



Technical document

JobTicket

Web Portal for the Printing Office Work flow



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2. PROJECT CORE AND PURPOSES

2.1 PURPOSES

JobTicket is a web portal designed to manage the printing office workflow by opening a "**Job Ticket**" and uploading the files to be printed.

In details, the software provides a web interface, reachable by an internet browser from a workstation in the company network, using which a user can open (or modify) a JobTicket, uploading document if necessary.

Each user, according to access rights, will be able to use the web portal, choosing the processing type, the desired properties and the number of pieces, then uploading the files and sending the JobTicket to the related printing office.

The printing office, receiving a new JobTicket, will take charge of it, modifying the data in JobTicket portal if necessary and delivering the material to users according to the company's guidelines.

The portal administrators will be able to manage all the Job Tickets and, in case of need, to correct or update it; in addition, they will be able to configure the portal, creating users, products etc. and to create and export reports.

The web portal will provide the email notification of tickets' opening or updating; the web interface can manage concurrently accesses.

The Job Ticket's solution is composed by the followings:

- **Web portal**
- **Database**
- **Service** which allows to activate some web-services, used directly by web pages or schedulable by need

JobTicket can support the distributed installation (on several servers).



3. SOLUTION DESCRIPTION

3.1 SOFTWARE DESCRIPTION

JobTicket software is a web portal, reachable by an internet browser to a web address like:

http://<nome_server>/jobticket

Each user can have two different kinds of authentication: the first using the domain username and password (not default method, but configurable on request), the second using proper username and password.

Once accessed the portal, each user according to his profile, will be able to use the functionality of JobTicket.

JobTicket's portal users can be divided in three macro-categories:

- **Standard Users:** can open a new Job Ticket in its own name and modify it until it's not assigned to the printing office; they can create an order choosing the components and send it to the related printing office.
- **Administrator users:** can perform the following operations:
 - can open a new Job Ticket in its own name or on behalf of another user and modify it also after the assignment to the printing office
 - can manage the portal configuration: company, division, pricing list, users (creation and rights management), product creation, etc.
 - can display the tickets' report and export (Excel format)
- **Printing Office Users:** can perform the following operations: can manage the Job Tickets related to the own printing office, changing the state and downloading the files to be used for printing. These users can also display administrators reports, filtering data related to their profile

N.B. the solution allows the creation of additional profiles for providing possible needs.

3.2 LOGIN

The default login system is made by entering username (email) and dedicated password; the credentials are created by an administrator.

If the password will be lost, it's possible to recover it by entering the email address, receiving an email with a link for resetting it and an email with the new password to access the web portal.



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It could be possible to integrate Active directory access management and, if necessary, to use Single Sign-on automatic recognition.

The access to Job Ticket's portal will be configured in one the following (depending on hosting environment):

- login using domain username and password: for users who can automatically authenticate in LDAP
- automatic login using SSO: for users who can automatically authenticate in LDAP
- login using dedicated username and password: for users not in the domain, having proper username and password to be used in job Ticket's portal

Each user, once logged in, will be able to visualize the home page with all the functionalities according to the profile.

3.3 WORKFLOW

Each user, once logged in, will be able to visualize his own tickets, monitoring the progress and the state change (this can be set up only by the Administrators or by the printing office users).

To create a new order for the printing office (composed by one or more job tickets), the user will open a ticket following these steps:

- Order type selection (standard order, customized processing, dynamic product, etc.)
- Family of processing selection, to individuate more easily the final product to order
- Product selection
- Product properties selection (colour, F/B, paper format, binding, etc.) depending on product configuration
- User data and ticket: delivery date, user (if standard user it will be set up automatically, if administrator it will be possible to choose between all users), company reference, cost centre and commission (if present), printing office, notes
- Files upload (if necessary for customized job)
- Cost and price recap (if enabled and modifiable for administrators)

Once filled the ticket, this will be in state "in composition" in the user's cart in a new order automatically created according to the order type. The order will remain in the cart in "stand-by" until it will be confirmed and sent to the printing office.

Any other ticket having the same order type and being composed before the order confirmation will be placed in the same order.

Any ticket will be modifiable by the user until in the cart, once confirmed it will be modifiable only by the administrators.

