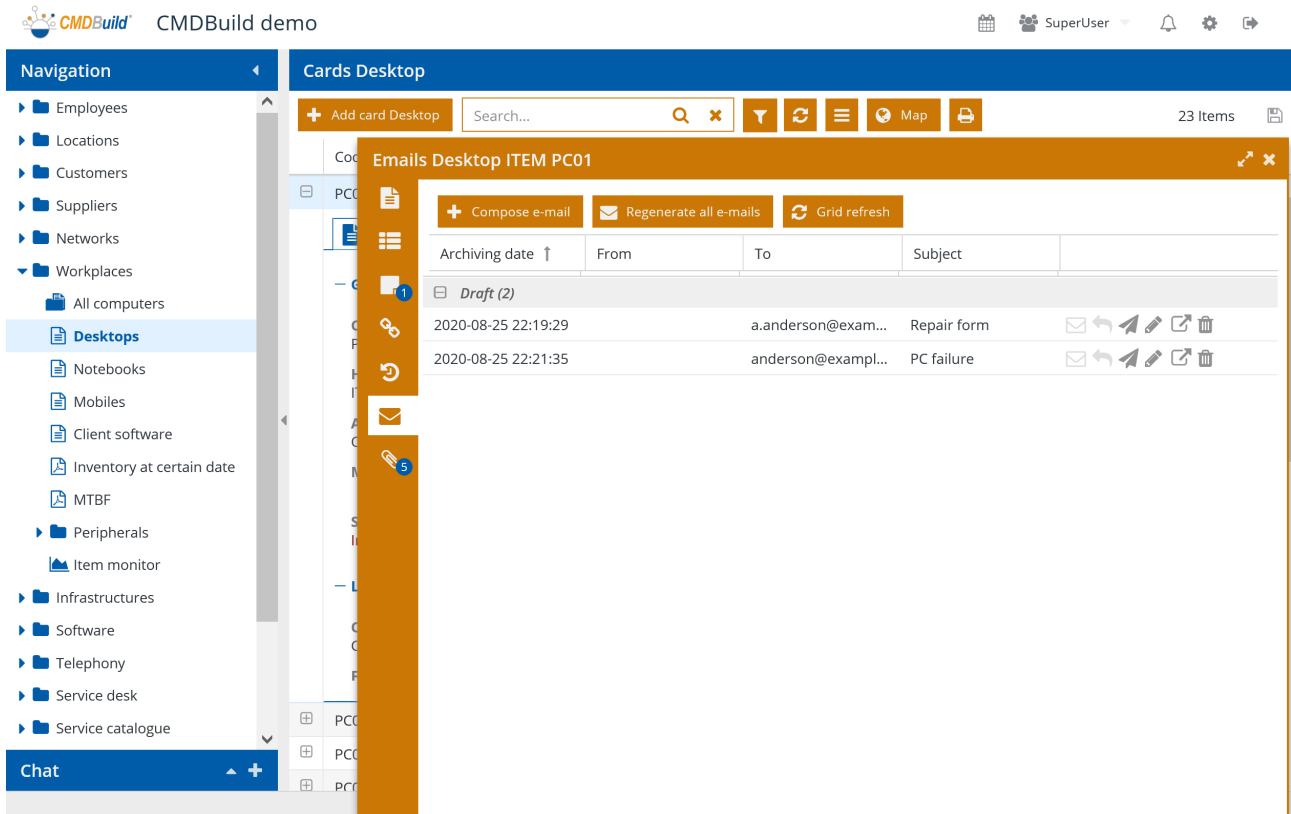
In case the card has several tabs, a small blue circle states which tabs contain edited attributes.

7.7. Emails TAB

The Email TAB allows you to manage any email exchanges with recipients whose card belongs to the current class (contacts, clients, suppliers, etc.).

You can both check sent and received emails, and write and send new emails.

Received emails are managed and made available through the Task Manager mechanism (in particular with the "Read email" task) that can be configured in the Administrator Module.



By checking the list of received and sent emails you can carry out the following operations:

<ul style="list-style-type: none"> • write a new email • regenerate all new exiting emails, in case some information that generated them have been edited in the current card • refresh the grid • expand one of the three sub-lists where the process emails are divided: draft emails, received emails, sent emails • compress one of the three sub-lists • regenerate only the current email 	<div style="text-align: right;"> <div style="background-color: #e67e22; color: white; padding: 5px; margin-bottom: 10px; display: inline-block;">+ Compose e-mail</div> <div style="background-color: #e67e22; color: white; padding: 5px; margin-bottom: 10px; display: inline-block;">✉ Regenerate all e-mails</div> <div style="background-color: #e67e22; color: white; padding: 5px; margin-bottom: 10px; display: inline-block;">🔄 Grid refresh</div> <div style="margin-bottom: 10px; display: inline-block; text-align: center;">+</div> <div style="margin-bottom: 10px; display: inline-block; text-align: center;">-</div> <div style="display: inline-block; text-align: center;">✉</div> </div>
---	--

- answer the current email
- send the current email
- edit the current email
- display the current email
- delete the current email



By accessing the page of draft emails you can perform the following operations:

- choose the template (among those configured in the Administration Module) for the automatic generation of a new email
- keep sync the email with any information related to the current card
- choose a possible delay in the delivery
- attach a document by taking it from the system file
- attach a document by taking it from the CMDBuild document management system
- save the new email (it will be saved as draft and then sent when the process advances)

Compose from template

AM04 - Assignment - Email to user

AM05 - Withdrawal - Email to user

AM06 - Replacement - Email to user

AM07 - Transfer between user - Email to dest. user

AM07 - Transfer between user - Email to orig. user

CM02 - Classification - Email to approver

CM02 - Escalation - Email to dest. group

CM03 - Start approval - Email to dest. group

CM03-StartApproval-ToRequester

Delay

None

None

1 hour

4 hours

In 1 day

In 2 days

In 4 days

In 1 week

In 2 weeks

In 1 month

Attach file

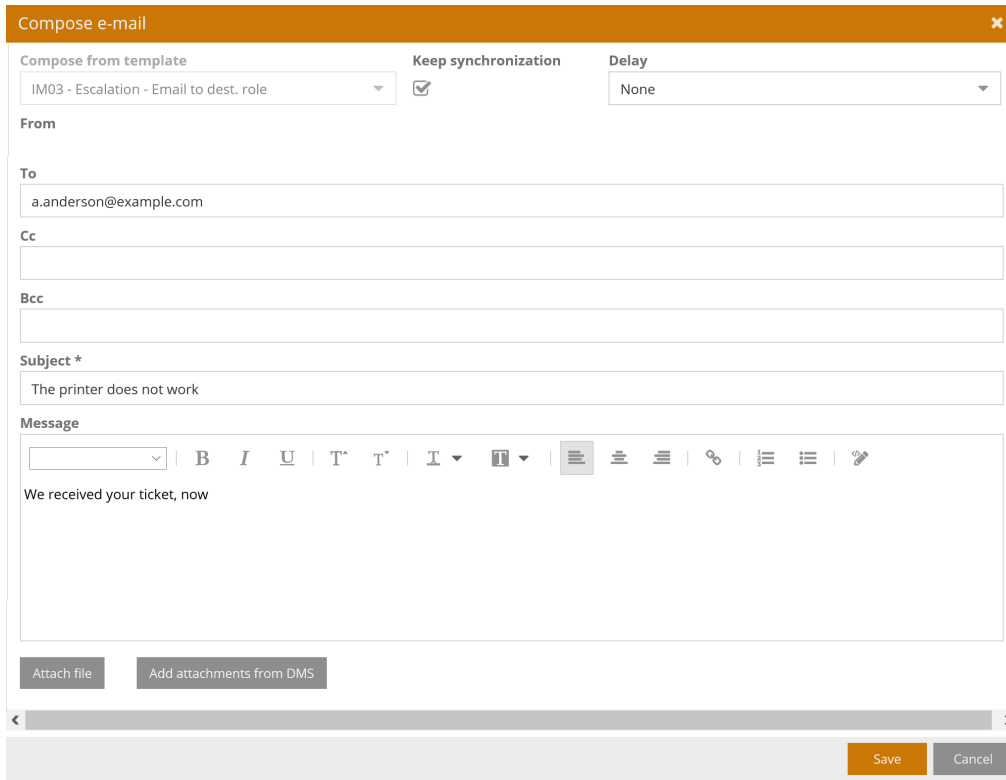
Add attachments from the document archive

Save

- delete the operation

Cancel

Here's a sample of the user interface for the composition of a new email.



7.8. Attachments TAB

Through the Attachment TAB you can associate any file to a CMDBuild card, view the list of attachments and consult the single document.

In order to file attachments, CMDBuild can use in embedded mode any document system that supports the standard protocol CMIS (Content Management Interoperability Services). The suggested solution is based on Alfresco, the open source DMS, that is set as default system in the Administration Module. The CMIS solution related to Microsoft Share Point online is also supported.

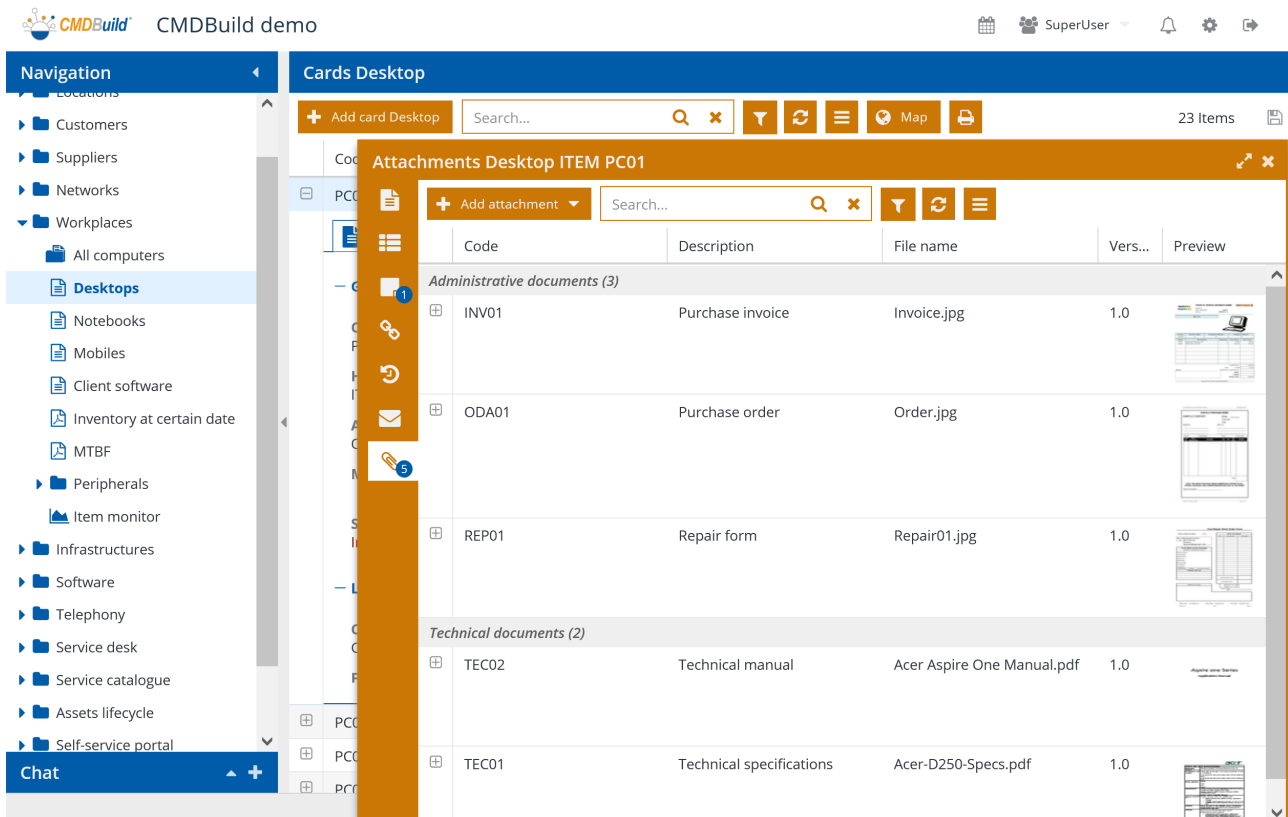
The attachments can be grouped in document categories which can be defined in a diversified way for each class. In case they are not defined for a specific class, the system will use the generic categories of the entire CMDBuild instance.

For each document category you can set a limitation on the included file number (minimum value, exact, maximum).

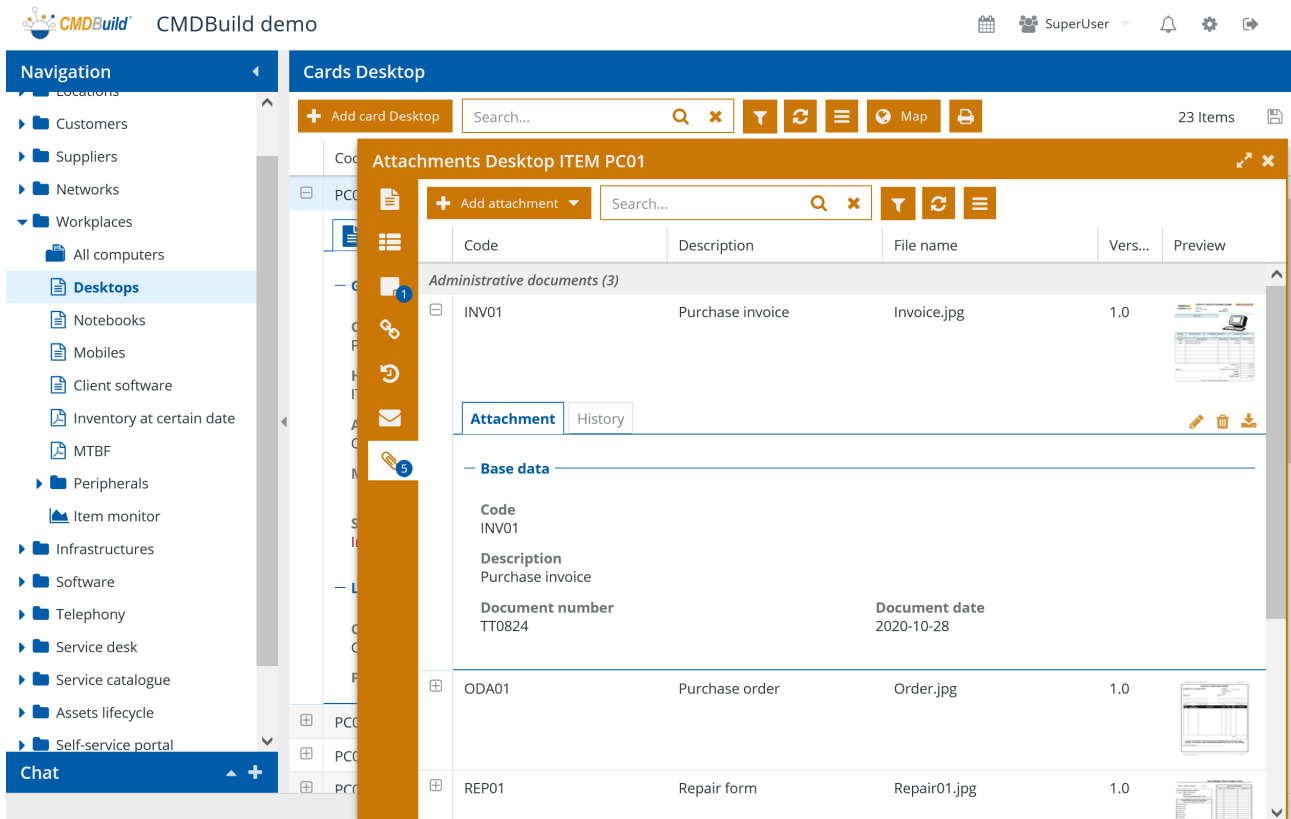
Each document category can be associated to a document class with specific attributes (document metadata), which can represent a type of document or a protocol number of the linked practice or the starting date of the practice, etc.

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

Here's the view page of documents attached to a card.



You can view the additional attributes (document metadata) of each attachment:



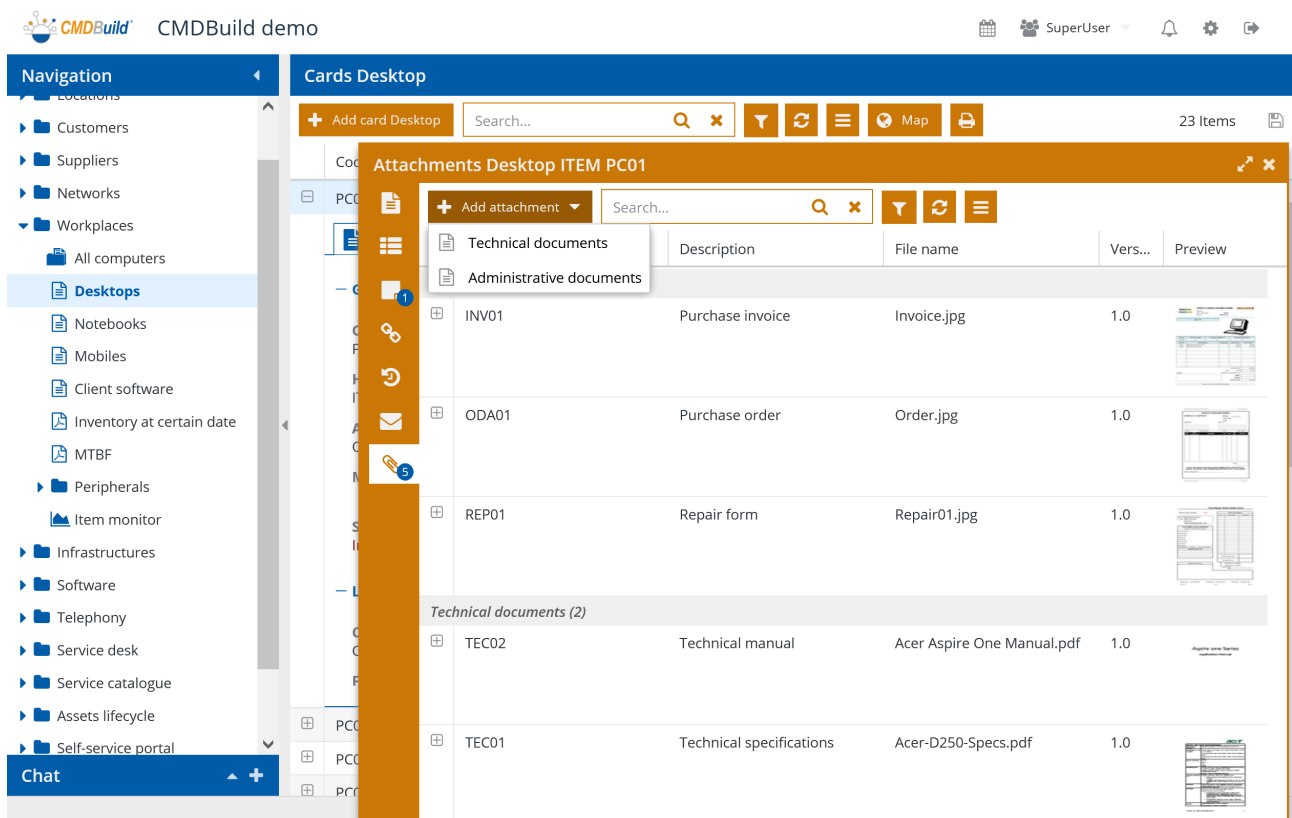
In the Attachment TAB you can run the following operations:

<ul style="list-style-type: none"> add a new attachment to the current card, by selecting the correct category among the configured ones 	
<ul style="list-style-type: none"> perform free text searches on data displayed in the table 	
<ul style="list-style-type: none"> define a filter on metadata (same way of defining attributes of a card) 	
<ul style="list-style-type: none"> update the page 	
<ul style="list-style-type: none"> access the contextual menu, where you can find useful features in the current context 	
<ul style="list-style-type: none"> work on the column width of the attachment table 	
<ul style="list-style-type: none"> sort the table with the attachment list according to the value of a column, by clicking on column header (the first click will sort ascending, the second descending) 	

<ul style="list-style-type: none"> expand the selected category of attachments 	⊕
<ul style="list-style-type: none"> download the attachment (according to the settings of the browser it can be opened in another window or saved in the system file) 	CLICK ON PREVIEW
<ul style="list-style-type: none"> edit the attachment in the descriptive fields (category or description) or in the associated file, specifying if the new file represents a major version (the first number of the version will be edited) or not (the second number of the version will be edited) 	✎
<ul style="list-style-type: none"> delete attachment 	🗑️
<ul style="list-style-type: none"> download the attachment 	⬇️

7.8.1. Upload of attachments

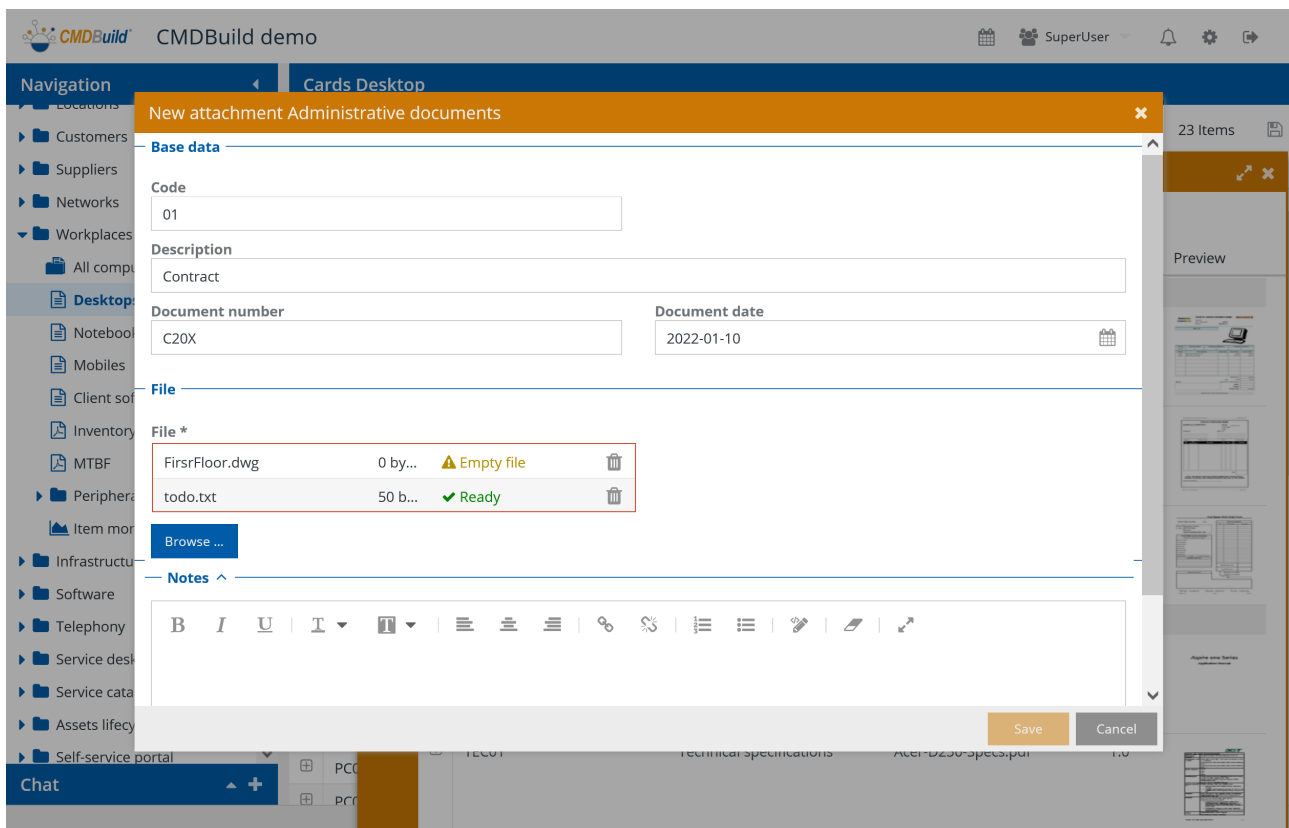
The upload of a new attachment takes place using a form where you have to choose the category of the document you should upload (configured in a custom way or alike for all classes).



Then the following form comes.

The example is referred to the category of administration documents, for which a specific document class including custom attributes (metadata of the attachment) has been configured.

With a single operation you can upload more files to the current card.



The operator is asked to:

- fill in the standard attributes Code and Description
- fill in any additional custom attributes (metadata) configured for the chosen document category, in the example Document number and Document date
- upload one or more files (in case they are more than one, they are associated to all information inserted in the previous fields), in two ways:
 - through selection button
 - dragging one or more files from your file system
- add any notes

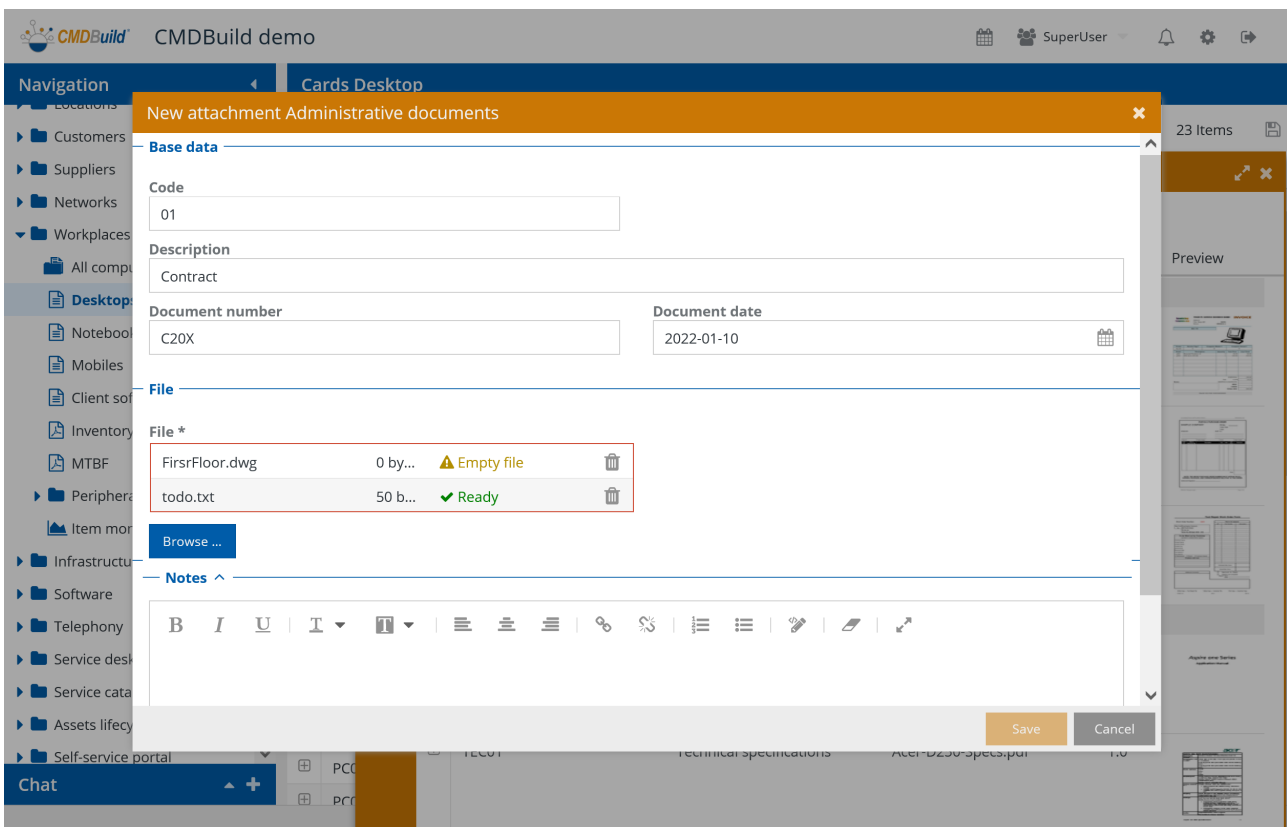
The types of files that can be uploaded can be limited to certain extensions configured for the CMDBuild instance and can be differentiated by document category.

7.8.2. Versions of attachments

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, you can consult in the History TAB:

- creation date
- date of the last change
- the author of the change
- the version
- the file name
- the related description



Each file version can also be downloaded.

8. Cards: advanced features

In this chapter we describe some advanced features available in CMDBuild to consult and manage data cards.

Such features concern in particular:

- searches with advanced filter
- use of contextual menu
- use of scheduling
- data import / export
- massive modification and cancellation
- display of relations in a graphic way (Relation Graph)
- card georeference on geographical maps, vector maps, 3D models

Each one is described in detail in the following paragraphs.

8.1. Advanced search filter

For each type of card you can apply some filters to display only the cards you want to view. For the filter definition there is a specific icon (funnel) on the management page of each class (see the paragraph 6.1).

You can select a filter among those created by the CMDB administrator in the Administrator Module and made available to operators. Otherwise, the filter can be configured by an operator through the Management Module.

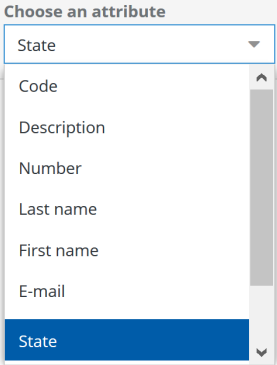
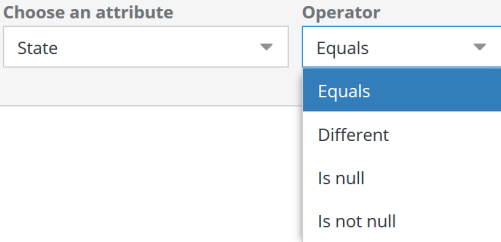
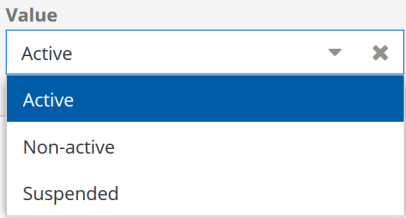



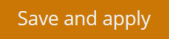
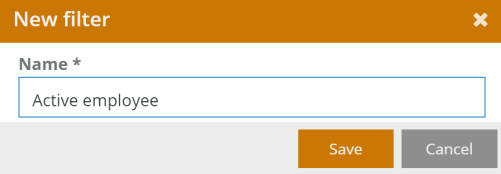
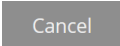
8.1.1. Filter on attributes

An advanced filter allows you to select data cards by applying multiple search criteria on any attribute of the current class.

The screenshot shows the 'Active Employees' filter configuration window in the CMDBuild demo. The window has three tabs: 'Attributes', 'Relations', and 'Attachments'. The 'Attributes' tab is active. Under 'Choose an attribute', there is a dropdown menu. Below that, there are two filter rules. The first rule is for the 'State' attribute with the operator 'Equals' and the value 'Active'. The second rule is for the 'End of contract' attribute with the operator 'Greater than' and the value '2021-01-01'. At the bottom of the window are buttons for 'Apply', 'Save and apply', and 'Cancel'.

In the example of the previous screenshot, the filter selects the active employees who have a permanent contract (final date not specified) or a contract expiring after the 1st January 2021.

There is the possibility of performing the following operations, also many times, on the same attribute (operator "OR") or on different attributes (operator "AND"):

<ul style="list-style-type: none"> choose an attribute where the filter condition can be applied to. After this, a row with that attribute is added and you can set the filter 	
<ul style="list-style-type: none"> choose an operator that depends on the type of attribute 	
<ul style="list-style-type: none"> digit (in case of strings or numbers) or choose (in case of references or lookups) a value 	
<ul style="list-style-type: none"> state that, as an alternative to typing or choosing a static value, the value has to be dynamically required to the operator when applying the filter 	
<ul style="list-style-type: none"> delete a set filter condition 	
<ul style="list-style-type: none"> apply the filter 	
<ul style="list-style-type: none"> save and apply the filter 	
<ul style="list-style-type: none"> in case you are asked to save it, specify its name 	
<ul style="list-style-type: none"> delete the operation 	

A filter can have more conditions. Any multiple conditions applied to the same attribute will be considered in "OR", while the conditions applied to different attributes will be considered in "AND".

The filter can be saved in order to be applied again in a second moment. In this case it has to be renamed.

You can also make some values parametric, which will be required to the operator when the filter will be applied again.

The filter application shows in the table only the cards that meet its conditions, as highlighted in the following screenshot, displaying on the top the name assigned to the current filter.

The screenshot shows the CMDBuild demo interface. On the left is a navigation menu with categories like Employees, Locations, Customers, etc. The main area displays a table titled 'Cards Internal employee' with a filter 'Active Employees' applied. The table contains 6 items, all of which are highlighted in light blue. The footer shows the website URL www.cmdbuild.org and copyright information.

	Code	Number	Last name	First name	E-mail	State	Type	Company	Organizatio...
+	a.anderson	IE0211	Anderson	Aaron	a.anderson...	Active			Quality Ass...
+	m.brooke	IE0420	Brooke	McKayla	m.brooke@...	Active			Quality Ass...
+	c.colding	IE0212	Colding	Conrad	c.colding@e...	Active			SQL Server
+	s.marlow	IE0485	Marlow	Serena	s.marlow@e...	Active			Server Adm...
+	t.smith	IE0210	Smith	Tom	t.smith@ex...	Active			Developers
+	d.williams	IE0856	Williams	David	d.williams@...	Active	Regular		

8.1.2. Filter on relations

Through the Relation TAB you can define filter criteria based on the type of relations (domains) defined for the current class.

The filter on relations allows to extract:

- cards that have no relations with the chosen domain
- cards that have any relation with the chosen domain
- cards that have been manually chosen from the list of those related according to the chosen domain
- cards selected through filter on the linked class, similar to the one described at the previous paragraph

In the following example, the filter selects all employees that:

- have at least an assigned asset
- belong to a company headquartered in Italy

Description	Type	Relations			
		No one	Any	From selec...	From filter
is additional manager of	Organizational unit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
equipped with	Configuration item	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
is business contact person of	Business service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
is contact person of	Configuration item	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
belongs to	Company	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
is subscriber of	Service contract	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

It is also possible to define and save filters that include both conditions on attributes and on relations.

8.1.3. Change a filter

The name of the current filter, if set, is displayed above the header of the card list.

By clicking on the filter you can:

- apply a filter that is different from the listed ones
- create a new filter
- edit a configured filter
- clone a configured filter
- delete a configured filter
- set a filter as default filter for the current user when he/she opens the class

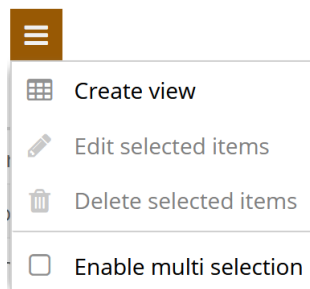
8.2. Contextual menu

The contextual menu, which can be used when displaying and browsing data, allows operators to have some commands useful in the current context, by simplifying the way to choose and apply them.

The entries of the contextual menu can be performed by clicking on the desired function or can have their own user interface.

8.2.1. Use of contextual menu

You can access the contextual menu by clicking on the corresponding icon, which is above the header of the table columns.



In the example below there are:

- system functions
 - the first one allows you to create views from join
 - the second one allows you to edit the selected rows, once the multisection has been enabled (massive change)
 - the third one allows you to delete the selected rows (massive deletion)
 - the fourth one enables the multiselection on the table
 - the fifth one allows the interactive execution of massive data import, through the template configured in the Administration Module
 - the sixth one allows the interactive execution of massive data import, through the template configured in the Administration Module
- custom functions
 - the first one sets the "Status" attribute as active on all selected cards
 - the second function sets the attribute "Status" as not active on all selected cards

The screenshot shows the CMDBuild demo interface. On the left is a navigation sidebar with categories like Employees, Locations, Customers, etc. The main area displays a table titled 'Cards Internal employee' with columns for Code, Number, Last name, First name, E-mail, and Status. A contextual menu is open over the table, listing actions such as 'Create view', 'Edit selected items', 'Delete selected items', 'Enable multi selection', 'Import data', 'Export data', 'Set selected cards active', and 'Set selected cards not active'.

	Code	Number	Last name	First name	E-mail	Status
	a.anderson	IE0211	Anderson	Aaron	a.anderson...	A
	m.brooke	IE0420	Brooke	McKayla	m.brooke@...	A
	c.colding	IE0212	Colding	Conrad	c.colding@e...	A
	s.marlow	IE0485	Marlow	Serena	s.marlow@e...	A
	t.smith	IE0210	Smith	Tom	t.smith@ex...	A
	d.williams	IE0856	Williams	David	d.williams@...	A

The contextual menu can be configured from the Administration Module by managing classes.

The contextual menu can include:

- configuration / execution of views from join
- standard functions for all classes (enable / disable the multiple selection on the table, massive modification and massive cancellation)
- other features available for all classes after being enabled (CSV import, CSV export, etc.)
- custom functions applicable on the current card
- custom functions applicable on all selected cards
- custom functions applicable on all cards displayed in the table
- separator lines

Each function of the contextual menu can include:

- a component available in a system library of CMDBuild and imported into the specific menu of the Administration Module
- custom javascript code

For uses of configuration and execution functions of views from join, massive change and cancellation of data, data import and export, please refer to the following paragraphs of this chapter.

8.3. Schedule

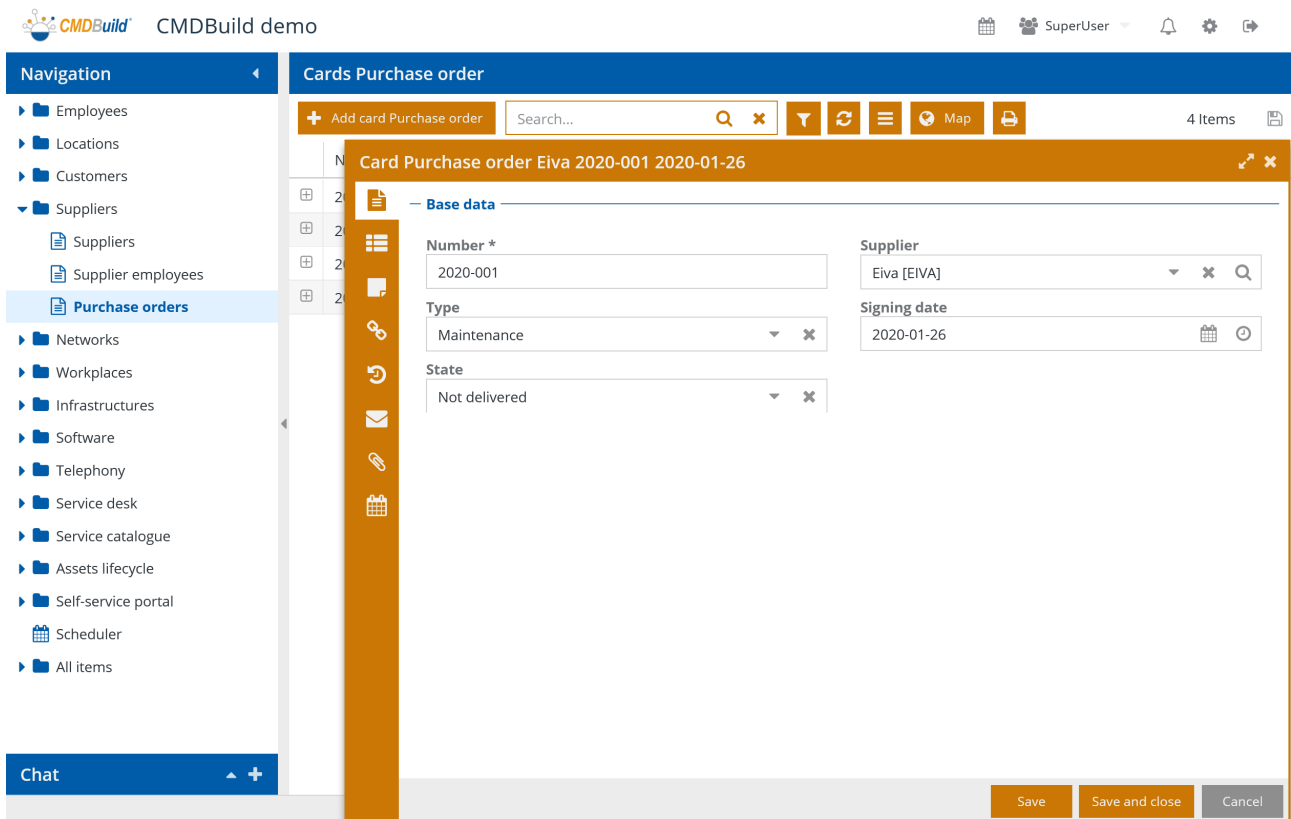
The scheduling helps operators to check procedures related to, for example, contracts with customers and suppliers, orders, certifications, warranties, recurring operations on assets, etc.

Deadlines can be generated automatically from the system when inserting new data cards including data attributes marked as "deadline", but also can be inserted manually into the resulting Scheduling file.


The Scheduling file can be consulted like the common CMDBuild classes, with filter features, print features, etc.

8.3.1. Generation of deadlines when cards are updating

When inserting a data card including a date attribute marked as deadline, the system provides the user interface as shown below.



Since the attribute "Signing date" has been configured in the Administration Module in order to generate deadlines, another icon will appear:

- | | |
|---|---|
| <ul style="list-style-type: none"> • access to deadline generation criteria, consulting and possible change of parameters (if provided by the Administrator) |  |
|---|---|

Below you can see the page related to the deadline rule in the Administration Module.

