Version 2.1.1

Scheduling software for the Industry, Projects and Service

User guide

Industry mode

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Summary

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OPENING AND SAVING A SCHEDULE

Icon in the quick toolbar, or *File* Menu → *Open*
To open a demonstration schedule: Page 8
To open a recent schedule: Page 9

Upon starting, Direct Planning proposes to open the latest opened schedule (if configured in the user preferences).
You can cancel to open another schedule.

Below
Page 8
Please refer to the administrator's guide

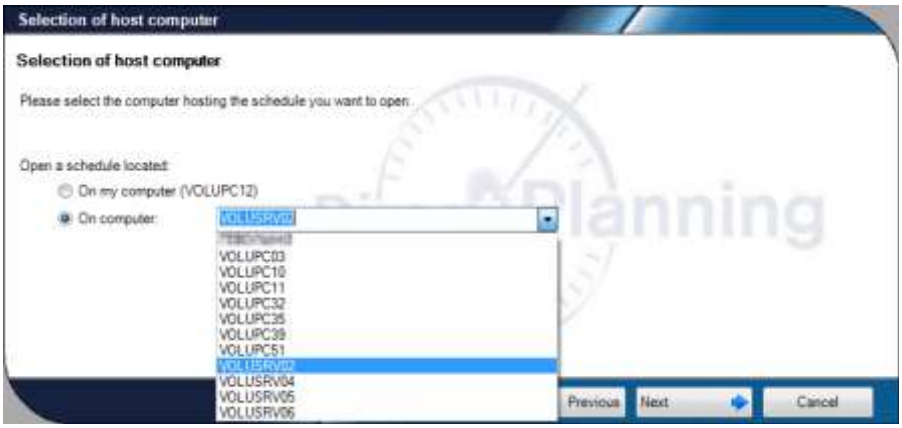
Points 3 and 4 are explained in the administrator's guide.

Chapter 1 OPENING A SCHEDULE

Icon in the quick toolbar, or *File* Menu → *Open*
Then, select **Open a schedule** (❶).

You can open a schedule that is on your computer or on another one. Select ⊙ the desired option.

To find a computer on the network, open the scrolling list and select the desired computer.



Each schedule is identified in the form *directplanningN*, where **N** stands for a sequence number attributed upon creation.
Open the scrolling list *Schedule identifier* to select a schedule.

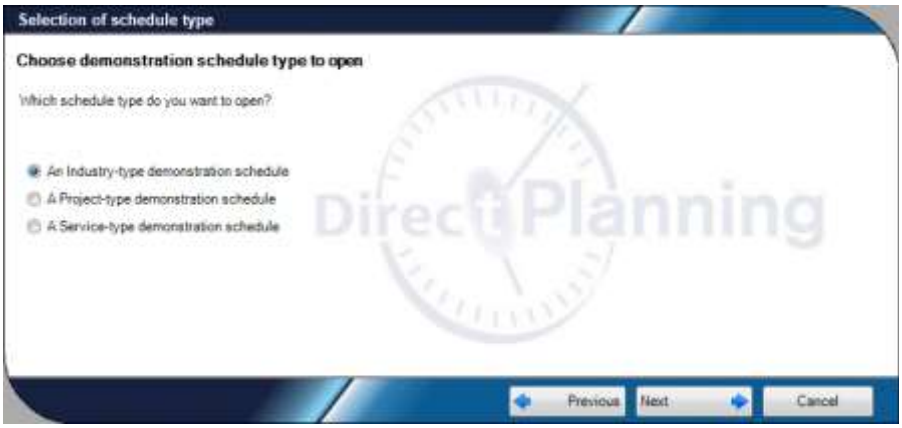
When you select a schedule, its name is displayed below.

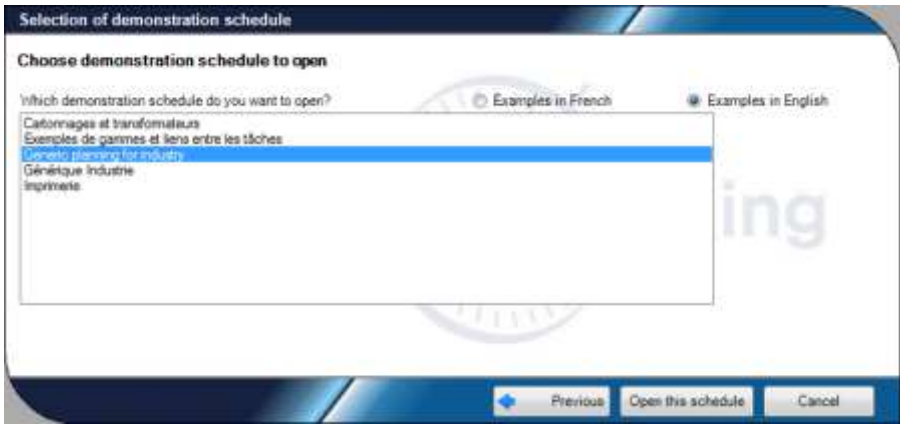
Chapter 2 OPENING A DEMONSTRATION SCHEDULE

Direct Planning proposes a few demonstration databases that aim to show you the product features.

Icon in the quick toolbar, or *File* Menu → *Open*
Then, select **Open a demonstration schedule** (❷).

First, select the schedule type you want to open.





Chapter 3 OPENING A RECENT SCHEDULE

Icon in the quick toolbar, or *File* Menu → *Recent*

The left part of this window lets you open a recently used schedule.

The right part lets you open a recently used file (please refer to the administrator guide).

Chapter 4 SAVING A SCHEDULE

There are several possibilities:

- You save an existing schedule, keeping its current name.
  Icon in the quick toolbar, or *File* Menu → *Save*
- You save an existing schedule, giving it another name (Save as).
  This case is explained in the administrator guide.
- You save a schedule for the first time (a schedule that you've just created). The schedule is saved in a local database on the machine that is currently running Direct Planning (SQL Server 2008).
  This case is explained in the administrator guide.
- You save a schedule further to opening an export file with the dpl2 format.
  This case is explained in the administrator guide.