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3.4 TICKET STATES

Ticket state allows to understand the current progress of the job ticket:

- **In composition:** ticket opened by an user but not officially sent, so not yet visible by the related printing office.
- **Open:** ticket created and sent to the competence printing office (so modifiable only by an administrator).
- **Requested Quote:** for particular orders the ticket state can be set up to "Requested Quote" because the processing (and pricing) have to be verified by the administrator or the printing office.
- **Quote to be confirmed:** the printing office (or an administrator) had verified the ticket and sent the quote. The user should decide if accept or refuse the quote.
- **Confirmed quote:** the user has accepted the quote, so the order can be processed by the printing office.
- **Refused quote:** the user has refused the quote, so the order can be set aside. If desired, the user can create a new order.
- **In progress:** the ticket is in processing and cannot be modified except by an administrator.
- **On delivery:** the order is ready to be delivered to the user according to the company's procedure.
- **Closed:** all the activity related to the order has been completed, so the ticket cannot be modified anymore (and the data can be visualized in the reporting).
- **Cancelled:** the ticket will not be shown in reports but it will last in the processing request list.



4. FUNCTIONALITIES AND VERSIONING

JobTicket will be released in two different versioning (standard and advanced), each one has specific functionalities.

There will be also options, available for each versioning, individually activated by need.

Both versions of JobTicket have a maximum of 2 Configurable Companies.

4.1 STANDARD VERSIONING

Standard versioning has been composed of the following functionalities:

- User management and CSV file import
- Users' role management
- Company's profile management
- Printing office management
- Products management
- Reporting
- Order composition for the printing office
- Progress job management
- Email notifications

4.1.1 USER MANAGEMENT AND CSV FILE IMPORT

Our system can support different users' creation procedure:

Il sistema può supportare le seguenti modalità di creazione degli Utenti:

- **Big data loading from CSV file** (standard format with mandatory fields, but customizable on request).
- **One by one creation** of users from the portal

Each user can be identified by:

- Personal data: first name, last name, picture, etc.
- Contact details: phone number, cell number, email, etc.
- Company details: company, division, accounting industry, office, default Printing Office etc.

N.B. In the licence key of the solution will be defined:

- the maximum number of concurrent active users of the portal



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- the maximum number of Printing Office active
- the maximum number of the active Companies configured in the portal

Exceeding the limits of license cause a "partial working" of the solution, which will allow only the consultation of Ticket already registered, but without possibility to registering new Tickets.

4.1.2 USERS' ROLE MANAGEMENT

Each Job Ticket's portal user will have a profile (user role) to identify the rights and functionalities.

Each role will be related to the specific functionalities, in details to some of the following:

- Users management
- Products management
- Solution configuration
- Base settings of the solution
- Reporting
- Products ordering (for each user)
- Processing order management (only for administrators)
- State of orders management
- All orders visualization
- Printing Office
- Manuals ordering and custom ordering
- Printing Office backup management

Each functionality is identified by a flag, so enabling / disabling a flag, it will be possible to create different "mixed" roles, not created in the standard configuration, as the following:

- **Standard Users:** can open a new Job Ticket in its own name and modify it until it's not assigned to the printing office; they can create an order choosing the components and send it to the printing office.
- **Administrator users:** can perform the following operations:
 - can open a new Job Ticket in its own name or on behalf of another user and modify it also after the assignment to the printing office
 - can manage the portal configuration: company, division, pricing list, users (creation and rights management), product creation, etc.
 - can display the tickets' report and export (Excel format)

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- **Printing Office Users:** can perform the following operations: can manage the Job Tickets related to the own printing office, changing the state and downloading the files to be used for printing. These users can also display administrators reports, filtering data related to their profile

4.1.3 COMPANY'S PROFILE MANAGEMENT

Each user can be identified in the company with the following fields: **company, division, accounting industry** and **office**. These data will be automatically shown while opening a job ticket.

In the configuration section of the portal, the administrators will find specific functionalities to create/ modify/ cancel a single data related to the company profile.

N.B. In the licence key of the solution will be defined the maximum number of the active Companies configured in the portal.

Exceeding the limits of license cause a "partial working" of the solution, which will allow only the consultation of Ticket already registered, but without possibility to registering new Tickets.

4.1.4 PRINTING OFFICE MANAGEMENT

JobTicket allows the configuration of one or more printing office for the assignment of jobs.