The screenshot shows the 'Schedule' configuration window in the Cmdbuild Administration Module. The window is titled 'Schedule' and is open over a 'PurchaseOrder - Attributes - SigningDate' card. The configuration fields are as follows:

- Category:** Default (dropdown)
- Priority:** Default (dropdown)
- Schedule edit mode:** Write (dropdown)
- Action on card delete:** Unlink card (dropdown)
- Condition:** (empty text area)
- Schedule time *:** 00:00:00 (text input)
- Frequency:** Once (dropdown)
- Delay before deadline:** Years (dropdown)
- Delay before deadline value:** 1 (spin box)
- Days advance notification *:** 1 (spin box)

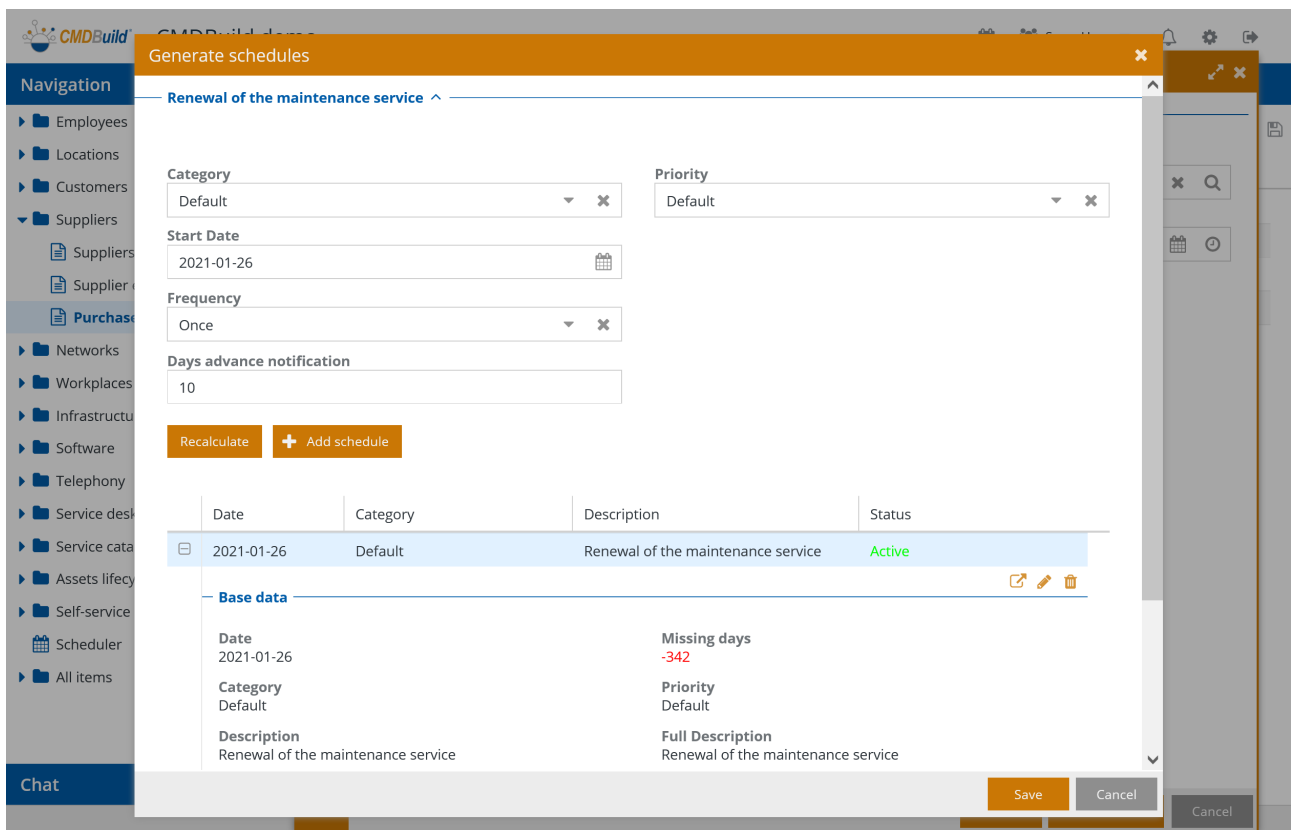
At the bottom of the window, there are 'Save' and 'Cancel' buttons. The background shows a navigation pane with various categories like IT pr, Know, KPI, Link, Netw, and Purc.

According to the configuration rule defined by the Administrator, the operator can view and also edit the following parameters:

- Category, selected among the values provided in the proper value list (lookup)
- Priority, selected among the values provided in the proper value list (lookup)
- First deadline date, calculated according to rules set by the administrator
- Schedule time in the calculated date
- Frequency, with possible values as "Once", "Daily", "Monthly", "Yearly"
- Days advance notification, which will be sent via email to the operator's address

The system displays below the list of deadlines prepared according to the stated criteria, allows you to regenerate them in case the operator edited these criteria and allows you to edit them individually once recalculated.

In particular, the change can be useful to round off deadline or to edit the notification prepared by the administrator.




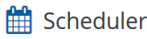
At the final confirmation, deadlines are generated and inserted into the scheduling.

In the following paragraph the available features are described for the scheduling management.

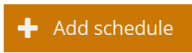



8.3.2. Consultation and manual supply of the scheduling

The Scheduling is a CMDBuild "core" feature that can include both rows automatically generated when inserting cards that include data attributes linked to deadline calculation rules, and rows manually inserted.

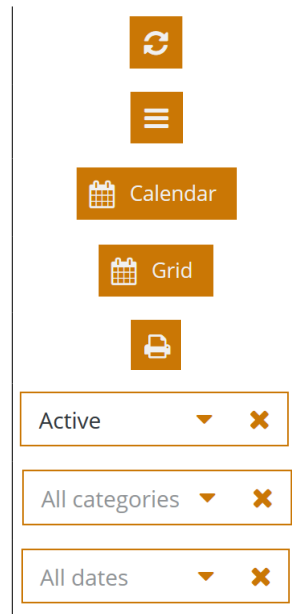
You can access the file in two ways:

<ul style="list-style-type: none"> • access through the icon on the top bar • access through the standard entry located at the end of the navigation menu 	 
---	--

Once entered the Scheduling page you can perform the following operations:

<ul style="list-style-type: none"> • add a new schedule • execute a quick search among the available deadlines • configure an advanced filter 	 <input type="text" value="Search..."/>   
--	--

- update the page
- access the contextual menu
- access the deadlines in calendar mode
- go back to the deadlines in grid mode
- print the deadlines in PDF or CSV format
- apply a filter to the status
- apply a filter to the categories
- apply a filter to the date: today, next 7 days, next 30 days



Also the Scheduling, even if it is a system class, inherits the base features available in all CMDBuild classes.

Therefore, you can access the file in read-only mode as shown in the following screenshot, and read the registered information.

The screenshot displays the CMDBuild Scheduler interface. On the left is a navigation sidebar with categories like Employees, Locations, Customers, Suppliers, Networks, Workplaces, Infrastructures, Software, Telephony, Service desk, Service catalogue, Assets lifecycle, and Self-service portal. The main area shows a 'Scheduler' view with a table of items. The selected item is:

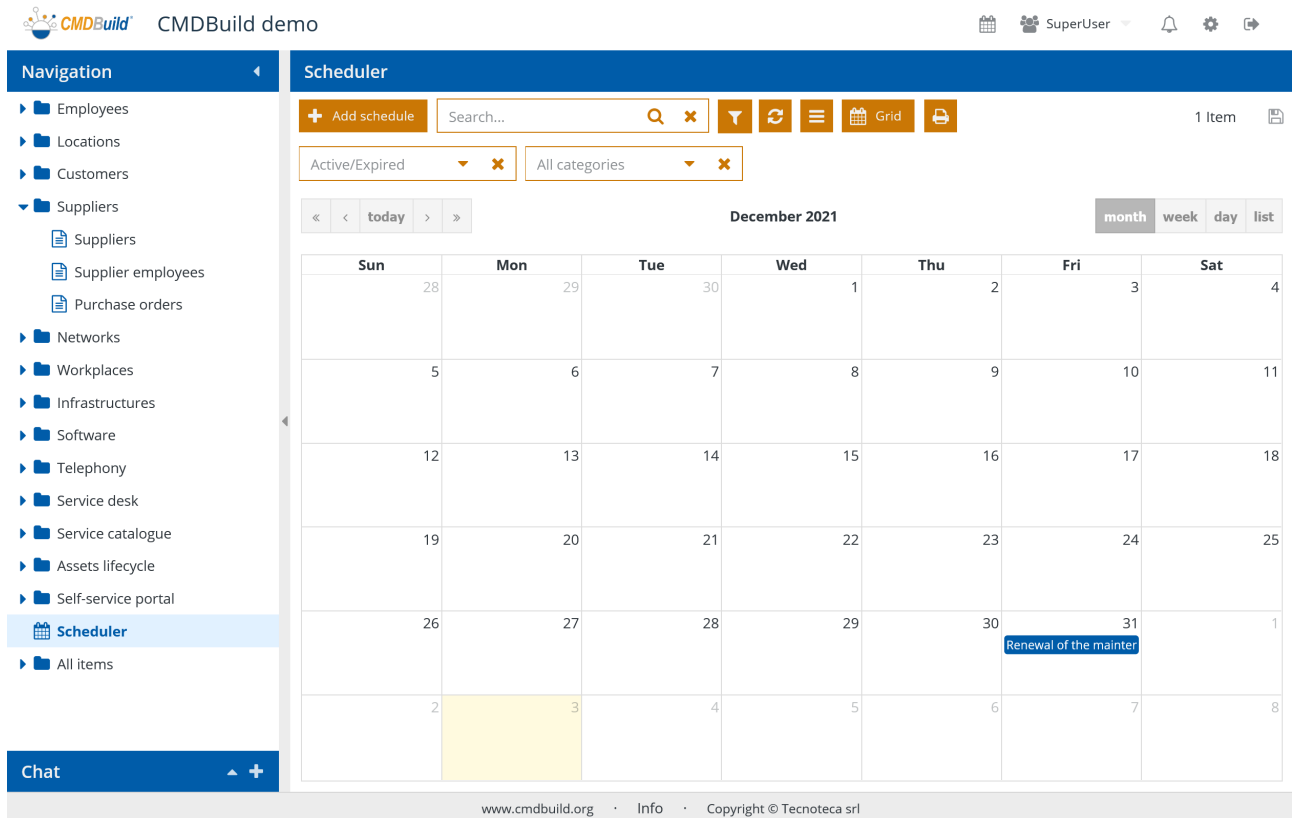
Date	Category	Description	Priority	Status	Type
2021-12-31	Default	Renewal of the mainten...	Default	Expired	Calculated

Below the table, the 'Base data' section provides details for the selected item:

- Date: 2021-12-31
- Category: Default
- Description: Renewal of the maintenance service
- Participant user
- Status: Expired
- Type: Calculated
- Missing days: -3
- Priority: Default
- Full Description: Renewal of the maintenance service
- Participant group

Additional options on the right include Source card, Calculation criterion, and Emails.

The same information can be viewed in calendar mode.



Also, you can update the file by manually inserting a new deadline or editing a deadline inserted automatically or manually, as shown in the following screenshot.

The screenshot shows the 'Scheduler' application in CMDBuild. A card titled 'Schedule Renewal of the maintenance service' is open, displaying the following details:

- Date ***: 2021-12-31
- Category ***: Default
- Description ***: Renewal of the maintenance service
- Priority ***: Default
- Missing days**: -3
- Participant user**: (empty dropdown)
- Participant group**: (empty dropdown)
- Template used for notification**: (empty dropdown)
- Operation**: (empty dropdown)
- Type**: Calculated

The interface also features a navigation menu on the left with categories like Employees, Locations, Customers, Suppliers, Networks, Workplaces, Infrastructures, Software, Telephony, Service desk, Service catalogue, Assets lifecycle, and Self-service portal. The Scheduler is currently selected. The top bar includes 'Add schedule', a search bar, and icons for filters, refresh, menu, calendar, and print. The bottom bar has 'Save', 'Save and close', and 'Cancel' buttons.

Each deadline includes the following information:

- **Date**: deadline date
- **Missing days** (automatically calculated, in read-only mode)
- **Category**: deadline category (selection list that can be customizable for every user)
- **Priority**: deadline priority (selection list that can be customizable for every user)
- **Description**
- **Description**
- **Participant user**: if filled out, it will be the only one to view the deadline
- **Participant group**: if the user field is not filled out and the group is filled out, only the operators of this group will view the deadline. In case also the group field is not filled out, the deadline will be public
- **E-mail notification template**
- **Advance notification (days)**
- **E-mail text notification**
- **Type**: deadline type (generated through automatic rule or inserted manually)

Deadlines can be changed, closed or cancelled.

The screenshot shows the CMDBuild Scheduler interface. A modal window titled "Schedule Renewal of the maintenance service" is open. The modal contains the following fields and controls:

- Category ***: Default
- Priority ***: Default
- Description ***: Renewal of the maintenance service
- Full Description**: Renewal of the maintenance service
- Participant user**: admin
- Participant group**: (empty)
- Template used for notification**: CM02 - Classification - Email to appi
- Days advance notification**: (empty)
- Notification text**: (empty text area)
- Operation**: Mark as done
- Execution Date**: 2022-01-03
- Type**: Calculated

On the right side of the modal, there are three buttons: "Source card", "Calculation criterion", and "Emails". At the bottom of the modal, there are three buttons: "Save", "Save and close", and "Cancel".

In this case you should specify:

- Operation: closing modes (completed or canceled activity)
- Execution date: closing or canceling date

The following widgets are also available:

- Source card: this button displays the card that generated the deadline through the rules set by the administrator and applied when saving
- Calculation criterion: this button displays the parameters of the rule of deadline generation
- Email: this button displays the notification text sent by the system for the current deadline with the required advance

Finally, you can use the contextual menu to close or cancel more deadlines en bloc.

The screenshot displays the CMDBuild Scheduler interface. On the left is a navigation sidebar with categories like Employees, Locations, Customers, Suppliers, Networks, Workplaces, Infrastructures, Software, Telephony, Service desk, Service catalogue, Assets lifecycle, Self-service portal, Scheduler, and All items. The main area shows a list of schedules with columns for Date, Category, Description, and Priority. A context menu is open over a schedule card, offering options: 'Mark as completed selected schedules', 'Mark as cancelled selected schedules', 'Create view', and 'Enable multi selection'. Below the list, a detailed card for a schedule is visible, showing 'Base data' such as Date (2021-12-31), Category (Default), Description (Renewal of the maintenance service), and Status (Expired). The footer contains the website URL www.cmdbuild.org, an Info link, and a copyright notice for Tecnoteca srl.

8.4. Views from join

This function allows you to configure views based on visual join among classes, with selection of attributes from each class and application of filters on each extracted attribute.

In this way, views allow to display the extracted data, and you can apply standard CMDBuild behaviors: textual searches, complex filters, contextual menu, export in CSV format.

8.4.1. Access to features

Features for configuration and consultation of views from join can be accessed from the contextual menu.

The screenshot shows the CMDBuild interface with a table of internal employees. The table has columns for Code, Number, Last name, First name, E-mail, and Status. A contextual menu is open over the table, showing options for 'Views', 'Employee extended data', 'Create view', 'Quality Ass...', 'SQL Server', 'Server Adm...', and 'Developers'. The 'Views' option is selected, and a sub-menu is open showing options for 'Edit selected items', 'Delete selected items', 'Enable multi selection', 'Import data', and 'Export data'.

Code	Number	Last name	First name	E-mail	Status
a.anderson	IE0211	Anderson	Aaron	a.anderson...	Active
m.brooke	IE0420	Brooke	McKayla	m.brooke@...	Active
c.colding	IE0212	Colding	Conrad	c.colding@e...	Active
s.marlow	IE0485	Marlow	Serena	s.marlow@e...	Active
t.smith	IE0210	Smith	Tom	t.smith@ex...	Active
d.williams	IE0856	Williams	David	d.williams@...	Regular

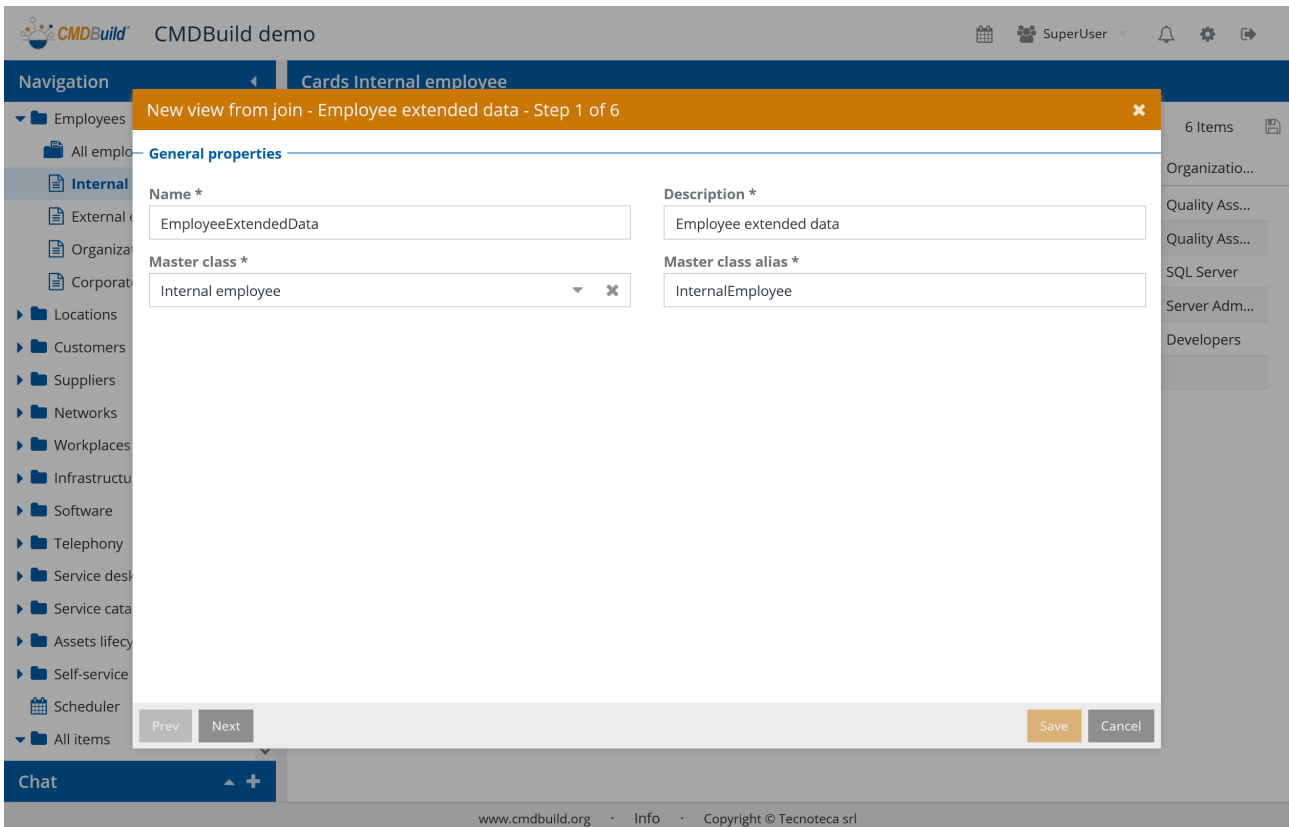
8.4.2. Creation of view from join

To create a new view from join you can use a proper wizard, divided into six steps.

Step 1 - General properties

The following information is required:

- Activity name
- Description
- Master class: original class for joins
- Master class alias: original alias class

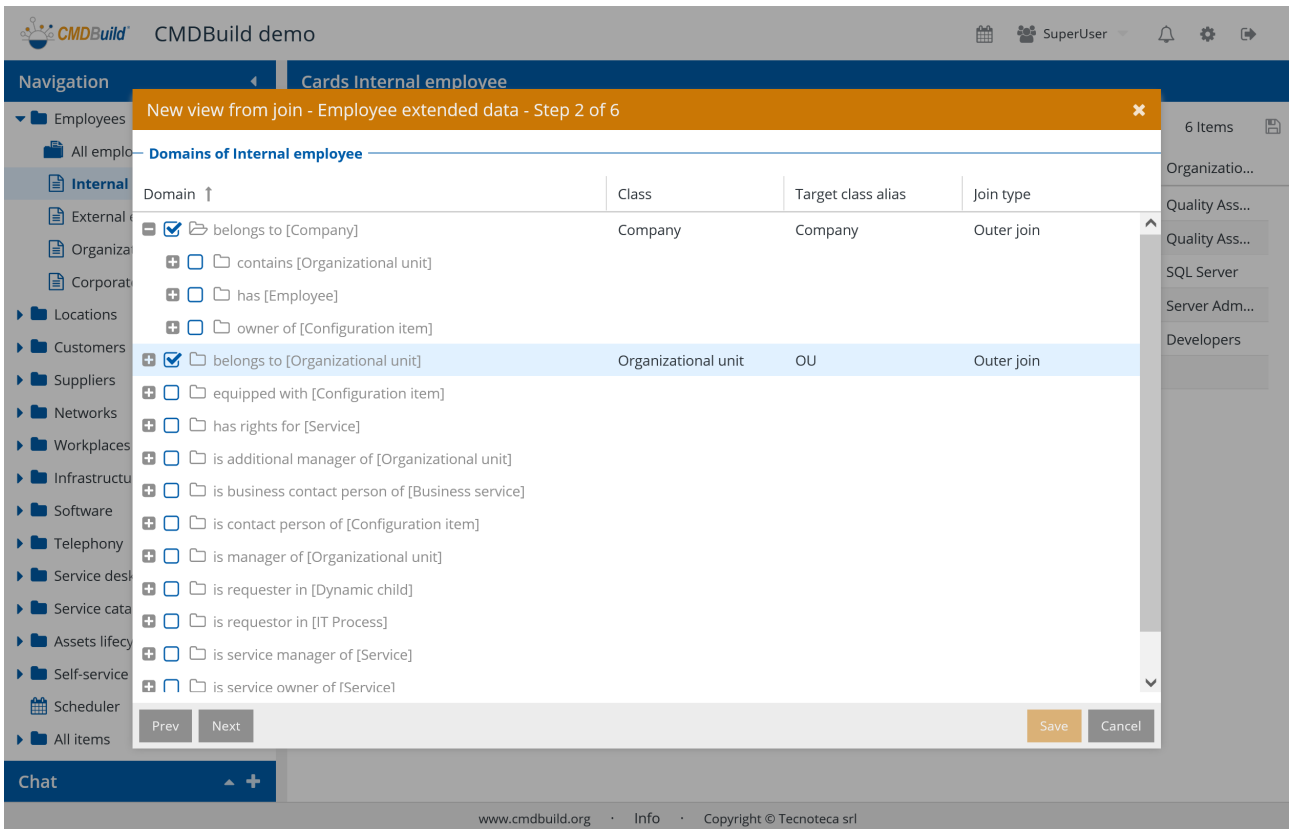


Step 2 - Join definition

You can select the join modes among the classes through the class tree reached by "domains" 1:N starting from the root class.

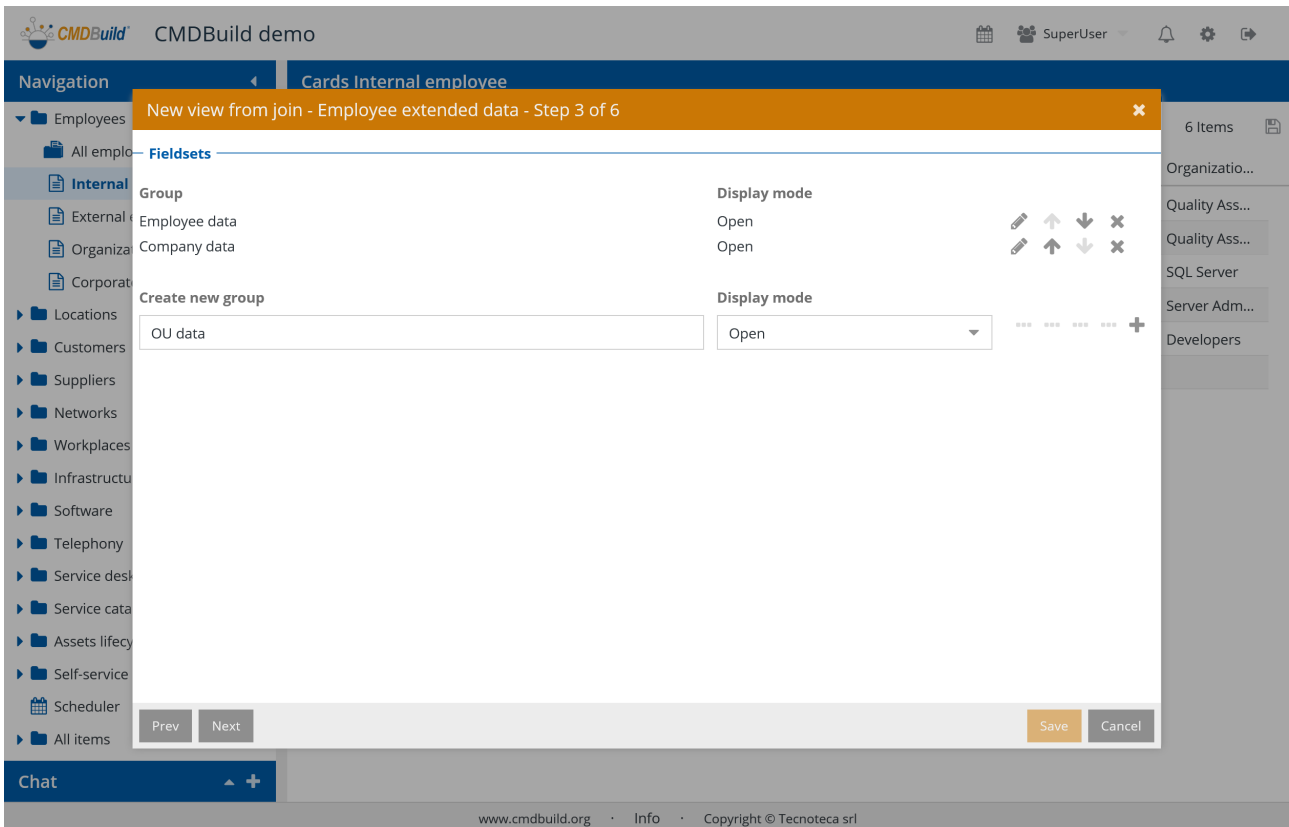
For each linked class you can define an alias and the type of join (inner join or outer join).

In the example, starting from the CI class joins with Company and with Organizational Unit.



Step 3 - Definition of attributes groups

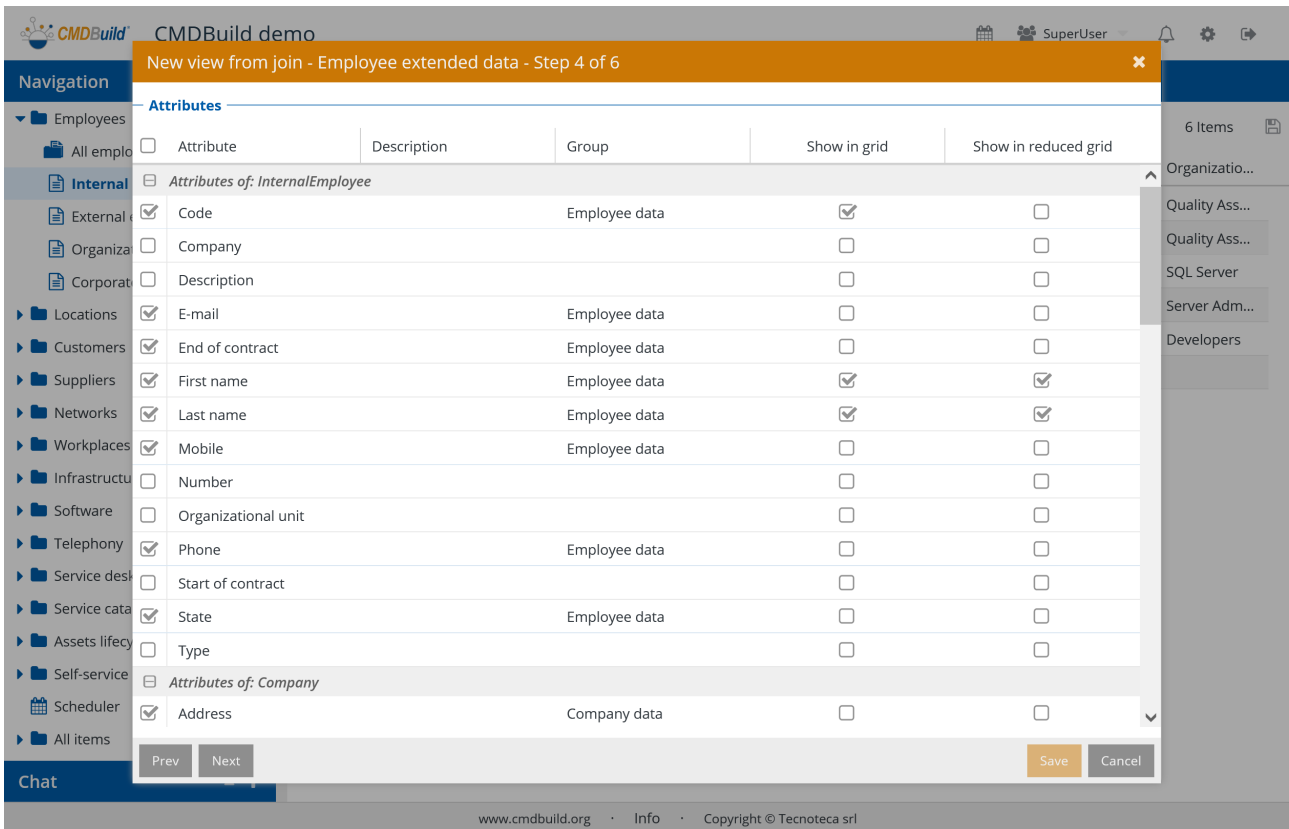
You can define filedsets to group selected class attributes in joins.



Step 4 - Attribute selection

You can select class attributes in joins and make them available in the view.

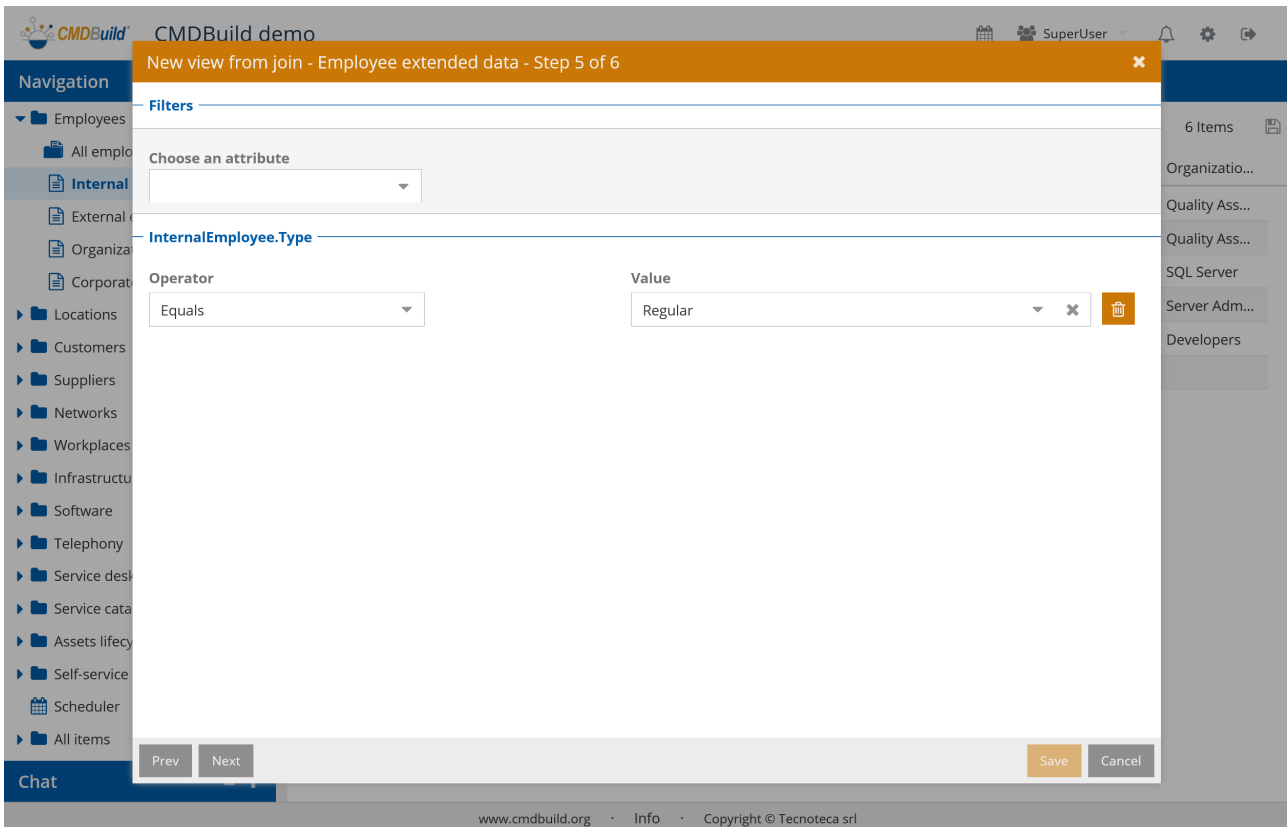
For each attribute you can set an alias (Description), the relating fieldset, and you can decide if displaying it in the standard grid and if displaying it in the reduced grid (mobile interface).



Step 5 - Filter definition

You can define filters on selected attributes, in order to restrict the view output.

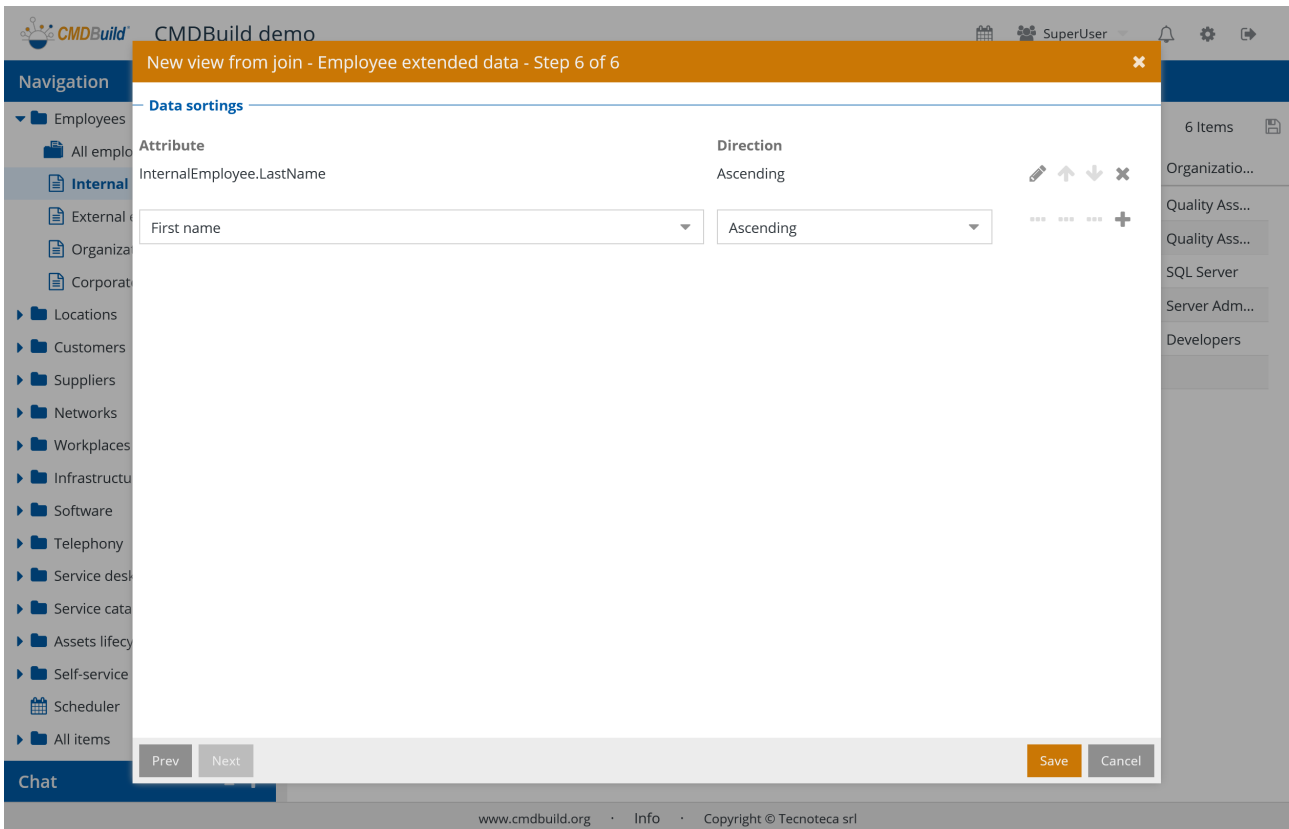
Please refer to the config of filters on cards.



Step 6 - Data organization

You can define the organization of view data.

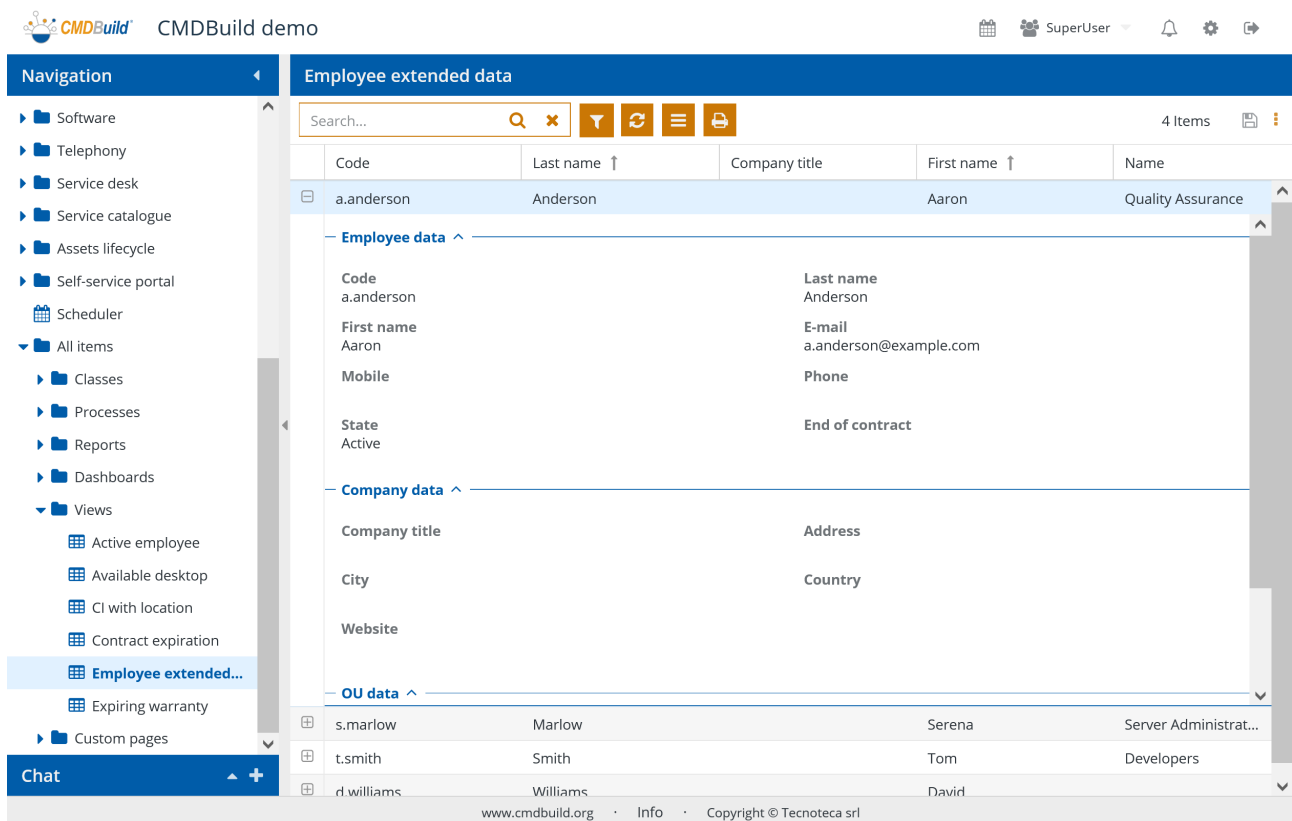
On Data sortings you have only to select attributes, in the correct sequence, and define the kind of order for each one (ascending or descendant).



8.4.3. Consultation of view from join

Consultation of view from join is made from the contextual menu.

Once you choose the view you want to display, the context (navigation menu) is moved to the "Views" menu of the entry "All elements".



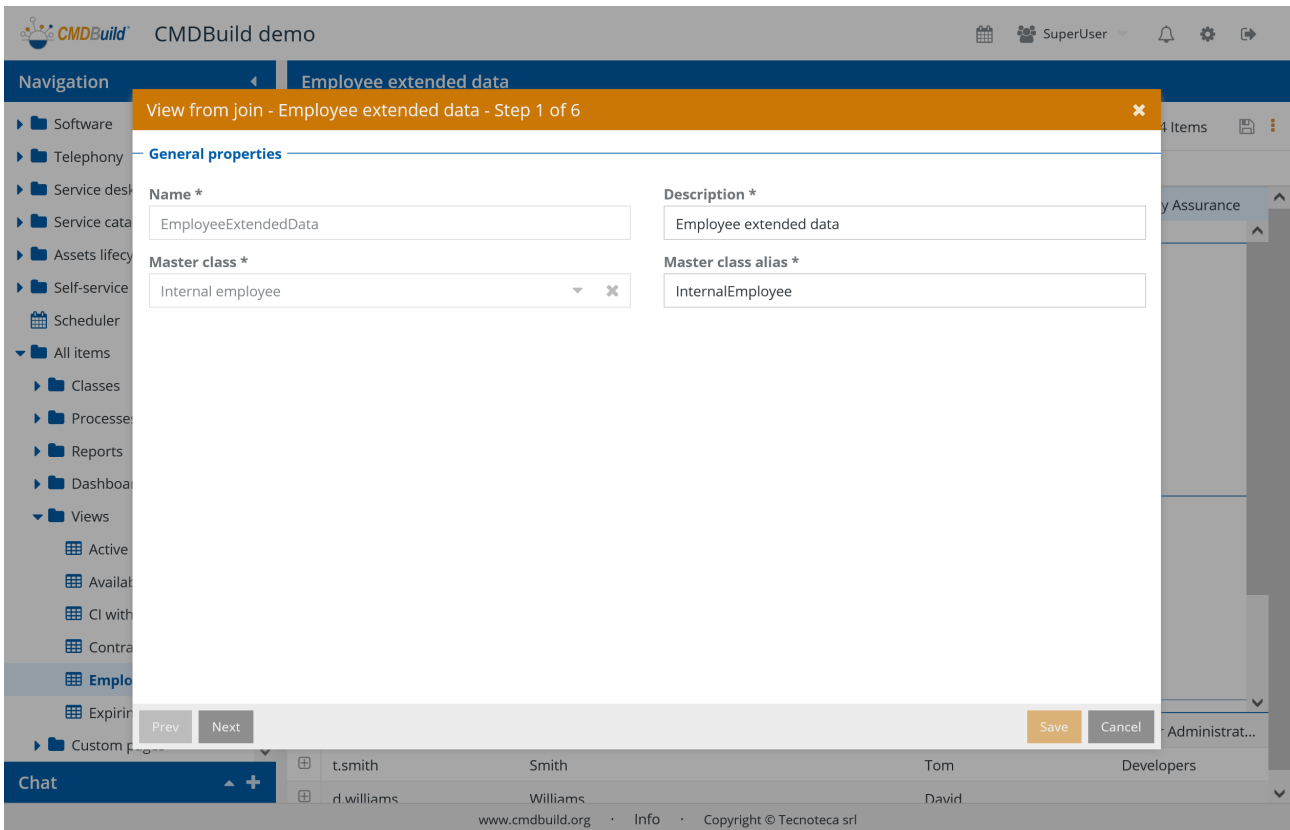
There is the possibility of performing the following operations:

<ul style="list-style-type: none"> perform free text searches on data displayed in the grid 	
<ul style="list-style-type: none"> access the filter management 	
<ul style="list-style-type: none"> update the page 	
<ul style="list-style-type: none"> access the contextual menu, where you can find useful features in the current context 	
<ul style="list-style-type: none"> print the cards displayed in the table (in PDF or CSV format) 	
<ul style="list-style-type: none"> access the menu of edit view configuration, to find the two choices: edit or delete view 	<ul style="list-style-type: none"> Edit view configuration Delete view

8.4.4. Modification and cancellation of view from join

Once the view change option has been selected, you will reach the wizard previously described to

create a new view.