DIRECT PLANNING MAIN WINDOW

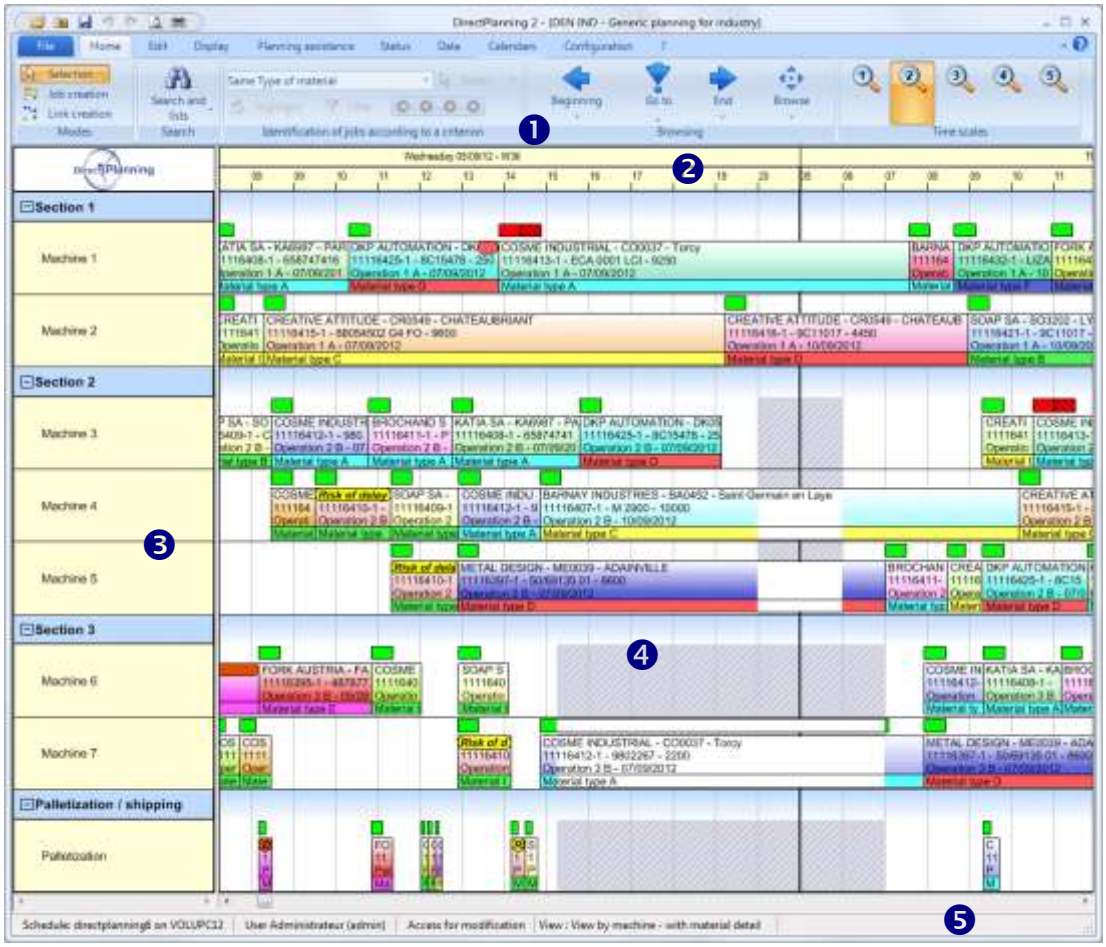


Figure 1 - Direct Planning main window

There are 5 main areas in the Direct Planning window.
These areas are detailed in the following sections.

1. Menu bar – Toolbar (next page)

2. Time scale: lets you find your way in the schedule and set the jobs at the right date and time. More information on page 12.

3. Projection: lets you decide what is displayed in the lines of the schedule.
Generally, in a workshop, the projection displays the machine grouped by sections. More information on page 14.

4. The schedule itself. This is the space where your jobs are arranged.
More information on page 17.

5. Status bar: gives the name of the schedule, its location, the user, the access type and the currently displayed view.

Chapter 5 THE MENU BAR AND THE TOOLBAR

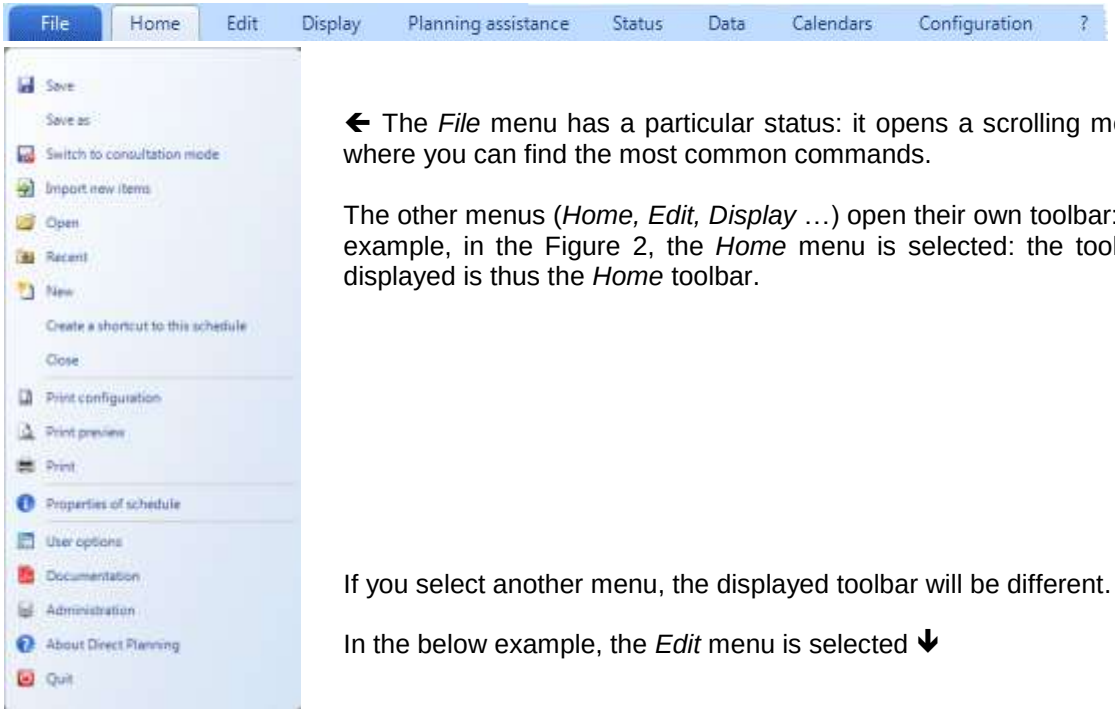
Figure 2 – The menu bar and the toolbar

On top, you'll find the classical icons that may be seen in every application 🡻

1) Open a schedule
2) Open a recent item
3) Import new items
4) Save schedule
5) Undo last action
6) Restore last action
7) Print preview
8) Print schedule

Some of these icons may be grayed out (thus unavailable) according to the current situation.
For example, if there is no action to undo, the 5th icon will be grayed out.

🡻 In the middle, the menu itself

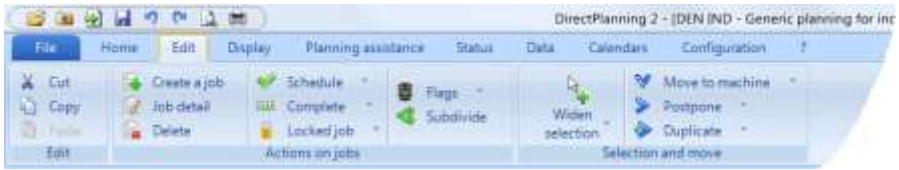


🡸 The *File* menu has a particular status: it opens a scrolling menu where you can find the most common commands.

The other menus (*Home, Edit, Display* …) open their own toolbar: for example, in the Figure 2, the *Home* menu is selected: the toolbar displayed is thus the *Home* toolbar.

If you select another menu, the displayed toolbar will be different.

In the below example, the *Edit* menu is selected 🡻



Chapter 6 THE TIME SCALE

The time scale lets you find your way in the schedule and set the jobs at the right date and time.

Remark The time scale of your schedule may have a different layout from the one below, which represents a middle zoom level.
If you change the zoom level (see further in this chapter), the color of the time scale changes.