Each user of the portal will be associated to a default printing office (proposed while opening the job ticket, but modifiable by need).

In addition, for each printing office, it will be possible to define an email address for notifications regarding tickets opening or state change, if permitted.

N.B. In the licence key of the solution will be defined the maximum number of the active printing offices configured in the portal.

Exceeding the limits of license cause a "partial working" of the solution, which will allow only the consultation of Ticket already registered, but without possibility to registering new Tickets.

4.1.5 PRODUCT MANAGEMENT

JobTicket can support order tickets for the following kind of product:

- **Finished products:** writing materials (such as pens, pencils, etc.).
- **Static documents printing** such as books, manuals, etc. available for the Printing Office in the Company's Repository.
- **Static documents printing provided by the users** such as CD, DVD, etc.

Each product, if necessary, can be configured in the properties (and the admitted values) for a correct job request, for instance:

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- Front / Back print
- Colour: colour or black and white
- Paper format: A3, A4, A5 etc.
- Paper weight: 60gr, 80gr, 100gr, 120gr etc.
- Binding: hot, metal spiral, plastic spiral, etc.
- Stapling

4.1.6 REPORT

Standard reports, for Product or Company, are available in the portal, filterable using different parameter such as:

- Date range
- Cost centre
- Company / User
- State of job processing

These reports will be displayable in the portal, with data updated at the moment while generating the report.

4.1.7 PRODUCTS ORDERING

The order composition has been divided into several phases, to make easier the users job and the data filling.

Here following the expected phases:

1. Type order selection
2. Family of order selection (category).
3. Product selection
4. Properties product selection (colour, front / back, paper format, blinding, etc.) according to the product configuration.
5. User data: user (if standard user it will be set up automatically, if administrator it will be possible to choose between all users), delivery date, company details, cost centre, printing office, possible notes.
6. Files upload (for customized jobs).
7. Cost and price recap.

Once confirmed the request, it will immediately visible the order quote calculated on the properties product chosen by the user.

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The files related to the processing, expected by default for finished products or provided by the users for customized products, are available on Job Ticket's portal for downloading or displaying.

4.1.8 PROGRESS JOB MANAGEMENT

All the processing phases are recorded by the state change.

Some states are defined as standard and cannot be modified, because functional for the correct behaviour of our solution (such as in composition, open, in progress, on delivery, closed, cancelled). Anyway, it will be possible to add some other intermediate states.

The state monitoring is available 24/24 and it's possible to notify any change by email.

N.B. State change can only be managed manually by a printing office user or an administrator.

4.1.9 EMAIL NOTIFICATION

For any change state, the system can send an email to:

- Requesting user
- delegated user, for active mandate (please refer to "mandate" functionality in "Advanced" versioning).
- administrators
- printing office users

N.B. email notification can be settled for the single state of ticket.

4.2 ADVANCED VERSIONING

"Advanced" versioning, in addition to "Standard" versioning functionalities, allows the following:

- Quote request management
- Mandate management
- Cost centre and commission management
- Report export in CSV and Excel format
- Automatic calculation of uploaded document pages
- Cost and price management
- Automatic procedure (to be scheduled) for closed tickets' files cancellation.
- Invoicing codes management

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- Printing Office Backup
- Approval Flow
- Warehouse management functions (operations and stocks)

4.2.1 QUOTE REQUEST MANAGEMENT

For a not standard processing, it will be possible to request a quote and than manage the acceptance or refuse.

Setting the state to "requested quote", the ticket will not be directly sent to the printing office to be processed, but the ticket will be evaluated and sent back to the user. The user can accept or refuse the quote, cancelling the ticket.

The quote evaluation will be supervised by an administrator or a printing office user.

4.2.2 MANDATE TO USERS

Each user can delegate other users for his own processing, managing a mandate to another user, specifying the date of validity

In the validity period of the mandate, the delegated user will be able to monitor all the delegating user's tickets and to act as the user himself.

N.B. an administrator can manage mandates for all users in case of need

4.2.3 COST CENTRE AND COMMISSION MANAGEMENT

Cost centres are based on the following structure:

- company
- division
- accounting industry
- office

N.B. It will be possible to import the cost centres from a CSV file (schedulable)

It will be possible to assign a specific commission to each processing and to create a report for commission.