In case you select the option to delete the view, you have to confirm and then the system will execute the operation.

8.5. Data Import / Export

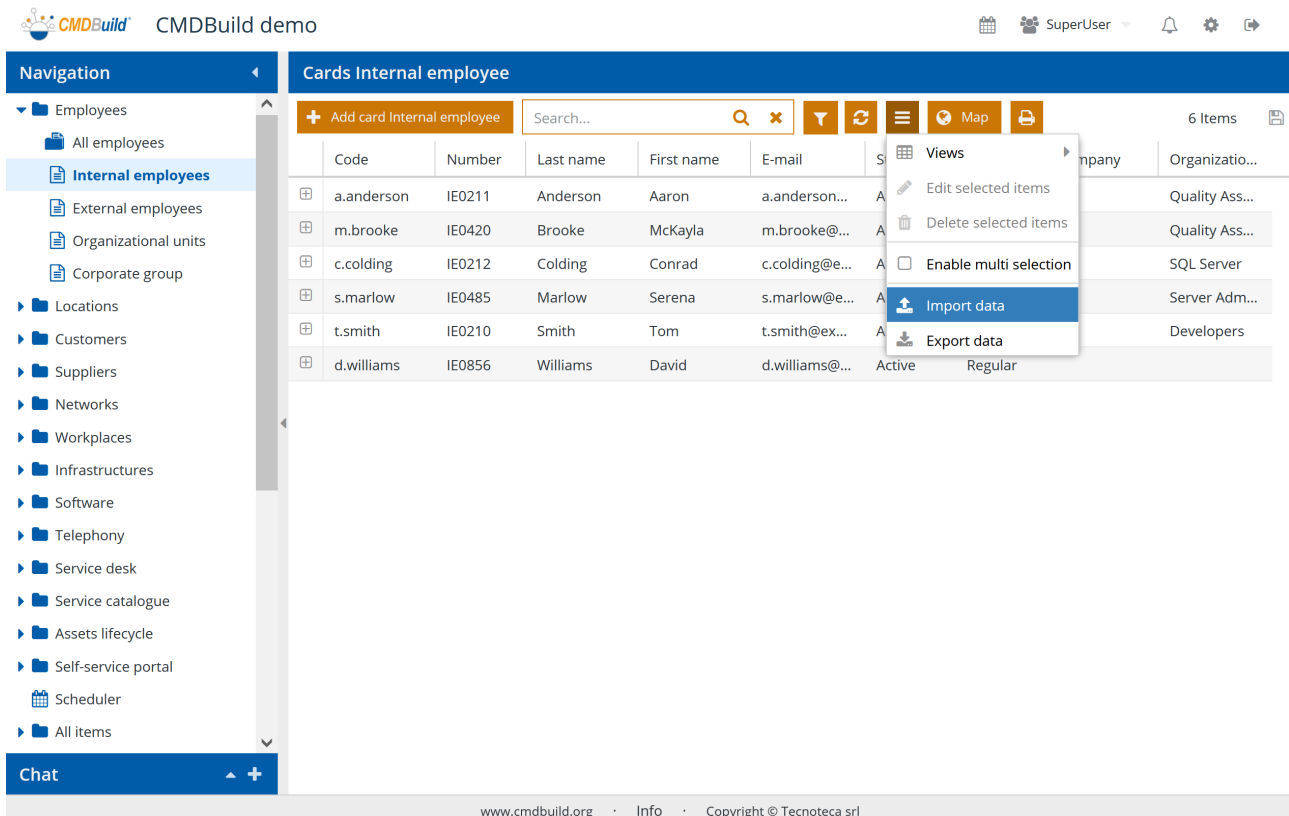
This feature allows you to:

- import and sync cards and relations from files (CSV, XLS or XLSX) into CMDBuild or export cards and relations onto files (CSV, XLS or XLSX)
- import and sync cards and relations from relational database tables into CMDBuild
- import and sync cards and relations from DWG files (2D planimetries) into CMDBuild
- import and sync cards and relations from IFC files (3D BIM models) into CMDBuild

Import and export modes are defined through specific templates, which can be configured in the Administration Module and which include the information useful for every type of operation.

8.5.1. Access to features

The import and export features can be accessed from the contextual menu of the CMDBuild classes, for which an import and/or export template has been configured.



The screenshot shows the CMDBuild demo interface. On the left is a navigation pane with a tree view containing categories like 'Employees', 'Locations', 'Customers', etc. The main area displays a table titled 'Cards Internal employee' with columns: Code, Number, Last name, First name, E-mail, and Status. A contextual menu is open over the table, showing options: Views, Edit selected items, Delete selected items, Enable multi selection, Import data, and Export data. The 'Import data' and 'Export data' options are highlighted in blue.

Code	Number	Last name	First name	E-mail	Status
a.anderson	IE0211	Anderson	Aaron	a.anderson...	Active
m.brooke	IE0420	Brooke	McKayla	m.brooke@...	Active
c.colding	IE0212	Colding	Conrad	c.colding@e...	Active
s.marlow	IE0485	Marlow	Serena	s.marlow@e...	Active
t.smith	IE0210	Smith	Tom	t.smith@ex...	Active
d.williams	IE0856	Williams	David	d.williams@...	Active

For each class where at least one import or export template has been configured, the entries "Import data" or "Export data" will appear in the contextual menu.

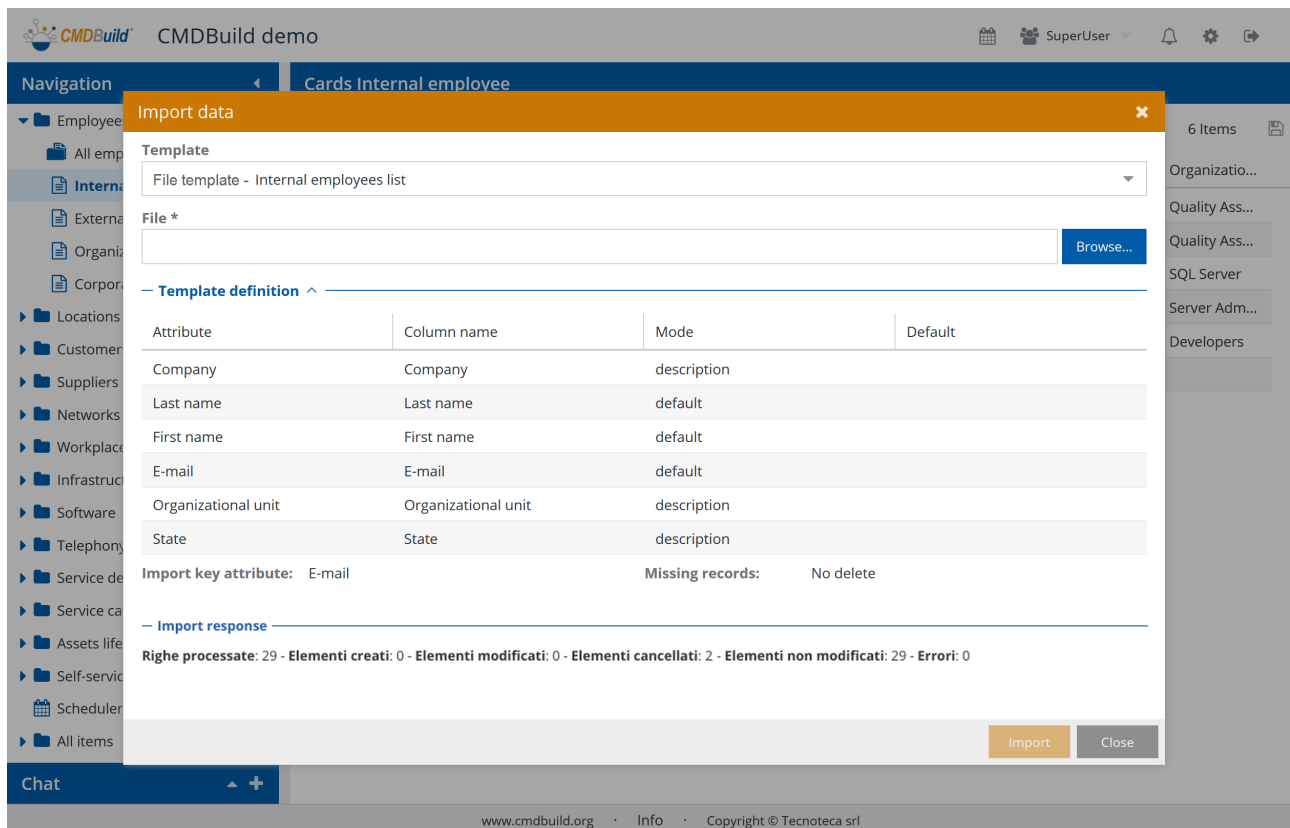
The popup will introduce all available templates, adding to the template name also the prefix related to the type of template.

So, the operator can choose the type of operation and go on as described in the following paragraphs.

8.5.2. Import / export from files

Import

The feature, available in the contextual menu, uses the popup window described below in order to import data from files (CSV, XLS or XLSX).



The user interface needs the following information:

- Template: it can be the only one available. Otherwise you can select one of those configured for the files import in the current class
- File: you have to select the file you want to import

You can have in read-only mode the following information available in the chosen template:

- Mapping criteria of attributes: relation among files and attributes corresponding to the class
- Key attribute: used to recognize the pre-existing cards in case of import in "Merge" mode
- Missing cards: this operation has to be done on those cards that are not available in the imported file (cancellation, change of a field, like the application status, no operation) in case of import in "Merge" mode

The operation will sync data in CMDBuild (Merge mode) or queue them to the pre-existing ones (Add mode), if any.

At the end of the import you will see an operation recap

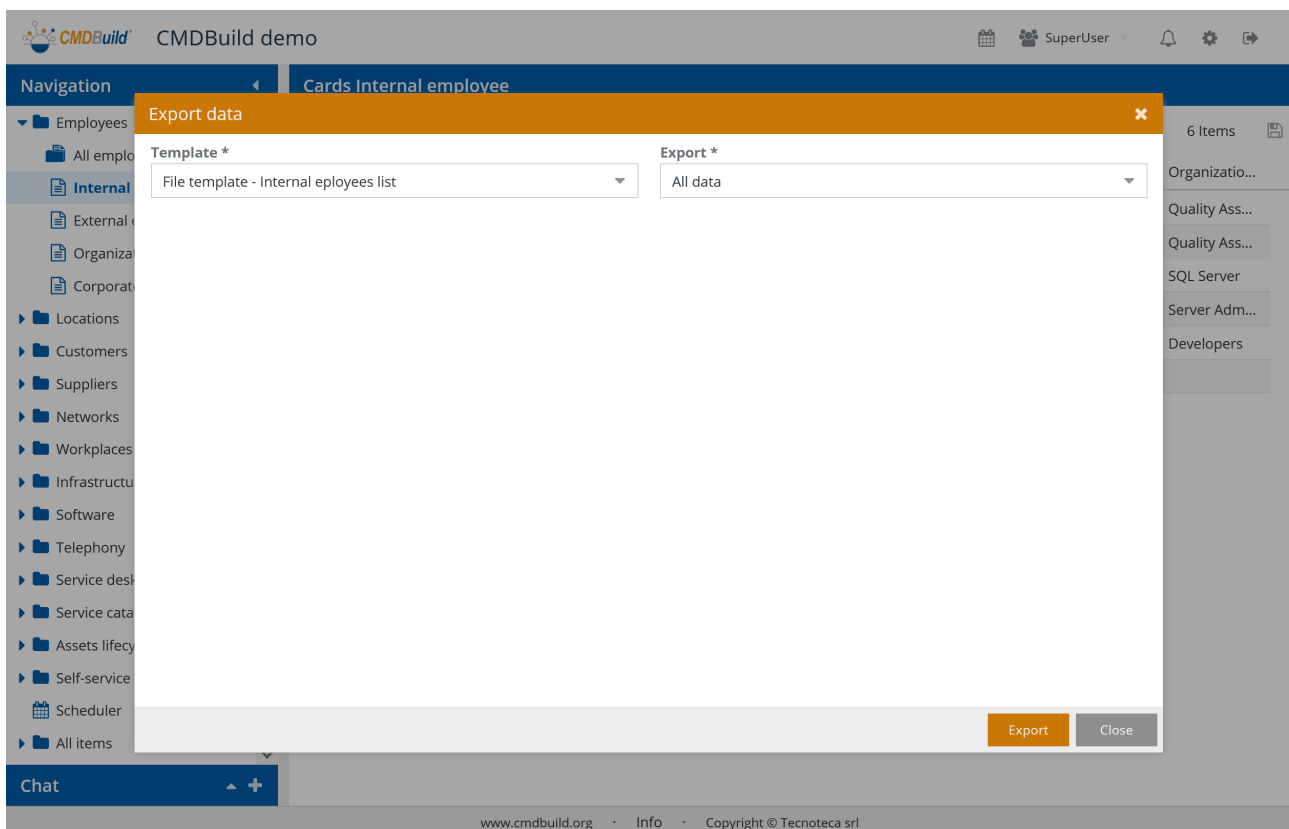
- processed strings of the import file
- new cards created in CMDBuild
- cards edited in CMDBuild

- cards deleted in CMDBuild
- unchanged cards in CMDBuild
- number of detected mistakes (and, in case, a detail list)

You can download the list of errors or ask the account address specified in the template for receiving them.

Export

The feature, available in the contextual menu, uses the popup window described below in order to export data to files.



The user interface needs the following information:

- Template: it can be the only one available. Otherwise you can select one of those configured for the data export in the current class
- Export: all cards defined by the template, or just the ones filtered in the grid (in case of filter in the template, the second option is disabled)

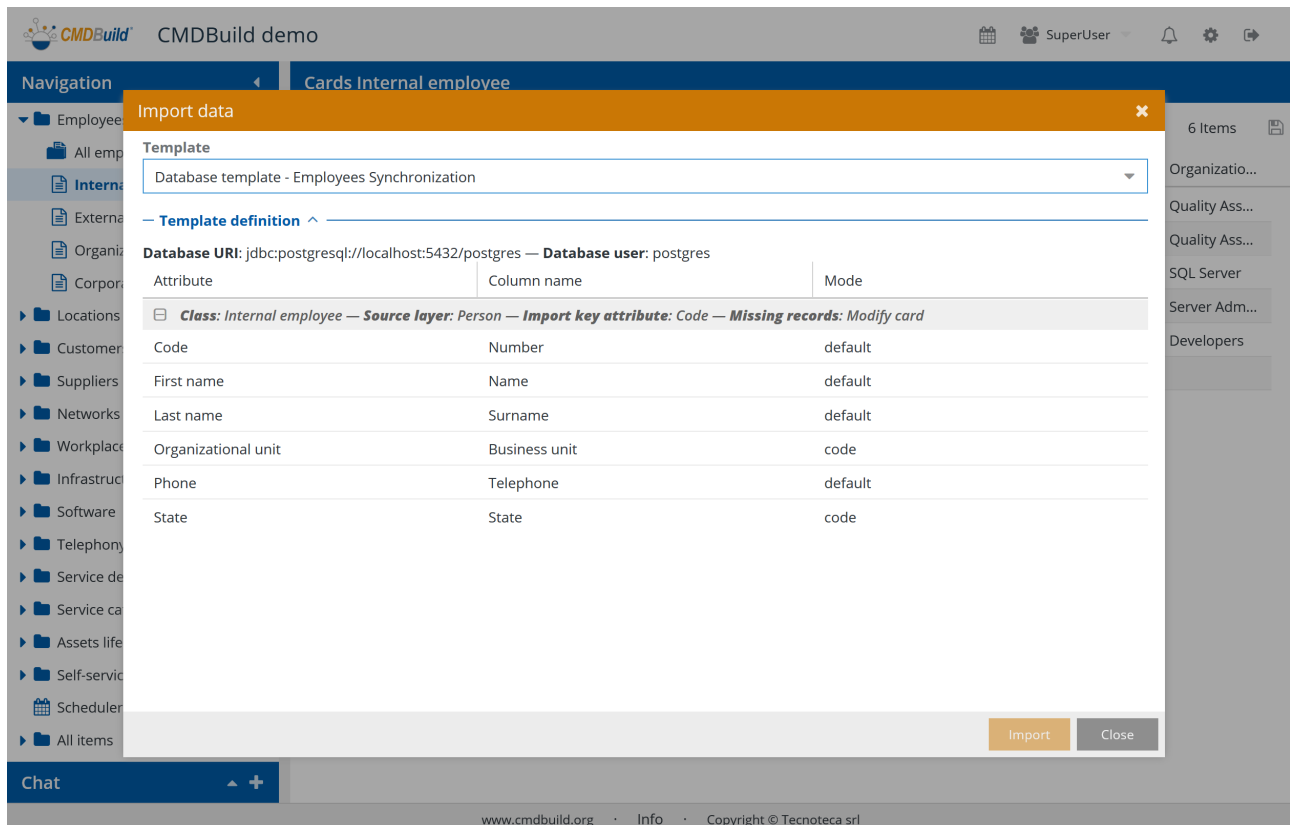
The operation will export data with related filters, if any, from the class into the file format set in the template (CSV or XLS or XLSX) and with the headings set in the template.

8.5.3. Import from relational databases

The feature, available in the contextual menu, uses the popup window described below in order to import data from tables of relational databases.

This function allows to resolve the simplest cases of synchronizing information from other databases, in which the "mapping" rules do not require a specific application logic. For more complex needs, external connectors have to be implemented, by using, in case, the CMDBuild Advanced Connector framework that implements the main sync logics and allows its customisation through Groovy script.

In order to execute the import, CMDBuild has to have access to an external relational database, like PostgreSQL, MySQL, Oracle or SQLServer.



The user interface needs the following information:

- Template: it can be the only one available. Otherwise you can select one of those configured for the files import in the current class

You can have in read-only mode the following information available in the chosen template:

- Database: connection string and access username
- Key attribute: used to recognize the pre-existing cards in case of import in "Merge" mode
- Missing cards: this operation has to be done on those cards that are not available in the imported file (cancellation, change of a field, like the application status, no operation) in case of import in "Merge" mode
- Mapping criteria of attributes: relation among files and attributes corresponding to the class

The operation will sync data in CMDBuild (Merge mode) or queue them to the pre-existing ones (Add mode), if any.

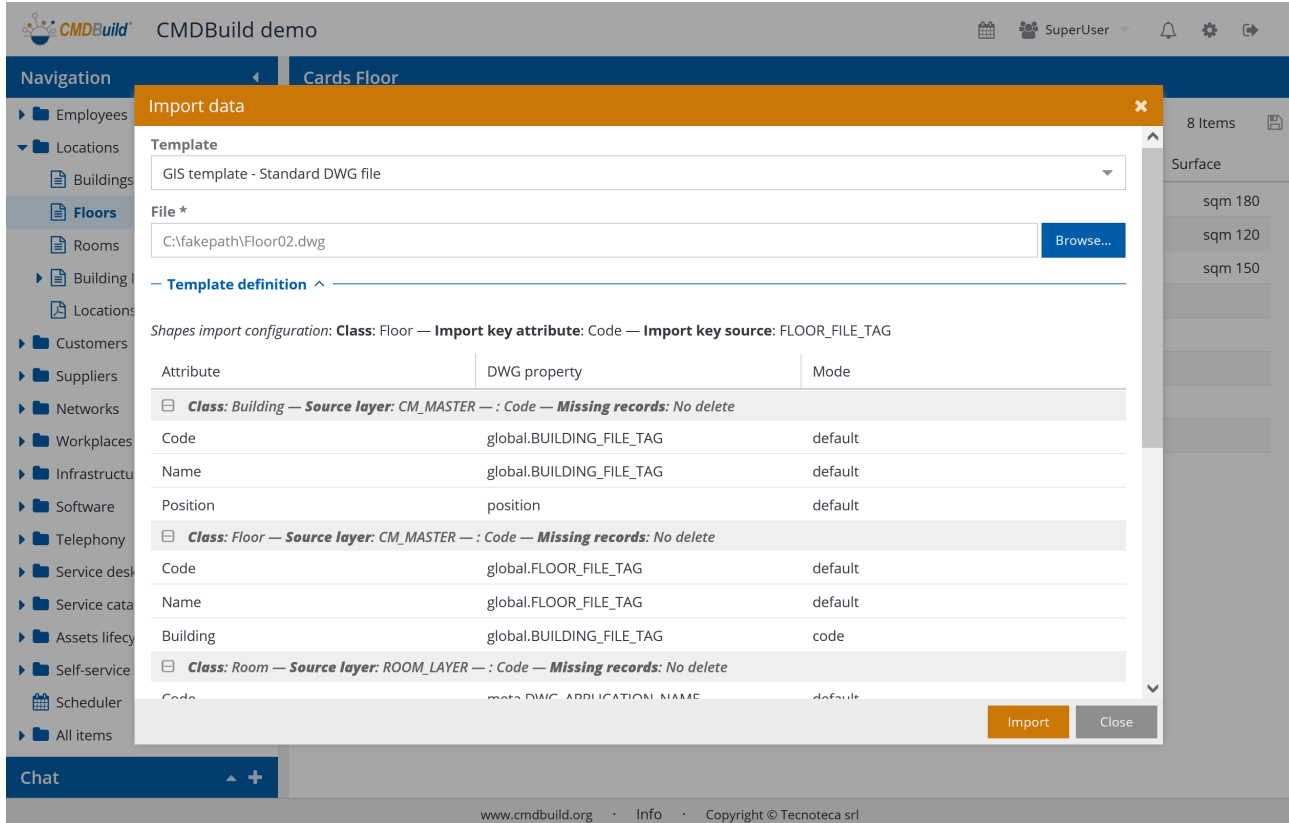
At the end of the import you will see an operation recap

- processed strings of the import file

- new cards created in CMDBuild
- cards edited in CMDBuild
- cards deleted in CMDBuild
- unchanged cards in CMDBuild
- number of detected mistakes (and, in case, a detail list)

8.5.4. Import from DWG files (2D planimetries)

The feature, available in the contextual menu, uses the popup window described below in order to import data from DWG planimetries.



The user interface needs the following information:

- Template: it can be the only one available. Otherwise you can select one of those configured for the planimetries import in the current class
- File: you have to select the file you want to import

You can have in read-only mode the following information available in the chosen template:

- Information related to the background file of the plan (borders and elements not managed in CMDBuild, like walls, stairs or windows):
 - destination class
 - unique code
 - source layer
- For each CMDBuild class involved in the update of information taken in the DWG plan (listed in the inclusion hierarchy):
 - class name
 - source layer
 - unique key
 - mode of managing information not available in the import file

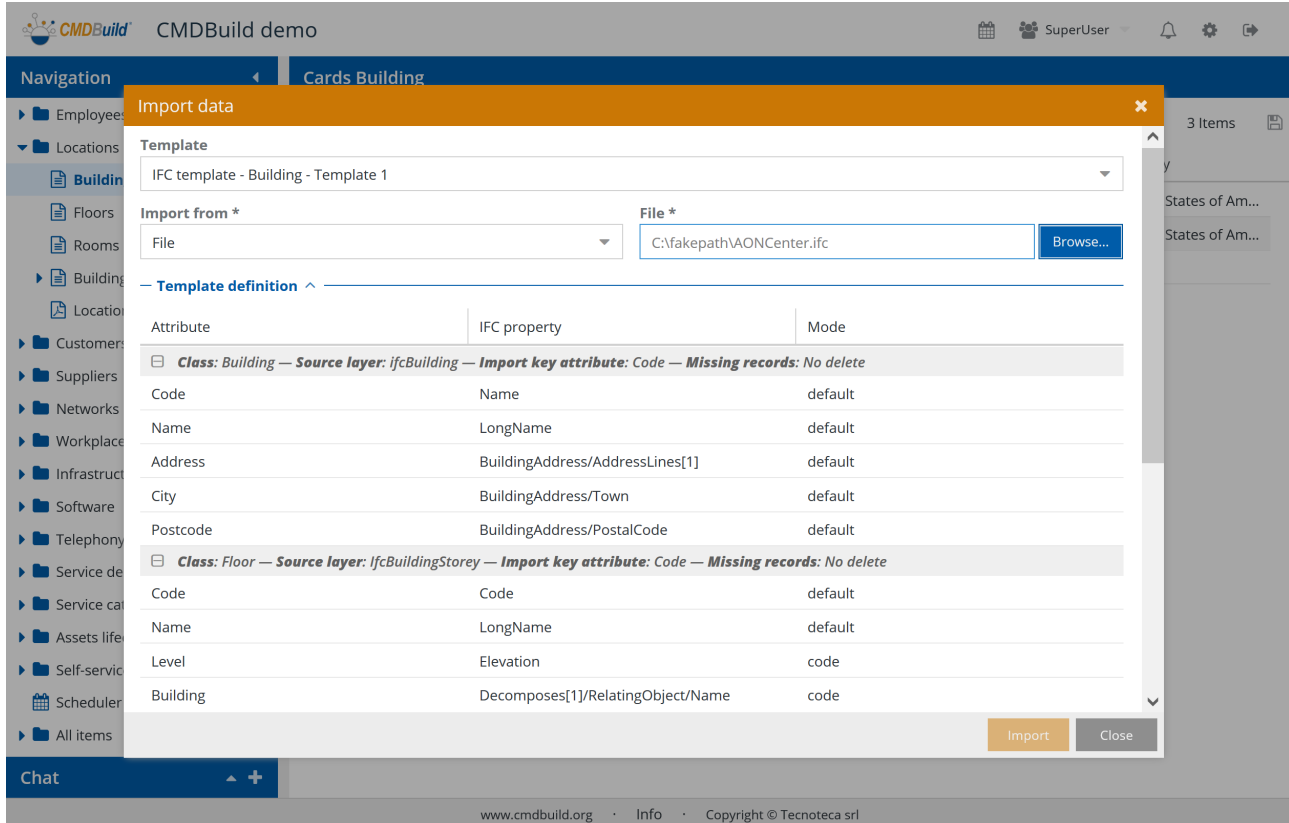
The operation will sync data in CMDBuild, adding the missing ones, updating the changed ones and processing the cancellations as organised in the template (Merge mode).

At the end of the import you will see an operation recap

- processed strings of the import file
- new cards created in CMDBuild
- cards edited in CMDBuild
- cards deleted in CMDBuild
- unchanged cards in CMDBuild
- number of detected mistakes (and, in case, a detail list)

8.5.5. Import from IFC files (3D BIM models)

The feature, available in the contextual menu, uses the popup window described below in order to import data from IFC files got by BIM tools.



The user interface needs the following information:

- Template: it can be the only one available. Otherwise you can select one of those configured for the planimetries import in the current class
- Upload type: file or BIM Server project
- Data source: in the first case you are asked for the file to import and in the second for the project

For each CMDBuild class involved in the update of information taken in the IFC file (listed in the inclusion hierarchy), you can have in read-only mode the following information available in the chosen template:

- class name
- source layer
- unique key
- mode of managing information not available in the import file

The operation will sync data in CMDBuild, adding the missing ones, updating the changed ones and processing the cancellations as organised in the template (Merge mode).

At the end of the import you will see an operation recap

- processed strings of the import file

- new cards created in CMDBuild
- cards edited in CMDBuild
- cards deleted in CMDBuild
- unchanged cards in CMDBuild
- number of detected mistakes (and, in case, a detail list)

8.6. Massive modification and cancellation

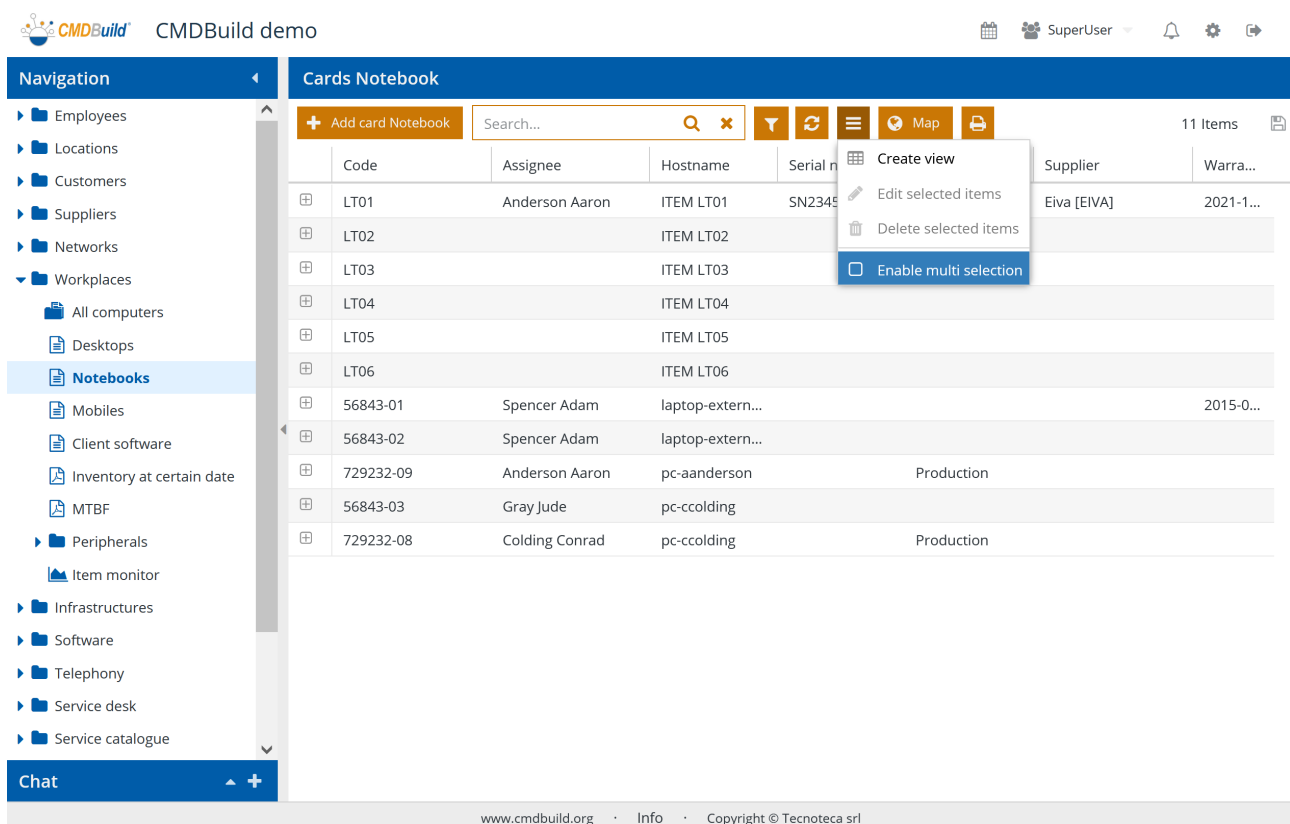
The two described features, if enabled in the Administration Module, allow you to:

- edit in a massive way one or more attributes of a set of cards selected from a class.
- delete in a massive way a set of cards selected from a class

8.6.1. Massive modification

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

The function can be activated from the contextual menu of the class, starting from enabling the multiselection.

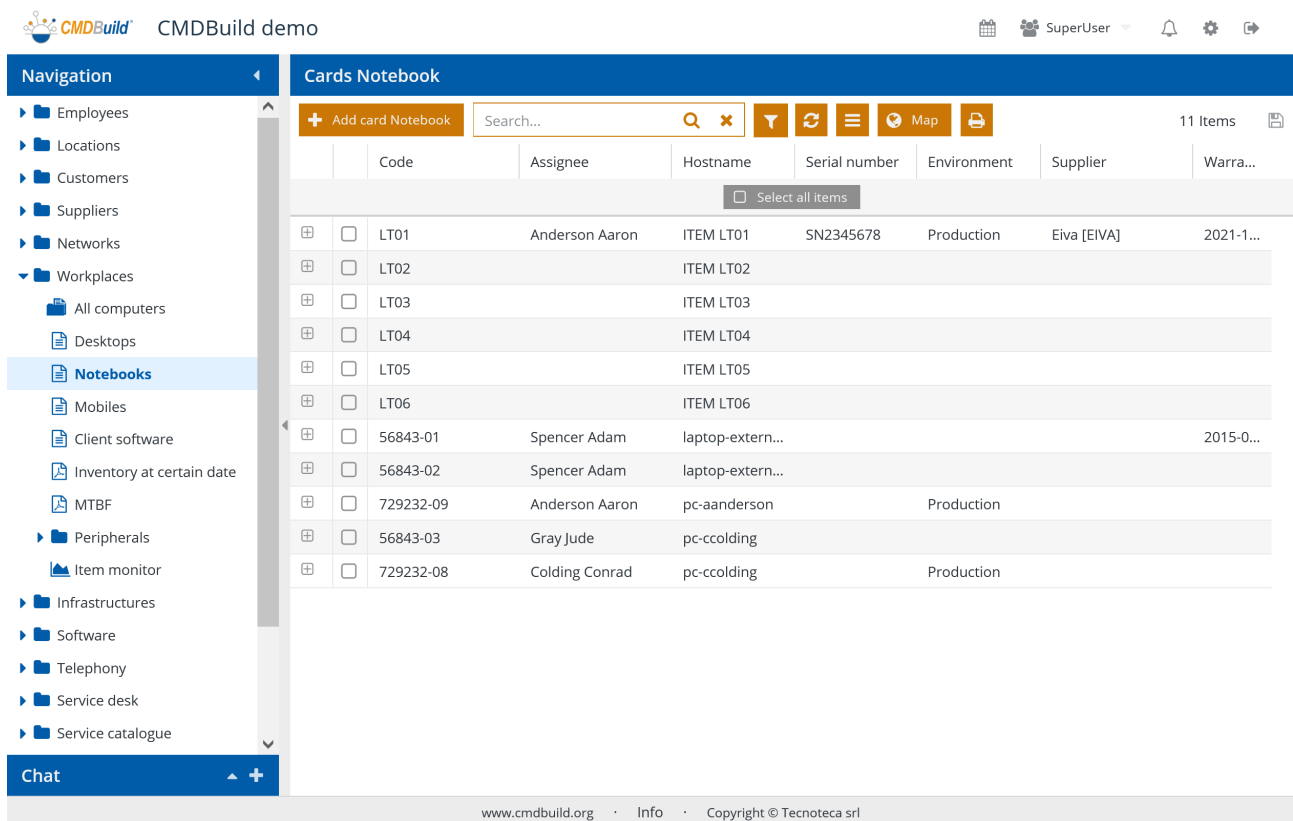


The screenshot shows the CMDBuild interface with a table of items. A contextual menu is open over the table, showing options: 'Create view', 'Edit selected items', 'Delete selected items', and 'Enable multi selection'. The table has columns: Code, Assignee, Hostname, Serial n, Supplier, and Warra... The table contains 11 items.

Code	Assignee	Hostname	Serial n	Supplier	Warra...
LT01	Anderson Aaron	ITEM LT01	SN2345	Eiva [EIVA]	2021-1...
LT02		ITEM LT02			
LT03		ITEM LT03			
LT04		ITEM LT04			
LT05		ITEM LT05			
LT06		ITEM LT06			
56843-01	Spencer Adam	laptop-extern...			2015-0...
56843-02	Spencer Adam	laptop-extern...			
729232-09	Anderson Aaron	pc-aanderson		Production	
56843-03	Gray Jude	pc-ccolding			
729232-08	Colding Conrad	pc-ccolding		Production	

At that point you can select all rows with the proper button above or select manually just some.

In order to work only on a specific subset of cards, you can activate a simple filter or an advanced one, and in this case the selection button for all rows will work only on the resulting cards.

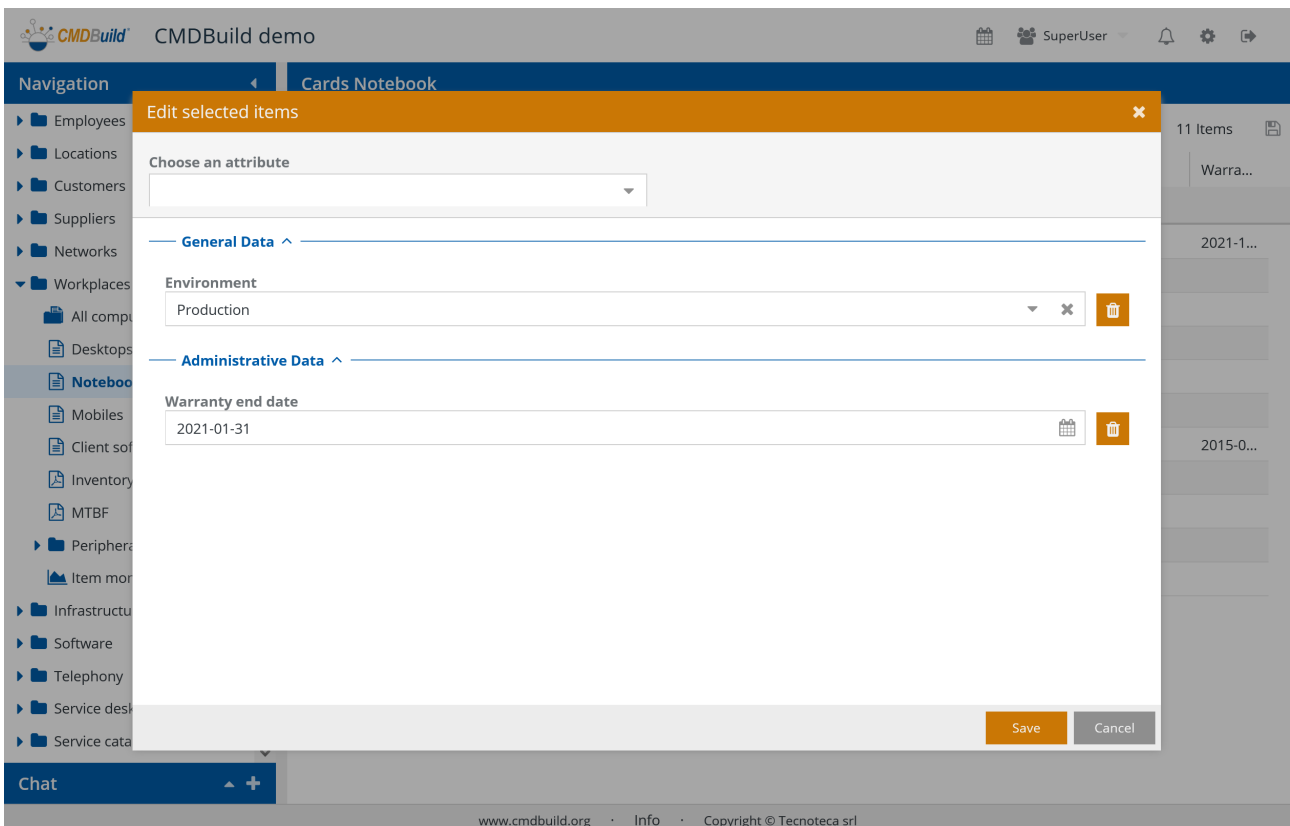
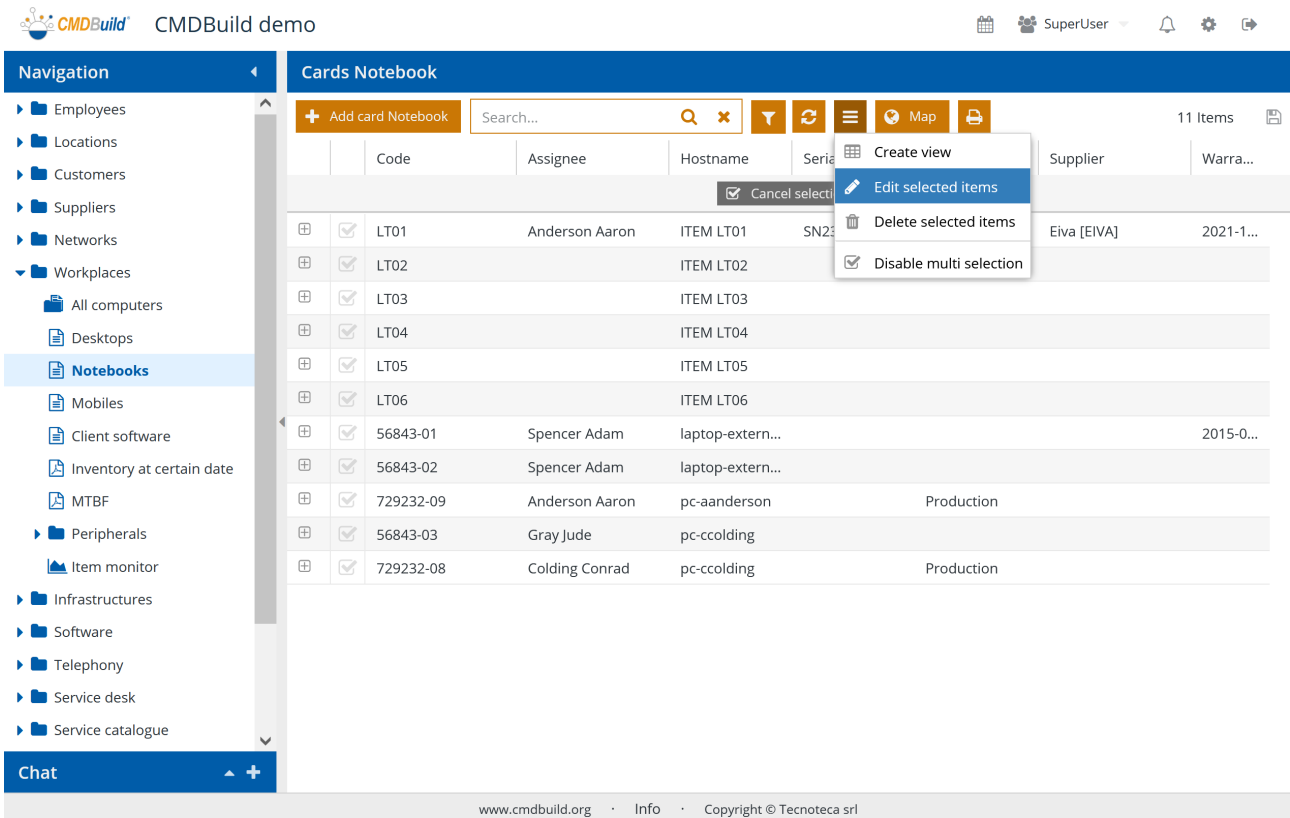


Once the cards have been chosen, you have to select from the contextual menu the modification entry of the selected cards.