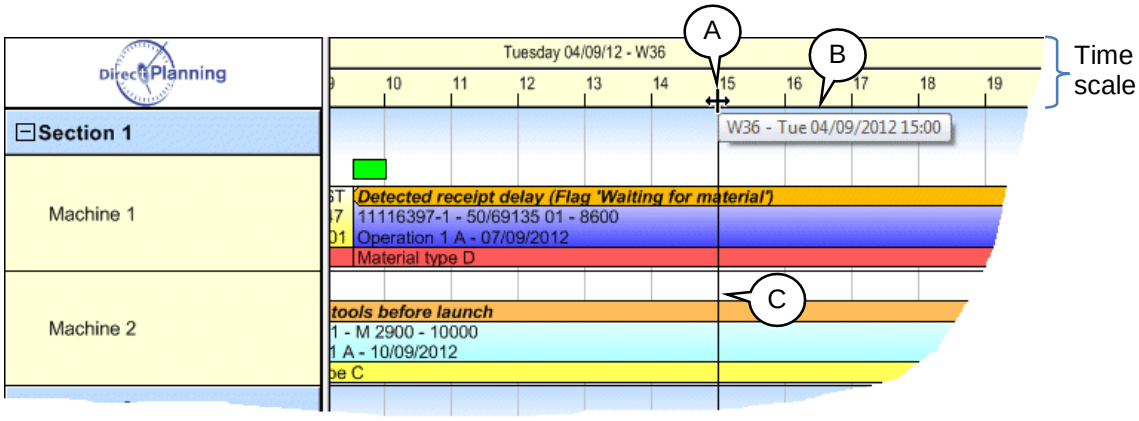


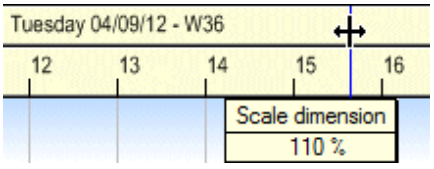
Figure 3 – The time scale

A When the mouse cursor hovers the time scale, it takes the following shape: ✢

B At the same time, a tooltip displays the week, the date and time of the cursor in relation to the schedule.

C Besides, a vertical line across the schedule follows each move of the cursor to let you accurately position your job.

You can *stretch* or *contract* the time scale: left-click the mouse and watch the tooltip: it says the scale dimension, 100%. This dimension is relative to the currently displayed scale at that very moment.



Holding down the left button, move the cursor to the right to stretch the scale (values over 100%). Move it to the left to contract the scale (values under 100%).

Why stretch or contract the time scale? To select the optimum balance between the **number of displayed data on screen** and the **readability of the information**.
The more you stretch, the more readable the information, the less data are displayed.
The more you contract, the less readable the information, the more data are displayed.

Remarks

- When you resize the time scale, you *temporarily* change its value. Your setting is not saved. The values of the time scales are set by the administrator in the display modes.
  Selecting another display mode (page 14), you might have another time scale.
- The scale change is just visual: it has no impact on the job layout in the schedule.

Context menu in the time scale

Right-clicking in the time scale displays a context menu.

This menu offers 3 main action types:

1) Go to… to move around in the schedule.
   You'll find these features in the *Home* menu.
   For your moves inside the schedule, please read *Browsing the schedule* on page
2) Planning assistance:
   You'll find these features in the *Planning assistance* menu.
3) Time scales: you can choose from 5 time scales configured by the administrator for the current display mode.

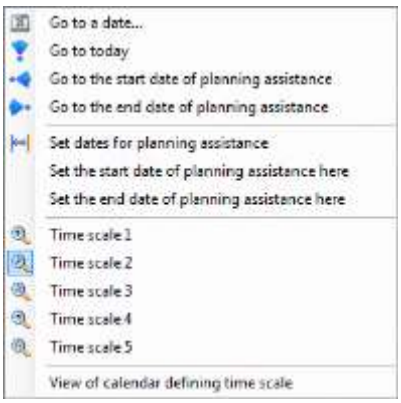


Figure 4 – Context menu in the time scale

These 5 time scales are also available from the *Home* menu.
➔ The currently used time scale is shown in a different color (scale 2 in this example).

Chapter 7 THE PROJECTION

Thanks to the display modes (configured by the administrator), Direct Planning lets you create as many projections as there are different users.

The projection of a schedule is displayed vertically, in the left part of the Direct Planning window.

The scheduler will choose a display mode with a projection by machines, grouped by sections, which is particularly suitable to schedule his machines (Figure 5).

On the other side, the salesman will prefer a display mode with a projection by orders, grouped by customers: this projection lets him see all the orders of a customer who calls him to learn about the progress of his orders (Figure 6).

Other users will see the schedule with different perspectives, with a display mode involving other projections.

To select a projection, go to the *Display* menu and open the list of display modes.

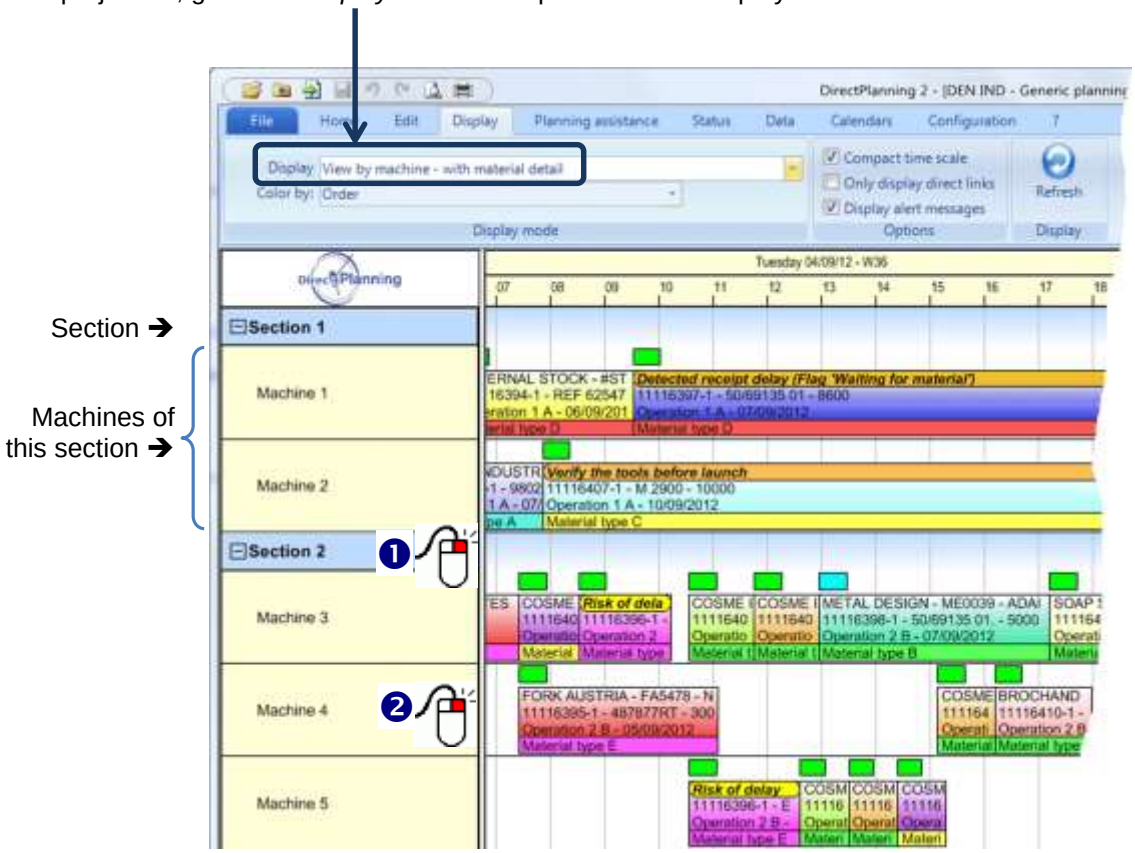


Figure 5 - Projection by sections, machines

In most cases, the projection by sections, machines is the most suitable to the scheduler.
Sections: page 20
Machines: page 22

Here, we selected a projection by customers and orders. ↓
Customers and orders are entities (page 46).

