# DIRECT PLANNING VERSION 3.1
A MAJOR EVOLUTION FOR THE PRODUCTION PLANNING

The **Direct Planning** team is pleased to announce a rich-featured version. Reference data, process information, a fine-tuned calculation of setting and running times, programmable formulas, conditional wording and colors, plugins; as many innovations that will allow you to finely customize your schedule. The version 3.1 is available for download.

All the examples shown in this article are available in the demonstration file "UltraPack Cardboards" that comes with the software in the "Industry" category.

VISUAL EVOLUTIONS
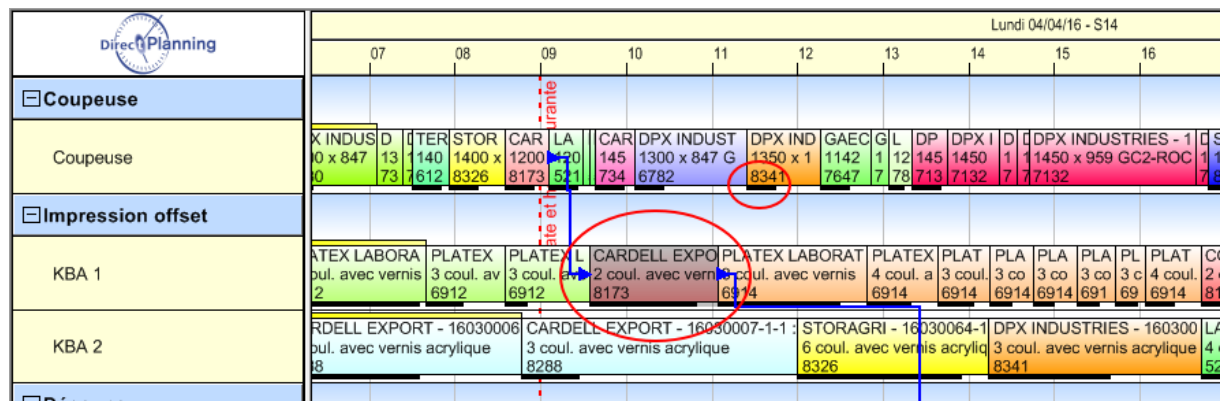
Visual improvements: setting time and selected job

Selected jobs are now more visible: the black selection handles have been replaced with a shading. This increased visibility is even more significant in case of a multi-job selection.

The **setting time** of a task can now feature in the schedule. It is shown in the form of a black, horizontal line under the task. Its length depends on the setting time. This display can be disabled in the configuration of the display modes.

## OPTIMIZED SCHEDULING ASSISTANCE ENGINE

The scheduling optimization engine has been updated: **very significant time savings** have been achieved upon moving tasks. This is particularly true in case of complex schedules with thousands of jobs.

QUICKY SCHEDULE A WHOLE ROUTE

When a new Production Order is imported from your ERP software, you may want to directly schedule all the tasks of this PO. There's a new quick action to help you do this.

Right-click on a job to reveal the menu, go to the "Schedule" sub-menu which offers two new actions:
- o Schedule the tasks of the route. You can quickly schedule a whole route without having to select the tasks one by one.
- o Un-schedule the tasks of the route.