In this way a popup window will open and will allow you to select the attributes you want to edit and to set for each one the new value.

At the confirmation, the system will specify the number of cards that will be edited and, after another confirmation by the operator, it will edit these cards.

Screenshots showing the steps described.



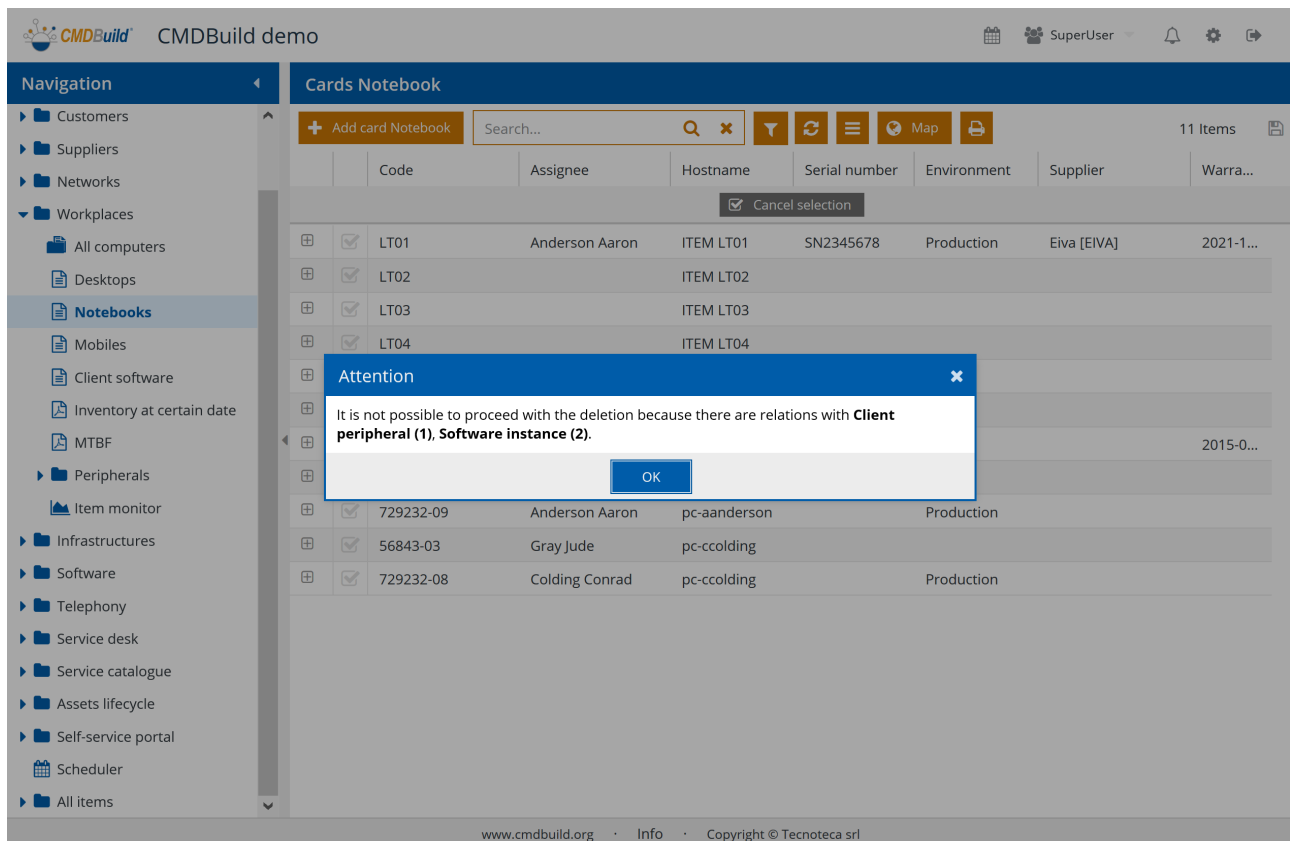
8.6.2. Massive cancellation

The function allows you to delete a set of cards selected from the current class (as always in CMDBuild, this is a logic cancellation).

The phases to select cards are the same as the ones described for the massive modification.

Once the cards have been chosen, you have to select from the contextual menu the cancellation entry of the selected cards.

At the confirmation, the system will specify the number of cards that will be deleted and, after another confirmation by the operator, it will delete these cards.



The screenshot shows the CMDBuild demo interface. On the left is a navigation sidebar with categories like Customers, Suppliers, Networks, Workplaces, and Peripherals. The main area is titled 'Cards Notebook' and contains a table with columns: Code, Assignee, Hostname, Serial number, Environment, Supplier, and Warra... The table lists several cards, including LT01 through LT04 and 729232-09 through 729232-08. A dialog box titled 'Attention' is overlaid on the table, displaying the message: 'It is not possible to proceed with the deletion because there are relations with Client peripheral (1), Software instance (2)'. An 'OK' button is visible at the bottom of the dialog box.

In case some cards you want to delete have active relations with other cards, the system reports this situation and stops the operation in order to avoid any orphan relation (see following screenshot).

In order to overcome this problem, you can specify in the Administration Module that, even if it is linked to a certain type of relation, a card can be deleted and the linked one is automatically deleted at the same time (cancellation in cascade mode).

By making a choice like this, you should be very careful because it is set for all CMDBuild functionalities (not only in the massive cancellation) and therefore it might cause unexpected data cancellations.

8.7. Relation graph

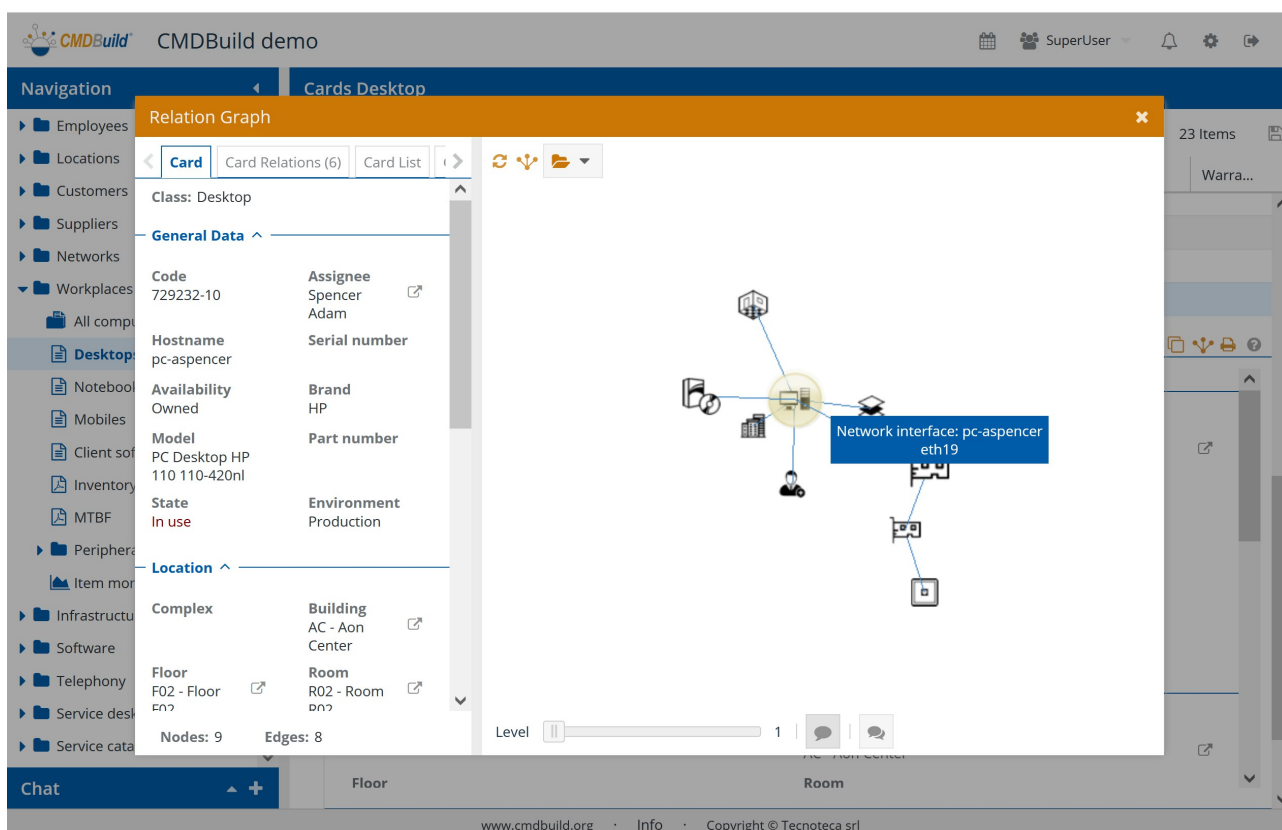
The purpose of the function is to:

- supply a 3D visual and interactive representation of the graph of relations stored in CMDBuild
- allow interactive analysis through filters on cards and relations, graph or node expansion, application of pre-defined filters

8.7.1. General design criteria of the user interface

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

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



The graphic area includes:

- nodes, having in the middle the card for the graph open and all around the cards linked directly or indirectly, according to the number of displayed levels, and represented with custom icons that have been previously uploaded into the system for each class (or with a default icon in the absence of the custom one)
- archi, corresponding to the relations among the nodes

For each node (see previous screenshot) and for each tooltip (see following screenshot) displayed in the graphic area, there is a tooltip with the main information about the element.

The selected nodes are highlighted in yellow.

The text area includes:

- Card TAB: it displays the detail information (attributes) of the card selected on the graph
- Card Relations TAB: it displays the list of relations of the current card, with the name of the "domain" (type of relation) and the description of the linked card
- Card List TAB: it displays the list of all cards shown in the graph
- Classes TAB: it displays the list of classes involved in the graph

Available features in the graphic area:

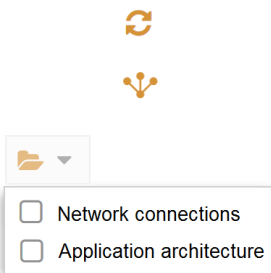
- selection of a node (click the right mouse button), with contextual update of the data on the Cards and Card Relations TABs of the text area
- selection of adding nodes (click the left mouse button and hold CTRL)
- "expansion" of a node (double click), and opening of children nodes
- zoom in the graph (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.

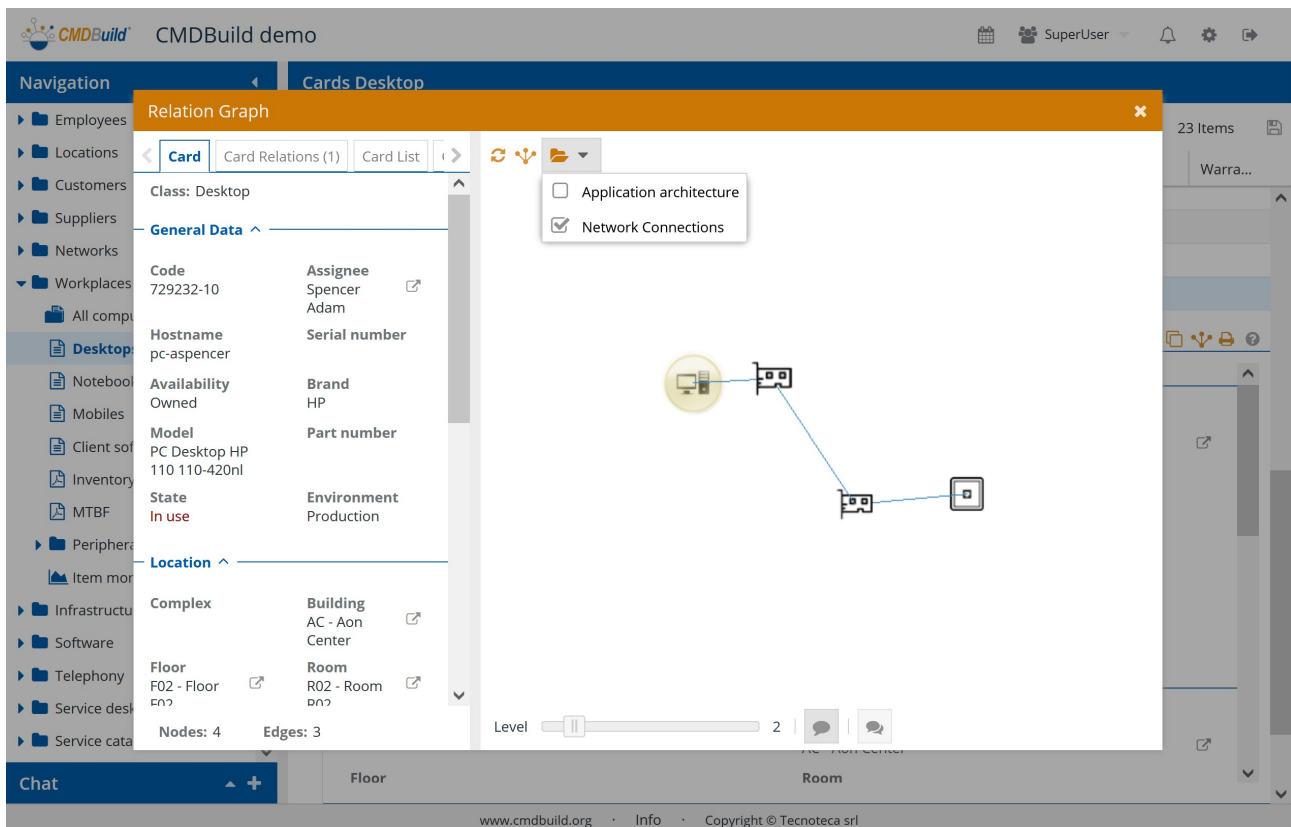
The screenshot displays the CMDBuild demo interface. On the left, a navigation pane shows a tree structure with categories like Employees, Locations, Customers, Suppliers, Networks, Workplaces, Desktops, Notebooks, Mobiles, Client software, Inventory, MTBF, Peripherals, Infrastructure, Software, Telephony, Service desks, and Service catalogs. The 'Desktops' category is selected, showing a list of items including 'Warra...'. The main area is titled 'Relation Graph' and contains a 3D graph with nodes and edges. A central node is highlighted with a tooltip: 'Desktop: pc-as Spencer [729232-10] has network interfaces Network interface: pc-as Spencer eth19'. The graph shows a network topology with various devices connected. The interface also includes a 'Card' tab with detailed information for the selected network interface, such as Code (eth19), Hardware (pc-as Spencer [729232-10]), Name (eth19), Type (Physical), Network, IP address, Destination port (NetworkBox-0 02 eth18), State, MAC address, Mask, Gateway, DNS, and Speed. The bottom of the interface shows a 'Chat' window and a footer with the website URL 'www.cmdbuild.org' and copyright information 'Copyright © Tecnoteca srl'.

8.7.2. Upper toolbar

It allows you to perform the following operations:

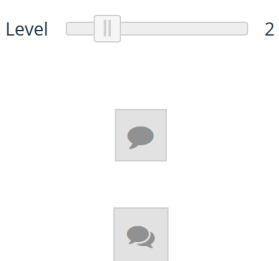
<ul style="list-style-type: none"> • reload the grid in the initial configuration • reload the grid and centre it on the current node • select a filter (based on a navigation tree configured in the Administration Module) in order to get a graph for the analysis of a specific context 	
--	---

Below an example of filter usage:

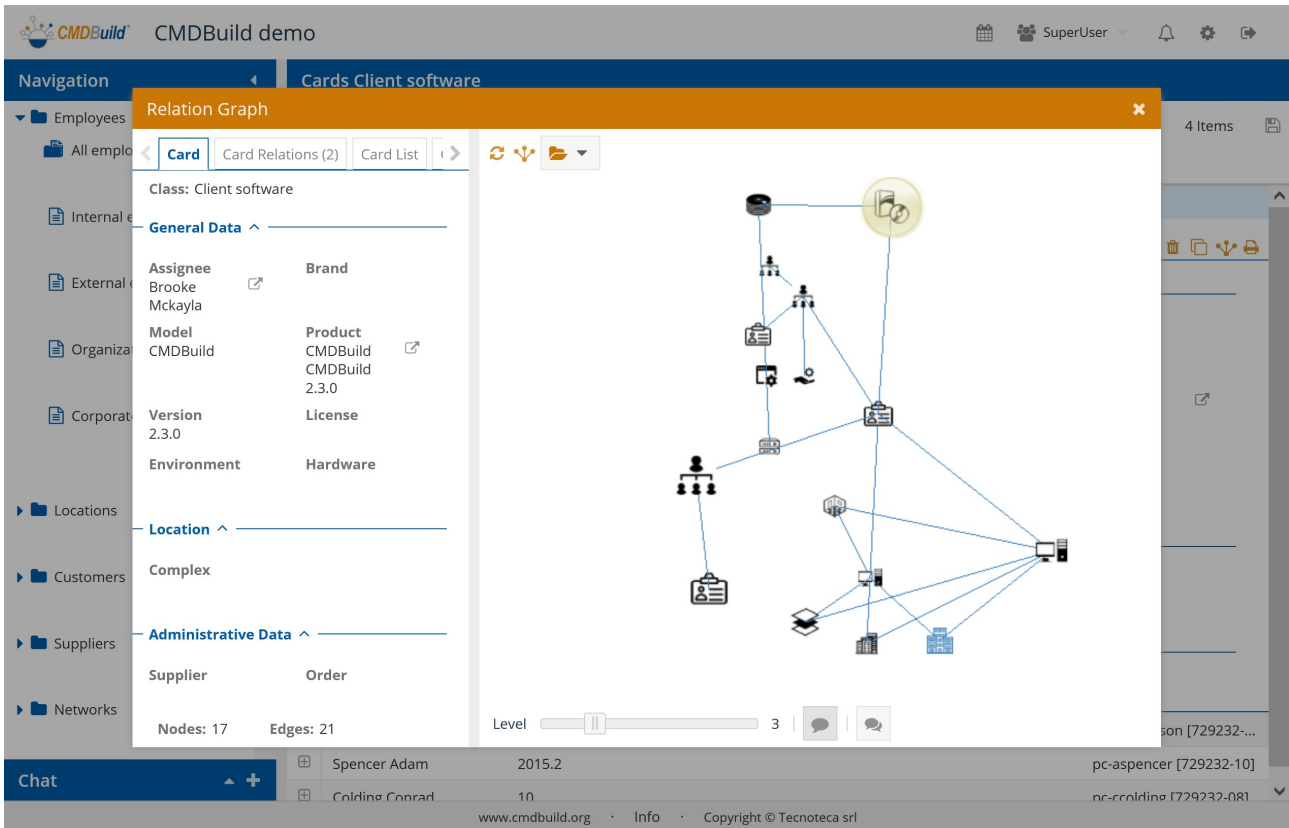


8.7.3. Lower toolbar

It allows you to perform the following operations:

<ul style="list-style-type: none"> • open the graph on higher level (useful in particular if you have applied filters that reduce the number of nodes to be analyzed) • enable / disable tooltips on the item or on the link highlighted with the mouse • enable / disable tooltips on all items and links available in the graph 	
--	---

The following example shows a graph open on three levels:



8.7.4. Text area

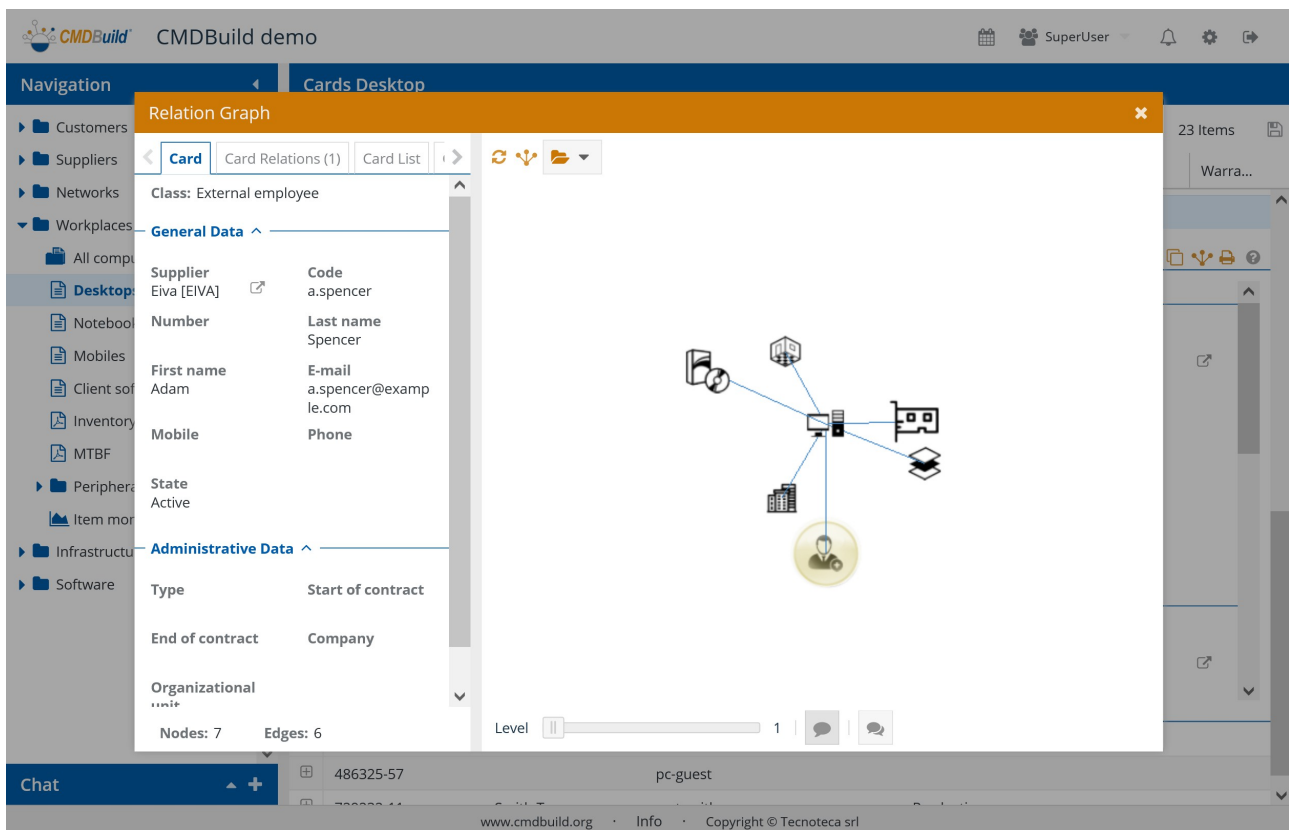
In the text area you can see the TABs described below.

Card TAB

It shows the current card with all related attributes, if necessary divided in fieldsets.

The card shown in the text area is highlighted in the graphic area with a yellow background. By selecting a different card in the graphic area this is displayed in the text area.

Here's a sample of the user interface of the user interface.



Relations TAB

It shows the list of cards in relation to the card selected in the graph.

For each card you can see:

- belonging class (useful in case the relation is defined on a superclass)
- code of the linked card
- description of the linked card

By selecting a relation the corresponding transition is displayed on the graph.

Here's a sample of the user interface of the user interface.

The screenshot shows the CMDBuild demo interface. A 'Relation Graph' window is open, displaying a list of cards on the left and a graph on the right. The list of cards is as follows:

Class	Code	Description...
<i>assigned to (1)</i>		
External em...	a.spencer	Spencer Ad...
<i>located into building (1)</i>		
Building	AC	AC - Aon Ce...
<i>located on floor (1)</i>		
Floor	F02	F02 - Floor ...
<i>has network interfaces (1)</i>		
Network int...	eth19	pc-aspence...
<i>has software (1)</i>		
Client softw...	Haven01	pc-aspence...
<i>is placed in (1)</i>		
Room	R02	R02 - Room...

The graph on the right shows a central node (a yellow circle with a server icon) connected to several other nodes (a server rack, a building, a person, a server rack, and a server rack). The interface also shows a 'Chat' window at the bottom left and a 'Navigation' pane on the left side of the main window.

Card list TAB

It shows the complete list of cards displayed on the graph.

For each card you can see:

- belonging class (useful in case the relation is defined on a superclass)
- code of the linked card
- description of the linked card

By selecting a card in the list, this is highlighted in the graph.

Here's a sample of the user interface of the user interface.

The screenshot shows the CMDBuild demo interface. A 'Relation Graph' window is open, displaying a 'Card List' tab. The table below shows the data from the 'Card List' tab:

Class ↑	Code ↑	Description ↑
Building	AC	AC - Aon Cen...
Client softwa...	Haven01	pc-aspencer ...
Desktop	729232-10	pc-aspencer ...
External em...	a.spencer	Spencer Adam
Floor	F02	F02 - Floor F02
Network inte...	eth19	pc-aspencer ...
Room	R02	R02 - Room ...

The graph shows 7 nodes and 6 edges. The 'Desktop' node is highlighted in yellow. The interface also shows a navigation sidebar on the left and a chat window at the bottom.

Class list TAB

It shows the complete list of classes belonging to the cards displayed on the graph.

For each class you can see:

- class name
- the number of cards belonging to that class displayed on the graph

By selecting a class in the list, all cards belonging to that class are highlighted on the graph.

Here's a sample of the user interface of the user interface.

The screenshot displays the CMDBuild demo interface. A 'Relation Graph' window is open, showing a table of class relationships and a corresponding graph visualization.

Class ↑	Qt
Building	1
Client software	1
Desktop	1
External employee	1
Floor	1
Network interface	1
Room	1

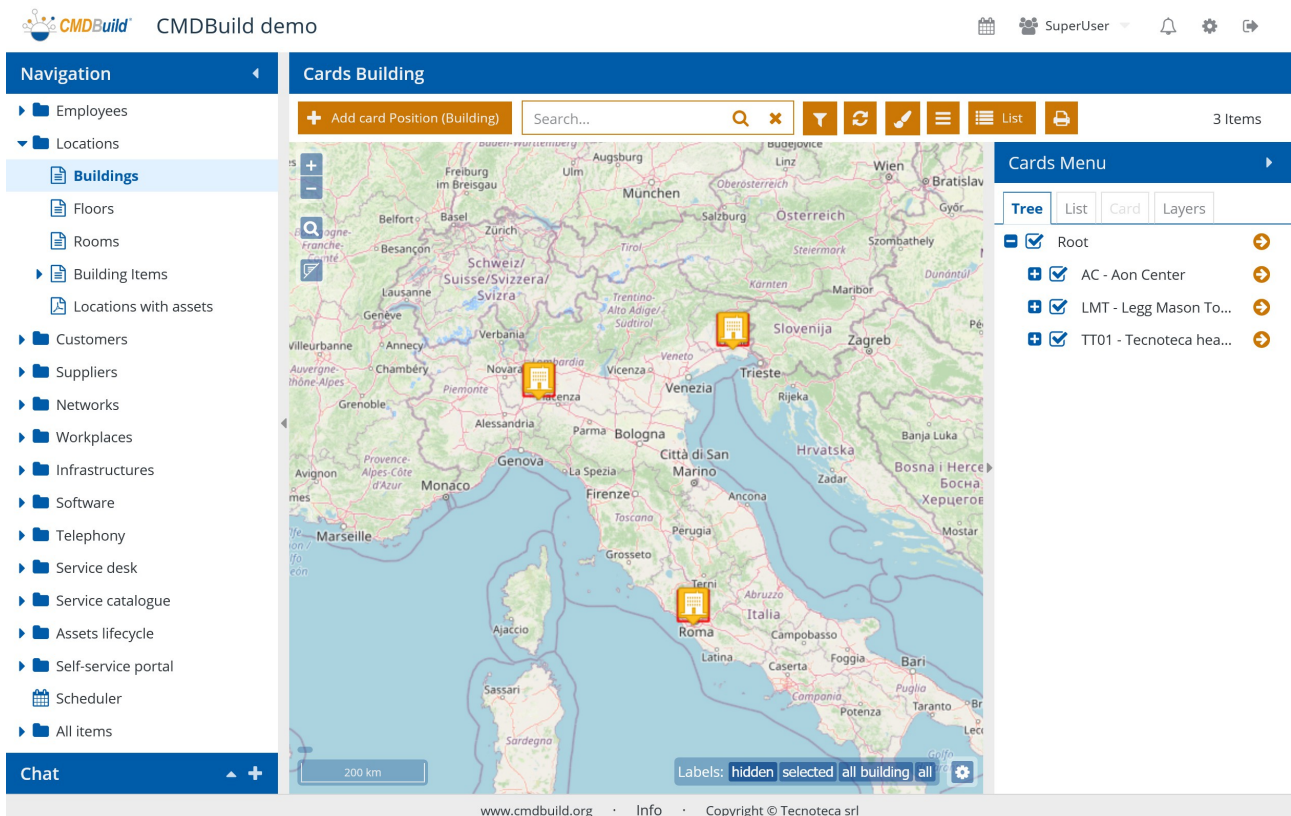
The graph visualization shows a central node (a computer monitor) connected to six other nodes: a building, a person, a floor, a network interface, a room, and a client software icon. The interface also shows a 'Nodes: 7' and 'Edges: 6' summary, and a 'Level' slider set to 1.

8.8. Georeference on geographical maps

CMDBuild allows you to georeference on geographical maps those entities for which a geographical attribute has been configured in the Administration Module.

Geographical attributes can be "point", "open polygonal" and "closed polygonal".

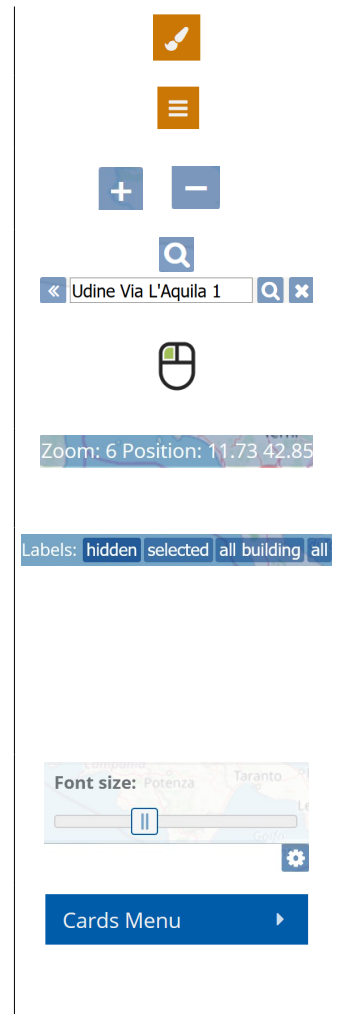
The map used by CMDBuild is based on the open source solution OpenStreetMap.



The functions available to access the map visualization and to work on the card georeference are as follows:

<ul style="list-style-type: none"> • access the map visualization • go back to the data list display mode • perform free text searches on data of the current class, that will reflect also on those elements shown in the map • define filters on data of the current class, that will reflect also on those elements shown in the map • refresh the map 	
--	--

- apply a thematic map on the map
- access the contextual menu defined for the class
- zoom in and zoom out on the map (i.e. use the mouse wheel)
- search an address by opening a text box to specify the address and execute or cancel the search
- perform pan operations on the map (moving by keeping the left button of the mouse)
- display the current zoom and the coordinates related to the current location of the mouse
- set the label visualization on the map:
 - hidden
 - visible only for the selected element
 - visible for all elements of the same class
 - visible for all elements available in the map
- set the label font size
- access the text data of elements displayed on the map, arranged in the TABs Navigation tree, Card and Layers (described below in detail)

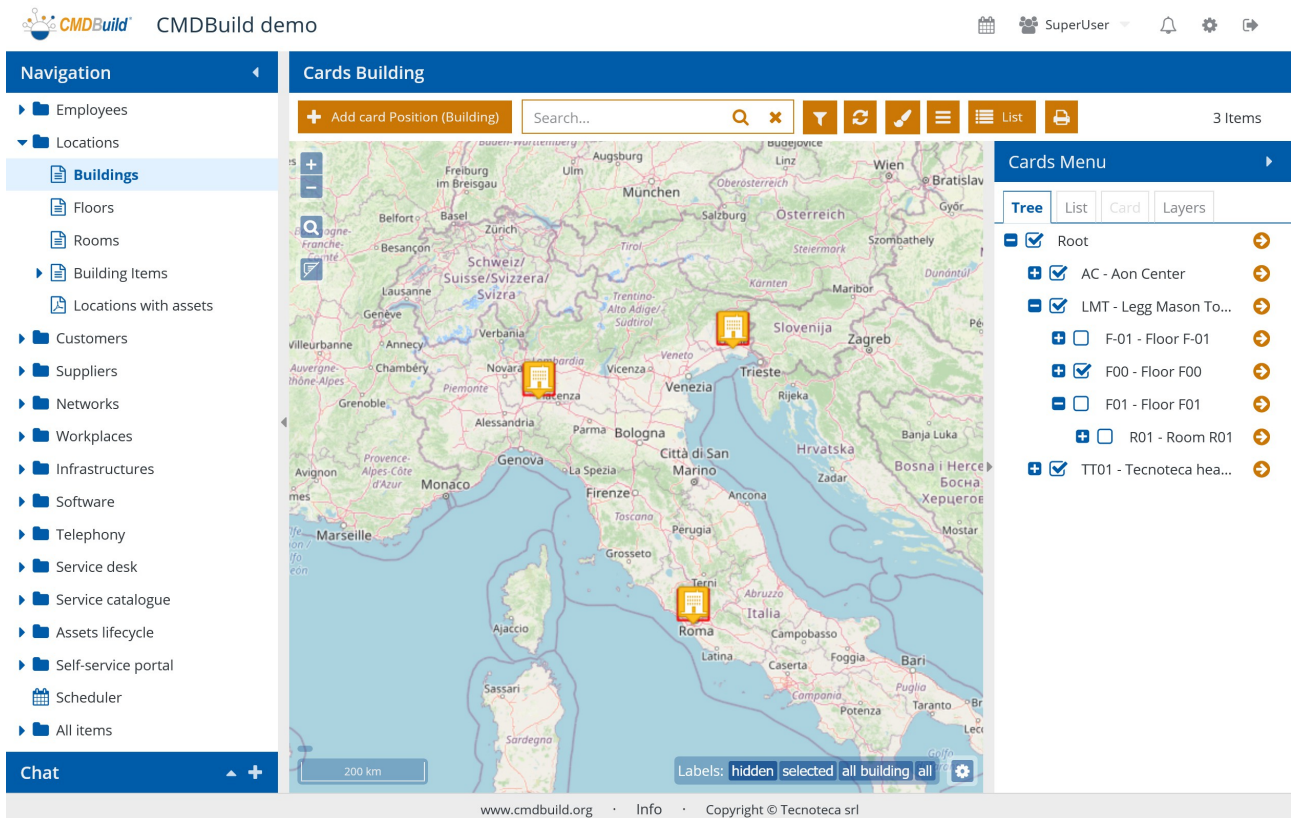


The text area occupies the right side of the page, allows to interact with the card representation on the map and includes:

- Tree tab
- Card list TAB
- Card TAB
- Layers tab

8.8.1. Navigation tree TAB

The navigation tree shows the hierarchy of cards georefered on the map, represented according to the structure configured in the Administration Module (Navigation tree GIS).



The default hierarchy is as follows: Building => Floors => Rooms => Plants / assets.

In the configuration of the GIS Navigation tree you can characterize the entity Floor, so that for each building you can view one single floor, with its planimetry (see following paragraph) and items (people, assets, plants, etc.) georefered on the planimetry.

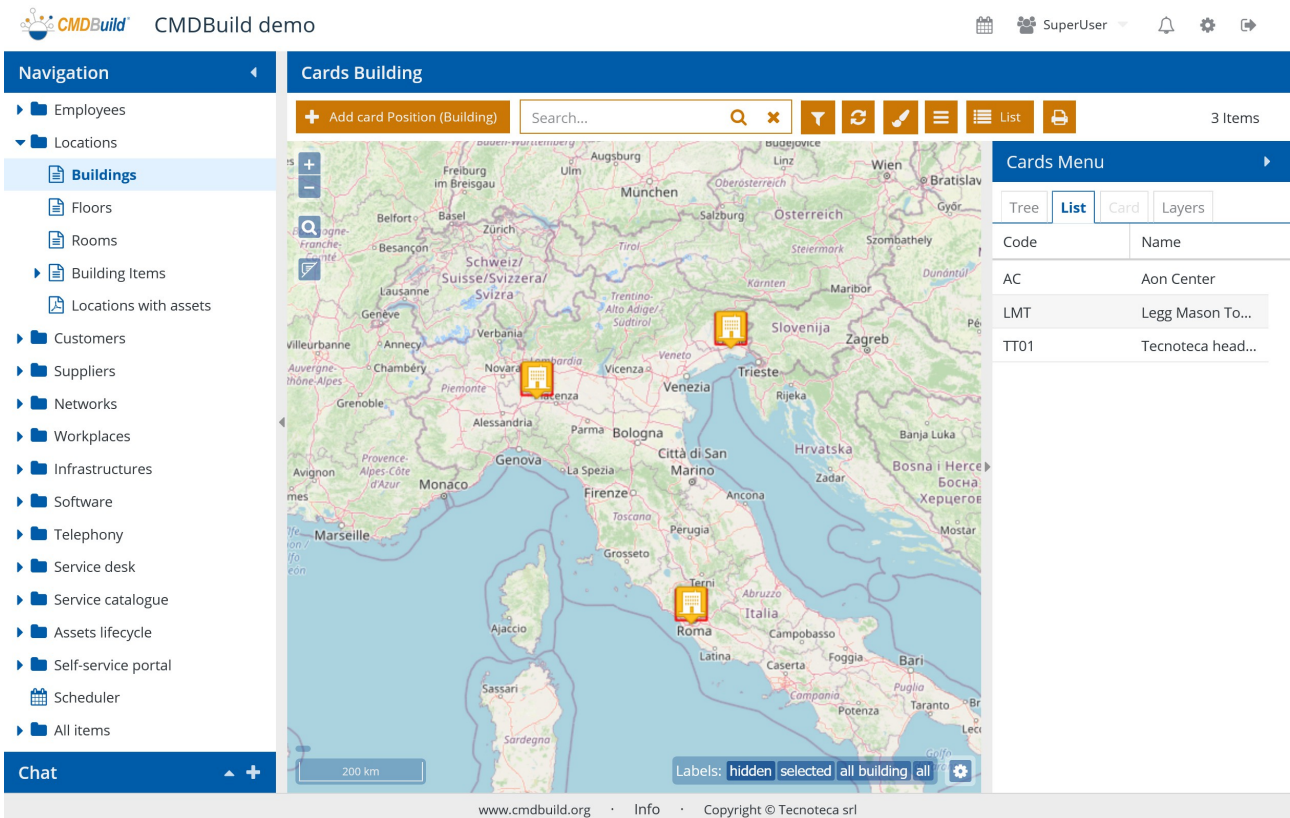
In the navigation tree you can perform the following operations:

<ul style="list-style-type: none"> • expand a level of the tree • close a level of the tree • specify that an element of the tree has to be visible on the map • specify that an element of the tree do not have to be visible on the map • move the application context on the related class and on the selected card, centring the map on the same element 	<ul style="list-style-type: none"> <li style="text-align: center; margin-bottom: 10px;">+ <li style="text-align: center; margin-bottom: 10px;">- <li style="text-align: center; margin-bottom: 10px;"><input checked="" type="checkbox"/> <li style="text-align: center; margin-bottom: 10px;"><input type="checkbox"/> <li style="text-align: center;">→
---	--

8.8.2. Card list TAB

The TAB displays the list of cards belonging to the current class.

The list includes all attributes of the current class, for which the flag "Display in the reduced grid" is active in the Administration Module.

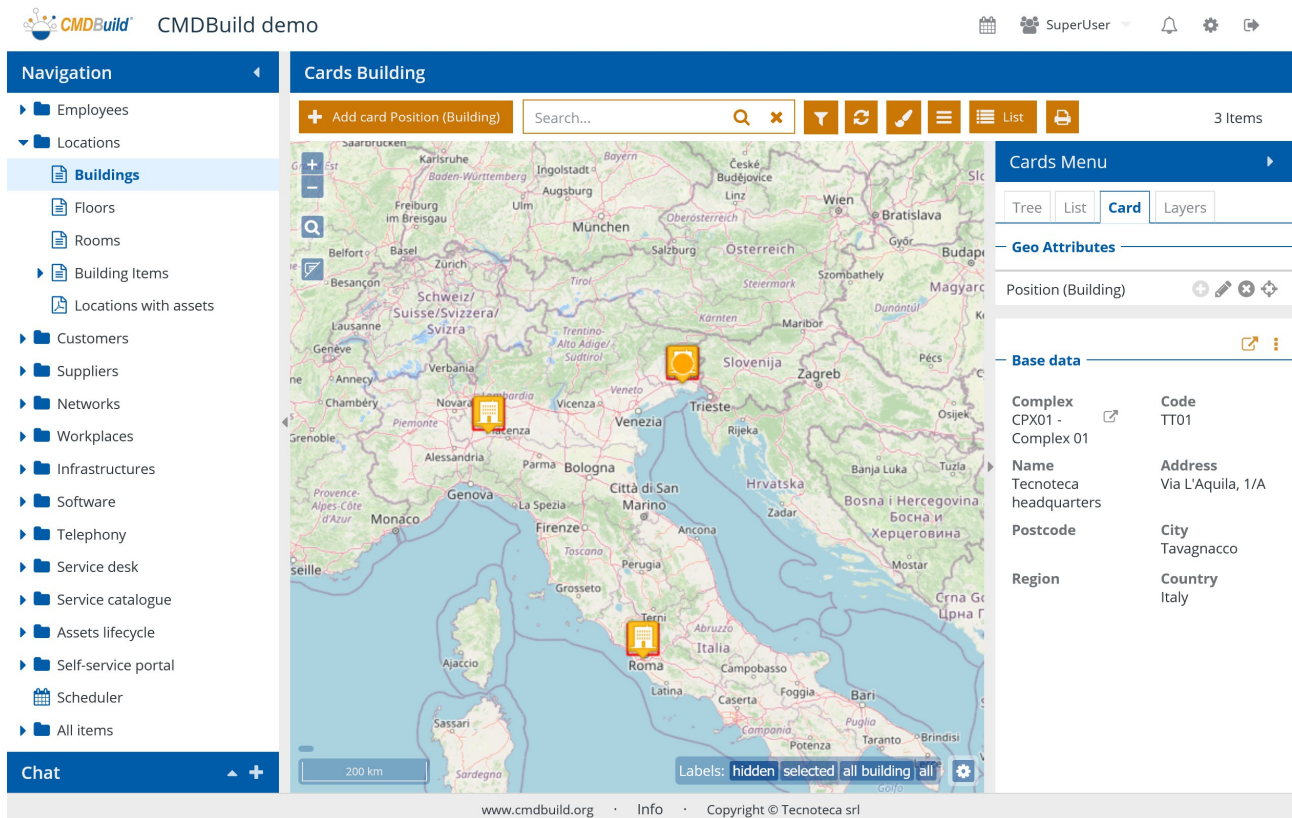


8.8.3. Card TAB

The TAB displays the detail of the current card selected on the map.