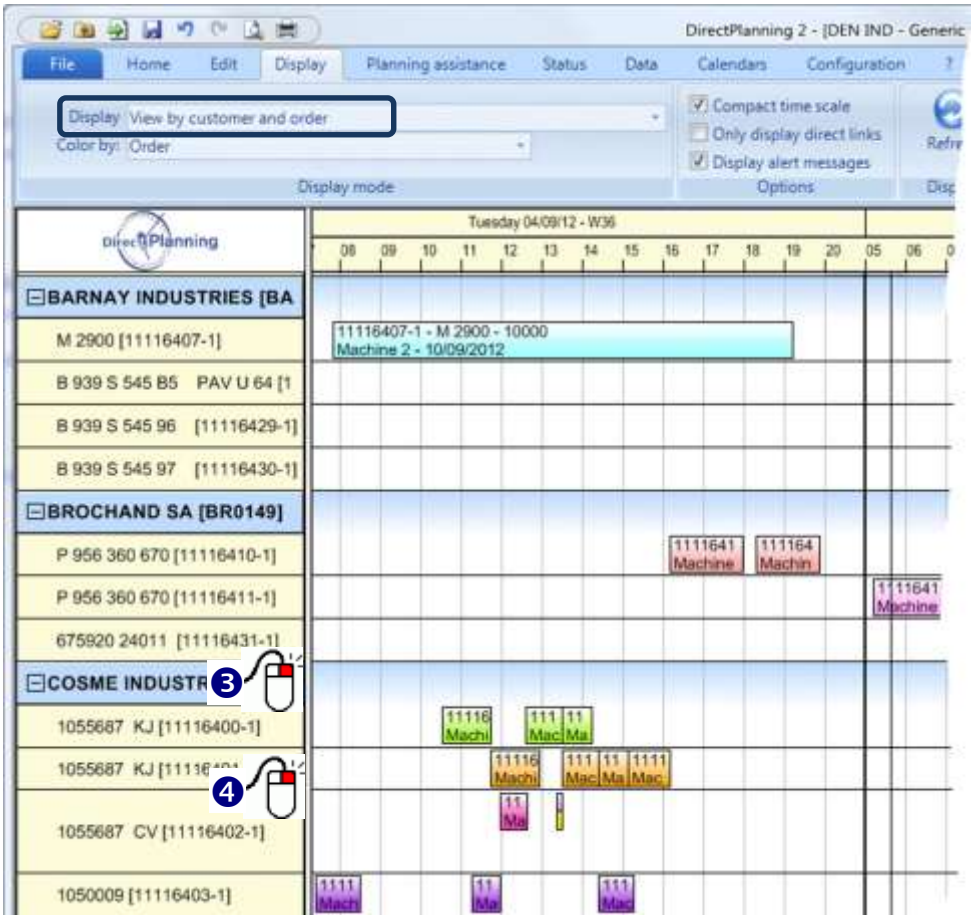


Figure 6 - Projection by customers, orders

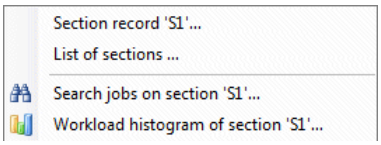
❶❷❸❹ Available actions upon right-clicking in the projection area

Right-clicking in the projection area lets you perform actions that will be discussed later.
Available actions are different (see next page),

- according to the projection (sections/machines or any other entity)
- depending on whether the cursor is on a group or an isolated piece of data.

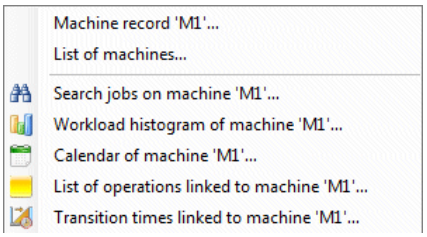
❶ Right-clicking on a section

Access the section form. Page 21
Access the list of sections. Page 20
Search jobs of this section. Page 155
Workload histogram of this section. Page 185



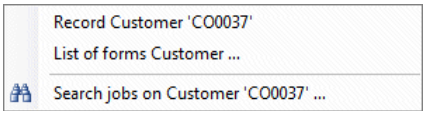
❷ Right-clicking on a machine

Access the machine form. Page 24
Access the list of machines. Page 22
Search jobs of this machine. Page 155
Workload histogram of this machine. Page 185
Calendar of this machine. Page 77
List of operations associated with this machine. Page 155
Transition times associated with this machine. Page 42



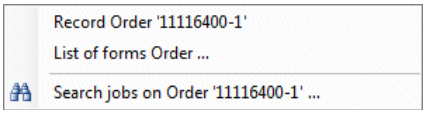
❸ Right-clicking on a group that is not a section (here, the *Customer* entity)

Access the group form. Page 49
Access the list of groups. Page 46
Search jobs of this group. Page 155



❹ Right-clicking on a piece of data that is not a machine (here, the *Order* entity)

Access the form of this piece of data. Page 49
Access the list of items of this piece of data. Page 46
Search jobs of this piece of data. Page 155



Chapter 8 THE SCHEDULE

The planning area occupies the main part of the screen.
This is the working space where your jobs are arranged.
Each rectangle represents an activity performed by a machine at a given time.
In Direct Planning, we use the generic term of Job.

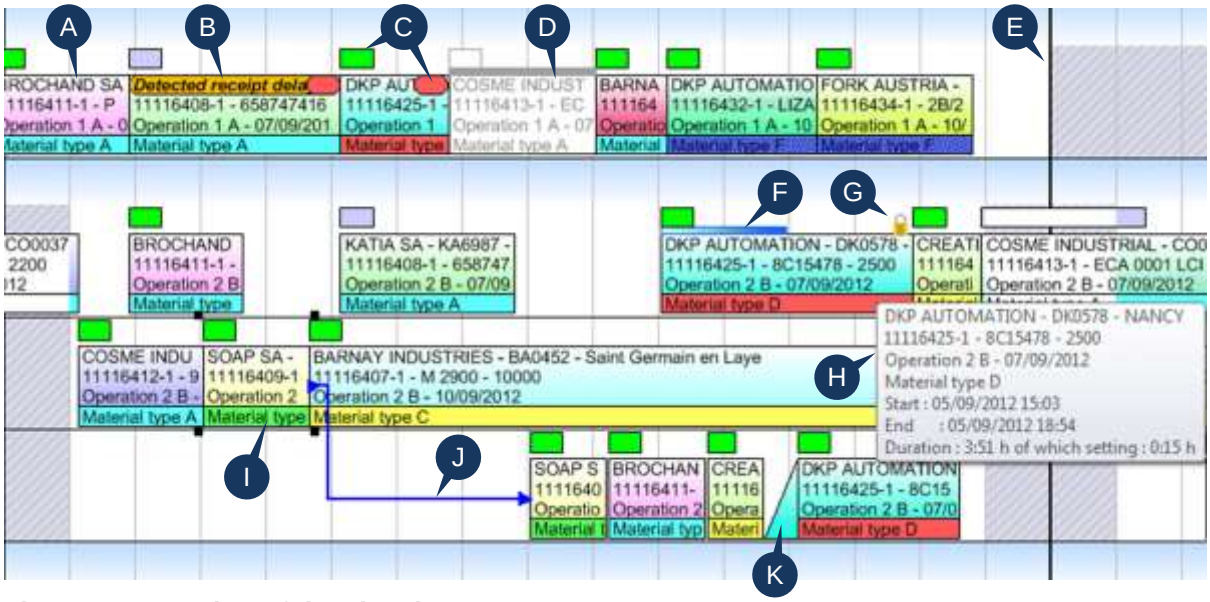


Figure 7 – Overview of the planning area

- A Job
- B Alert message on a job. Page 113
- C Flags on a job. Page 108
- D Completed job (grayed contents, progress status and flags). Page 102
- E Inactivity area. Page 50
- F Progress status of an unfinished job: blue bar. Page 96
- G Padlock indicates a locked job. Page 96
- H Tooltip: displayed when the mouse cursor hovers a job.
- I Selected job: when you click on a job, it is surrounded by 4 small, black rectangles.
- J Links between jobs: when a job is selected, its links are shown. Page 139
- K Transition time between 2 jobs, in the form of a triangle. Page 95