Quickly scheduling all the tasks of a route
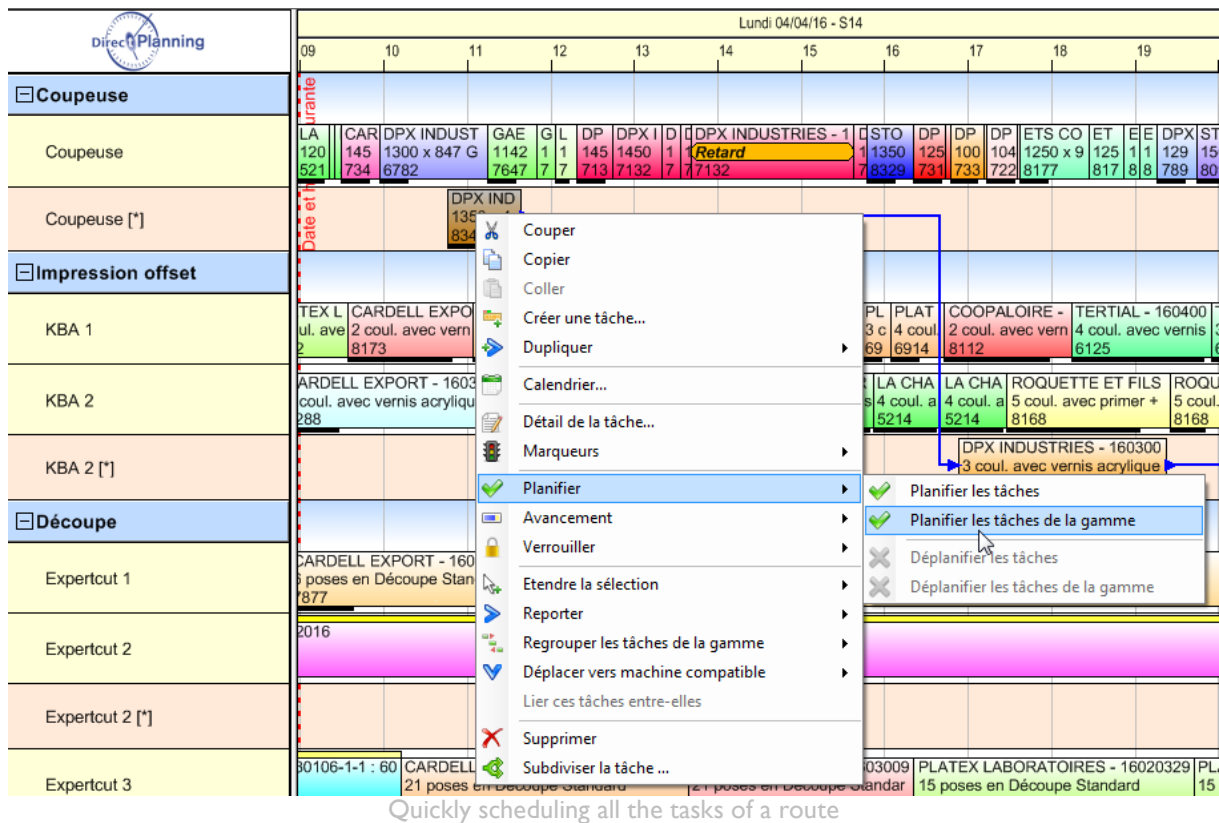
A NEW DATA STRUCTURE: PROCESS INFORMATION

The "**Process Information**" is a new data structure that has been developed to enrich the customizing possibilities of Direct Planning. These are typically technical data targeted at featuring on particular machines only. Thus, an acute, technical information is proposed, only on relevant machines.
These "Process Information" are displayed in the task detail window under the entities (customer, product, file, etc.).

Example of Process Information for slitter: the information is machine-specific.

Each "Process Information" can contain up to 10 technical information. If that doesn't do, you can create several "Process Information" for the same machine. It's obviously about providing the scheduler with the relevant information that will help him make the right scheduling decision.

Example of Process Information for printer: this time, the information is specific to the printer.

When you are done configuring your Process Information, you have to edit every **machine sheet** in order to specify the Process Information you want to see on this machine.

Of course, your Process Information can be imported from your ERP software within the frame of your interface.

A NEW DATA STRUCTURE: THE REFERENCE DATA

The **reference data** help you better structure the data of your schedule. A reference data is aimed at harboring **technical** or **commercial data** that come in the form of lists. A reference data is simply made of a **code**, a **wording** and a **color**.

Thus you can configure your lists of material, tools, accessories or various indicators.

An example of reference data list

The reference data can be combined with **entities** (configurable data of the schedule) and **Process Information**. Thus you can improve the information structure of your schedule data. Furthermore, each reference data being linked to a color in the configuration of your display modes, you can use it to color all or part of a schedule ticket.