It shows all related attributes, if necessary divided in fieldsets.

On the top there is a particular fieldset, where you can see the geographical attributes configured for that class and it is possible to edit their location and their shape on the map.



In the Card TAB you can perform the following operations:

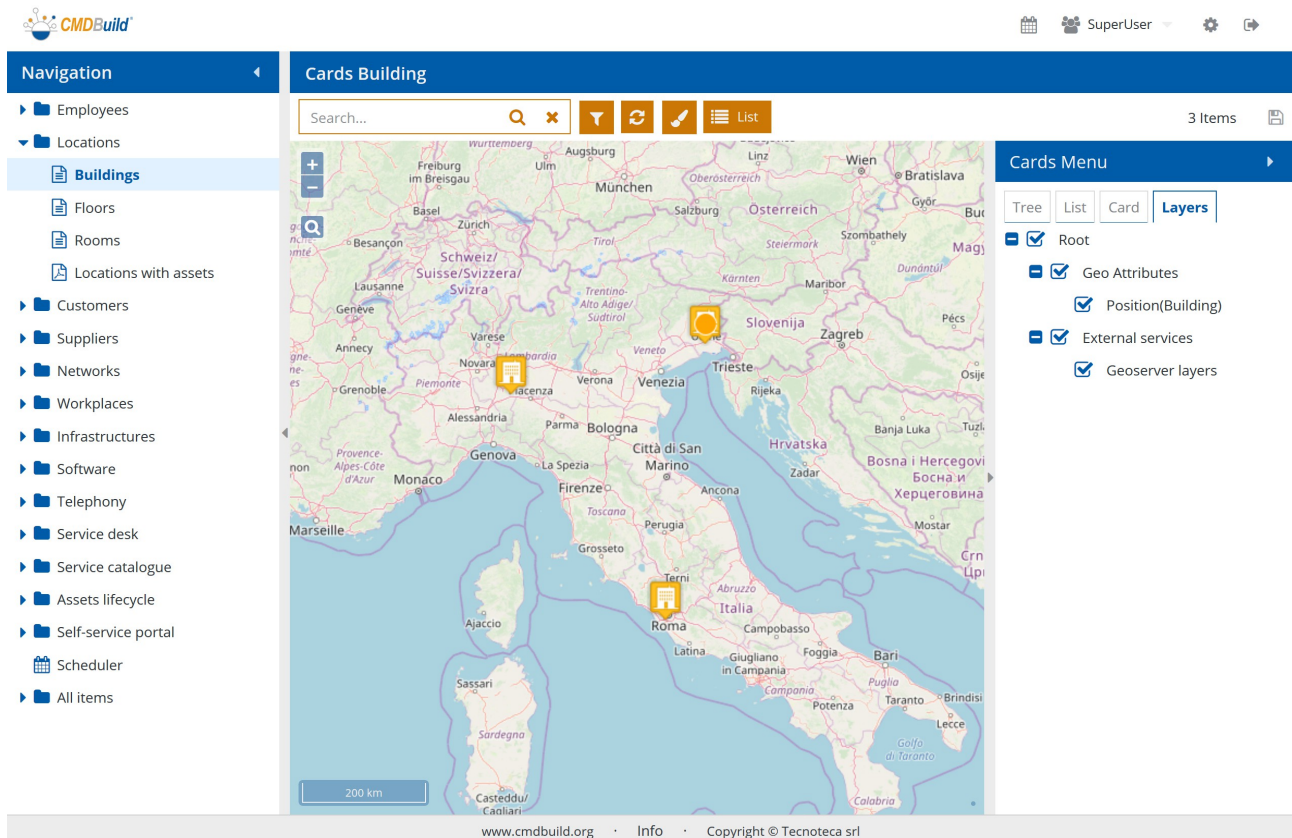
<ul style="list-style-type: none"> • add the georeference on the map • enter edit mode of the card georeference (move the point georeference, edit the open or closed polygonal) • delete a georeference • centre the map on the current geographic attribute • save any changes on the card georeference • delete the operation • exit from the Map mode, go back to the List mode, open the popup for the card management and access the Card TAB • exit from the Map mode, go back to the List mode, open the popup for the card management and access the chosen TAB (Details, Notes, Relations, History, Mail, Attachments) 	
--	--

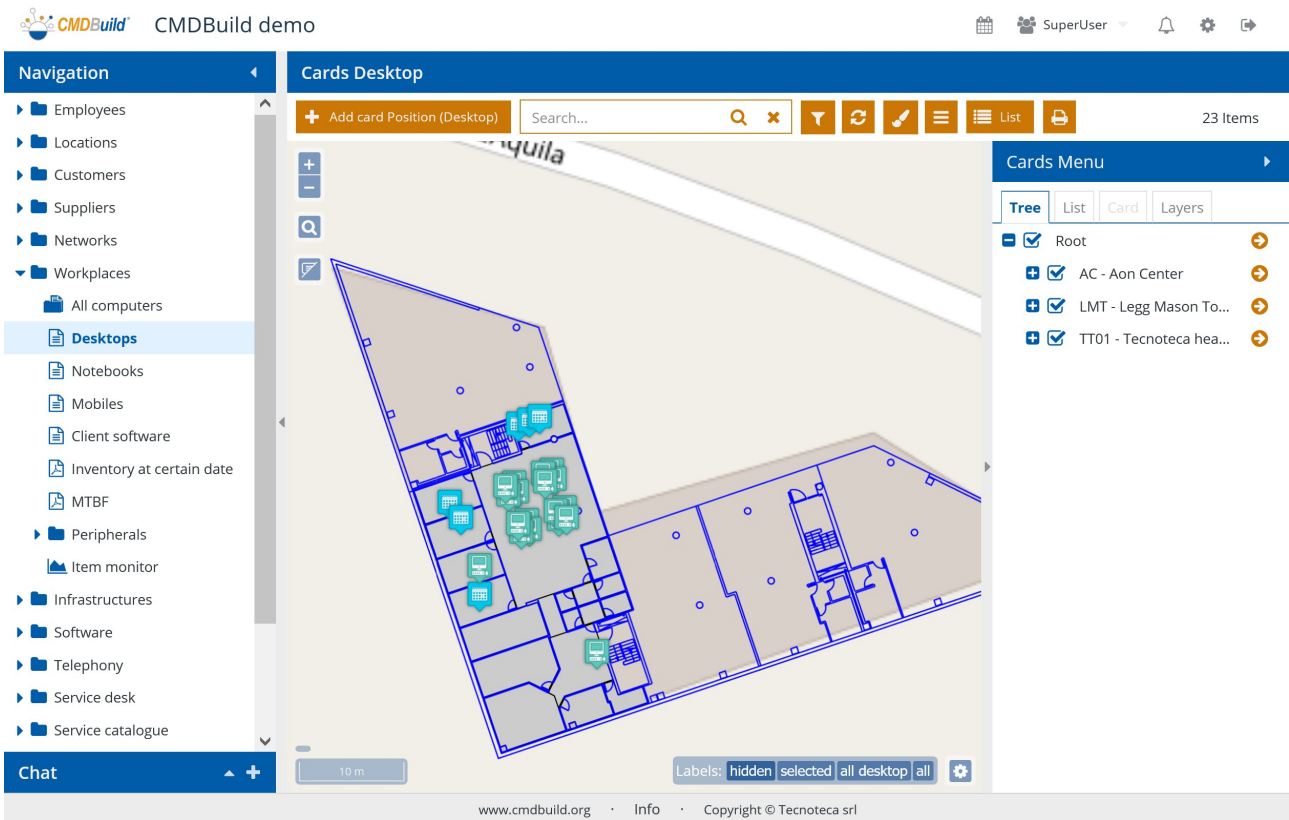
8.8.4. Layers tab

The TAB displays the list of layers displayed on the map.

They can include:

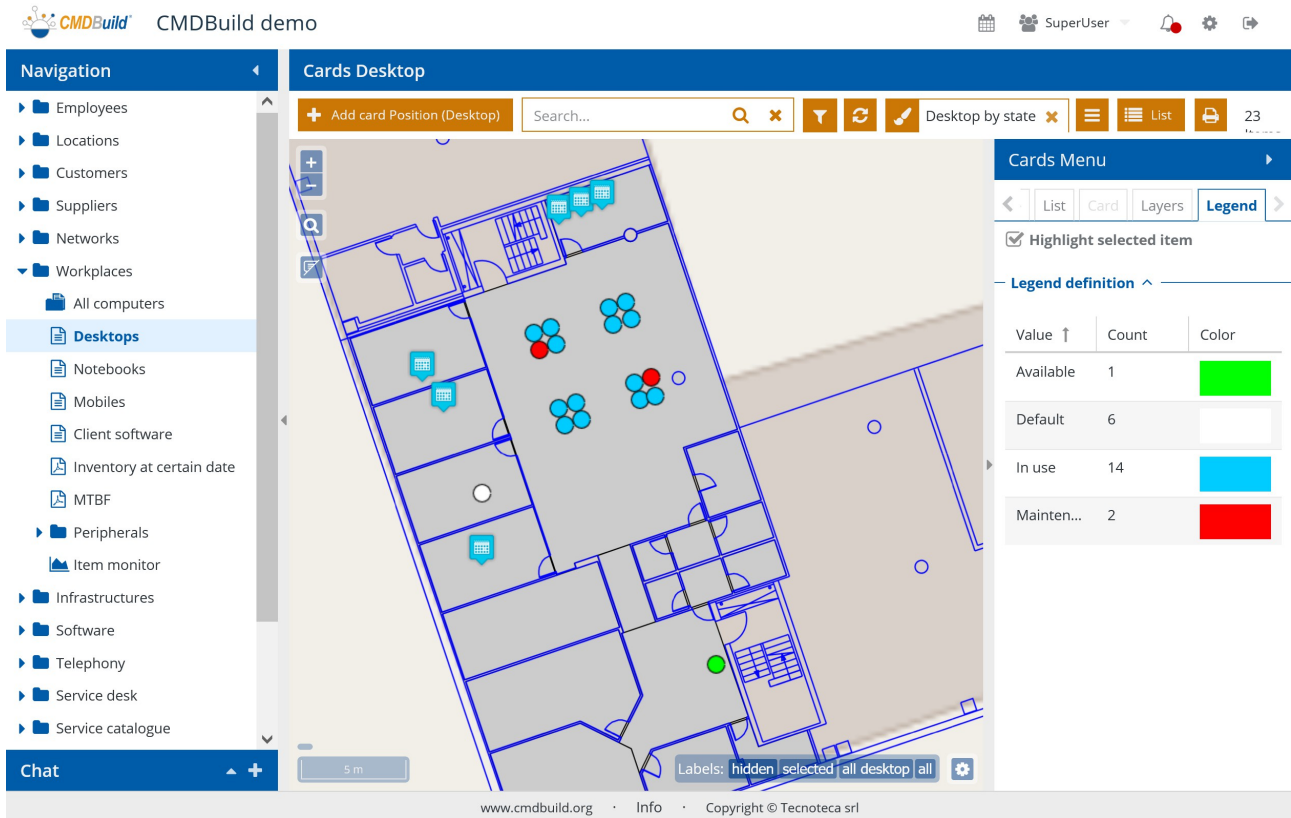
- layers related to position, area or polygonal attributes, like building location, perimeter of rooms, asset location, etc. managed in PostGIS
- layers related to background vector plan attributes (shape), managed in Geoserver





8.8.5. Thematic maps

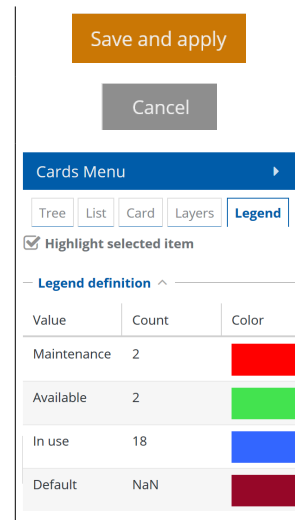
The management of thematic maps allows to represent graphically on the map, with colours and forms, information included in the cards, such as the status of an item, the item classification according to duration, classification of buildings or compartments according to the content typology, etc.



You can execute the following operations:

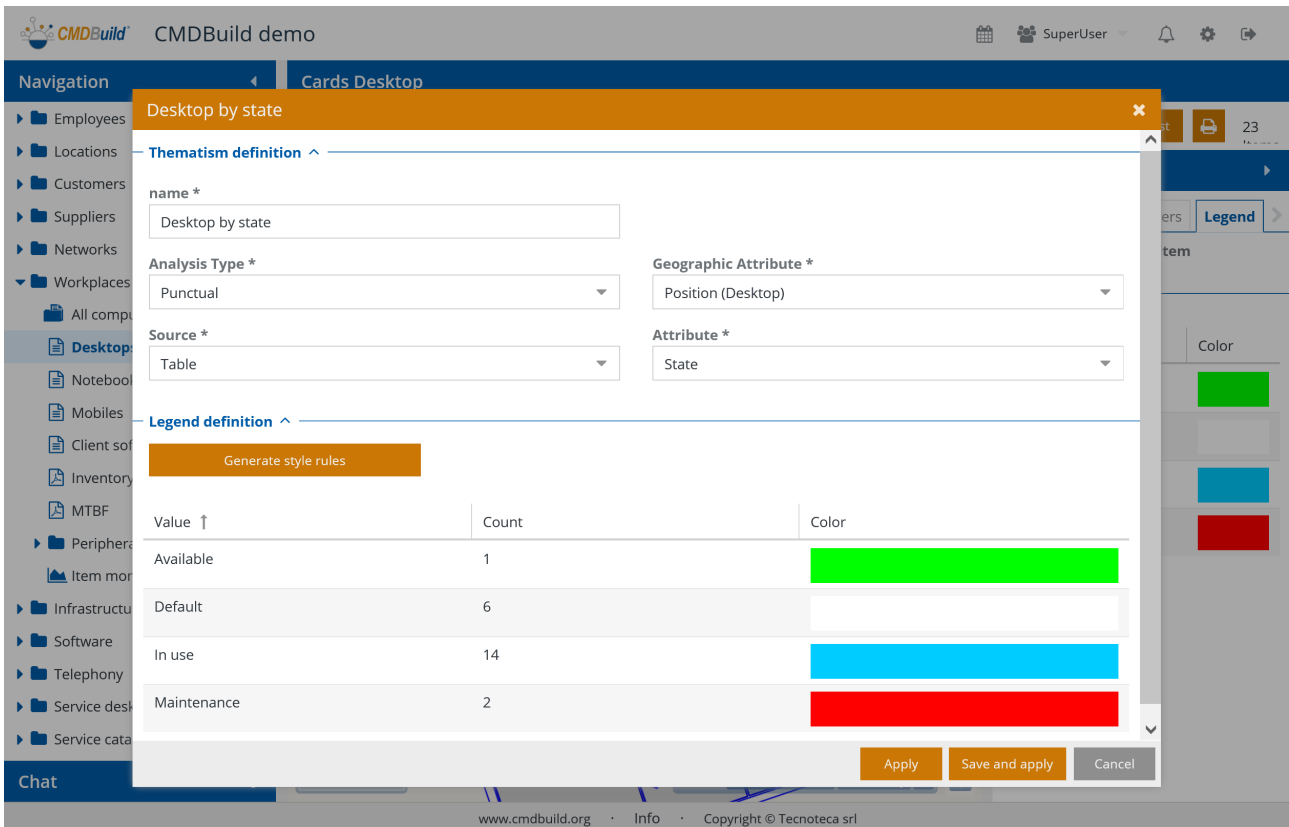
<ul style="list-style-type: none"> • add a new thematic map, in case there have not been defined anyone on the current class • access the list of already defined thematic maps (click on the icon or on the name of the current thematic map) • add a new thematic map, in case some others have already been defined on the current class • edit the selected thematic map • delete the selected thematic map • apply the thematic map once the configuration parameters have been set 	<p>The configuration panel shows a list of thematic maps: 'Desktops by brand' and 'Desktop by RAM'. Below the list are icons for adding (+), editing (pencil), and deleting (trash) a map. At the bottom, there is an orange 'Apply' button.</p>
--	--

- save the configuration and apply the thematic map
- cancel the configuration of the thematic map
- display the legend in the Thematic map TAB of the text area on the right



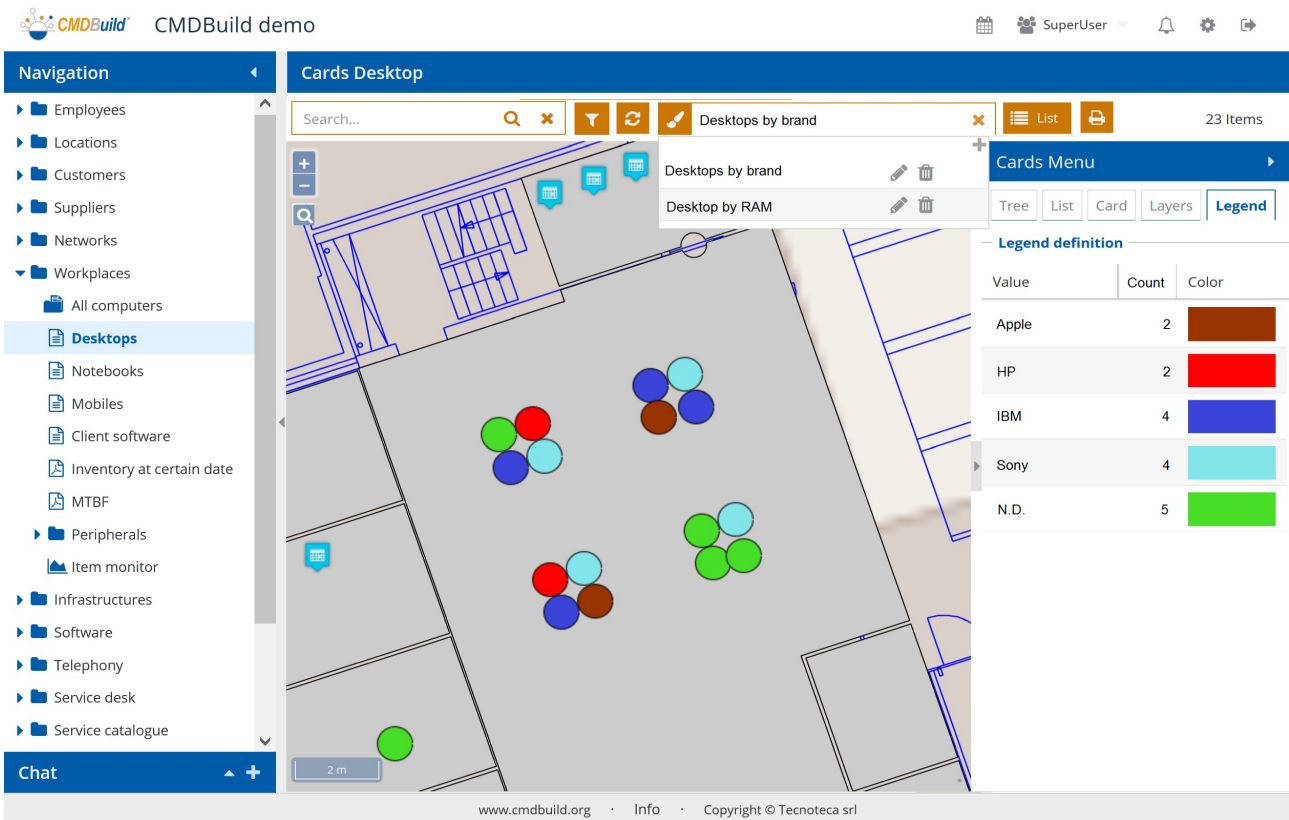
In order to configure or edit a thematic map, the following information is required:

- Name: name of the thematic map
- Type of analysis: Punctual (at the moment this is the only available option and it assigns the color according to the value of the chosen attribute; later we will add the option "interval" used to analyze the numerical attributes)
- Geographical attribute: you have to state the card attribute where the analysis has to be done
- Source: Table (in this moment this is the only one option and allows you to execute the analysis on one of the class attributes, later the option "Function" will be added, so that there will be additional data get with calculations on the database)
- Attribute: you have to select one of the attributes of the stated source



At the end you can choose to only apply the thematic map to the map or even to save it in the database in order to reuse it later.

There is another sample that shows the company's desktop computers in the map, but this time it marks them according to their brand instead of the amount of installed RAM.



8.8.6. Visualization of vector maps and 3D models

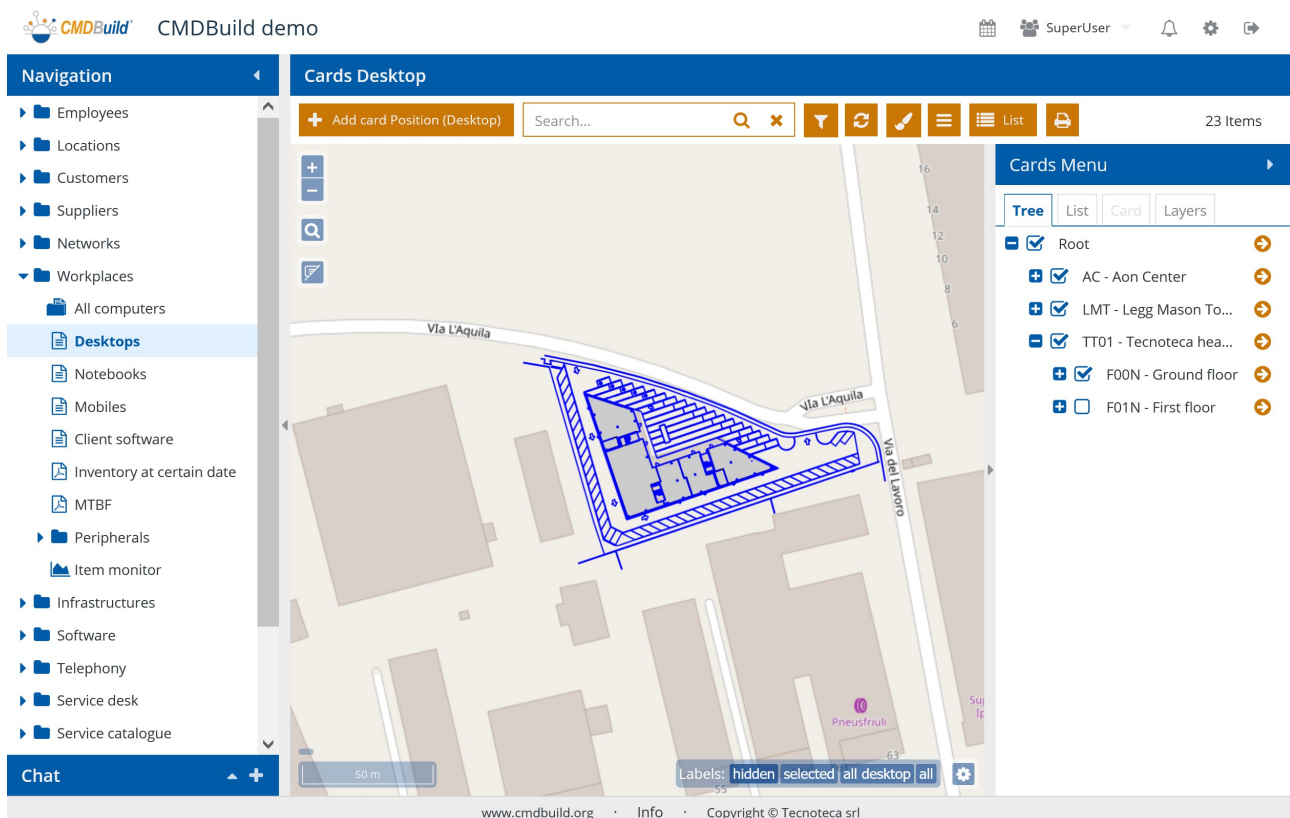
From the geographical maps you can access both vector planimetries of building floors (designed with Autodesk AutoCAD) and 3D models of buildings (created with BIM tools, like Autodesk Revit or Graphisoft ArchiCAD).

For a more detailed description about working on vector planimetries and 3D models, please see the following paragraphs.

Here are two screenshots that show how to access the two above mentioned features.

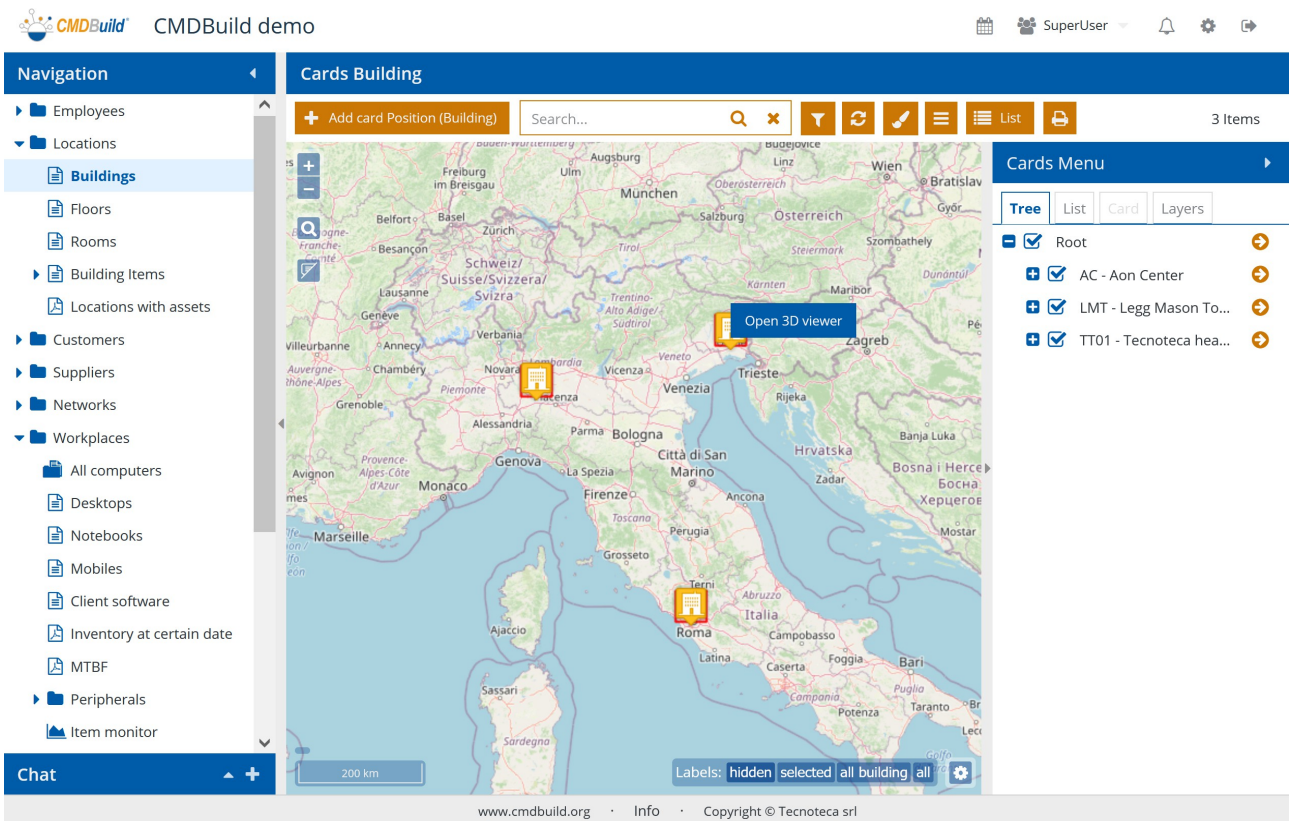
Visualization of vector maps

You can view vector maps by zooming in the map area that includes the planimetry.



Visualization of 3D models

You can view vector planimetries by clicking a button that reports the presence of a 3D model in a specific area of the map.



8.9. 2D georeference on planimetries

CMDBuild manages the georeference of certain types of cards (rooms, plants, technical items, furniture, employees, etc.) on vector planimetries externally produced with design tools like Autodesk AutoCAD.

At this point you can get an automatic zoom on the planimetry of an asset from its card and, in case, edit it graphically.

Instead, by surfing on planimetries you can query the icons of the represented items and move to the related information card.

Planimetries can be imported through the proper import function above described.

The screenshot displays the CMDBuild demo interface. On the left is a 'Navigation' sidebar with a tree view of categories: Employees, Locations, Customers, Suppliers, Networks, Workplaces (with sub-items like All computers, Desktops, Notebooks, Mobiles, Client software, Inventory at certain date, MTBF, Peripherals, Item monitor), Infrastructures, Software, Telephony, Service desk, and Service catalogue. The main area is titled 'Cards Desktop' and features a search bar, a toolbar with icons for adding card positions, search, zoom, and list, and a '23 Items' count. The central map shows a 2D vector planimetry with several green icons representing assets. On the right is a 'Cards Menu' panel with tabs for 'Tree', 'List', 'Card', and 'Layers'. The 'Tree' tab is active, showing a hierarchical list of assets: Root, AC - Aon Center, LMT - Legg Mason..., TT01 - Tecnoteca h..., F00N - Ground..., F01N - First floor, R01 - Room..., R02 - Room..., R03 - Room..., R04 - Room..., R05 - Room..., R06 - Room..., and several 'ITEM P...' entries. A 'Chat' window is visible at the bottom left. The footer contains the website 'www.cmdbuild.org', 'Info', and 'Copyright © Tecnoteca srl'.

To consult and manage vector planimetries there are the same features described in the previous paragraph.

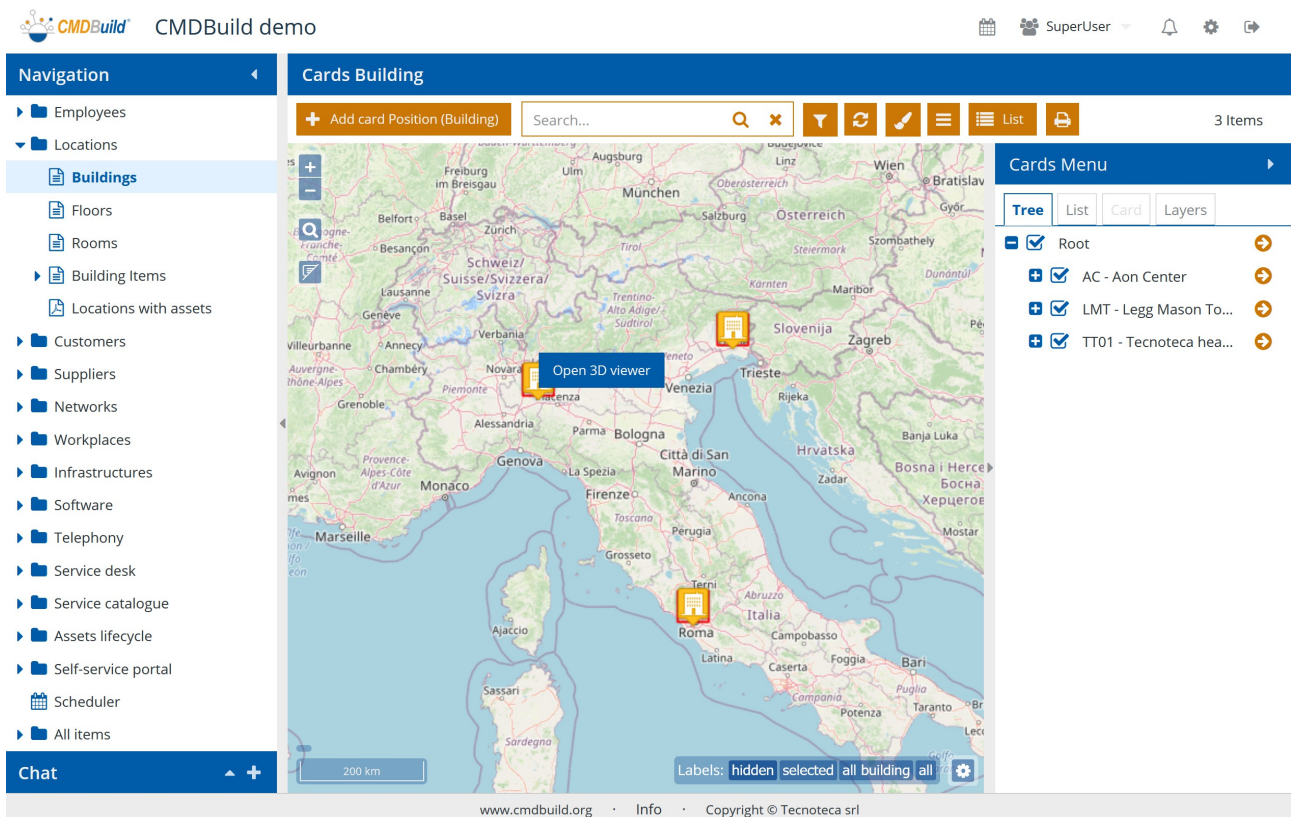
8.10. Georeference on 3D models

CMDBuild manages also the georeference of its cards on 3D models imported with BIM design tools (Building Information Modeling), like Autodesk Revit, Graphisoft ArchiCAD, etc).

In this case there is an open interchange format called IFC (Industry Foundation Classes), so that when a map descriptor is configured among the IFC entities and the corresponding entities in the CMDBuild data model, the sync will be done automatically.

CMDBuild provides an interactive viewer for 3D IFC models, integrated in your own standard UI. It allows you to consult realistically the interior of a building and its assets.

You can access the 3D viewer using the specific button on the map.



Once it is activated, the viewer displays the 3D model of the selected building, like in the example of the following screenshot.



In the 3D viewer you can perform the following base operations:

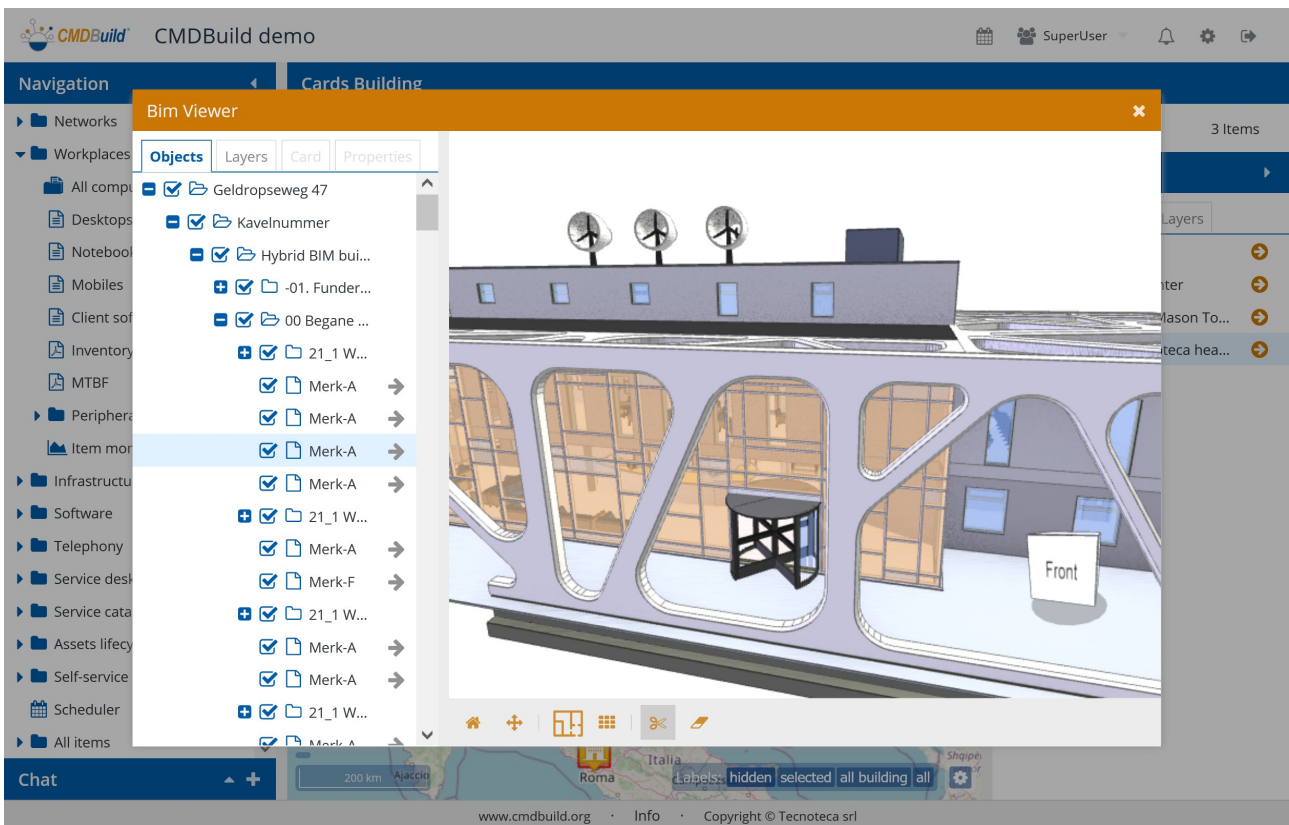
<ul style="list-style-type: none"> • use the navigation tree in order to browse the items available in the IFC model (below described in detail) • use the Layers menu to display or hide the various types of elements available in the IFC model (below described in detail) • use the Card TAB to display the detail data of the CMDBuild card corresponding to the element of the selected IFC • use the Properties TAB to display the detailed data of the selected IFC element. • use the proper widget to rotate the model (as alternative to moving the mouse while holding the left button, as mentioned below) • move the building model within the graphic area (moving the mouse while holding the right button) • rotate the building model (moving the mouse while holding the left button) 	
--	--

- zoom in the building model (central button of the mouse)
- use the toolbar located under the graphic area (below described in detail)



8.10.1. TAB Objects

This TAB includes the IFC navigation tree, that displays hierarchically the items available in the model.



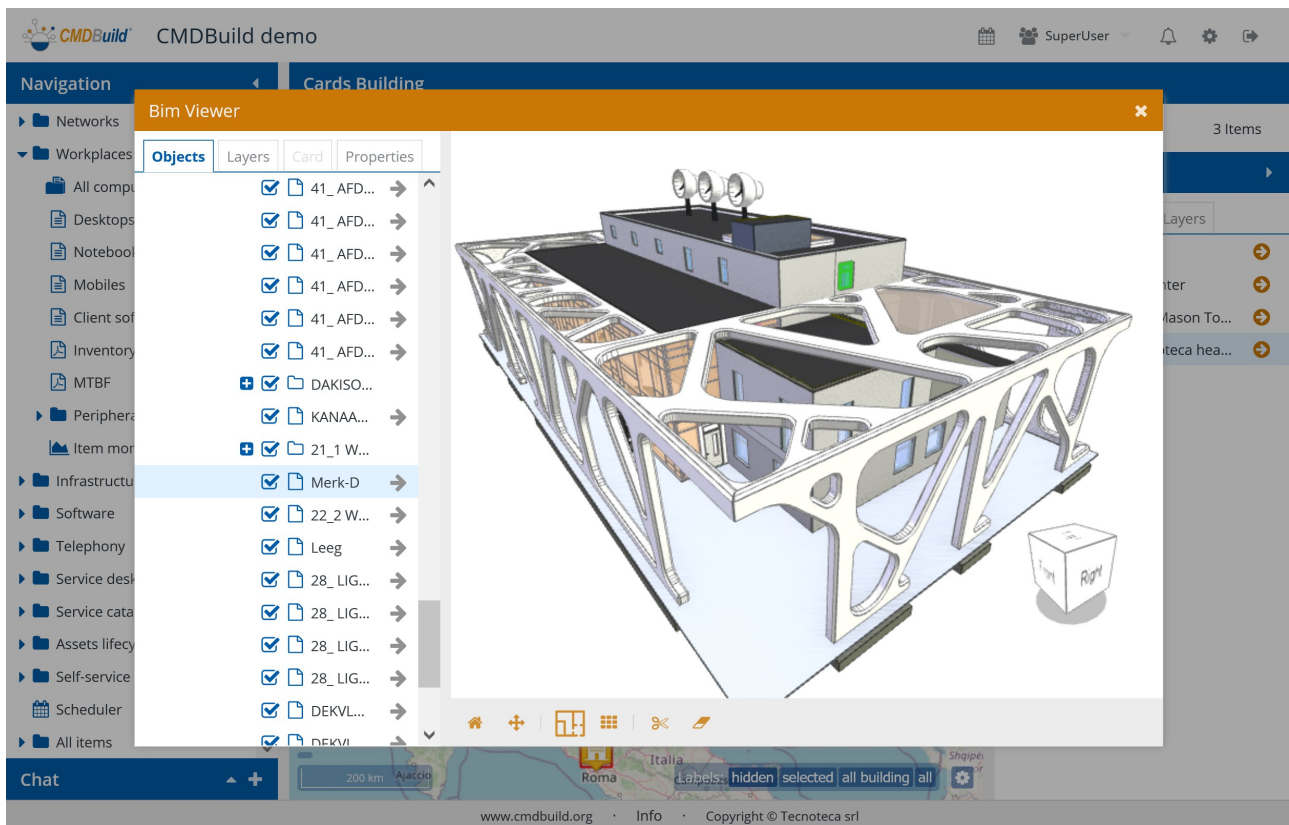
In the Objects TAB you can perform the following operations:

- expand a level of the tree
- close a level of the tree
- center the model onto the selected element
- click once with the left button of the mouse onto an element of the 3D model and see it highlighted in the navigation tree



In the following screenshot you can see how a click onto the arrow on the right side of the selected element (Windows Merk-D) moves the model so that it will be highlighted in green.

Below you will see how a click onto an element of the model (front door) selects that element in the tree.



In the meantime, the Properties TAB is enabled. It allows you to consult the detailed information of the related IFC element (see point 8.10.4).

In case the IFC element is associate to a CMDBuild card, also the Cards TAB is enabled. It allows you yo consult the detailed information of the related CMDBuild card.