N.B. It will be possible to import commissions from a CSV file (schedulable)

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4.2.4 REPORT EXPORT IN CSV AND EXCEL FORMAT

All the reports, updated at the moment of request, will be consultable on the portal or exportable in Excel or CSV format.

4.2.5 AUTOMATIC CALCULATION OF UPLOADED DOCUMENT PAGES

The system provides a procedure designated to automatic calculation of an uploaded document pages composed by the following:

- Calculation of pages of several format documents (Office, TXT, multipage TIFF etc.)
- Distinction of black and white or colour pages.

4.2.6 COST AND PRICE MANAGEMENT

Each product property must be related to a cost and a price.

The administrators will be able to configure for users the visualization:

- both cost and price
- only the cost
- only the price
- none (no cost no price)

4.2.7 AUTOMATIC PROCEDURE FOR CLOSED TICKETS' FILES CANCELLATION

In order to empty the disk space, a procedure will be available to cancel files related to closed tickets (but in the tickets it will remain recorded the reference to the uploaded files).

4.2.8 INVOICE CODES MANAGEMENT

If necessary, it will be possible to use invoice codes for cost and prices and to automatically use it in the product composition, because related to product properties.

To relate invoice codes to product properties, the system provides the following functionalities:

- Match of invoice codes to products (related to a combination of properties)
- Price and cost management for invoice codes

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4.2.9 PRINTING OFFICE BACKUP

In case of more printing offices, a semi-automated procedure will manage the backup system to redirect a processing to another printing office, if not available in the selected one.

The backup procedure has the following workflow:

- Each product property belongs to a processing family, related to the machine producing (such as blinding, finishing, printing, etc.)
- For each printing office a backup printing office must be assigned
- If some processing cannot be completed, the same processing must result as "off-line" for the printing office
- The tickets related to an "off-line" processing must present an alert visible to the printing office and a notification must be sent to the administrator
- The administrator will send to another printing office the pending processing

4.2.10 APPROVAL FLOW

The Module allows the introduction of the Ticket in the approval flow before open the request to the Printing Centers for the work.

The operational functioning is like the following:

- When an Order including one or more Tickets will be confirmed by the User, the Tickets will not be immediately available to the Printing Office. Tickets will be put in a state "in approval" until the appropriate approvers (that can receive notification via email) will verify it and approve it. After approve, the Ticket will go into "Open" status (and will be available for the Printing Office), but after refuse the Ticket will be discarded.
- There are 2 possible ways to define the Approvers:
 - Global Approvers: defined globally by Role, they can approve the Tickets of all Users
 - Specific Approvers: defined on each individual User, they can only approve the Tickets of the Users to which they are associated (if User has not Approvers his Tickets will be immediately processed).
- The management of the approval flow is needed for every single Ticket (for each one or in massive way) and is guaranteed by a new list page that show Tickets in status "to be approval" or "refused". This page will only be available to Approver Users.

4.2.11 WAREHOUSE MANAGEMENT

Warehouse functions provides to manage of the residual stocks of the Products in the Warehouses (as default a Warehouse for each Printing Office).

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The features of the functionality are as follows:

- Management of Product stocks in each warehouse, with configuration of the under stock threshold and the type of alert to show on the screen for some Users.
 - There is also a massive update feature via CSV file.
- Management of Warehouse Operations manually or managed automatically in the following cases:
 - Subtract stock from Ticket, when the Ticket is put into one of the states identified as "subtract stock states".
 - Restore stock from Ticket, when it is deleted (if stock was already subtract).
 - Update stock massively (via CSV file).
- Show alert of under stock level for the configuration (visibility for some user profiles and only for an established time frame) in the Ticket list pages. The check of the under stock level is calculated on with residual stock of Product in the Printing Office Warehouse minus the quantities of Tickets in the working not yet been completed (identified by some states in the configuration).

4.3 ADDITIONAL MODULES

In addition to the standard or advanced versioning functionalities, it will be possible to activate one or more options for the following:

- Additional Company (beyond default 2 Companies)
- LDAP users' synchronization
- Dynamic products management (business cards, letterhead, labels, etc.)
- Accounting Software integration (PaperCut or Equitrac)
- "LIBRARY" module to select from file repository the files to be printed

4.3.1 LDAP USERS' SYNCHRONIZATION

LDAP users' synchronization can be used for the following:

- Automatic import of users using all parameters of AD.
- Users' access verification (using not automatic domain authentication).
- Users' access verification (using S.S.O. automatic domain authentication).