In this example, two reference data are used: "Form code" (tool) and "Product status" (new or replacement product indicator), within the "Production Order (PO)".

Of course, your reference data can be imported from your ERP software within the frame of your interface.

Please note that, considering their adaptability, the reference data are naturally aimed at replacing the existing structure "Technical items".

COMPUTING THE RUNNING TIME – WORKING UNITS

On a production operation, various working units may occur. For example, the **quantity to produce** might be expressed **in units**, whereas the machine rate is expressed **in linear meters**.

Up to now, **Direct Planning** could manage only one working unit. This new version provides you with 3 different kinds of working units:
   o **The working unit to produce**: the quantity stated in this working unit shows the production goal. The operator will enter the performed quantity in this working unit.
   o **The operative working unit**: the quantity stated in this working unit shows the quantity run in the machine. Direct Planning computes the operative quantity from the quantity to produce and a coefficient to convert between them.
   o **The working unit for work rate entry**: the machine rate is not necessarily stated in the operative working unit. As a matter of fact, the size of the produced item may be crucial. For example, you may have an operative unit stated in number of items, while the working unit for work rate entry is the linear meter. A coefficient stated on the task allows to convert a work rate unit to an operative unit.

IMPROVEMENT OF THE MACHINE SHEET

These working units are now displayed in the machine sheet.

Highlighted: what's new in the machine sheet.

While the computation of setting and running times was automatically performed upon work rate entry, you are now proposed a checkbox allowing you to clearly specify what you want: **Enable automatic computation of durations for this machine**.

We've also added a default percentage of variable waste. It will be used if you have specified no percentage of variable waste in your ERP software.

IMPROVING THE AUTOMATIC COMPUTATION OF RUNNING TIMES

Direct Planning can automatically compute a running time in a more sophisticated way than in the former versions; this can be achieved when all the working are specified, on the basis of the **quantity to produce**, conversion ratios between units and the variable waste percentage.

A complex example: configuration of the task detail screen with three different working units.
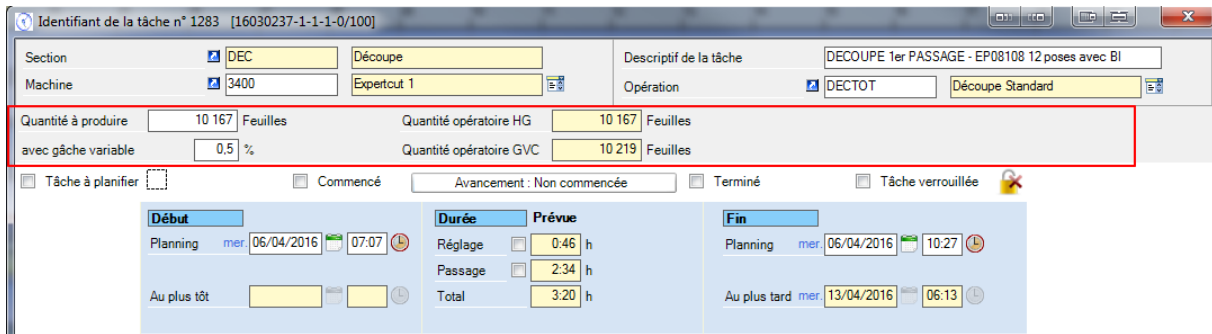
A simple example with a single working unit: screen is automatically configured to hide the useless areas.

INTRODUCING THE PROGRAMMABLE FORMULAS

The programmable formulas represent a major evolution in **Direct Planning** development roadmap. They aim at allowing you **fine-tuning your schedule**. They act in 4 areas:

- o The formulas for changing the **setting times** depending on technical data and precedence criteria.
- o The formulas for changing the **work rates** depending on technical data.
- o The formulas for building **conditional wordings** that are displayed on the schedule tickets. For example, customizing the wording according to the machine.
- o The formulas for building **conditional colors** of the schedule tickets, aimed at conveying a particular semantics.
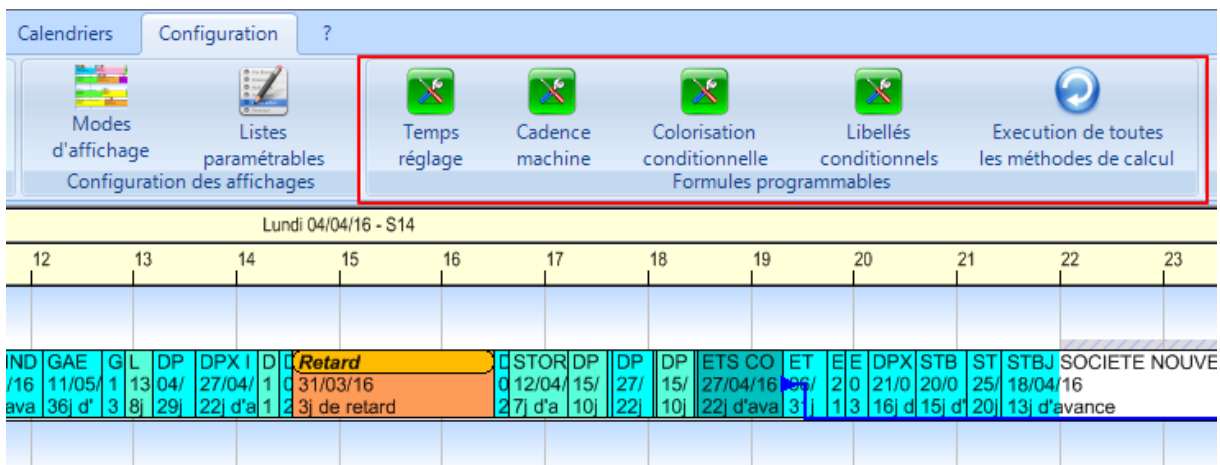
Access to the configuration of programmable formulas

In order to access to the programmable formulas, you have to enable them: in the "General Configuration" of the schedule, tick the "Enable programmable formulas" checkbox.

When you enable programmable formulas, you switch to the "expert" mode. As these formulas are written in **Visual Basic** language, you will need basic programming skills. Please feel free to contact our technical team who will help you write these formulas.

THE PROGRAMMABLE SETTING TIMES

Depending on the business areas, the setting times may be particularly complex to value. The setting time of a machine depends on the performed **operation**, several **technical data**, and also the **previous operation** in the schedule. As a matter of fact, mounting and unmounting tools are a significant part of the setting time. The scheduler will bear in mind to group jobs sharing common technical data, in order to minimize technical changes on the machine, thus reducing the setting times.

Further to the standard procedures already existing in Direct Planning, you can now write your own rules to modify the setting times. Although this advanced feature requires minimum programming skills, we have