8.10.2. TAB Layers

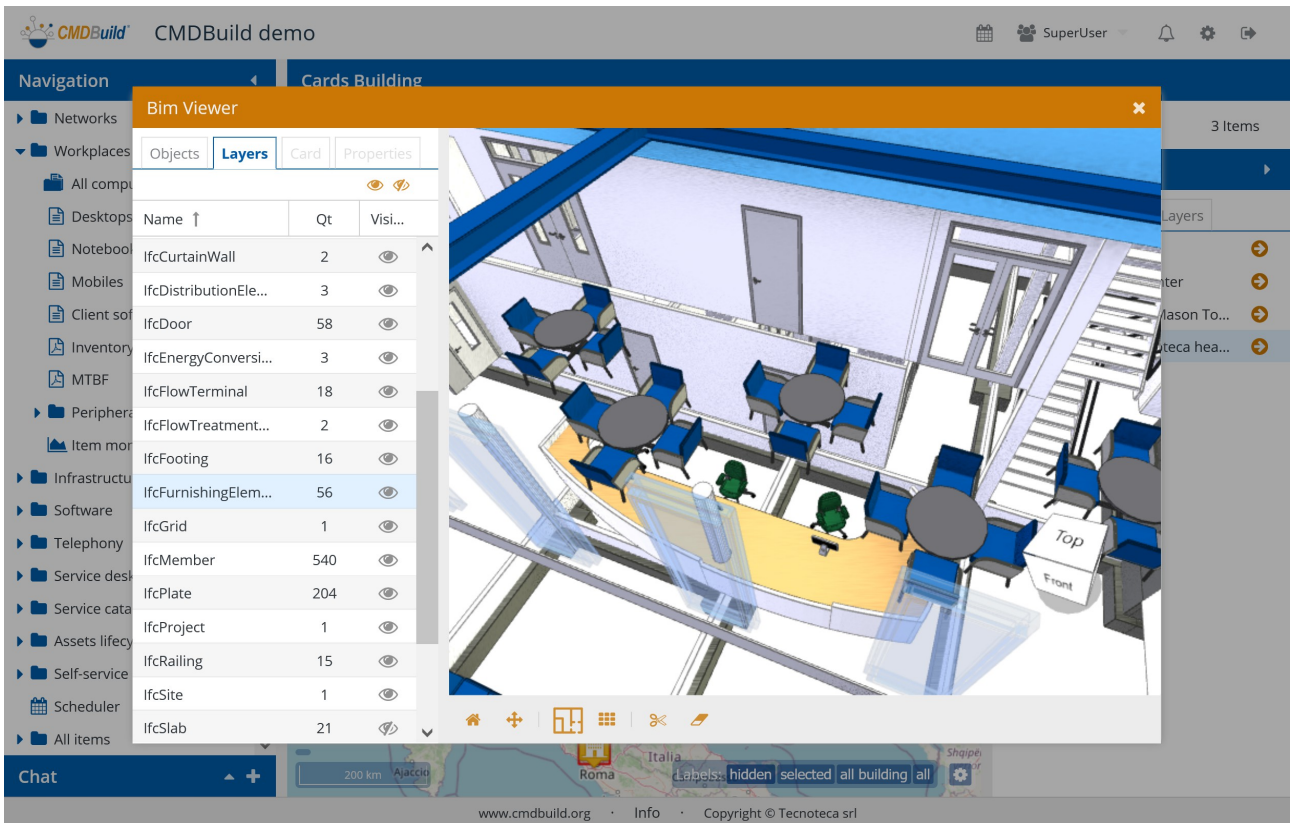
The Layers TAB displays the list of the various types of items included in the IFC model, with the number of elements for each type.



In the Layers TAB you can perform the following operations:

<ul style="list-style-type: none"> • make available or make transparent all items of the model, working on the column • make the items of the selected layer transparent • make the items of the model visible • click onto an element of the model, see it graphically highlighted (orange contours) and see the corresponding layer highlighted in the list 	
---	--

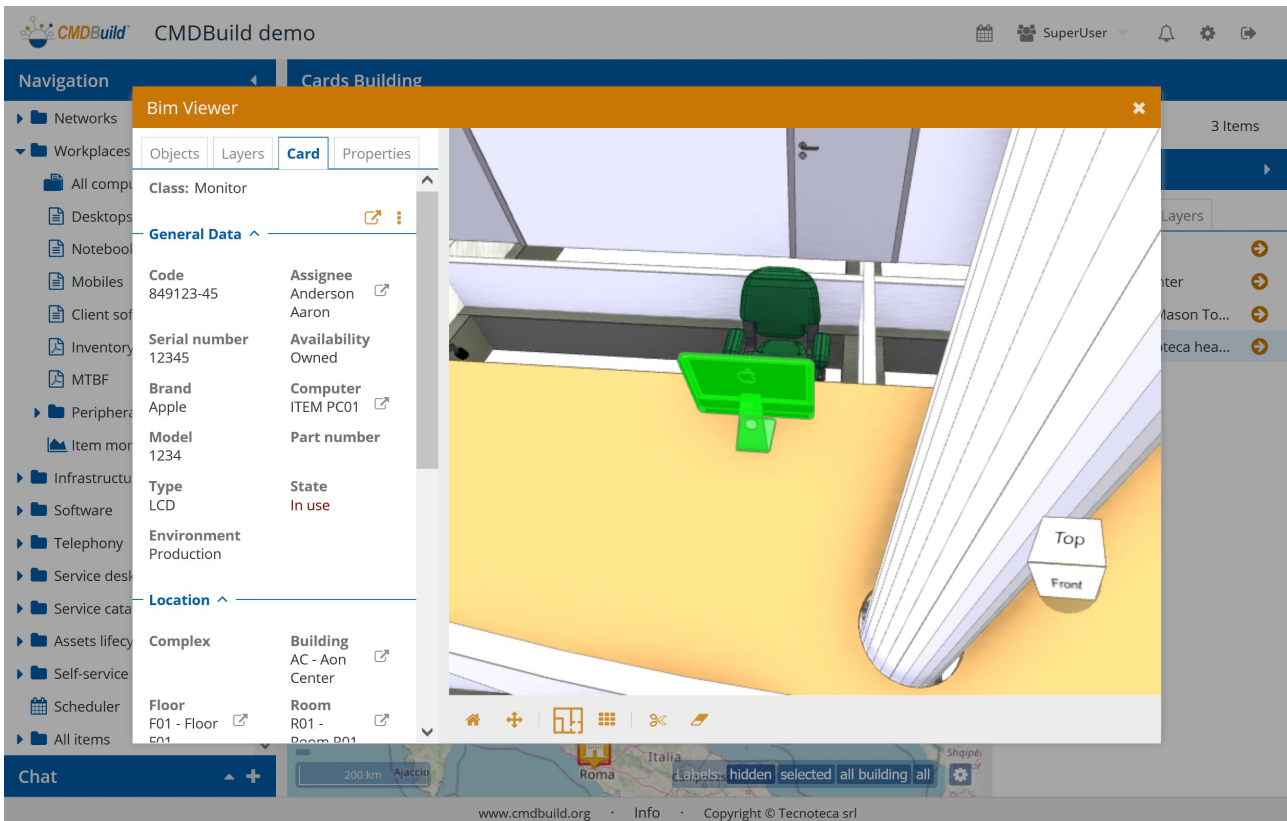
In the two following screenshots you can see the result when making some model elements transparent (in the example the coverings).



8.10.3. TAB Cards

The Cards TAB allows you to consult information related to the CMDBuild card associated with the selected IFC element.

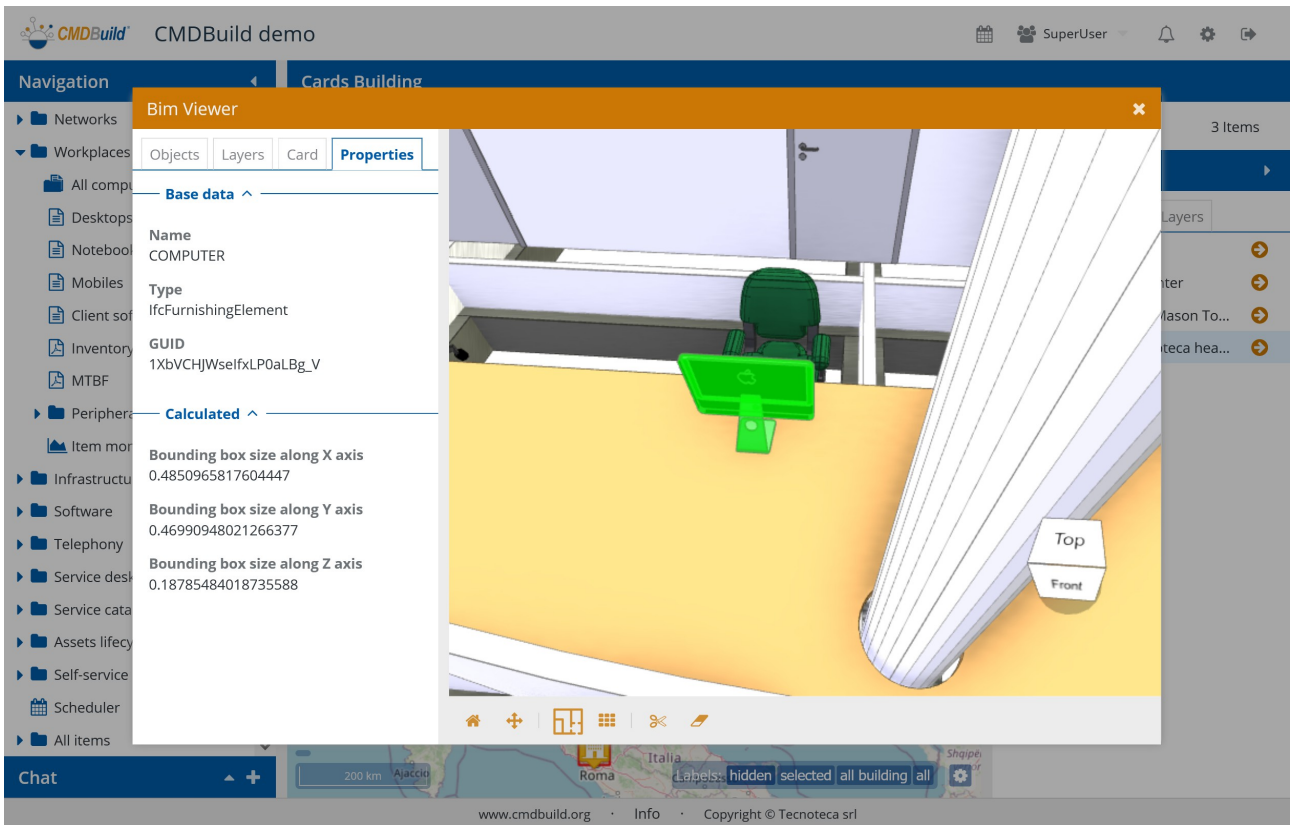
In the example below you can see CMDBuild card data related to the selected monitor on the IFC model.



8.10.4. TAB Properties

The Properties TAB allows you to consult the detailed information of the selected IFC element.

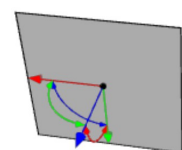
In the example below you can see data of the IFC element, related to the selected monitor.



8.10.5. Graphic toolbar

The toolbar located under the graphic area allows to:

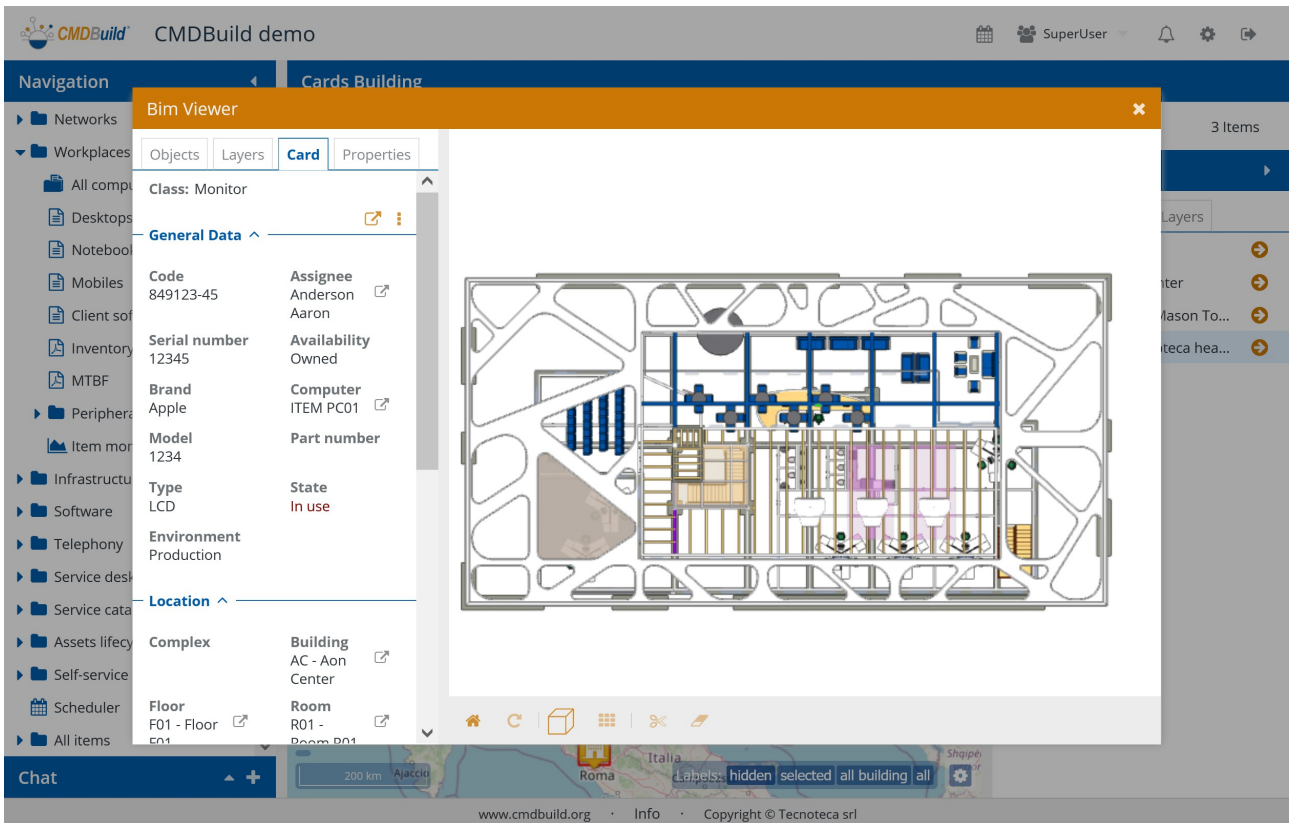
- restore the initial visualization of the model (Reset)
- set as default the "Pan" mode
- set as default the "Rotate" mode
- set the 2D view
- set the orthogonal view
- enable the "slice" option to slice buildings with an orientable plane, in order to access its inside view

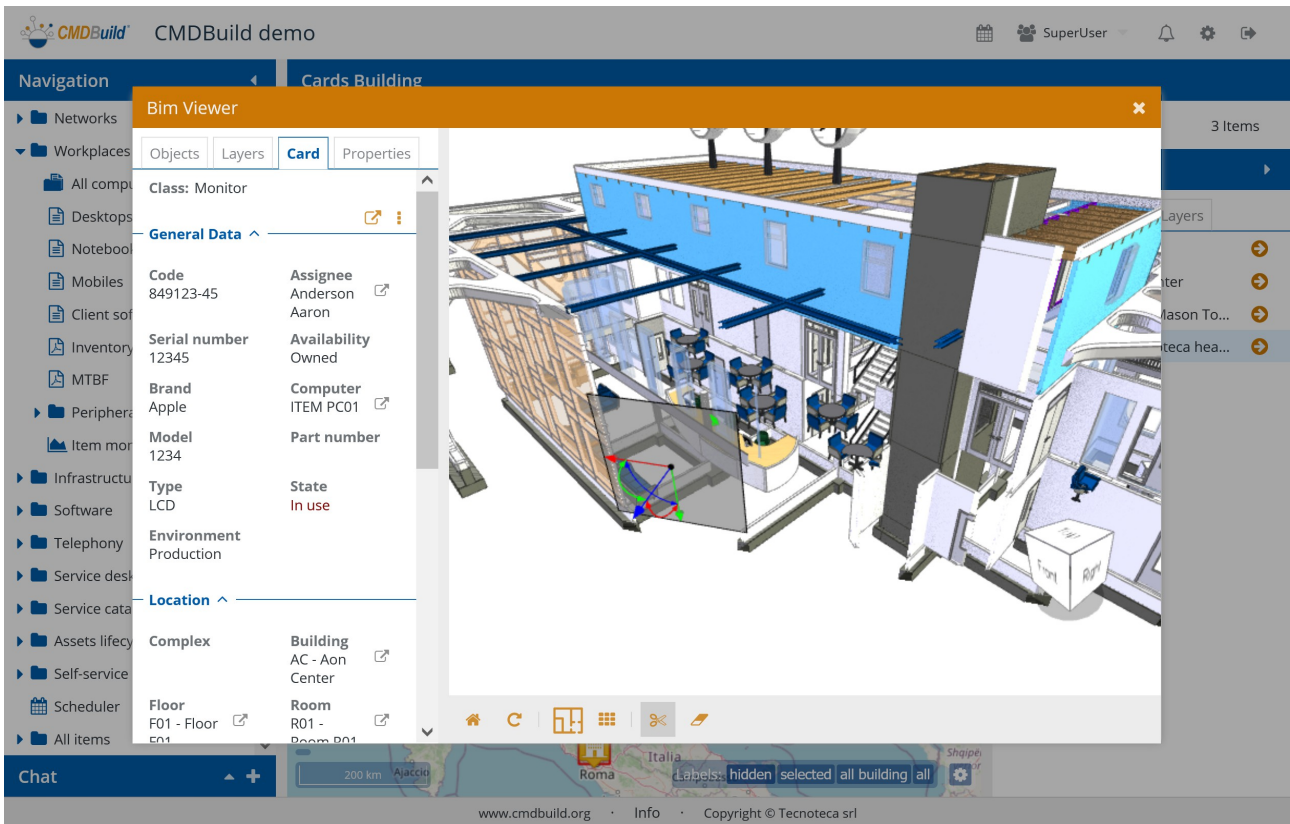
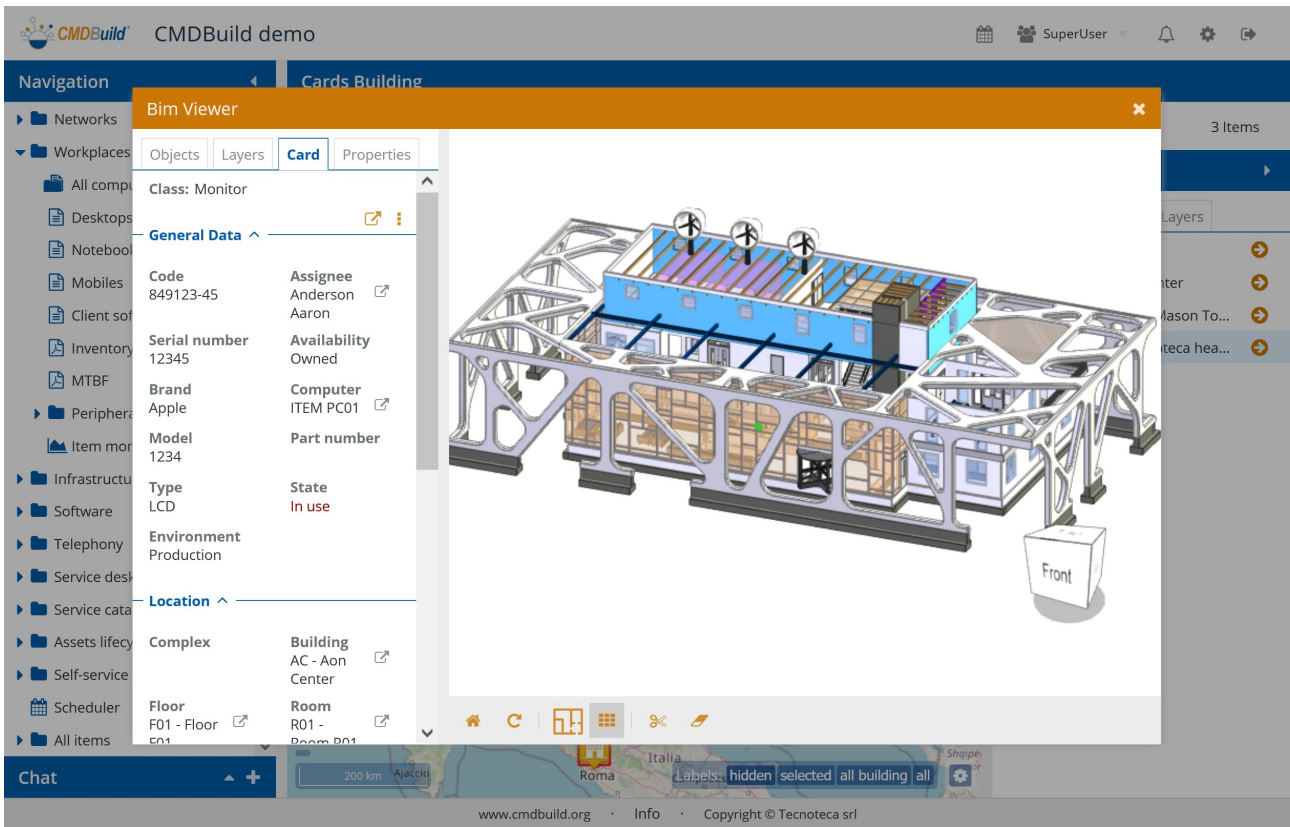


- delete the effects of the “slice” option
- please remember the proper widget to rotate the model (as alternative to moving the mouse while holding the left button, as mentioned above)



Here are three examples of 2D view, orthogonal view and slice.





9. Workflow

The management of workflows is an important added value for CMDBuild to support the operators' collaborative activities.

Both cards and processes can be completely configured by the Administrator to support specific organizational procedures for each organization.

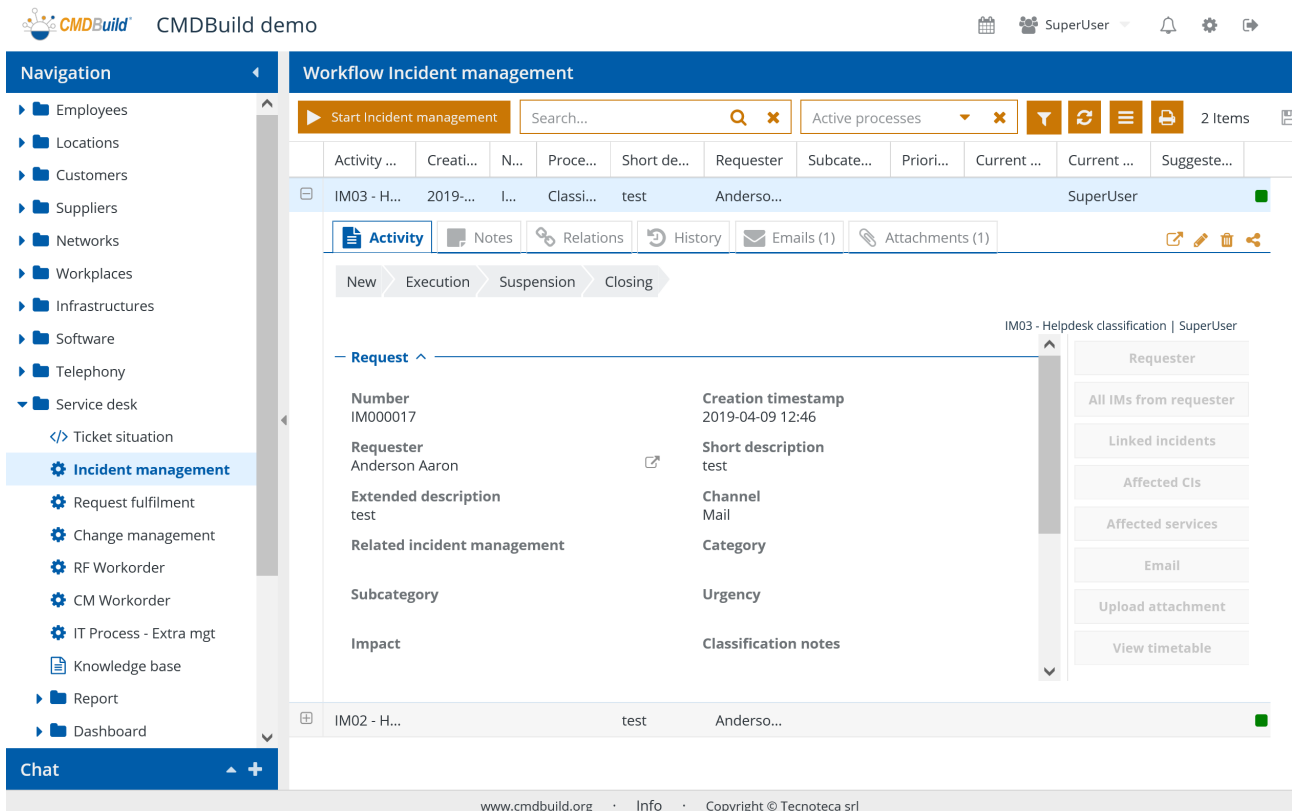
Within a generic instance of asset management, processes that support the asset lifecycle can be configured. In the IT environment, processes provided by ITIL Best Practice (Incident Management, Change Management, Request Fulfillment, etc.) can be configured. In the Facility Management environment breakdown and programmed maintenance processes can be configured.

Just like the standard cards, the user interface for the workflow management allows you to display cards, consult and edit detail information, view relations, history, emails and attachments.

In particular, for each type of process, you can view the list of open or closed instances, start a new process, advance a process to the next step and, if necessary, assign it to another group of operators, until it is closed according to the preset flow.

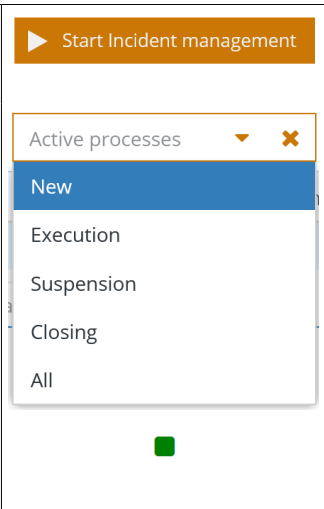
9.1. List of processes

The data of the current workflow instances are presented initially in a table.



The available operations are the same as described for the cards in the paragraph 6.1. You can refer to them with the following specific elements for workflows.

- the button that adds cards has been replaced by a button that starts a new process instance
- before the selection list of filters, in the grid there is another selection list of the possible process statuses (system and application)
- in the last column on the right in the list, there is a coloured square that indicates the status of that process instance

The image shows a screenshot of a software interface. At the top right, there is an orange button with a white play icon and the text 'Start Incident management'. Below this is a dropdown menu with the text 'Active processes' and a small orange 'x' icon. The dropdown menu is open, showing a list of options: 'New' (highlighted in blue), 'Execution', 'Suspension', 'Closing', and 'All'. Below the dropdown menu, there is a small green square.

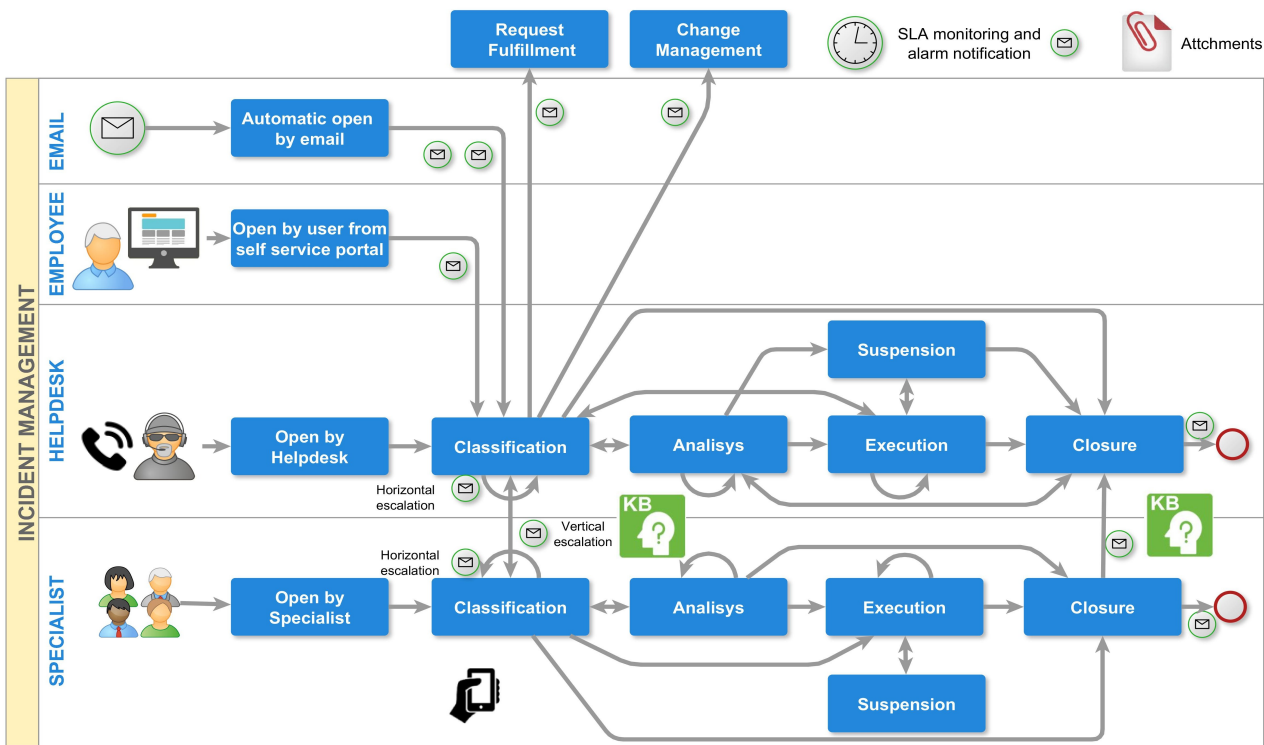
In case of processes that have been used a lot and for which it is important to provide UI additional elements (sublist of activities, Key Performance or KPI indicator, statistical graphics on the process advance, etc.), it is possible to extend the standard list of processes with a user interface that has been completely customized and implemented through the implementation of a custom page, as you can see below.

9.2. Card TAB

The Card TAB allows you to start a new process or advance a started process.

Both operations can be carried out by an operator only in case the he/she belongs to a group that is enabled to perform that activity.

For example, in case a logic flow of the Incident Management process is the one represented by the following schema, both the Helpdesk group and a specialists group can classify a ticket.

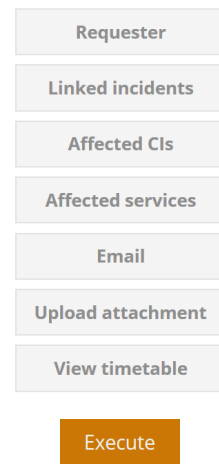


9.2.1. Guide to compilation

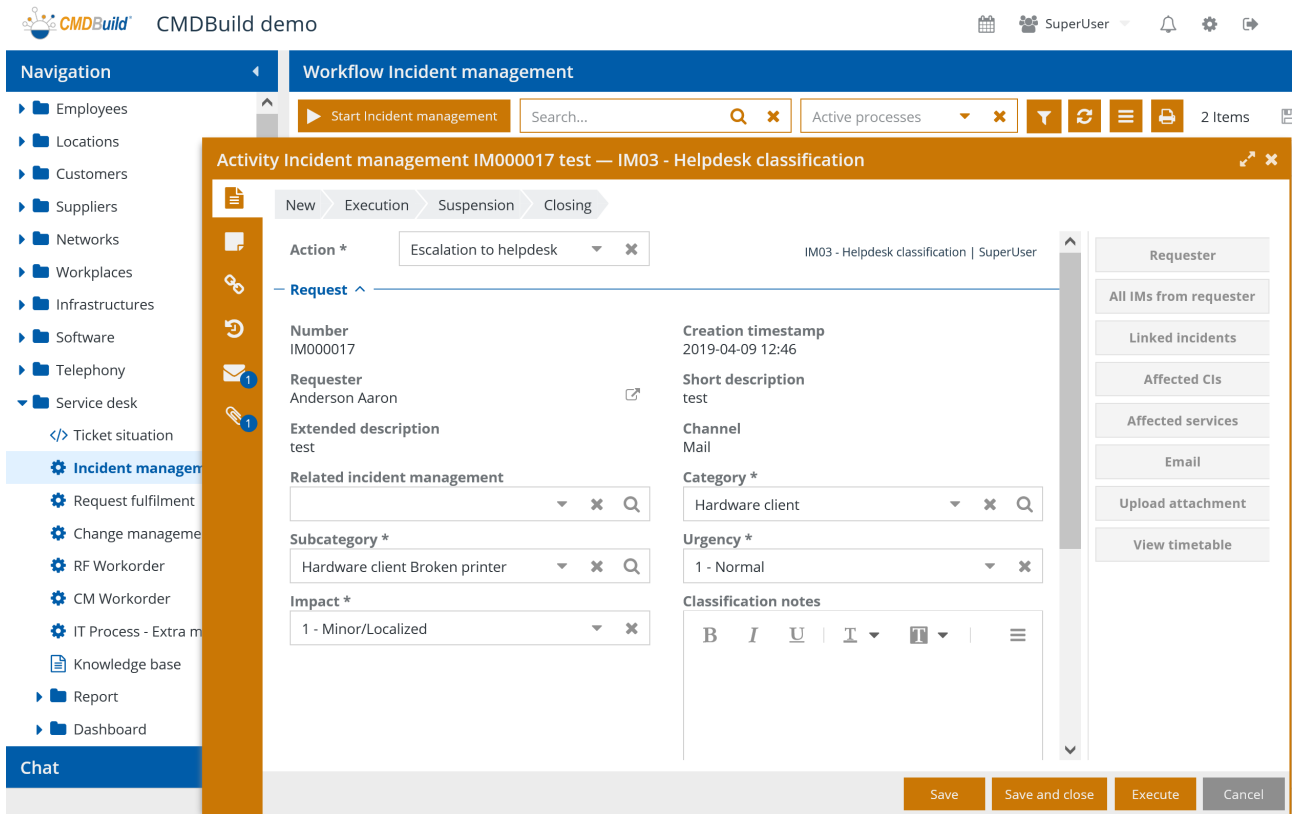
The available operations are the same as described for the cards in the paragraph 6.2. You can refer to them with the following additional elements:

<ul style="list-style-type: none"> record of the current status of process, shown in the first row on the top choice of the action to perform, in case the flow needs more options to be advanced 	<div style="border: 1px solid #ccc; padding: 5px;"> <div style="display: flex; justify-content: space-between; border-bottom: 1px solid #ccc;"> Classification Analysis </div> <div style="margin-top: 5px;"> <p>Action * Escalation to specia x</p> <ul style="list-style-type: none"> <li style="padding: 2px 5px;">Specialist analysis <li style="padding: 2px 5px;">Descalation to helpdesk <li style="padding: 2px 5px;">Specialist execution <li style="padding: 2px 5px; background-color: #0070c0; color: white;">Escalation to specialists <li style="padding: 2px 5px;">Closure </div> </div>
---	--

- list of available widgets in that step of process (see the following paragraph)
- The Execute button to advance the process to the following step



In the following example you can see how to complete an Incident process card related to the classification step.



9.2.2. Lock of an advancing process

If the CMDBuild instance is configured with the active lock function and a user asks for a process to be advanced, the system reserves the card of that instance to that user for the period defined in the configuration parameters.

If another user tries to edit the same process instance in the same period, an error message appears.

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

9.2.3. Widget

Widgets - which can be configured using the TWE editor (Together Workflow Editor) - can be used to recall and perform specific functions useful for the current context.

For a process instance the following widgets can be configured:

- Calendar: it shows the specified deadlines on a visual calendar
- Create / modify card: it allows to edit a data card belonging to a class that is different to the current one
- Create report: it allows to print a report
- Custom form: it allows to edit a list of cards or a single card
- Link card: it allows to select one or more data cards from a list
- Manage email: it allows to consult the list of the emails received / sent during the process and to write new emails that have to be sent (controlled access to the Email TAB)
- Open attachment: it allows to consult the list of process attachments and upload new ones (controlled access to the Attachments TAB)
- Open note: it allows to consult or edit the notes related to the current process (controlled access to the Notes TAB)
- Preset from card: it allows to enhance some fields of the current process recovering them from a selected card
- Start workflow: it allows to start the specified workflow by using a popup window

It is also possible to implement (ExtJS environment, Javascript language) custom widgets and make them available in order to be used in the process management, besides standard ones.

Here is some further information on the above-mentioned standard widgets.

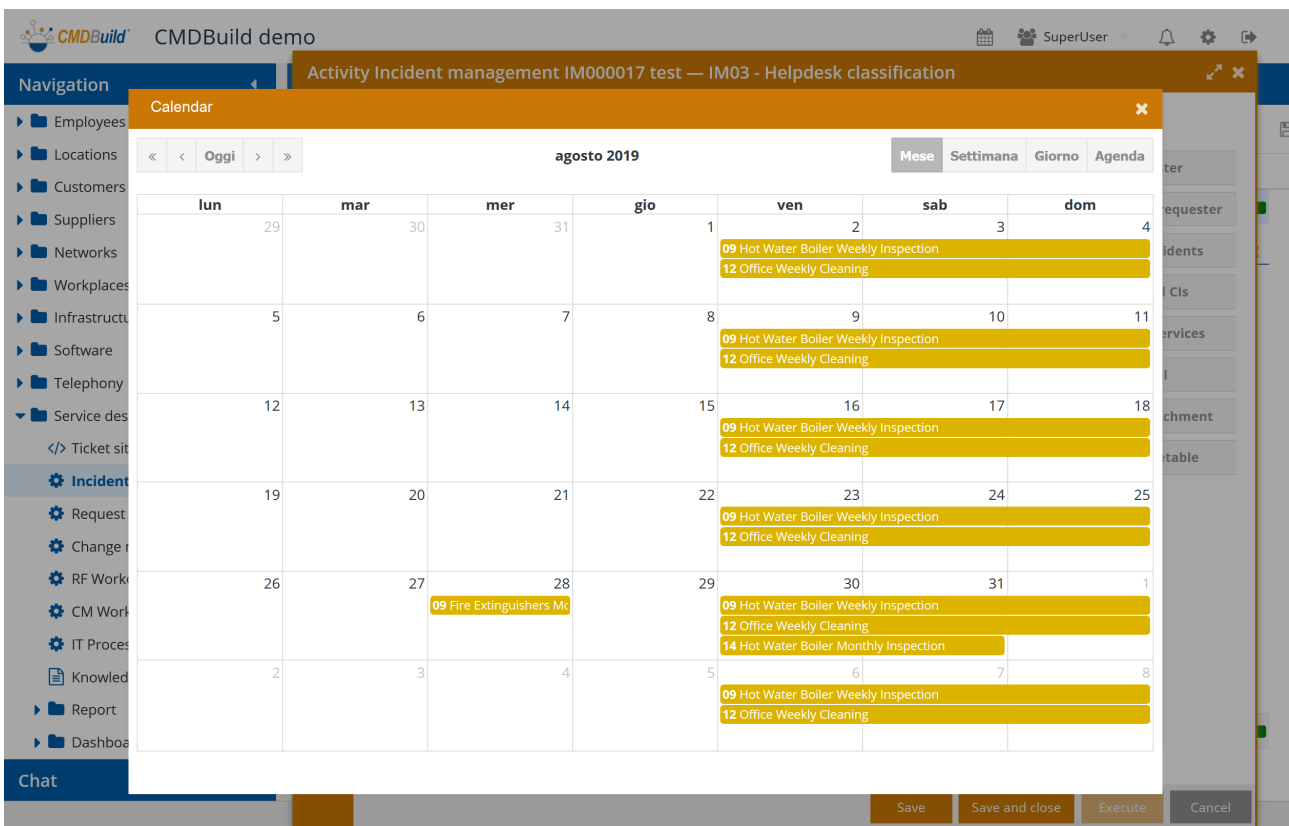
Calendar

The widget allows to display a calendar that shows certain dates useful for the asset management (for example, the next preventive maintenance activity, an administrative deadline, etc.).

During the configuration step, you have to specify the class from which you want to collect the calendar dates, a possible filter, an approximate visualization date, the field to be shown as activity title on the calendar.

You can view the calendar per day, week or month.

Here's a sample of the user interface of the user interface.

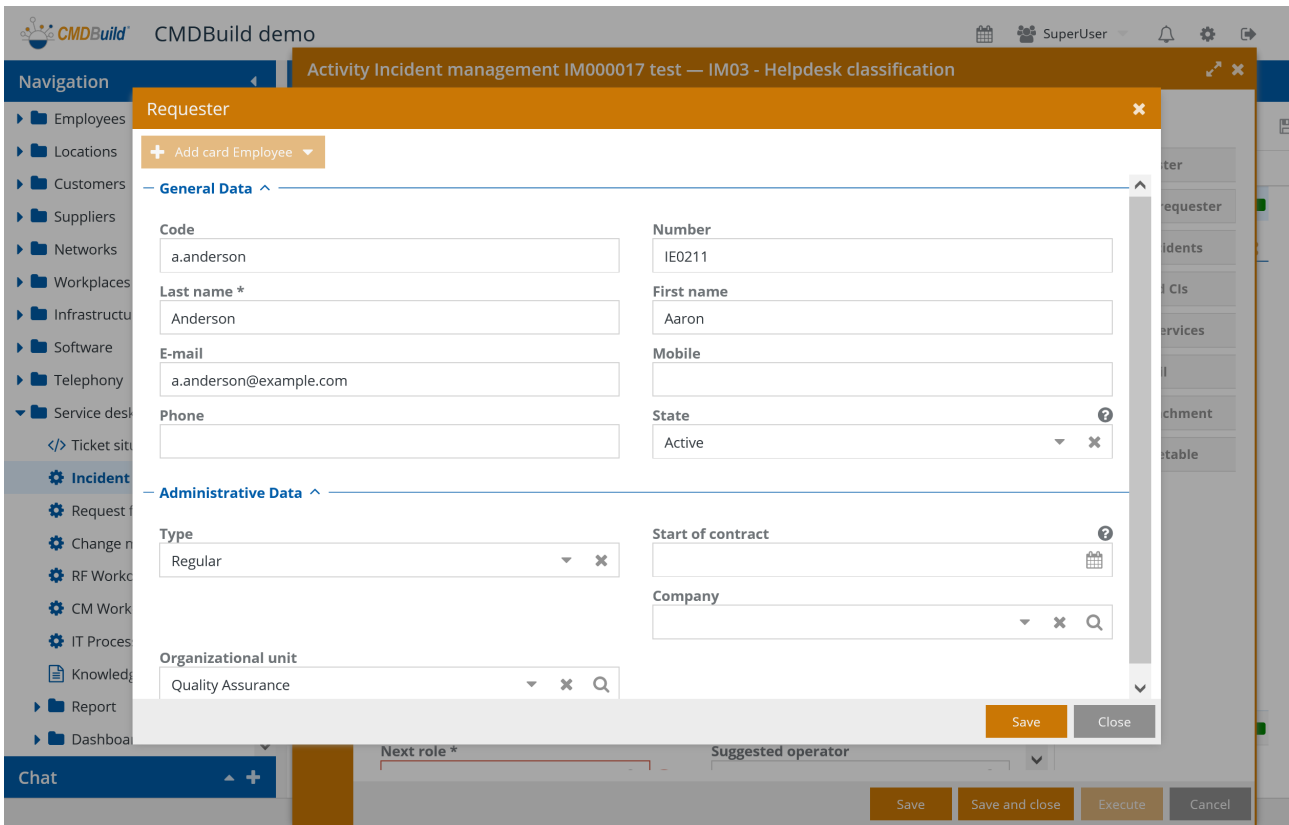


Create modify card

The widget allows you to enter (read-only or writable) a data card of another class of interest in the current context.