THE BASIC DATA OF THE SCHEDULE

This menu lets you access the various data of Direct Planning.
These data will be used to characterize the jobs that you'll insert in the schedule.

Figure 8 – The data menu

Note | The administrator might have set restrictions that prevent you from create, modifying or deleting data.

Chapter 9 TECHNICAL DATA

The administrator guide explains how the technical data may be used.
Here's a short review.

When you schedule a job, you specify a start and end date and time.
If possible, if Direct Planning has the required information, it will calculate and propose an end date and time, based upon the job duration.

To calculate this duration, the program needs an average duration of setting and an average work rate.
It also needs the planned engaged quantity, which you enter upon job creation.

- The average duration of setting (average setting time) is the time required to set up a machine before starting a job. It is stated in hours – minutes.
- The average work rate, associated with the quantity stated in the working unit, makes it possible to calculate the running time of a job.

A few examples of work rate in the area of cardboarding:

- A slitter can process 1500 sheets per hour.
- A folder – gluer can process 500 cases per hour.
- A stitcher can process 400 cases per hour.

Many factors can be part of the calculation of the average setting time and the average work rate.
So, we may distinguish 4 levels in the ascending order of precision:

Level 1	Setting times and work rate are defaulted on the machine. The operations serve only to define compatibilities between machines and operations. The working unit must be indicated on the machine. More information on page 24.
Level 2	Setting times and work rate are imposed by the machine / operation pair. More information on page 37.
Level 3	Setting times and work rate are imposed by the machine / operation pair and vary depending on a technical element. More information on page 37. Which technical element can affect the setting time and the work rate?
Level 4	Setting time and work rate are imposed by the machine / operation pair and vary depending on 2 technical elements. More information on page 37. Which technical elements can affect the setting time and the work rate?

In practice, you'll only use the level you need.
It is useless to go into a high level that your organization doesn't require.
The data involved in these 4 levels will be discussed in the following chapters:

Chapter 10 SECTIONS

Sections (or workshops) are machine groupings.
We'll see machines in the next chapter.

This window lets you manage your sections.
Grouping machines by sections allows a higher visibility of the schedule, when there are several machines. The Figure 5 (page 14) shows an example of projection by sections / machines.
When you select Sections in the data menu, you are presented with the list of the already created sections. ↓

Section 1 The list of sections

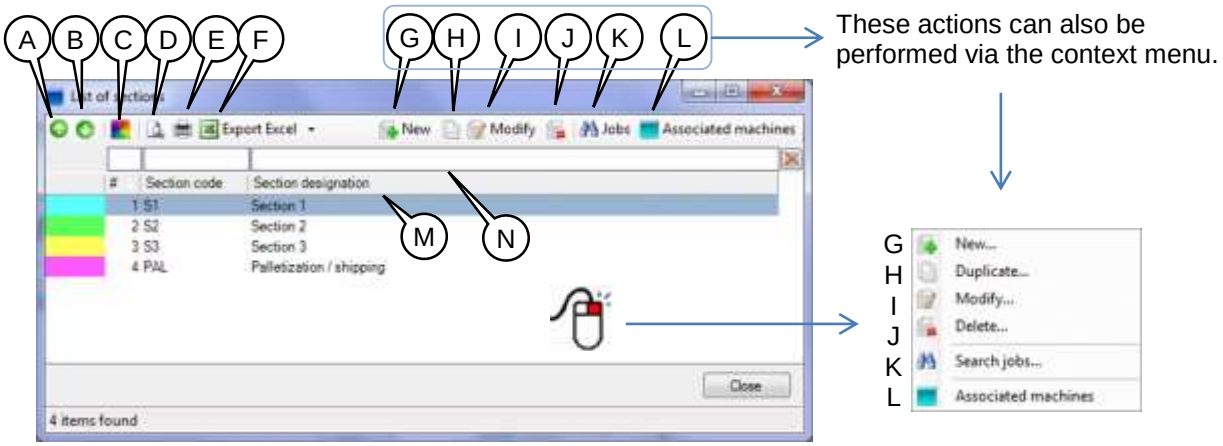


Figure 9 – The list of sections

A You can change the display order of the sections in the projection (page 14).
To move a section up, select it and click this button.

B To move a section down, select it and click this button.

C Colors can play a significant role in the layout of the schedule.
Depending upon the display modes configured by the administrator, colors can focus on such or such piece of data.
When you create a section (Figure 11), it is automatically or manually assigned a color, according to the administrator's setting.
Clicking this button displays this window:

You can reset to white the colors of all the sections.
You can also assign a color to all the sections, or only to those that are white.

Figure 10 – Assigning colors to sections

D Print preview of the list of sections
E Print the list of sections
F Export the list of sections to Excel® (page 188)
G Create a new section
H Duplicate the selected section: don't forget to give the new section a different code and wording; remember there may be no duplicate neither in the code nor in the wording. This is a general rule in Direct Planning.
I Modify the selected section. Can also be performed by double-clicking the section. If you don't have the required rights to modify, the wording of this button is *Consultation*.
J Delete the selected section. If the section contains a machine, you can't delete it.
K Initiates a search for jobs regarding all the machines of this section. Displays a result table. Job search: page 155
L Displays the list of machines of this section. From this list, you can create new machines; they will be automatically attached to this section. Creation of machines: page 24.
M Click a column header to sort.Click again to reverse sort order.
N Quick filters. Enter one or more character(s) to directly reach an item in the list.

Section 2 Creating / Duplicating / Modifying a section

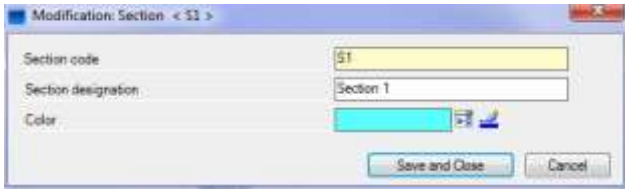


Figure 11 – The Section form

All it takes is a code and a wording to define a section.

As mentioned above, when you create a section, it is automatically or manually assigned a color, according to the administrator's setting.

Click to select a color.
Click to get the first available color (as it would be automatically assigned by Direct Planning).

Chapter 11 MACHINES

Machines are the root of your schedule: you arrange them on your schedule, more precisely the *use* of them.