integrated an online support to help you write your rules. For example, we supply "turnkey" features enabling you to know if technical data has been changed, compared with the previous task.
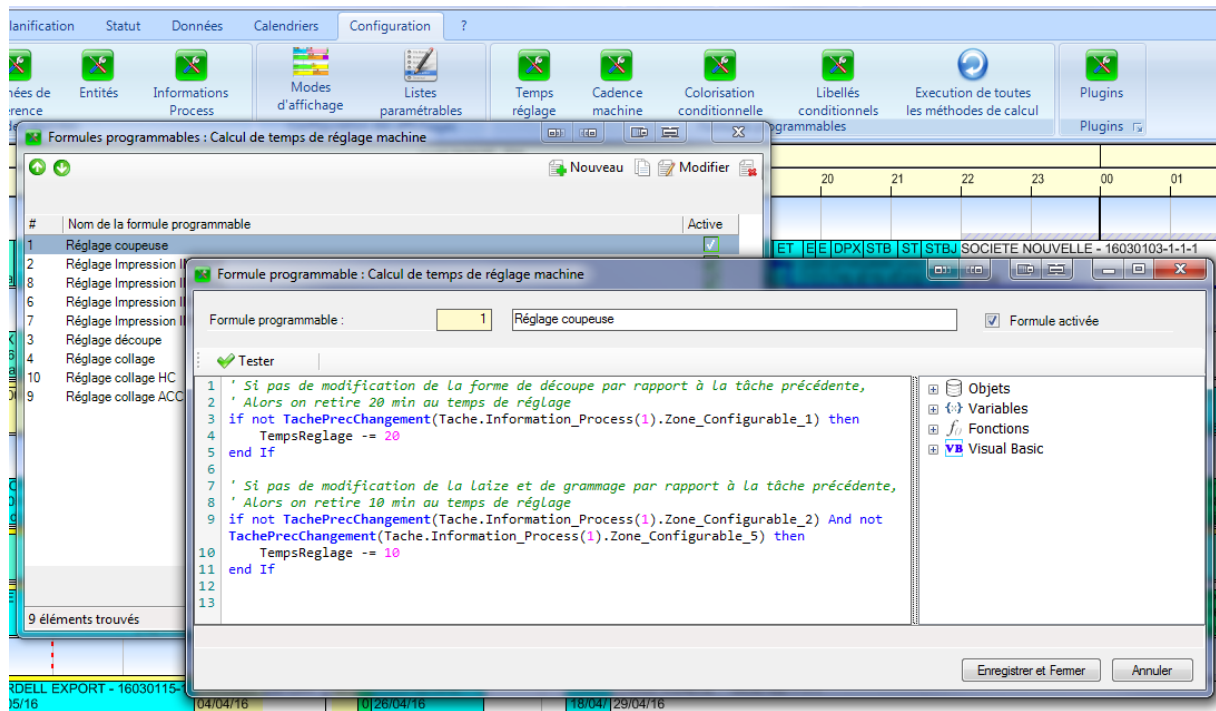
Example of a programmable formula for modifying setting time.

When moving tasks, the **setting times are automatically recomputed in real time** to take precedence into account. The horizontal, black line under the task represents the setting time, thus you can instantly visualize the efficiency of your scheduling. Combined with a key color of the common item or tool, you can thus visualize "trains" of task "groupings".
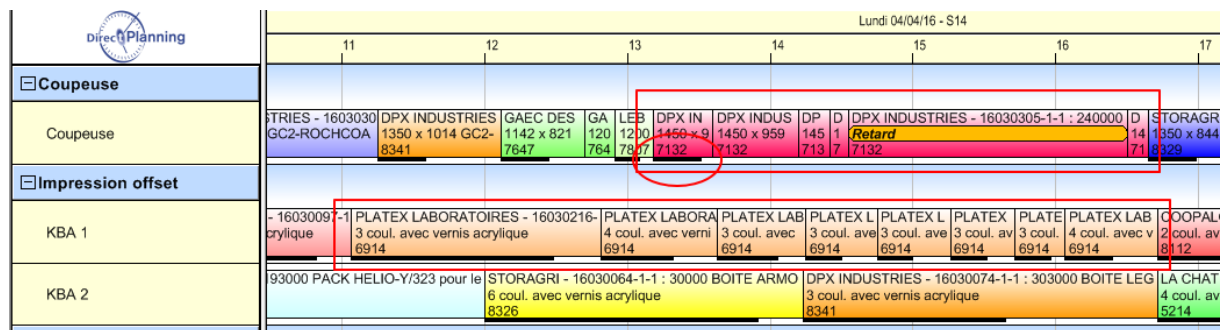
Setting times automatically computed according to the previous job.

Remark about transition times:

With the emergence of programmable formulas, that allow fine-tuning of the setting times according to the previous task, the "Transition Times" feature in Direct Planning becomes outdated. Please be aware that this **"Transition times" feature will disappear from Direct Planning in the upcoming versions**.

PROGRAMMABLE WORK RATES

The programmable work rates allow you to fully master the **work rates of your machines** according to technical data, or simply to modify the existing work rates in Direct Planning.

For example, you can specify coefficients to change the work rate, according to various ranges of the item to produce, in order to express the fact that the work rate has to be reduced for small parts that are less stable in machine run.