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4.3.2 DYNAMIC PRODUCTS MANAGEMENT

The system allows the request of dynamics products processing (business cards, letterhead, labels, etc.), with the following features:

- Filling of all data for the composition of the dynamic product (first name, last name, contact details, etc.).
- Preview of the composed product
- PDF file generation

N.B. Business cards can be created using high quality printing PDF format and the system supports the addition of some other elements, such as a QRCode.

In order to produce the dynamic product preview, some graphic elements must be provided, such as:

- Company Logo
- Text Font and colour
- Spacing and elements position

N.B. This module need a personalized development and there are a maximum of 5 dynamic products included. Each additional product must be requested and quoted separately.

4.3.3 ACCOUNTING SOFTWARE INTEGRATION

In order to reduce printing costs, is it possible to integrate an Accounting Software such as Equitrac or PaperCut.

This software will be able to retrieve processing jobs data from Job Ticket's database and to register the costs on the accounting system.

N.B. This option will be quoted on request according to the feasibility study.

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4.3.4 "LIBRARY" MODULE TO SELECT FROM IMPORTED FILE REPOSITORY THE FILES TO BE PRINTED

In JobTicket solution, a product can be related to an attached file to be printed, according to the following:

- Products having an associated file: can be printed only the attached file
- Product having a user uploaded file (from physical file)
- Product having a user provided file (using a link to a net folder or to a web transfer - DropBox or WeTransfer)

When required to import periodically a file Repository (for instance for manuals printing) and use the more recent version of files for printing, it will be necessary to configure products and manage the attachment upload in an appropriate manner.

The "library" module allows, in addition, the following product type management:

- Product having a user selected file (from imported file repository)

In the product catalogue it will be possible to configure only a single product and, opening a ticket, to select the correct file to be printed from the imported file repository.

The file selection will be possible according to the following choices:

- Auto completion: searching in the imported file path (folder and file name) and filtering step by step
- A "Modale" window divided in two section: the tree folder structure on the left and the related file list on the right. When the user selects a file and clicks "Select", the file name (complete path + file name) will be set in the related ticket field

This functionality also has the possibility, if desired, to display the preview of the document in low resolution and not downloadable, to allow verification of the selected document without being able to directly have the digital copy.



5. SETUP AND CONFIGURATION

Following the solution installation of all the components on the dedicated server (application, services and database), it will be necessary to set up and configure the work environment.

5.1 SOLUTION SETUP

Configuration of the following elements:

- **Licence code** (provided within the activation code on the installation server)
- **Database** connection
- **Configuration labels:** Portal customization, password policy (minimum length, expiration, admitted characters, etc.).
- **Email** parameters (SMTP, username, password).
- **Path** for upload folders (documents for the printing office, Portal images, maximum dimension of files, admitted extensions, etc.).

N.B. All the configuration parameters are stored in the database and modifiable in Job Ticket's portal. In the web.config file it will be necessary to define only the connection string to database.

5.2 PORTAL CONFIGURATION

Following the Job Ticket's solution installation, all the configuration related to the work environment must be settled, such as the following:

- **Users** (using one of the expected procedure and assigning the correct role)
- **Company's profile:** company, division, office, cost centres, etc.
- **Printing offices**
- **Products**, properties, cost and prices, according to the catalogue

Each product must be completely configured with all properties and the admitted values; each value must be associated to a cost and a price or to an invoice code.

N.B. The effort for installation and configuration is strictly related to the number of products, properties, prices etc.



5.3 LICENCE

JobTicket' s licence will be provided according to the following parameters:

- Physical or Virtual Server (machine name or MAC address and domain)
- Expiration date of solution usufruct
- Simultaneous active users
- Configurable number of print offices
- Configurable number of companies
- Standard or Advanced versioning
- Additional modules

The licence will be installed server-side in the setup phase and will be able to receive "upgrades" for activating additional features.



6. REQUIREMENT

Here following the HW e SW requirement for the hosting server.