During the configuration step, you have to specify the class and the identification code belonging to the card to display, even parametrically (CQL expression) in function of the information of the current card.

Sample of user interface.

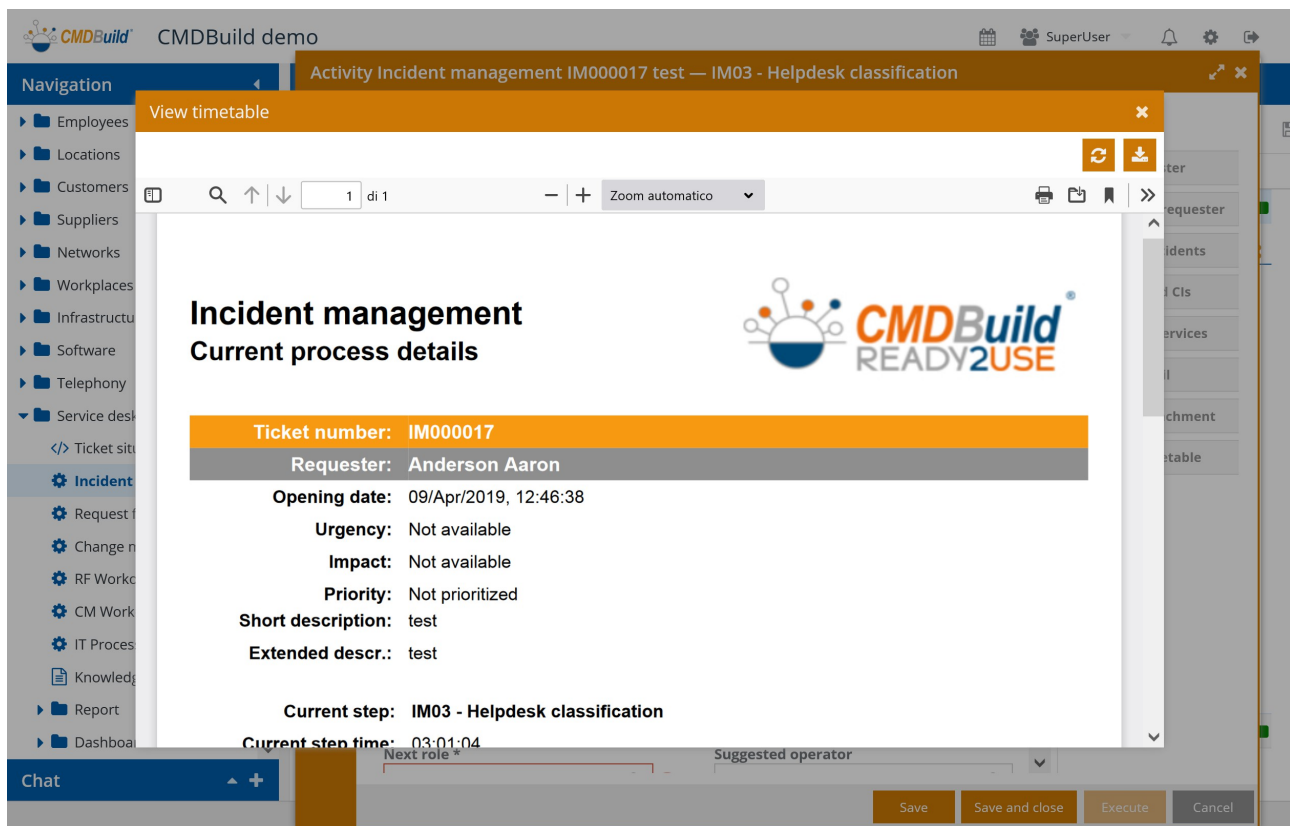


Create report

The widget allows you to print a report among the ones designed with JasperStudio and imported into CMDBuild.

During the configuration step, you have to specify the name of the report to print, the type of output (PDF or CSV) and any parameters that the operator will be ask for when printing.

Sample of user interface.



Custom form

The widget allows you to ask the operator to complete a form related to a single card or a grid with more rows including the cards.

The widget is used, for example, in the grid in order to allow the operator to record a list of assets received by a supplier according to the information of the delivery note, with the possibility of adding, editing, deleting rows.

By using the grid mode, the widget allows to export and import data from the CSV file.

Once the data insertion has been confirmed, these data are given back to the process scripts, which will create new cards into the CMDB or manage them according to the given modes.

Link card

The widget allows to select one or more data cards from a pre-filled in and pre-filtered list.

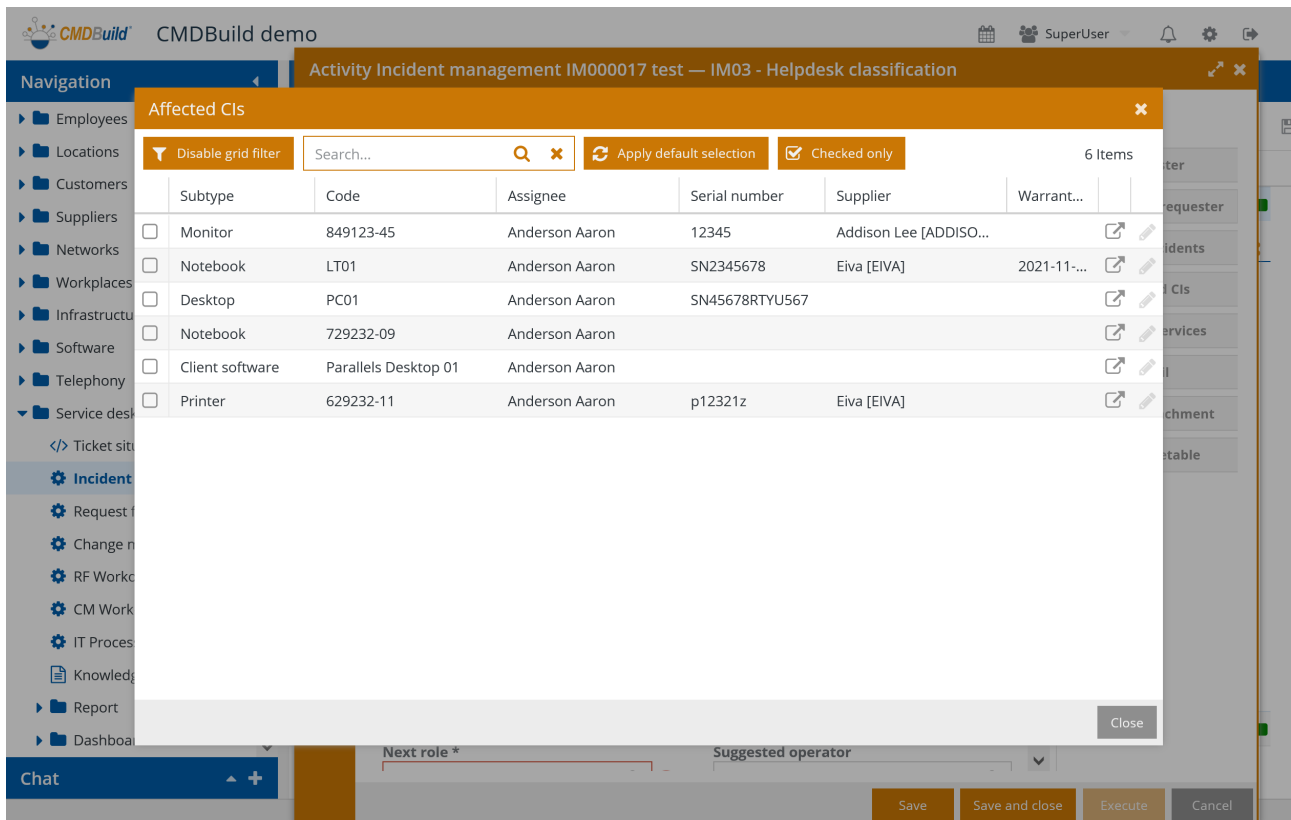
For example, in an IT Management it can be used to suggest the list of assets to the person who opened a ticket, among which select the broken asset.

Once the selection has been confirmed, it is given back to the process scripts and is usually used to create relations in the CMDB.

The available operations are as follows:

<ul style="list-style-type: none"> • disable the filter on the displayed rows • enable the filter on the displayed rows • restore the active selections when opening the widget • display only the selected rows • perform free text filter searches on the displayed cards • select / deselect a row (also in a massive mode by checking the column header) • display the complete card • edit the card • close the widget 	<div style="border: 1px solid #ccc; padding: 5px;"> <div style="background-color: #f4a460; color: white; padding: 2px 5px; margin-bottom: 5px;"> ⌵ Disable grid filter </div> <div style="background-color: #f4a460; color: white; padding: 2px 5px; margin-bottom: 5px;"> ⌵ Enable grid filter </div> <div style="background-color: #f4a460; color: white; padding: 2px 5px; margin-bottom: 5px;"> ↺ Apply default selection </div> <div style="background-color: #f4a460; color: white; padding: 2px 5px; margin-bottom: 5px;"> <input checked="" type="checkbox"/> Checked only </div> <div style="border: 1px solid #ccc; padding: 2px; margin-bottom: 5px;"> Search... 🔍 ✕ </div> <div style="text-align: center; margin-bottom: 5px;"> ☐ </div> <div style="text-align: center; margin-bottom: 5px;"> ↗ </div> <div style="text-align: center; margin-bottom: 5px;"> ✎ </div> <div style="background-color: #666; color: white; padding: 2px 5px; margin-bottom: 5px;"> ✓ Close </div> </div>
--	---

Sample of user interface.



Manage email

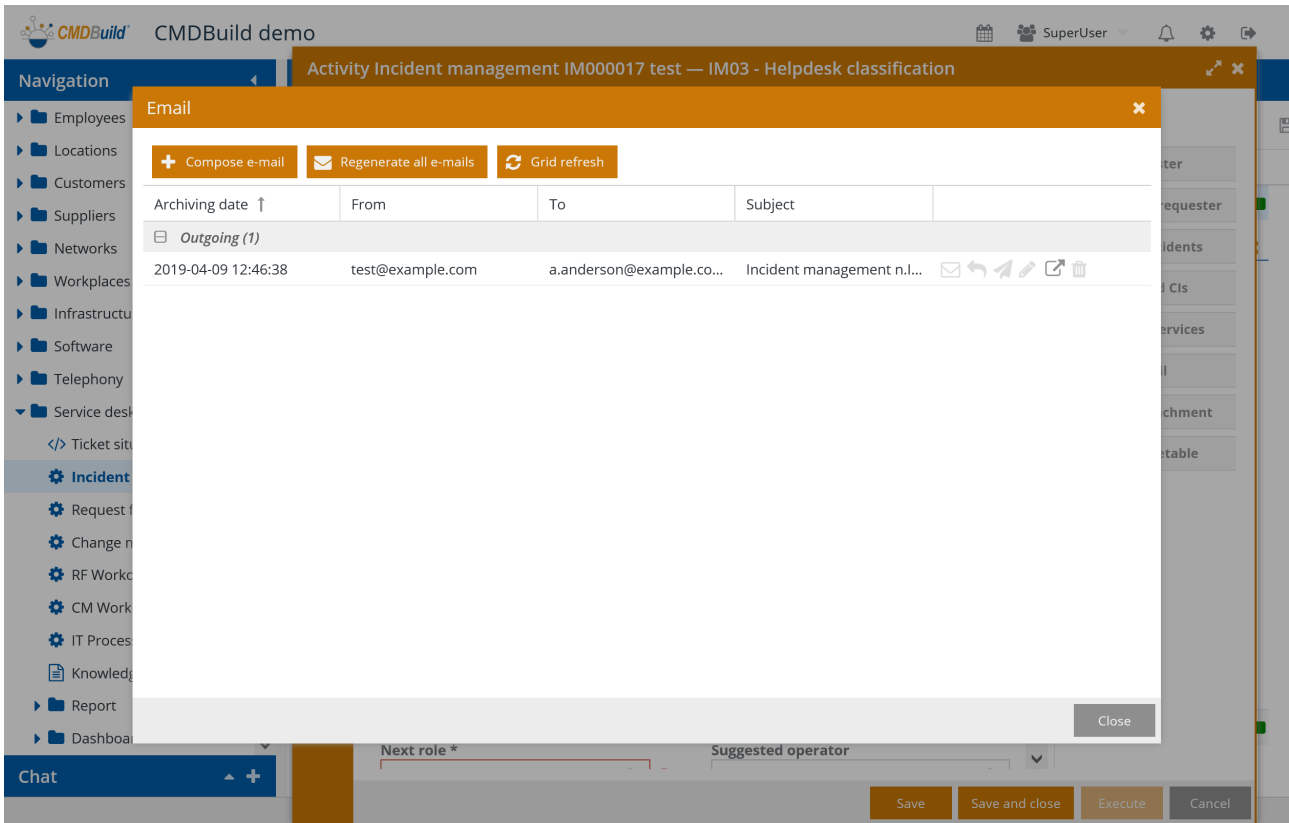
The widget allows to manage the exchange of emails with different interlocutors (applicant,

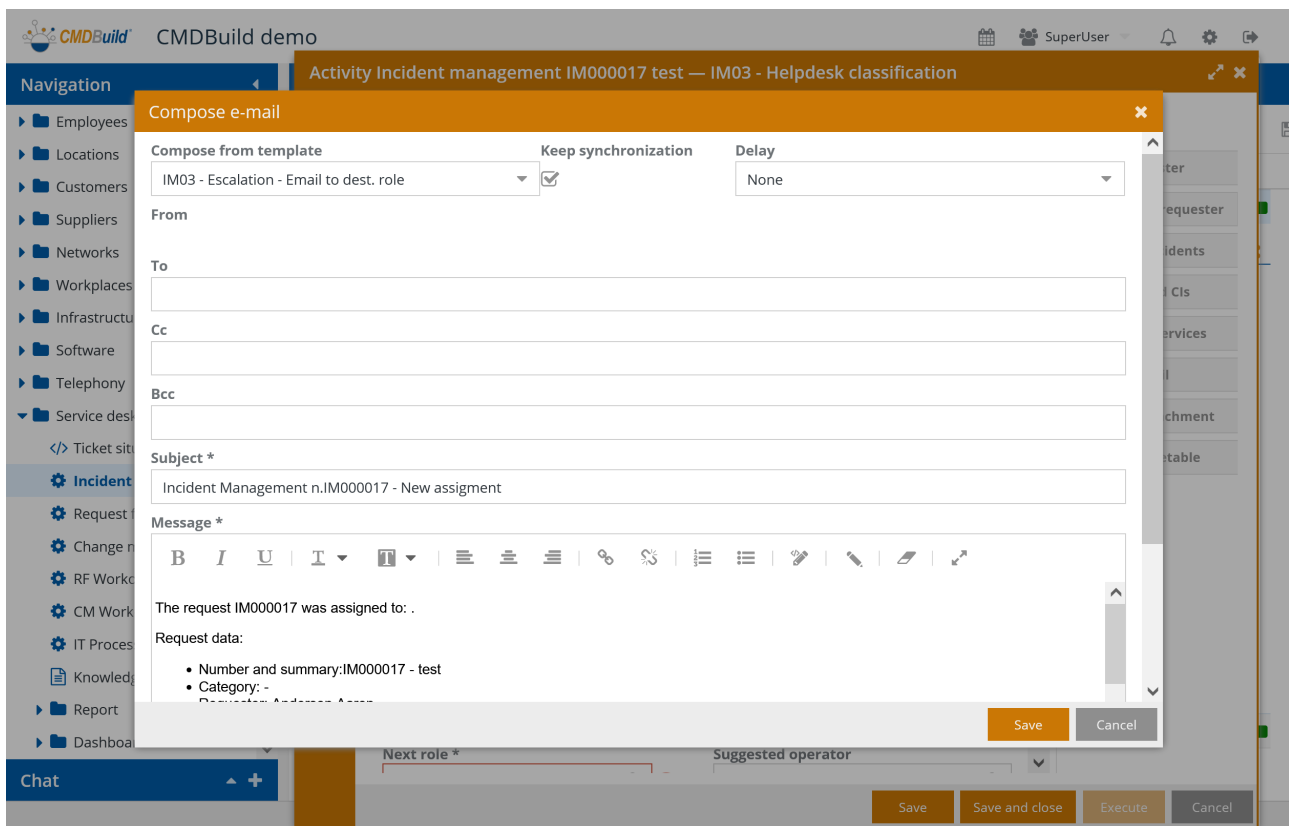
specialists, maintenance technicians, etc.) during the process.

In particular you can consult the received and sent emails and write new emails.

Should you require any further information, please read the paragraph 6.7, which describes the general use of the Email TAB.

Two samples of the user interface.



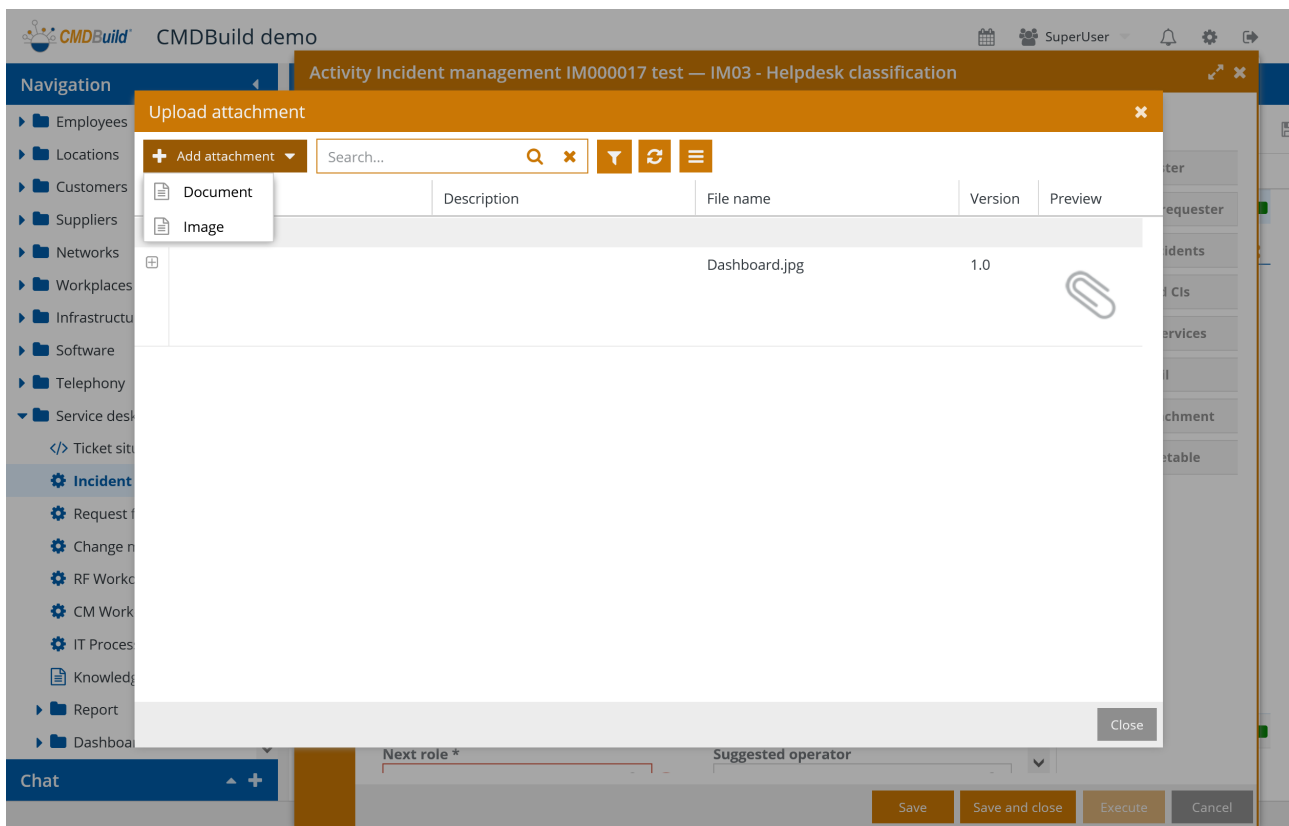


Open attachment

The widget allows to display process attachments (error screenshots, manuals, technical documents, etc.) and upload new files, as for Attachments TAB.

Should you require any further information, please read the paragraph 6.8, which describes the general use of the Attachments TAB.

Sample of user interface.



Open note

The widget allows to consult and edit the notes linked to the process.

Should you require any further information, please read the paragraph 6.4, which describes the general use of the Notes TAB.

Preset from card

When opening the card, the widget allows to enhance automatically some fields of the current process.

During the configuration step, you have to specify the card for taking the desired information.

Start workflow

The widget allows you to start a process from the current card, for example a maintenance process starting from the asset card.

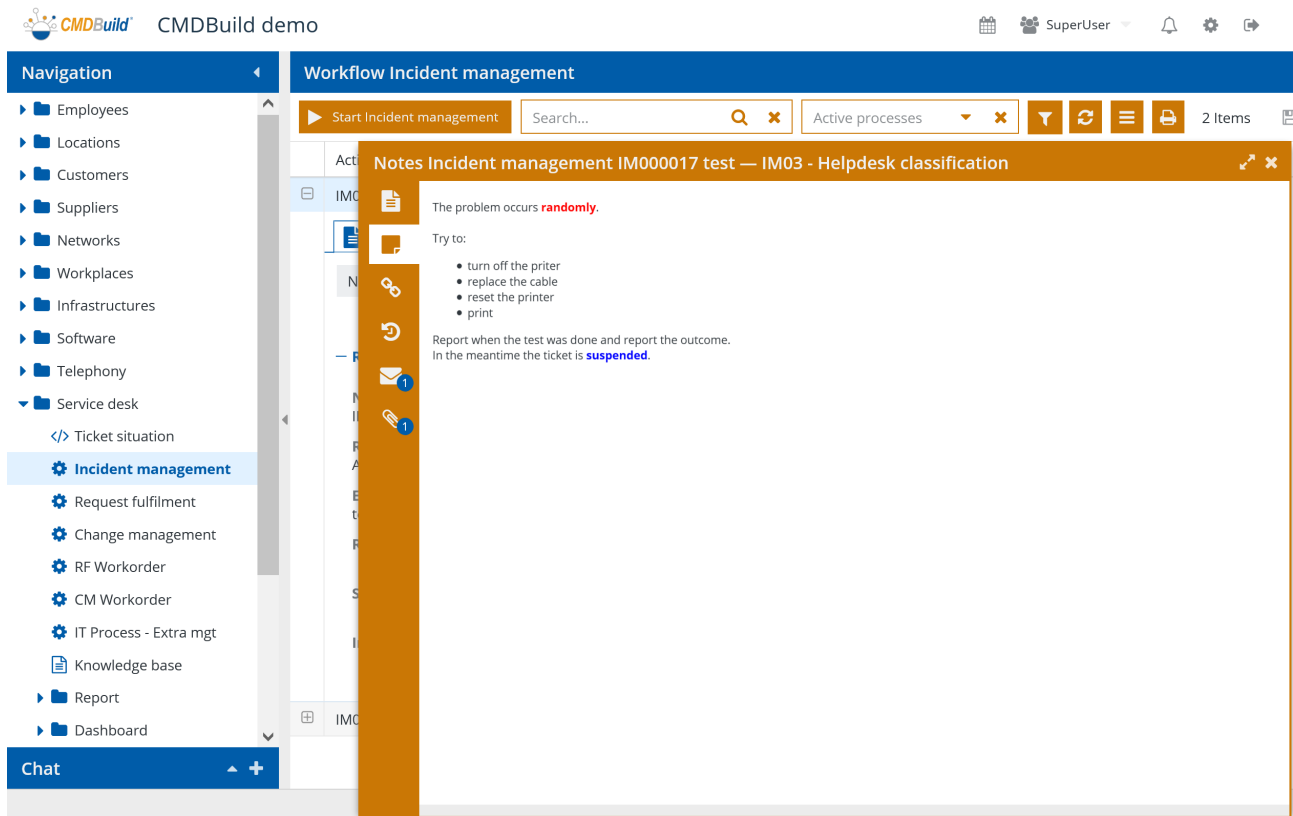
During the configuration step, you have to specify the type of workflow to run and the parameters to use for the start.

9.3. Notes TAB

The Notes TAB allows to display the notes linked to a process.

Since during the process the notes can be inserted / edited only in a controlled way by using the specific widget Open note (see the paragraph 9.2.3), the Notes TAB is available in read-only mode.

Sample of user interface.

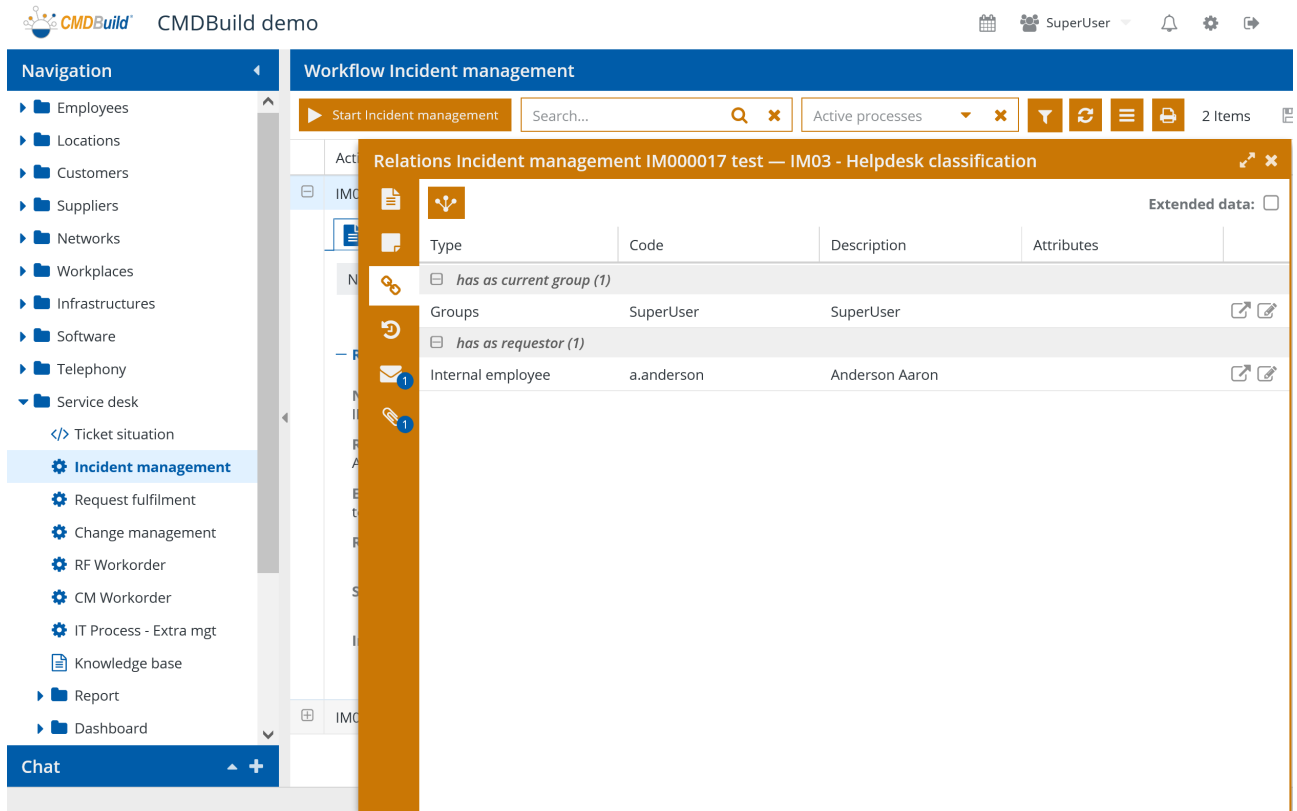


9.4. Relations TAB

The Relations TAB allows to display the relations linked to a process.

Since during the process the relations can be inserted / edited only in a controlled way by using specific widgets such as Link card and Custom form (see the paragraph 9.2.3), the Relations TAB is available in read-only mode.

Sample of user interface.



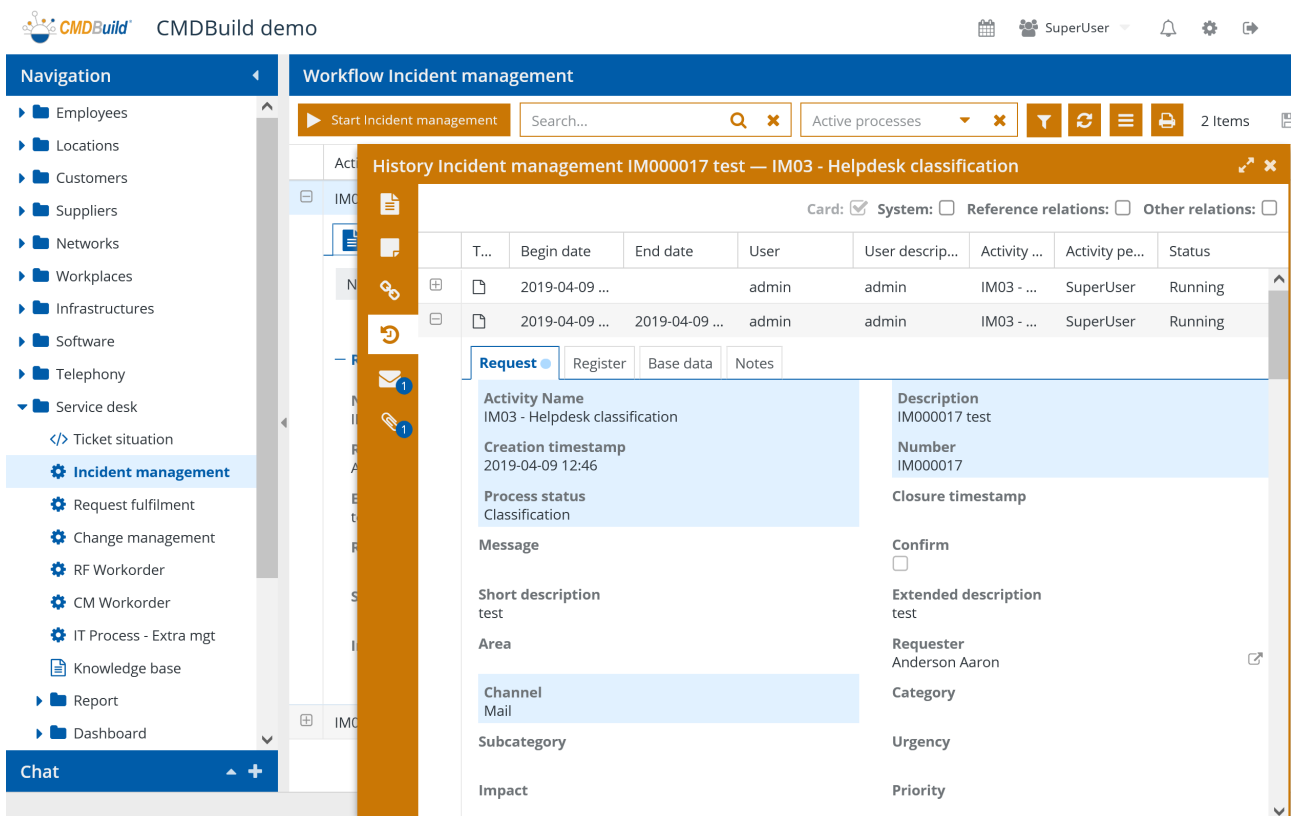
9.5. History TAB

The History TAB allows to display the history of the operations processed on a process instance, from the initial start to the involvement of all actors that have managed it, and including all values taken from all attributes during all steps.

The information of the History TAB of a process can also be used to implement reports that control the compatibility with the planned SLA and print a recurring recap.

Sample of user interface.

The attributes edited after the previous steps are highlighted in blue.

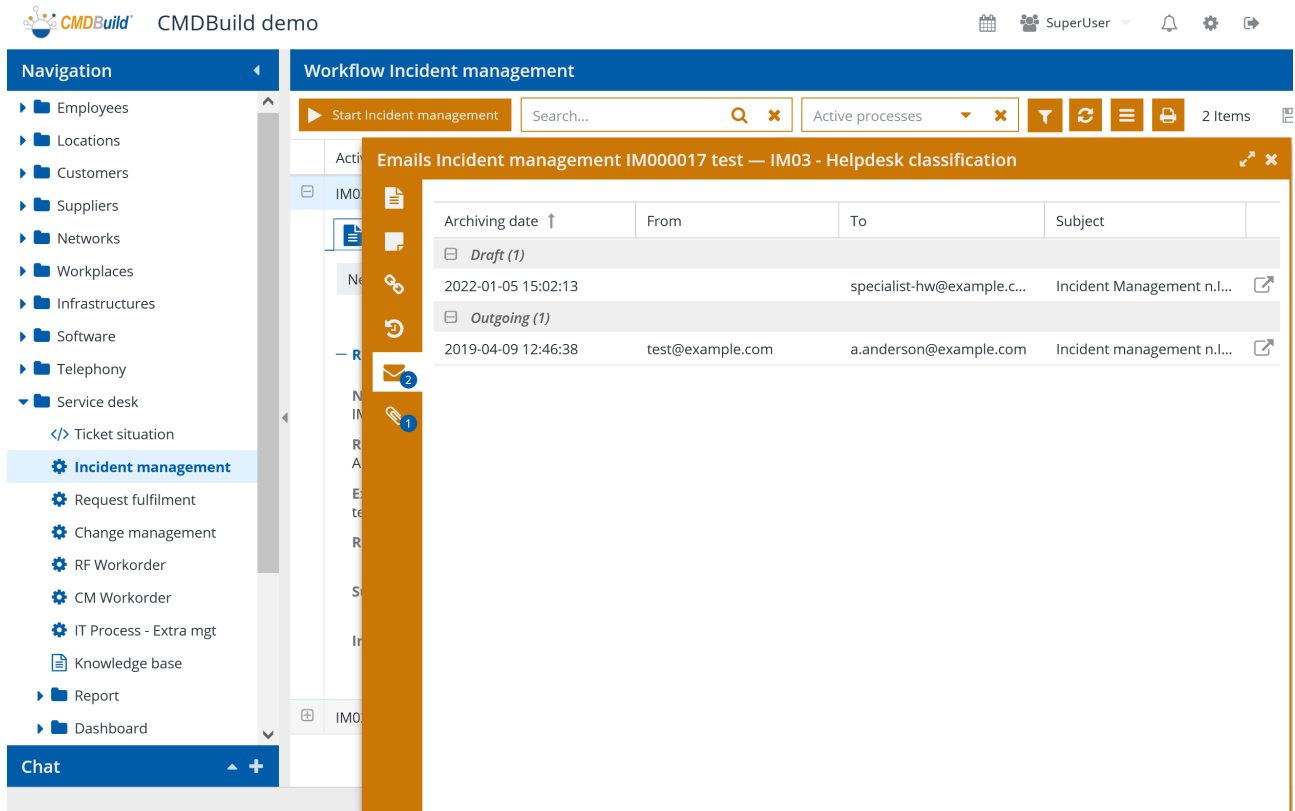


9.6. Emails TAB

The Email TAB allows to display the emails sent and received during the process advancement.

Since during the process the emails can be sent only in a controlled way by using the specific widget Manage email (see the paragraph 9.2.3) and are received through the Task Manager of the Administration Module, the TAB is in read-only mode.

Sample of user interface.

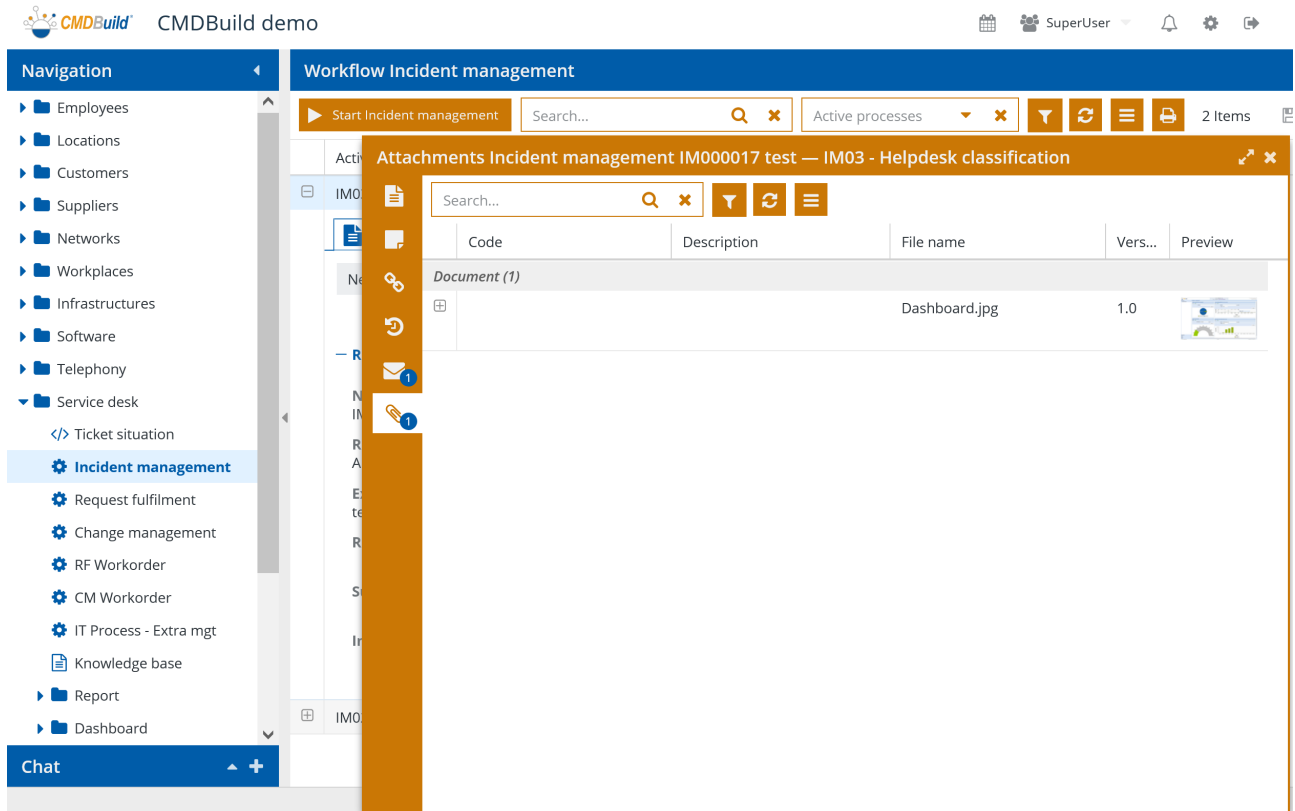


9.7. Attachments TAB

The Attachments TAB allows to display the attachments during the process advancement.

Since during the process the attachments can be managed only in a controlled way by using the specific widget Open attachments (see the paragraph 9.2.3), the Attachments TAB is in read-only mode.

Sample of user interface.



9.8. Interaction with external tools

The flow of CMDBuild processes can interact with external tools.

In general, with custom implementations, the following solutions are possible:

- start or advancement of a process instance from external applications by using the CMDBuild webservice REST.
- start of a process instance by receiving an email from the Task Manager, which can be configured in the Administration Module

Within the vertical application CMDBuild READY2USE, implemented by Tecnoteca on the CMDBuild engine and dedicated to the IT Management, there are also:

- the Self Service Portal, dedicated to final users for the opening of new Incident Management and Request Fulfillment processes
- the connector with the open source monitoring system Zabbix, that starts new Incident Management processes when a breakdown occurs

Within the vertical application openMAINT, implemented by Tecnoteca on the CMDBuild engine and dedicated to the Facility Management there is also:

- the Self Service Portal, dedicated to final users for the opening of new maintenance processes in case of breakdown

In the following page there are two samples of user interface of the Self Service Portals CMDBuild Ready2Use and openMAINT.

IT Self-Service Portal

0 Aaron Anderson

Welcome

IT Self-Service Portal / Welcome

Navigation

- > Home
- > IT News
- > Ask a question
- > Submit an incident
- > Submit a service request
- > My requests
- > Pending approvals
- > Email notifications
- > Reports
- > Knowledge Base
- > My profile
- > My items / services
- > Useful links

Quick start

Do you need some information to use IT services?
Ask a question

Experiencing technical problems or have an issue to report?
Submit an incident

Have any request or missing any functionality?
Request a service

Last news

2015-05-19T00:00:00

Annual workshop of the European IT network

In the morning, open meeting to all stakeholders. In the afternoon conferences only dedicated to...

2015-05-07T00:00:00

Company closed 3-9 June 2015

The company will be closed from 18:00 on Wednesday 3 June 2015 and will re-open at 08:30 on Tuesday...

2015-05-06T00:00:00

New Executive Director takes up office on 6 May 2015

John Doe has begun his mandate as Executive Director of the Company today, 6 May 2015. Dott. Doe...

Recent requests

Description	Creation timestamp	Number	Process status
RF000030 Problem with router	20/01/2017 15:59:51	RF000030	Classification
RF000029 My printer does not work	20/01/2017 15:58:30	RF000029	Classification

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Powered By Liferay

openMAINT Self-Service Portal

My Sites 0 Damian Garret

Welcome

openMAINT Self-Service Portal / Welcome

Navigation

- > Home
- > Submit a Maintenance Request
- > Maintenance and repair requests
- > Reports
- > News
- > My profile

Quick start

Need to report a maintenance problem or ask for a repair?
Submit a request

Maintenance and repair requests.
View all requests

Latest news

24/07/2017 17:30:00

B5-Maintenance and check-up of safety systems

From 9:00 to 13:00 there will be a maintenance activity and check-up of safety systems in 01...