You can also specify multiplier (or divider) coefficients of the work rate, according to specific technical data.
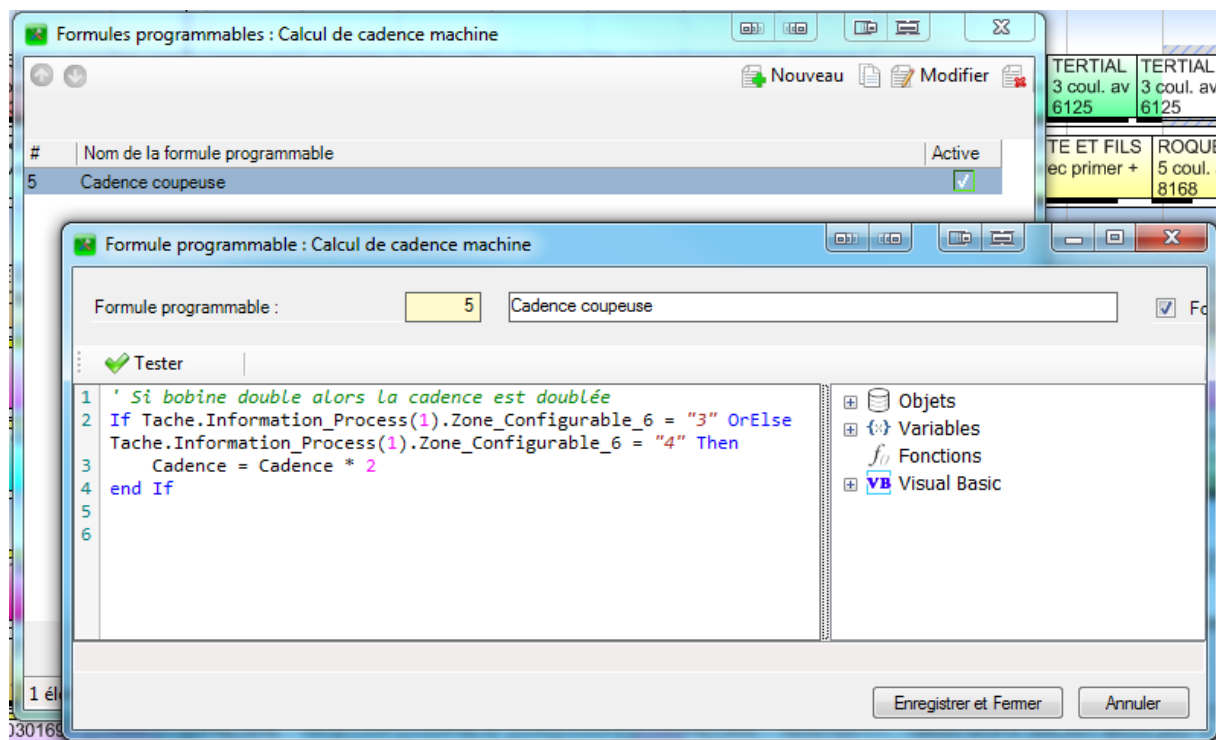

An example of programmable work rate: the work rate is doubled in case of a slitter with a double reel.

CONDITIONAL WORDINGS

Direct Planning already lets you display configurable information on every line of a ticket in the schedule. This time, we're going further, allowing you to fully configure the wordings that are displayed. This can be achieved by building rules in Visual Basic.