6.1 HW REQUIREMENT

Installation server:

- CPU: minimum **2,4GHz**
- RAM: minimum **4GB**, recommended **8GB**
- Disk space: **10GB**.
- Extra disk space for file upload: **100GB(*)**

(*) Presuming that the standard documents are stored in a dedicated disk space, the extra disk space is necessary for:

- Files upload for customized processing (these files will be cancelled using the automatic procedure after closing the tickets)
- Automatic calculation of uploaded document pages (in this space, the file will be temporary copied for elaboration, then cancelled)
- In the design phase, it's necessary to decide if using only one or more repositories for the printing offices

N.B. The HW infrastructure can be both physical or virtual.

6.2 SW REQUIREMENT

JobTicket solution is compatible with S.O. Microsoft Windows, and the requirements are:

- S.O. **Windows Server 2012 R2 standard or datacenter**
 - **IIS 7.5** or later
 - Security: installation of **Basic Authentication**
 - Security: installation of **Windows Authentication**
 - Support for **ASP.NET pages**:
 - Installation of **ASP.NET 3.5**
 - Installation of **ASP.NET 4.5**
 - **.NET framework**:
 - .NET 3.5 Framework + Extensibility
 - .NET 4.5 Framework + Extensibility
- Database **SQL Server 2014 64bit**



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- To manage database is needed tool "SQL Server Management Tool".

Other technical specifications:

- IIS logs can be disabled, the system stored the proper logs in the Database.
- The solution uses S.S.O. user authentication. Authentication type is "**Kerberos**", the default related to IIS windows.
- Database dimension (complete configuration without tickets) around **50MB**.
- Database growing around **1MB/ticket**.

6.3 SYSTEM CONFIGURATION

For the correct installation of the system, it will be necessary:

- Tool SQL Server Management Studio to manage Database.
- SQL User "db-owner" for database of JobTicket, used for the connection string of the solution and other services.
- LDAP connection string to AD (for retrieving the user's data) and the belonging groups of users for the correct profile classification. For each domain it will be necessary to have username and password for performing fare LDAP query.
- SMTP service for notification emails.
- Ports (according to configuration):
 - **80**: default for web Portal on IIS
 - **1433**: MS SQL Server Database connection
 - **8734**: default for Web Services (modifiable in a configuration file).
- A user having query LDAP rights and read / write grant on shared folders (manual repositories and customized files repository)
- IIS configuration: at the beginning, the unique solution for providing files to the printing office it will be the upload of files. So the following limits must be settled:
 - Upload limit: **to be established** (recommended not more than 100MB)
 - Timeout: **20 min.**
- User **local admin** to install on the server of JobTicket sw other component and third part sw (freeware) for the correct work of the solution:
 - Visual C++ Redistributable for Visual Studio 2013
 - ImageMagick
 - Java
 - Ghostscript
 - OpenOffice (or Microsoft Office, but license must be given by Customer)
 - **N.B.:** the same user could be used for web-services of JobTicket If you use the counting feature and automatic subdivision of color and black/white pages. If



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you want to run web-services like "local system" you could not use these features.

- Schedule one or more tasks in the "Windows Tasks". For example, one of these procedures could be the cleaner of attachment files for Ticket closed (to clean disk space).

6.4 SUPPORTED BROWSER

The optimal viewing of the JobTicket portal and all its features are guaranteed on the following browsers:

- **Internet Explorer 11**
- **Google Chrome**

Compatibility is also expected with the latest versions of major browsers (Mozilla Firefox, Opera, Safari).



7. FUNCTIONALITIES RECAP

Functionalities	STANDARD	ADVANCED	OPTIONS
Users management and CSV import	X	X	
Users role management	X	X	
Company profile management	X	X	
Printing Office management	X	X	
Products management	X	X	
Report	X	X	
Order composition for Printing Office	X	X	
Processing phases management	X	X	
Email notification	X	X	
Quote request management		X	
Mandate management		X	
Cost centre and commission management		X	
Report export in CSV and Excel format		X	
Automatic calculation procedure		X	
Cost and prices		X	
Automatic cancellation of closed tickets files		X	
Invoice		X	
Printing Office backup		X	
Approval Flow		X	
Warehouse Management		X	
LDAP Synchronisation			X
Dynamic products management (business cards, letterhead, labels etc...) [max 5 Products]			X
Accounting Software integration			X
"Library" module to select from file repository the files to be printed, with preview in low resolution not downloadable			X
Additional Companies (beyond 2 default Companies)			X



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