This window lets you manage your machines.
The Figure 5 (page 14) shows an example of projection by sections / machines.
When you select Machines in the data menu, you are presented with the list of the already created machines. ↓

Section 3 The list of machines

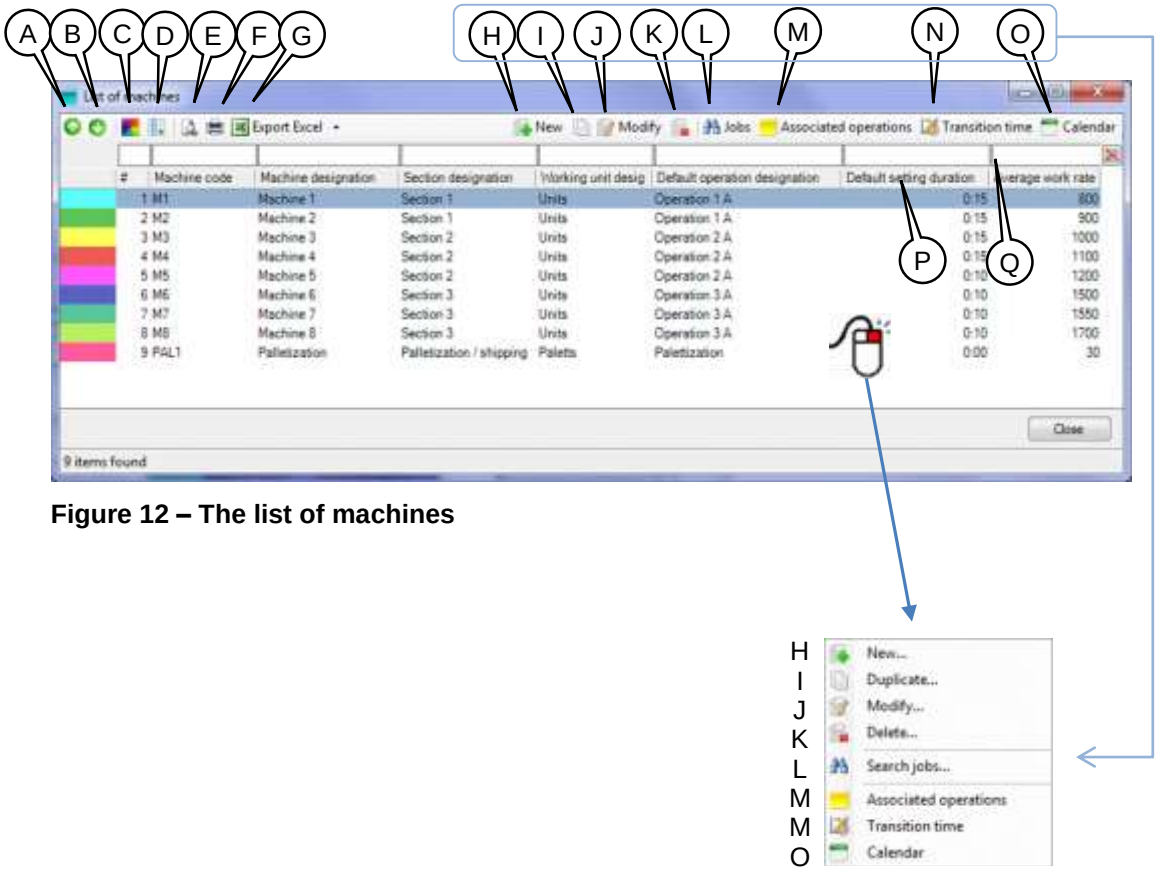


Figure 12 – The list of machines

A You can change the display order of the machines in the projection (page 14).
To move a machine up, select it and click this button.

B To move a machine down, select it and click this button.

C Colors can play a significant role in the layout of the schedule.
Depending upon the display modes configured by the administrator, colors can focus on such or such piece of data.
When you create a machine (Figure 15), it is automatically or manually assigned a color, according to the administrator's setting.
Clicking this button displays this window. ⬇

You can reset to white the colors of all the machines.
You can also assign a color to all the machines, or only to those that are white.

Figure 13 – Assigning colors to machines

D Click to display the field selector.

Figure 14 – Field selector for the list of machines

The field selector displays the available columns.

Tick the fields you want to be displayed in the list of machines, and clear the other ones.

Note: there is another way to display the field selector: right-click any column header.

E Print preview of the list of machines
F Print the list of machines
G Export the list of machines to Excel® (page 188)
H Create a new machine
I Duplicate the selected machine: don't forget to give the new machine a different code and wording; remember there may be no duplicate neither in the code nor in the wording.
This is a general rule in Direct Planning.
J Modify the selected machine. Can also be performed by double-clicking the machine.
If you don't have the required rights to modify, the wording of this button is *Consultation*.
K Delete the selected machine.
If the machine is linked to an operation, you can't delete it.
L Initiates a search for jobs regarding this machine.
Displays a result table. Job search: page 155
M Displays the list of operations linked to this machine.
From this list, you can create new operations; they will be automatically attached to this machine. Creation of operations: page 34.
Entry of compatibilities Operations / Machines : page 37

N Transition times for this machine : page 42
O Calendar of this machine (page 57)
P Click a column header to sort.Click again to reverse sort order.
Q Quick filters. Enter one or more character(s) to directly reach an item in the list.

Section 4 Creating / Duplicating / Modifying a machine

The Machine form has 3 tabs: the information about the machine (below), notes about the machine (page 26) and technical elements regarding this machine (page 26).

Code, **Wording** and **Section** are the minimum information to enter for a machine.

Every machine "belongs" to a **section** (or workshop): click to choose a section from the ones you created in the previous chapter.

Upon creation, every machine is automatically or manually assigned a color, depending on the administrator's setting.
Click to choose a color.
Click to get the first available color (as it would be automatically assigned by Direct Planning).

At that point, you can already confirm the machine creation.

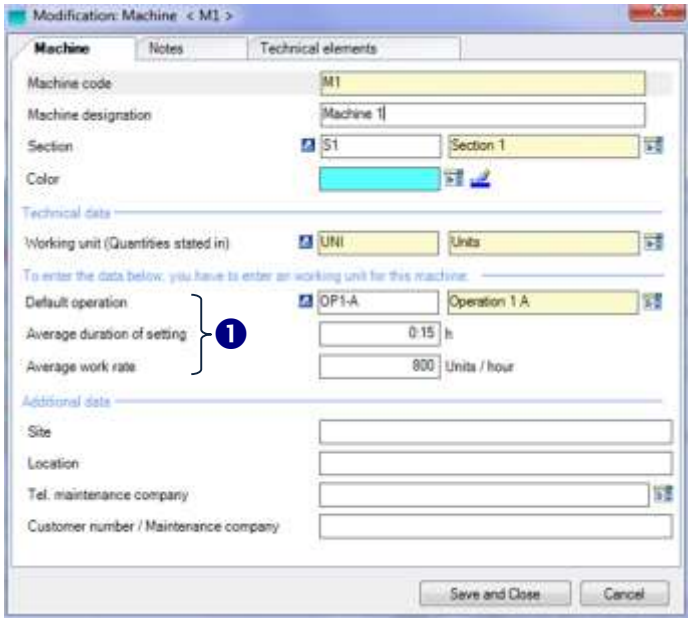


Figure 15 – The Machine form

The working unit of the machine

The working unit is the measure unit of your machines.
How do you measure the activity of such machine? In boards? In kilos? In copies? In linear meters?

Why link a working unit to a machine?

- To create a first level of compatibility. In the schedule, if you move a job from a machine to another one that doesn't have the same working unit, you get a warning message.
  The scheduling module also complies with this control.
- This also lets you specify the default operation, which eases the linking between operations and machines. More information about operations: page 32.
- This lets you specify the average setting time and work rate that have been discussed on page 19.