For example, you can build variable wordings, presenting the most relevant technical data according to the involved machine. Combined with the "Process Information" also introduced in this version, you can carry out a fine customization of the information displayed in the schedule.
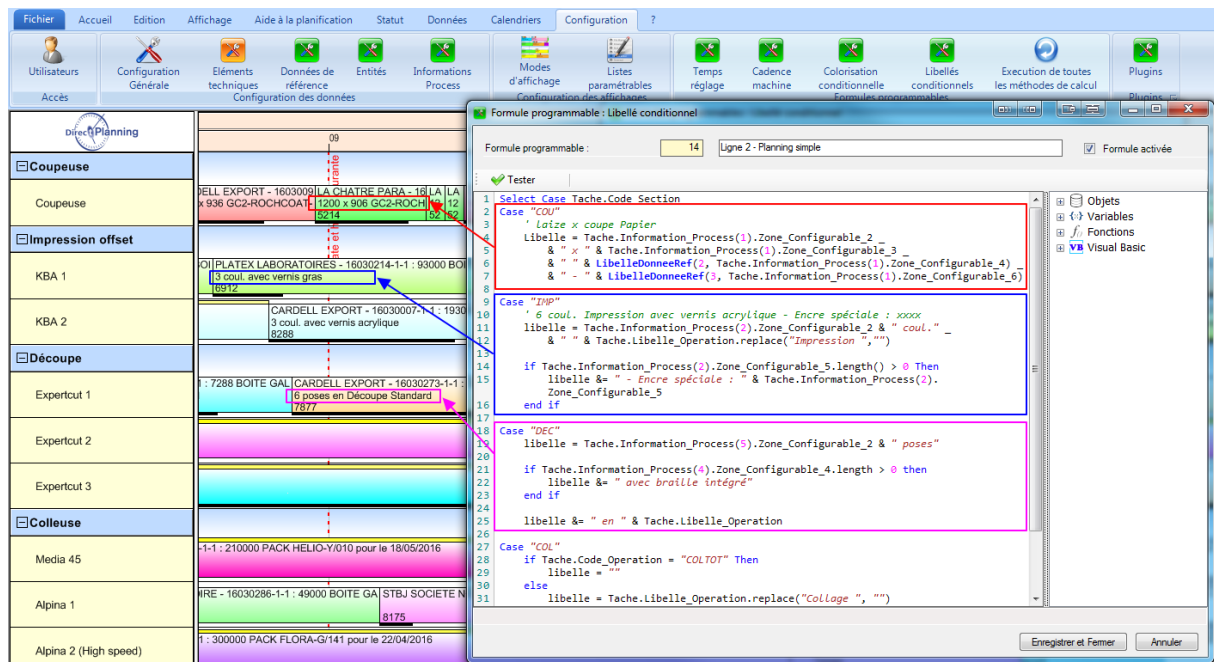
Example of configurable wordings depending on workshop section.
The most relevant technical data is displayed according to the section.

CONDITIONAL COLORS

Direct Planning already lets you color all or part of your schedule tickets, depending upon various mechanisms. Here again, we propose you to write your own colorization rules, in order to convey the most visually relevant information for the scheduler.

For example, you can create a colorization rule by range of values on a numerical, technical data (length, width, etc.)

In order to have a relevant sight of the advances and delays, you can create a task colorization rule according to the number of offside days between the end date and the latest end date of a task:
  o Blue (cold color): task ends more than 10 days ahead of time. Production is too early.
  o Blue-green: task ends 5 to 10 days ahead. Production might be a little bit early.
  o Green: task ends 1 to 5 days ahead. Great end date of production.
  o Yellow: task ends just in time.
  o Orange (warm color): task is late.
You can find this example in the schedule "UltraPack Cardboards" in the display mode "Colorization by advance / delay".

Example of conditional colorization depending on the advance or the delay of the scheduled tasks.