Recent requests

Opening date	Description	Status
05/07/2017 16:36:32	MR-2017-00021 - The fire extinguisher does not work.	Approval

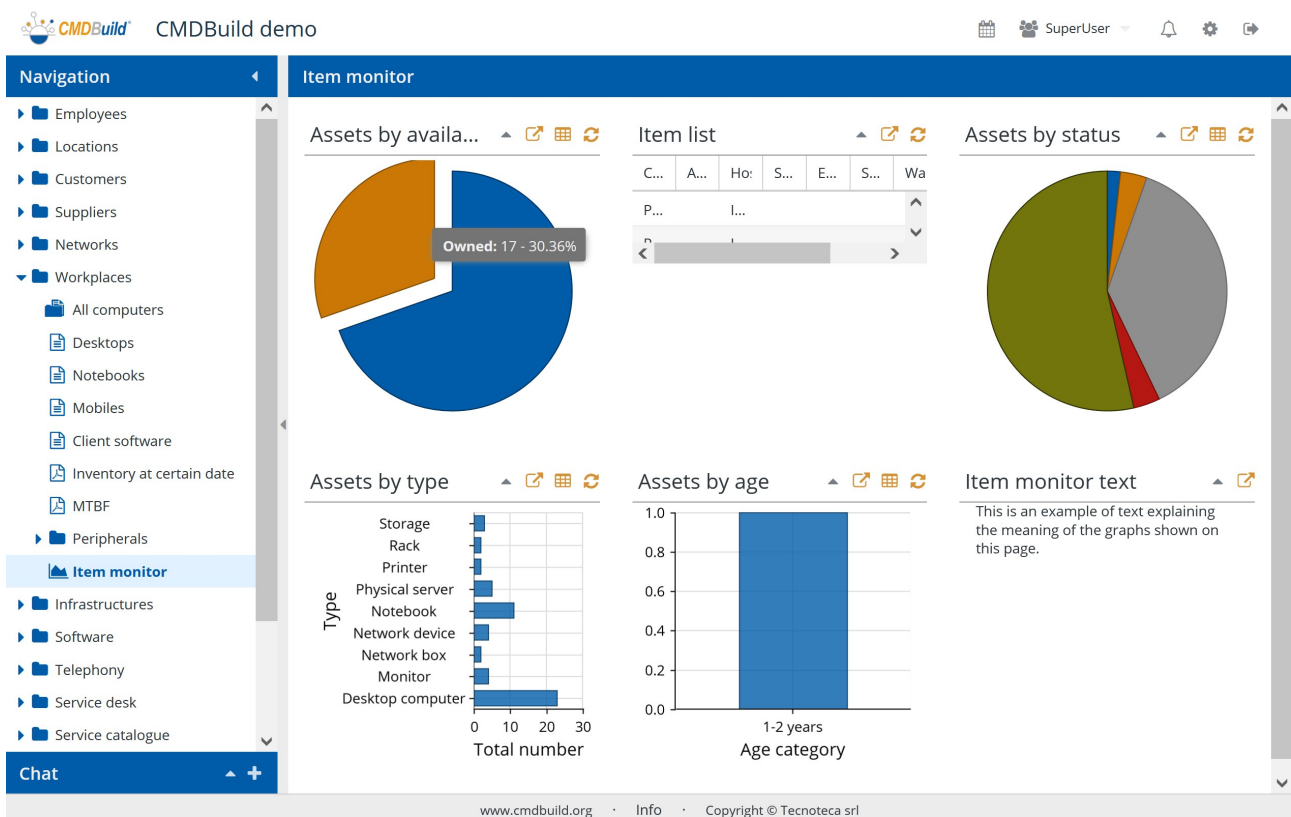
www.openmaint.org - Copyright © Tecnoteca srl
Powered By Liferay

10. Dashboard

CMDBuild includes the possibility of configuring "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 different charts (bar, gauge, line, pie), data tables and texts.





Like all CMDBuild components, also the dashboards are configured in the Administration Module and can be referred in the Navigation Menu of the Management Module.



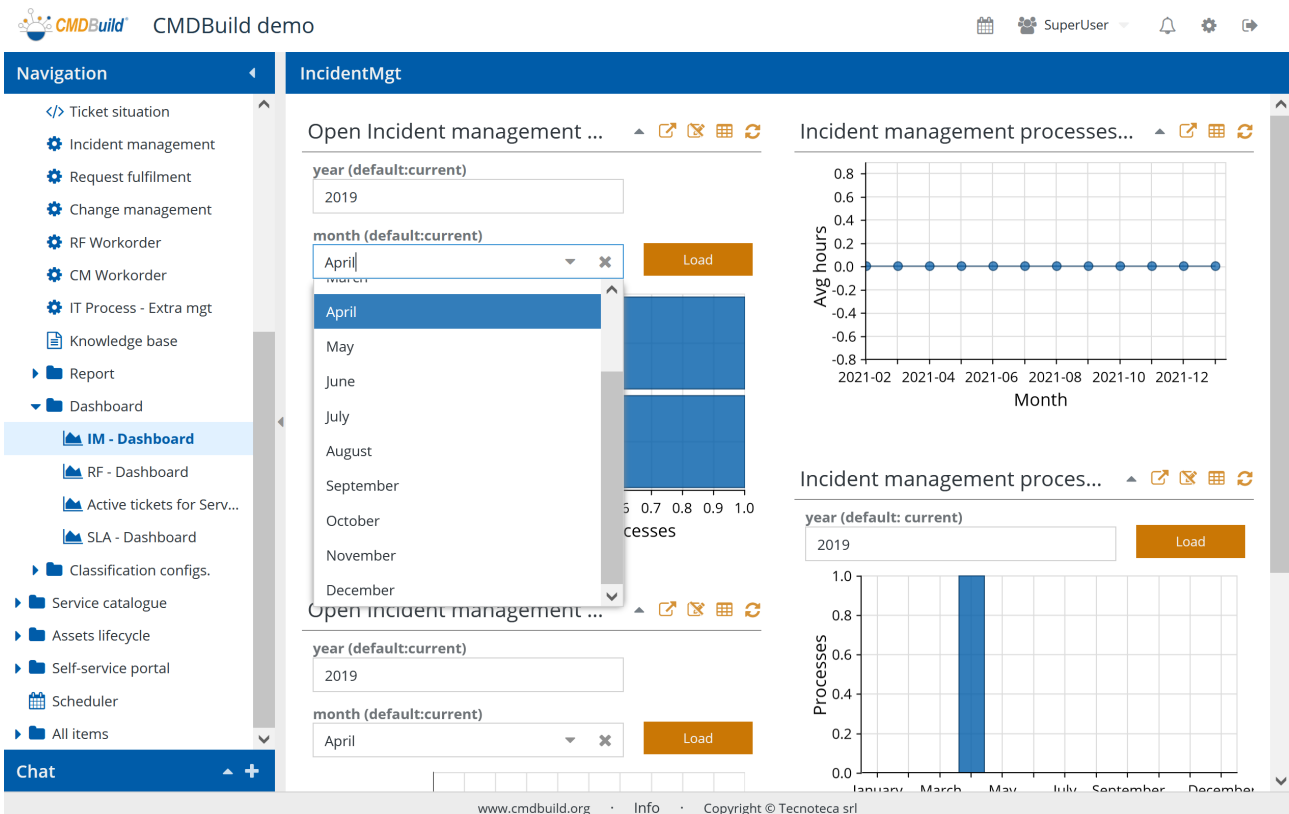
10.1. Dashboard consultation

For every dashboard element you can perform the following operations:

<ul style="list-style-type: none"> display the controls to edit the possible provided parameters 	
<ul style="list-style-type: none"> hide the controls to edit the possible provided parameters 	
<ul style="list-style-type: none"> if required, edit the analysis parameters 	year (default:current) <input type="text"/>
<ul style="list-style-type: none"> update the chart display after having filled out the parameters 	<input type="button" value="Load"/>

<ul style="list-style-type: none"> display the complete list of the values for the chart calculation 	
<ul style="list-style-type: none"> update the chart display 	
<ul style="list-style-type: none"> close the panel of a dashboard element 	
<ul style="list-style-type: none"> expand the panel of a dashboard element 	

In the following example, you can see how you can set a parameter of a calculation function in the chart.



The screenshot shows the CMDBuild demo interface. On the left is a navigation menu with categories like 'Ticket situation', 'Incident management', 'Request fulfilment', 'Change management', 'RF Workorder', 'CM Workorder', 'IT Process - Extra mgt', 'Knowledge base', 'Report', 'Dashboard', 'Classification configs.', 'Service catalogue', 'Assets lifecycle', 'Self-service portal', 'Scheduler', and 'All items'. The main area is titled 'IncidentMgt' and contains two dashboard panels. The top panel, 'Open Incident management ...', has filters for 'year (default:current)' set to '2019' and 'month (default:current)' set to 'April'. It features a 'Load' button and a bar chart showing 'Processes' values for each month. The bottom panel, 'Incident management processes...', has a line chart showing 'Avg hours' over time from 2021-02 to 2021-12. The interface also includes a 'Chat' button at the bottom left and a footer with 'www.cmdbuild.org', 'Info', and 'Copyright © Tecnoteca srl'.

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

Assets by type

Type	Total number
Storage	1
Rack	1
Printer	1
Physical server	1
Notebook	11
Network device	4
Network box	2
Monitor	4
Desktop computer	23

Assets by age

Age category	Count
1-2 years	1.0

Item monitor text

This is an example of text explaining the meaning of the graphs shown on this page.

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The dashboards are performed through proper components of the Ext JS library, which the whole CMDBuild user interface is implemented with.

11. Report

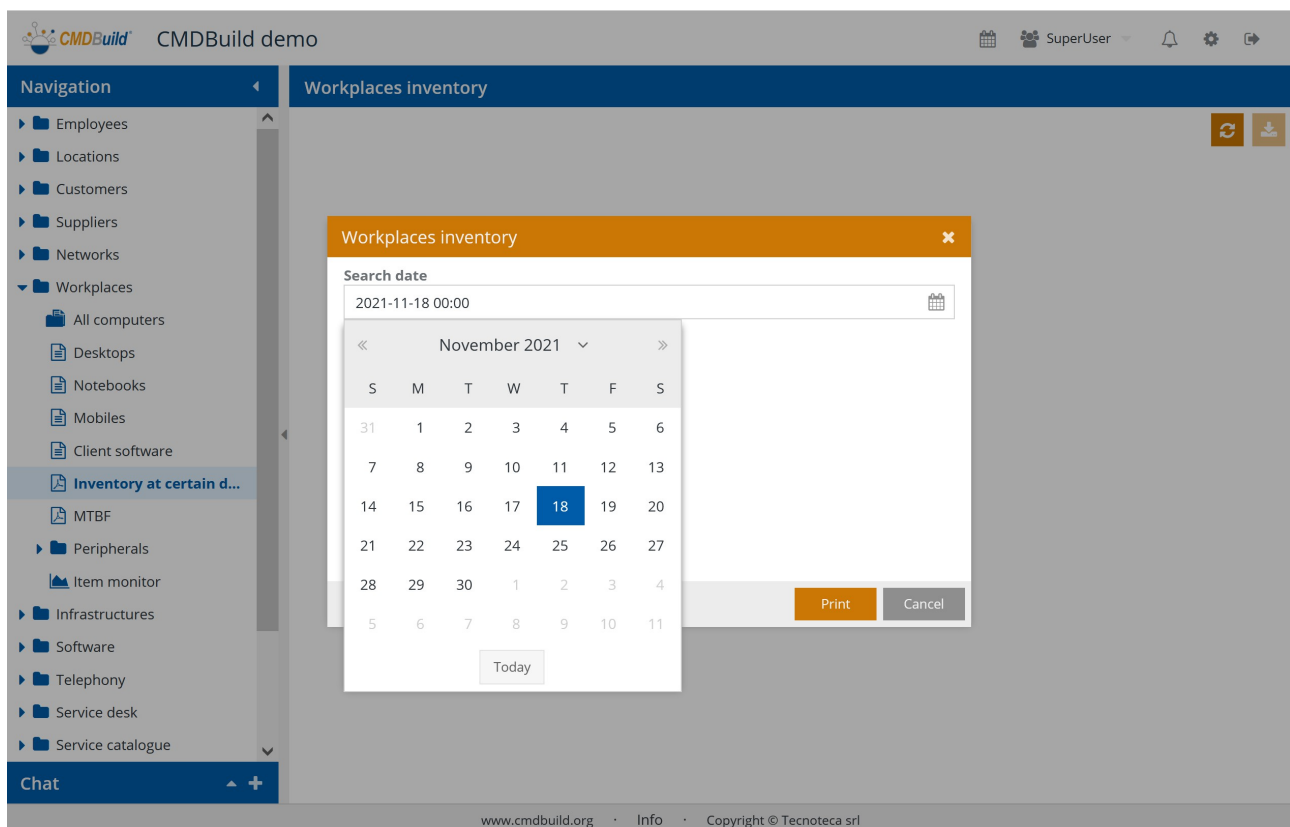
CMDBuild includes a complete report engine, based on the open source project JasperStudio.

The reports are designed by the administrator through a powerful visual editor, imported into CMDBuild in XML format and made available in the operators' menu.

Various types of report can be configured:

- tabular reports with subreports, groups and totals
- documents, with images and logos
- reports with statistics and graphs
- labels with barcodes

Reports can be exported in PDF or CSV format.



11.1. Print of a report

The print of a report is done by clicking on the related menu entry.

Custom report parameters can be included and then required at rendering time.

Before rendering, CMDBuild will present a popup with the required report parameters (in the previous screenshot it is the date of printing).

Once the print has been confirmed, CMDBuild shows its output in the area on the right of the page.

Sample of PDF report.

Workplaces inventory details
 Situation as at: 18/11/2021

Asset type: Desktop															
Code	Description	Assignee	Building	RAM	Operating system	Serial number	Floor	Brand	Room	Model	Disposal date	Delivery date	Availability	State	Link
						HD size		CPU		Computer			Supplier	Row order	Warranty end date
486325-57	pc-guest [486325-57]							HP		500-018EL A10-5700			Owned	Available	Link to card
	Windows					250									
729232-10	pc-aspenacer [729232-10]	Spencer Adam	AC - Aon Center				2	HP	R02	PC Desktop HP 110 110-420nl			Owned	In use	Link to card
729232-11	pc-smith [729232-11]	Smith Tom	AC - Aon Center				2	HP	R02	500-018EL A10-5700			Owned	In use	Link to card
						500									
729232-12	pc-colding [729232-12]	Colding Conrad	AC - Aon Center				2	HP	R02	500-018EL A10-5700			Owned	In use	Link to card
						500									
PC01	ITEM PC01	Anderson Aaron	TT01 - Tecnoteca				1	HP	R06	SN45678RTYU567			Owned	In use	Link to card
						500									
PC02	ITEM PC02	Brooke McKayla	TT01 - Tecnoteca				1	Sony	R06	SNDFGH4567890				In use	Link to card
PC03	ITEM PC03	Colding Conrad	TT01 - Tecnoteca				1	IBM	R06	SNDFGH4567890				In use	Link to card

Date: 01/05/2022 Page 1 of 7

There is the possibility of performing the following operations:

<ul style="list-style-type: none"> • execute the report again • open a new card including the report • roll the report up or down with the mouse wheel 	
---	--

12. Custom pages

The CMDBuild user interface is usually automatically generated by the configuration system defined in the Administration Module (classes with attributes, validation criteria, contextual menus, widgets, automatism, etc., processes with flow designed in visual way with output in the XDPL standard protocol, report designed in visual way with output in XML format, dashboards of various types, etc.)

In order to simplify or optimize users' operation, or to represent in a different way some sets of operations and functionalities, there is the possibility of creating custom web pages you can open from the application menu and subject to the standard security mechanisms.

This is possible if some code in javascript is implemented through the CMDBuild API REST and through the functionalities of the Sencha ExtJs framework (used also for the implementation of the CMDBuild GUI). The code of the custom page has to be imported into the system from the Administration Module.

12.1. Examples of custom pages

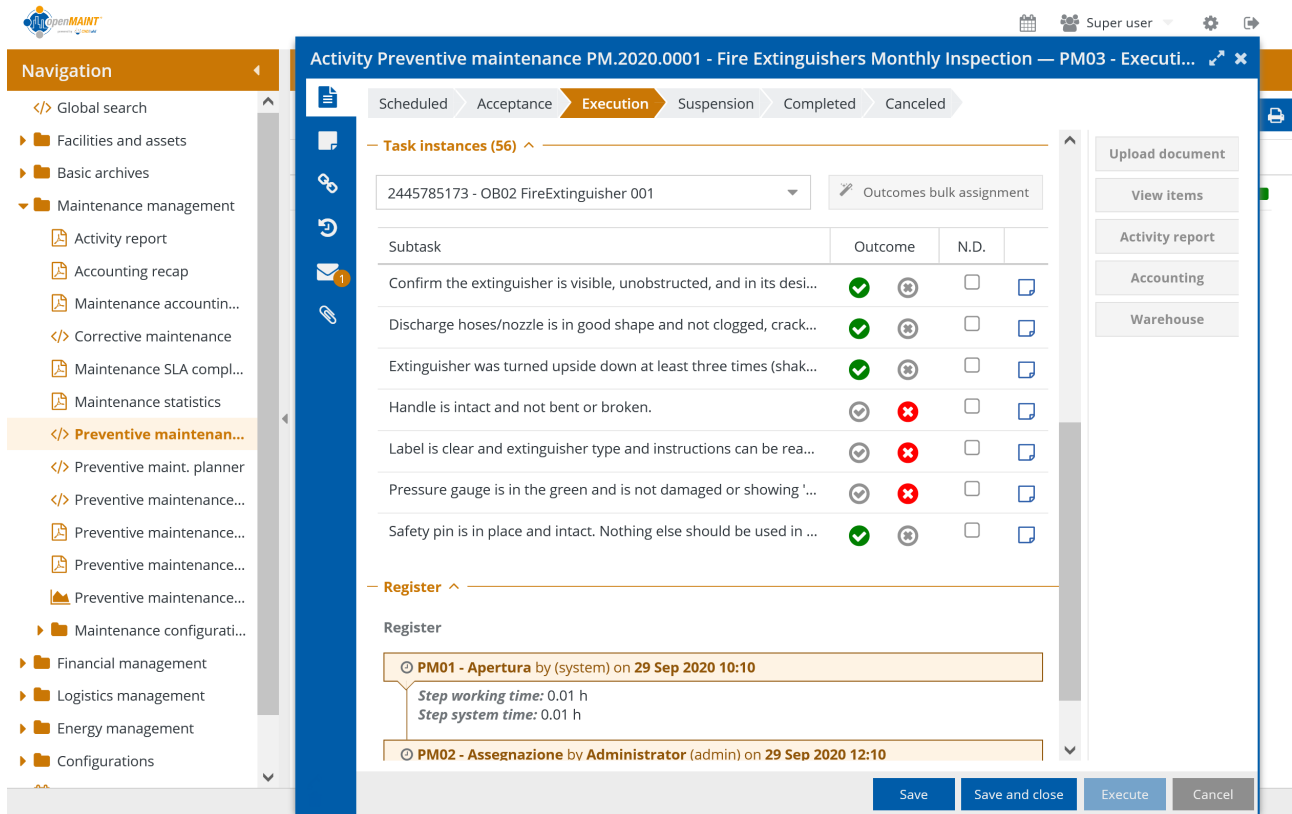
Examples of custom pages.

Please note how layouts and contents can result completely free and custom.

Page of Incident control in CMDBuild Ready2Use

The screenshot displays the 'Tickets Summary' page in the CMDBuild Ready2Use application. The interface features a blue navigation sidebar on the left with categories like Registry, Employees, Locations, Customers, Suppliers, Asset Inventory, and Service desk. The main content area is titled 'Tickets Summary' and includes a 'New ticket' button and a 'Refresh frequency: 15 minutes' indicator. The dashboard is divided into 'General information' and 'Ticket' sections. The 'General information' section contains six summary cards: 'SLA related' (1), 'High priority' (1), 'Assigned to me' (0), 'Take charge' (3), 'To approve' (0), and 'Assigned to my group' (0). A pie chart titled 'Classification' shows the distribution of tickets into 'Classification', 'Analysis', and 'New' categories. The 'Ticket' section includes a search bar and a table with 5 items. The footer contains the URL 'www.cmdbuildready2use.org' and 'Copyright © Tecnoteca srl'.

Page registering outcomes after maintenance interventions scheduled in openMAINT



Movement scheduled in contexts of local infrastructure

Utility invoice registration

N°	Descrizione	Data inizi...	Data fine ...	Qt.	Prezzo	Tipo	Linea	Prezzo
55	Canali ISDN BRI	2018-10-01	2018-11-30	1.00	29.60	Canone	Analogica - Canali ISDN BRI	29.60
56	Canali RTG Analogici	2018-10-01	2018-11-30	1.00	19.48	Canone	Analogica - Canali RTG Analogici	19.48
57	Consumi per numero Utenza 08119706558	2018-08-01	2018-09-30	1.00	0.00	Consumo	Analogica - 08119706558	9.74
58	Consumi per numero Utenza 0818857431	2018-08-01	2018-09-30	1.00	7.81	Consumo	Analogica - 0818857431	9.74
59	Consumi per numero Utenza 0815201490	2018-08-01	2018-09-30	1.00	1.84	Consumo	Analogica - 0815201490	1.84
60	Consumi per numero Utenza 0810083926	2018-08-01	2018-09-30	1.00	1.01	Consumo		
61	Consumi per numero Utenza 08118670967	2018-08-01	2018-09-30	1.00	0.00	Consumo		
62	Consumi per numero Utenza 0815200042	2018-08-01	2018-09-30	1.00	1.29	Consumo		
63	Consumi per numero Utenza 0818446295	2018-08-01	2018-09-30	1.00	0.44	Consumo		
64	Consumi per numero Utenza 0810081606	2018-08-01	2018-09-30	1.00	0.03	Consumo		

13. Service features

Each operator enabled to access the CMDBuild system can access the service features by clicking on his/her user name on the top right.

In particular, there are functions to change group / tenant, set some personal preferences, edit the password.

The screenshot shows the CMDBuild demo application. The left sidebar contains a navigation menu with the following items: Employees (All employees, Internal employees, External employees, Organizational units, Corporate group), Locations, Customers, Suppliers, Networks, Workplaces, Infrastructures, Software, Telephony, Service desk, Service catalogue, Assets lifecycle, Self-service portal, Scheduler, and All items. The main content area is titled 'Cards Internal employee' and features a table with the following data:

	Code	Number	Last name	First name	E-mail	State	Type
+	a.anderson	IE0211	Anderson	Aaron	a.anderson...	Active	Regula
+	m.brooke	IE0420	Brooke	McKayla	m.brooke@...	Active	
+	c.colding	IE0212	Colding	Conrad	c.colding@e...	Active	
+	s.marlow	IE0485	Marlow	Serena	s.marlow@...	Active	Regular
+	t.smith	IE0210	Smith	Tom	t.smith@ex...	Active	Regular
+	d.williams	IE0856	Williams	David	d.williams@...	Active	Regular

A context menu is open over the table, showing the following options: admin, Change group, Preferences, Change password, Administration module, and Logout. The footer of the application displays 'www.cmdbuild.org · Info · Copyright © Tecnoteca srl'.

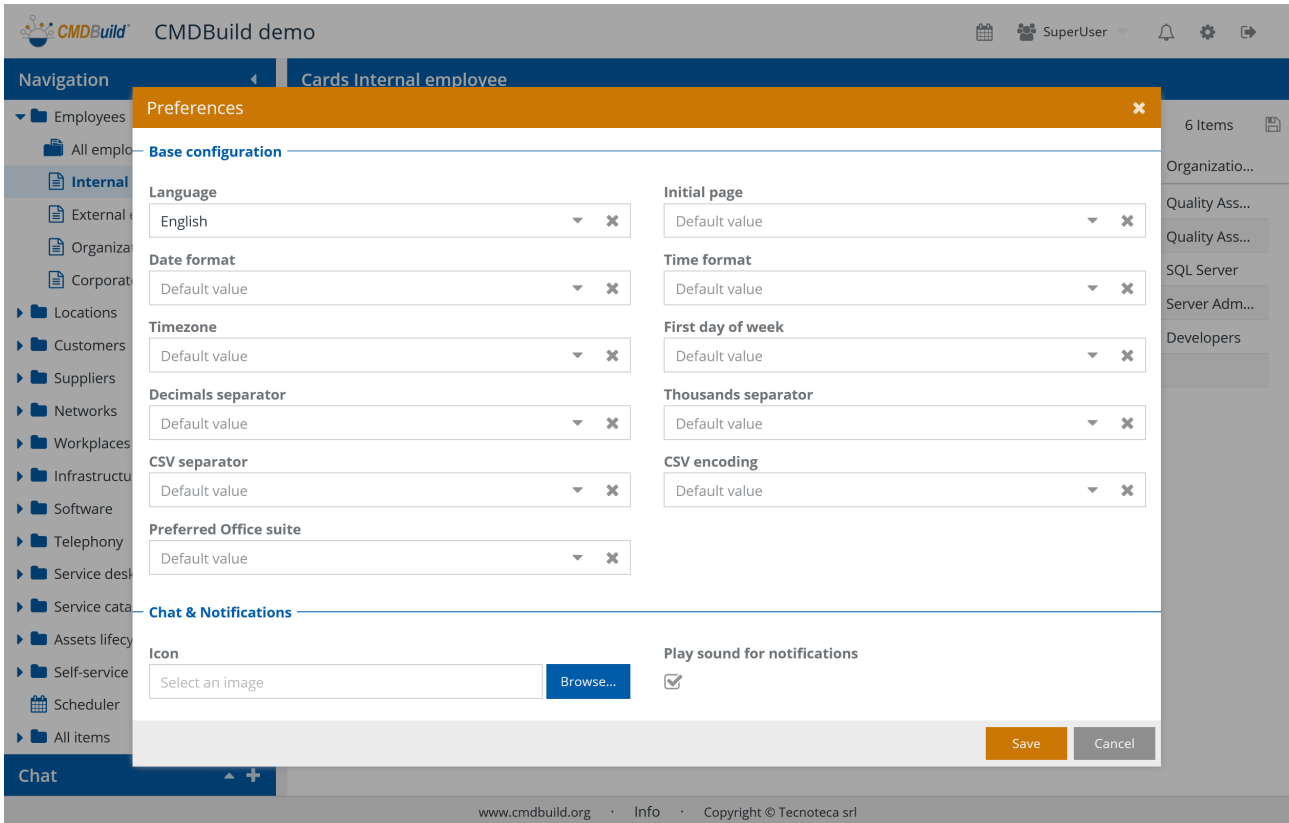
13.1. User preferences

Each operator can set his/her own preferences regarding:

- the language for the application access (among the available ones), which will be used in case CMDBuild is configured not to ask for the login language
- the initial page on startup
- the date format (among the available ones)
- the time format (among the available ones)
- the timezone (among the available ones)
- first day of the week
- the separator between the integer part and the decimal one in the numeric field (among the available ones)
- the thousands separator in the numeric fields (among the available ones)
- the separator you can use in the CSV reports and in the print of CSV grid
- the encoding mode (charset encoding) you can use in the CSV reports and in the print of CSV grid
- the used Office software (used in the Export function and in the reports in CSV format for an optimal formatting of dates and numbers)

- the icon to use in the chat
- the sound to use for chat notifications

Here's a screenshot of the user interface.



13.2. Password change

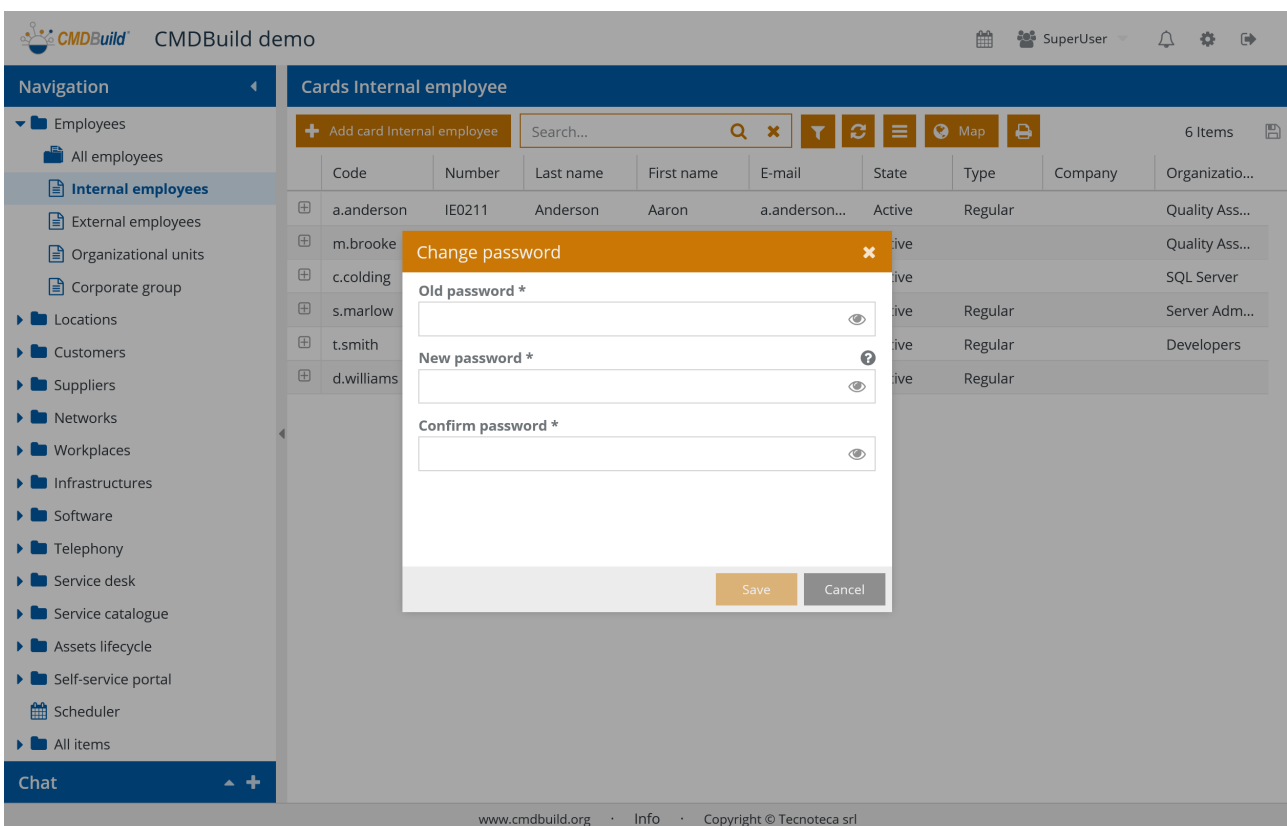
Each operator can edit the access password to CMDBuild in any moment.

The following features have to be specified:

- the current password
- the new password
- a repetition of the new password

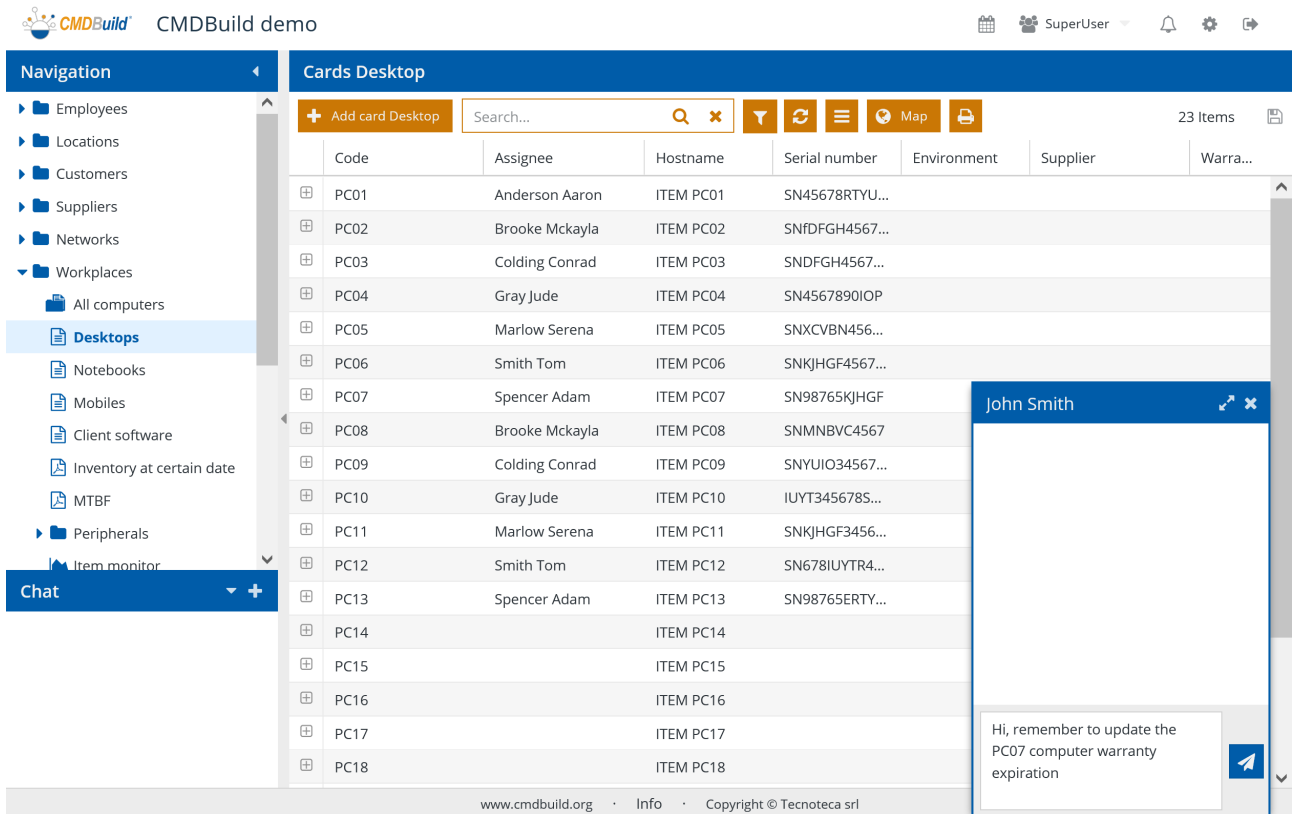
On the user interface passwords are hidden with the character '*'.

Here's a screenshot of the user interface.




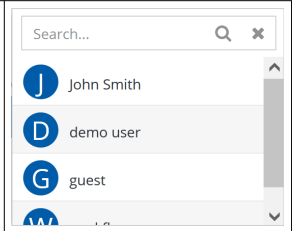


13.3. Chat

CMDBuild has a chat for operators to communicate and report activities, give feedback, solve doubts, etc.



The following functions are available:

<ul style="list-style-type: none"> • button to open the chat box 	
<ul style="list-style-type: none"> • button to close the chat box 	
<ul style="list-style-type: none"> • display users in chat (in case the box is closed, you will see the unread messages) 	
<ul style="list-style-type: none"> • use the button “+” to display / search for users list and select another user to communicate with 	

<ul style="list-style-type: none"> display messages received from the selected user 	
<ul style="list-style-type: none"> type and send a new message 	

The following screenshot shows the chat status with a message to read.

Code	Assignee	Hostname	Serial number	Environment	Supplier	Warra...
PC01	Anderson Aaron	ITEM PC01	SN45678RTYU...			
PC02	Brooke Mckayla	ITEM PC02	SNDFGH4567...			
PC03	Colding Conrad	ITEM PC03	SNDFGH4567...			
PC04	Gray Jude	ITEM PC04	SN4567890IOP			
PC05	Marlow Serena	ITEM PC05	SNXCVBN456...			
PC06	Smith Tom	ITEM PC06	SNKJHGF4567...			
PC07	Spencer Adam	ITEM PC07	SN98765KJHGF			
PC08	Brooke Mckayla	ITEM PC08	SNMNBVC4567			
PC09	Colding Conrad	ITEM PC09	SNYUIO34567...			
PC10	Gray Jude	ITEM PC10	IUYT345678S...			
PC11	Marlow Serena	ITEM PC11	SNKJHGF3456...			
PC12	Smith Tom	ITEM PC12	SN678IUYTR4...			
PC13	Spencer Adam	ITEM PC13	SN98765ERTY...			
PC14		ITEM PC14				
PC15		ITEM PC15				
PC16		ITEM PC16				
PC17		ITEM PC17				
PC18		ITEM PC18				

The following screenshot shows the conversation with the selected user.

The screenshot displays the CMDBuild web interface. On the left is a navigation sidebar with categories like Employees, Locations, Customers, Suppliers, Networks, and Workplaces. The main area is titled 'Cards Desktop' and contains a table with 23 items. The table columns are Code, Assignee, Hostname, Serial number, Environment, Supplier, and Warra... (Warranty). A chat window is open on the right, showing a conversation with 'John Smith' about updating a warranty expiration date for PC07.

Code	Assignee	Hostname	Serial number	Environment	Supplier	Warra...
PC01	Anderson Aaron	ITEM PC01	SN45678RTYU...			
PC02	Brooke Mckayla	ITEM PC02	SNDFGH4567...			
PC03	Colding Conrad	ITEM PC03	SNDFGH4567...			
PC04	Gray Jude	ITEM PC04	SN4567890IOP			
PC05	Marlow Serena	ITEM PC05	SNXCVB456...			
PC06	Smith Tom	ITEM PC06	SNKJHG4567...			
PC07	Spencer Adam	ITEM PC07	SN98765KJHGF			
PC08	Brooke Mckayla	ITEM PC08	SNMNBVC4567			
PC09	Colding Conrad	ITEM PC09	SNYUIO34567...			
PC10	Gray Jude	ITEM PC10	IUYT345678S...			
PC11	Marlow Serena	ITEM PC11	SNKJHG456...			
PC12	Smith Tom	ITEM PC12	SN678IU456...			
PC13	Spencer Adam	ITEM PC13	SN98765ERTY...			
PC14		ITEM PC14				
PC15		ITEM PC15				
PC16		ITEM PC16				
PC17		ITEM PC17				
PC18		ITEM PC18				

Chat with John Smith

Hi, remember to update the PC07 computer warranty expiration
5 minutes ago

Ok I do it now, is the new warranty expiry on December 31st?
2 minutes ago

Yes the correct date is that

14. 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.

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

See also: Card

WORKFLOW STEP

Activity: workflow step.

An activity can be an interaction with the operator (interactive) or a script that processes operations via API (automatic).

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 (for example in "supplier" class the attributes can be: name, address, phone number, etc.).

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

In the database, every attribute is related to a column in the table which implements the associated class and corresponds, in the Data Management Module, to a data entry field of the specific card for the class management.

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).

CMDBuild includes a connector to sync some CI information (technical or maintenance records) and an interactive viewer for the 3D model of the building represented by the IFC file.

See also: CI, GIS

CI

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

In CMDBuild, the term is applied to a generic context of Asset Management extending the concept usually used in the management of IT infrastructure.

CI examples include: server, workstation, software, plant, electric panel, fire extinguisher, furniture, etc.

See also: Configuration, ITIL

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 company, a building, an asset, a service, etc.

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

A class is represented in the database with a table automatically generated when defining the class and corresponds - in the Data Management Module - to a card for the consultation and update of the cards expected in the model.

See also: Card, Attribute

CMDB

ITIL best practice (Information Technology Infrastructure Library), which has become a "standard de facto" and a non-proprietary system for services management, has introduced the term CMDB referred to the Configuration Item database.

CMDBuild extends the concept of CMDB applying it to a generic Asset Management context.

See also: Database, ITIL

CONFIGURATION

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

Even if it is known as one of the main processes within the ITIL Best Practice, it is used in CMDBuild for generic contexts of Asset Management.

See also: CI, ITIL

DASHBOARD

In CMDBuild, a dashboard corresponds to a webpage including one or more different graphic representations, in this way you can immediately hold in evidence some key parameters (KPI) related to management aspects of the Asset Management 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.

The Asset Management database, implemented on the basis of the CMDBuild logics and philosophy, is also indicated as CMDB (Configuration Management Data Base).

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, or configured by the Administrator and made available by operators.

See also: Class, View

GIS

A GIS is a system able to produce, manage and analyze 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 (transmission lines) and polygons (floors, rooms, etc.).

See also: BIM

GUI FRAMEWORK

It is a framework provided by CMDBuild to simplify the implementation of custom user interfaces and to grant a simplified access to non-technical users. They can be issued onto any webportals and can be used with CMDBuild through the standard REST webservice.

The CMDBuild GUI Framework is based on javascript JQuery libraries.

See also: Mobile, Webservice

ITIL

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

ITIL processes include: Service Support, Change Management and the Configuration 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).

CMDBuild uses some ITIL concepts and applies them to a generic context of Asset Management.

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 (also called multiple choice or picklist).

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

organization needs.

See also: Attribute type

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: Webservice

PROCESS

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

For each process (type of process) a new process instance will be started when users have to carry out an action on assets according to a procedure implemented as workflow.

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

The workflows managed in CMDBuild are described in the standard markup language XPD (XML Process Definition Language), ruled by the WFMC (WorkFlow Management Coalition).

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 CMDB.

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.

Reports can be configured in the Administration Module importing in XML format the description of the layout designed with the visual editor provided by the open source project JasperReports.

CMDBuild users can print reports using the Management Module, which will result as printouts, charts, documents, labels, etc.

See also: Class, Domain, Database

CARDS

The term "card" refers to an element stored in a class (corresponding to the record of a table in the database).

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 as template to define attributes shared between subclasses. From the abstract class, or from abstract class hierarchies, you can derive real classes that contain data and include both shared attributes (specified in the superclass) and specific subclass attributes, besides the relations on the superclass domains and on specific domains.

For example, you can define the superclass "Company" with some basic attributes (VAT number, Business name, Phone number, etc.) and the derived subclasses "Customers" and "Suppliers", each one with both generic attributes of the superclass and its own attributes and relations.

See also: Class, Attribute

TENANT

A "tenant", in CMDBuild, is a part of the CMDB reserved to users belonging to a suborganization of the CMDBuild instance (a Group Society, a Seat, a Division, etc.).

Working in "multitenant" mode, every user works only on data of his/her suborganization and, in case, on common data: "tenants".

The list of usable Tenants can be defined from an applicable class of CMDBuild (seats, companies, customers, etc.) or from a database custom function, where you can implement complex visibility rules.

ATTRIBUTE TYPE

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

The type of attribute and its management modes are defined in the Administration Module.

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 includes cards defined with logic criteria of filters applied to one or more CMDB classes.

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, which are provided to external applications to read or write data on CMDB or process operations.

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 consult or insert data or process other operations.

CMDBuild includes some standards widgets to process the most common operations, but it also supplies the specifications to implement other custom widgets.