Click to choose a working unit from the list.
After you've selected a working unit, clicking on gives direct access to the working unit form (page 31).

Woking units are discussed in the next chapter.

Remark	You don't have to enter the working unit right now. You can come back later to the entry of machines to specify a working unit for the machines that don't have any. However, if you want to enter the other technical data (marked ❶ at the Figure 15), you have to specify the working unit first.

Default operation of machine

This operation specifies the "know-how" of your machines.
What can this machine do? Die-cutting? Glueing? Stitching?

Why link a default operation to a machine?

- ➲ To create a second level of compatibility. In the schedule, if you move a job from a machine to another one that doesn't perform the same operation, you get a warning message.
  The scheduling module also complies with this control.

Click to choose a default operation from the list.
Once you've chosen an operation, clicking gives direct access to the Operation form.

In order to be linked to a machine, the operation must have the same working unit as the machine.
More information on the operations on page 32.
More information on the working units on page 27.

Average setting time and work rate of machine

The average setting time is the required time to set up a machine before starting a job.
It is stated if hours and minutes.

The average work rate, combined with the quantity stated in the working unit, allows calculation of the job running time.

When you create a job, you specify a planned engaged quantity.
Thanks to these data, Direct Planning will calculate de job duration and will be able to propose an end date and time.
Thus, average setting time and work rate are specified on the machine: this is the level 1 as seen on page 19.

Additional data on machine

The administrator has configured these data according to your needs to enrich the entry of your machines.
These data are optional. They can be displayed in the schedules as well as in the lists.
They mey be entered in the form of text, number, date …

In the Figure 15, we have 4 configurable areas.

Notes on the machine

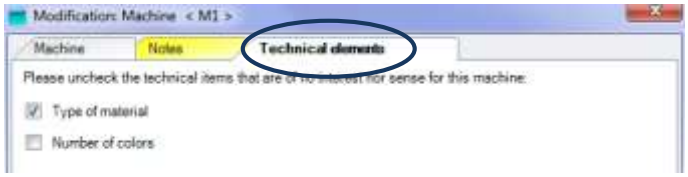
It is possible to enter notes on a machine. When there are notes on a machine, the *Notes* tab gets yellow to draw your attention.

Figure 16 – Entry of notes

Some tools are available to format the notes (cut/copy/paste, font, color, etc.)

Technical elements regarding this machine

Technical elements are described on page 35.
Some technical elements do not regard some machines.
This tab lets you specify those technical items that do not regard this machine.



In the opposite example, the PANOTEC machine is not regarded by the *fold type*.

Figure 17 - Technical items regarding this machine

By default, all the technical elements regard all the machines.
It's up to you to say those that do not regard such machine.

Remarrk	Keeping out the technical elements that are of no interest to a machine, you facilitate the imposition of setting time and work rate by technical element (pages 40 et 41). You also facilitate the transition time management (page 42).

Chapter 12 WORKING UNITS

Working units state the measure unit of your machines.
Examples: sheets, kilos, copies, linear meters…

When you select Working units in the data menu, you are presented with the list of the already created working units (page 30). ➧

Section 5 What are the working units?

In the Machine form (Figure 15, page 24), you may specify the working unit.

Linking a working unit to a machine lets you:

- Create a first level of compatibility. In the schedule, if you move a job from a machine to another one that doesn't have the same working unit, you get a warning message.
  The scheduling module also complies with this control.
  (on page 37, we'll see a second level of compatibility with operations).
- Specify the default operation, which facilitates linking between operations and machines.
  More information about operations: page 32.
- Specify the average setting time and work rate that have been discussed on page 19.

In the next 2 pages, we'll see 2 cases through 2 examples:

- You specify the working unit on the machine.
- You don't specify the working unit on the machine.

You specify the working unit on the machine.

When you create a job, you specify a planned quantity.
This quantity is stated in the working unit of the machine assigned to the job you are creating.
Direct Planning then considers the setting time and automatically calculates the planned running time.
These durations are proposed, but they *can be changed* by the planner when he creates the job.
Please check Figure 18 below.

Reminder

When we created the *M1* machine (Figure 15, page 24), we entered:

- The working unit: Units
- The average setting time: 15 minutes
- The average work rate: 800 units per hour

This information is recalled here and adjusted if applicable (❶).

We create a job on this machine, with a planned engaged quantity of 1600 cases (❷).
Direct Planning automatically calculates the running time (❸) and thus, the planned end date (❹).

Ticking ☑ one of the boxes (❺) lets you change the setting or running time calculated by Direct Planning, and impose specific durations.

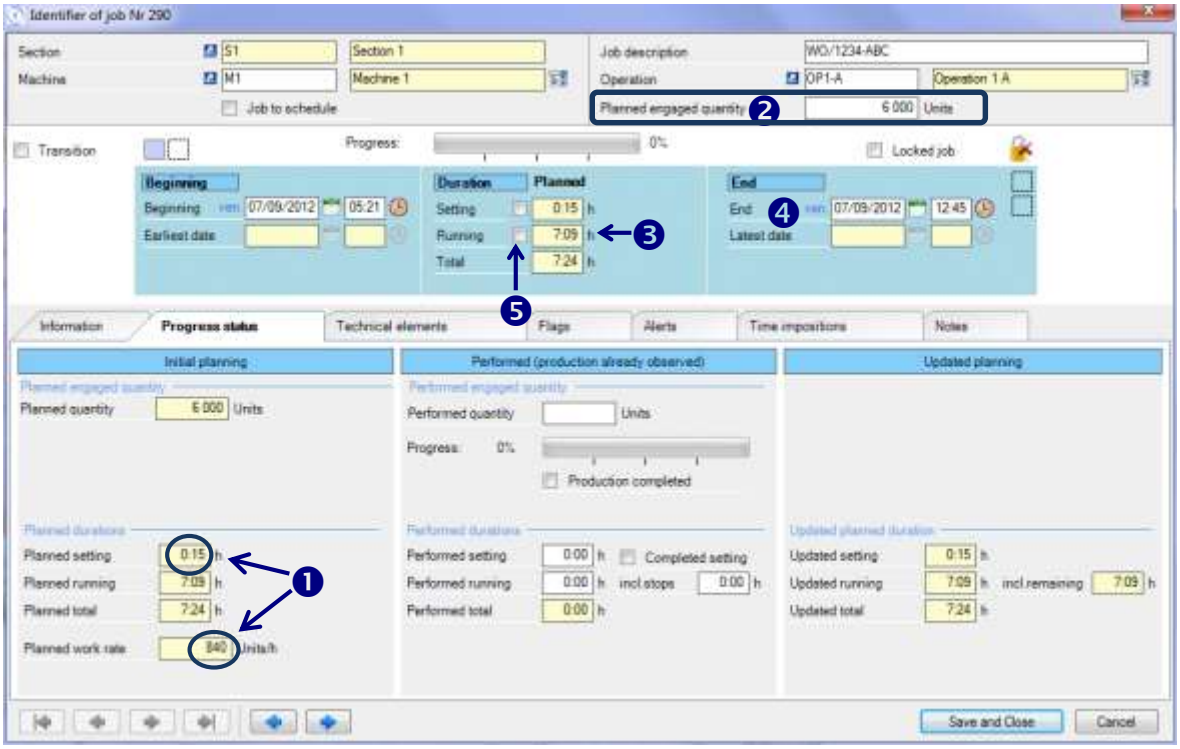


Figure 18 – Entry of a job with automatic calculation of duration

You don't specify the working unit on the machine.