IMPROVEMENTS IN THE SEARCH AND CONFIGURABLE LISTS

In the configurable lists and the search window:
- o The field selector (right click on a column header) has been reviewed for better ergonomics.
- o The search window now always remain in the foreground. Thus you can schedule with the minimized search window, always visible in a corner of the screen.
- o Double-clicking on a line in the list triggers the "Focus" feature. A convenient way to quickly spot a task. Modifying the task is still available with the "Modify" button at the bottom of the screen, or a right-click.
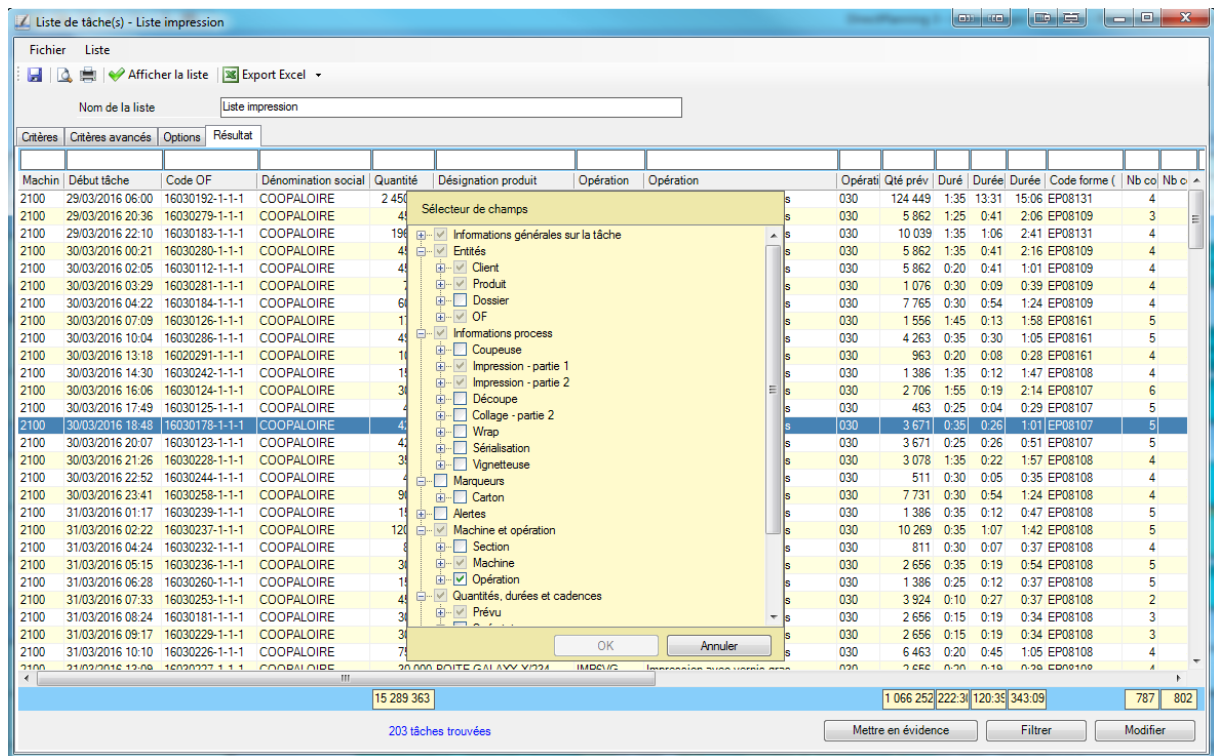
The field selector in the configurable lists: select your columns in the dictionary of Direct Planning

INTRODUCING THE PLUGINS

Direct Planning now features a plugin manager. Plugins are specific programs that can be called by various triggers from within Direct Planning. For example, upon each backup, or loading, or every n minutes, etc.

They may be used to produce an interface file with your ERP software, in the native form expected by this ERP.

Although the development of plugins is reserved to the Direct Planning team for now, we do not exclude to open it to third party developers in the future. Our development team remains at your disposal to study your project.

OTHER IMPROVEMENTS

Direct Planning also proposes the following improvements:
- o Upon saving a schedule in the ".dpl2" format file, the import / export paths are saved. When you reload this schedule file with the aim of creating a new schedule database, these paths are restored but disabled. You'll have to tick a checkbox to enable them again.
- o New import format (version 4): in order to take account of the improvements of this version, the import format enriches with new data (reference data, process information, data regarding quantities in the task details).
- o Direct Planning only manages the last 3 export formats (v4, v3 and v2). Format v1 is no longer managed from this version.
- o In the general configuration, upon enabling the "Demonstration schedule" mode, it is now possible to enter a dummy current date.
- o For each new installation, Direct Planning now automatically installs SQL Server 2012 Express database.