When you create the machine (Figure 15, page 24), you don't specify the working unit.
This way, in the machine form, you can't enter a *default operation*, an *average setting time*, an *average work rate*.

Therefore, the job creation screen takes a different form.
As shown below, the setting and running times must be entered manually.
The planned engaged quantity (❷) can no longer be entered.

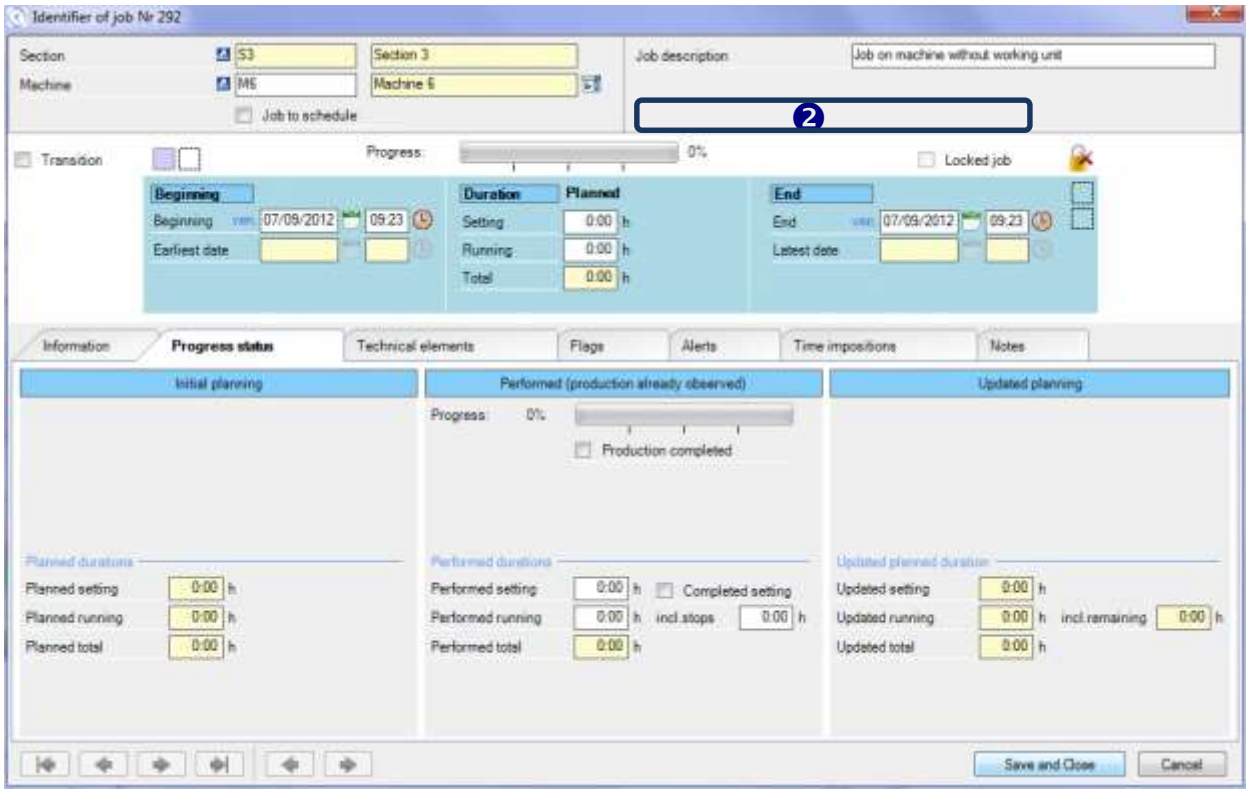


Figure 19 – Entry of a job without automatic calculation of duration

Note | In the machine form, you may also specify a working unit without indicating the durations. Upon job creation, wou will still have the possibility to enter a quantity, but this won't be enough to automatically calculate the duration.

Section 6 The list of working units

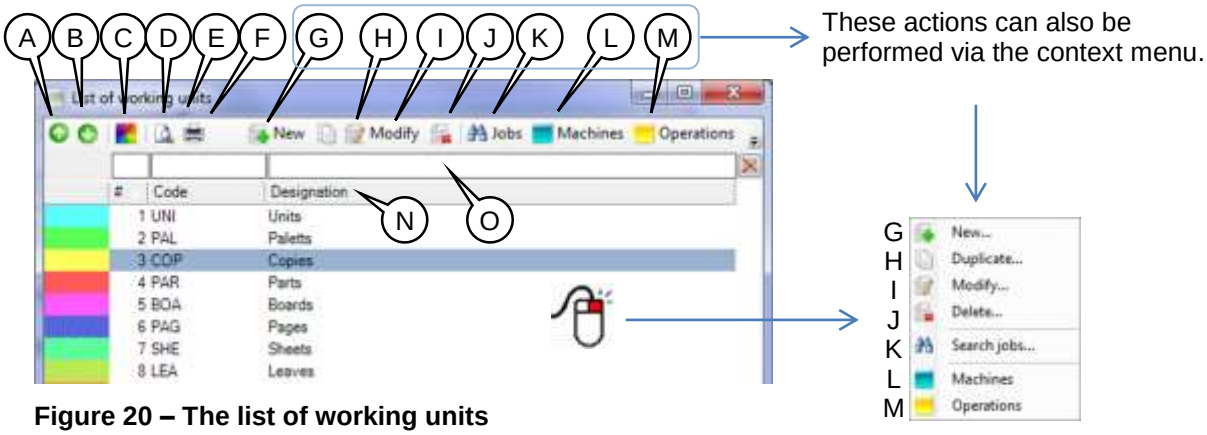


Figure 20 – The list of working units

A You can change the display order of the working units in the entry of machines (page 24).
To move a working unit up, select it and click this button.

B To move a working unit down, select it and click this button.

C Colors can play a significant role in the layout of the schedule.
Depending upon the display modes configured by the administrator, colors can focus on such or such piece of data.
When you create a working unit (page 31), it is automatically or manually assigned a color, according to the administrator's setting.
Clicking this button displays this window. ⬇

You can reset to white the colors of all the working units.
You can also assign a color to all the working units, or only to those that are white.

Figure 21 – Assigning colors to working units

D Print preview of the list of working units
E Print the list of working units
F Export the list of working units to Excel® (page 188)
G Create a new working unit
H Duplicate the selected working unit: don't forget to give the new working unit a different code and wording; remember there may be no duplicate neither in the code nor in the wording. This is a general rule in Direct Planning.
I Modify the selected working unit. Can also be performed by double-clicking the working unit. If you don't have the required rights to modify, the wording of this button is *Consultation*.
J Delete the selected working unit.
If the working unit is used by a machine, you can't delete it.
K Initiates a search for jobs of machines having this working unit.
Displays a result table. Job search: page 155
L Displays the list of machines using this working unit.
M Displays the list of operations using this working unit.
N Click a column header to sort. Click again to reverse sort order.
O Quick filters. Enter one or more character(s) to directly reach an item in the list.

Section 7 Creating / Duplicating / Modifying a working unit

Figure 22 – The working unit form

All it takes is a code and a wording to define a working unit.

As mentioned above, when you create a working unit, it is automatically or manually assigned a color, according to the administrator's setting.

Click to select a color.
Click to get the first available color (as it would be automatically assigned by Direct Planning).

Chapter 13 OPERATIONS

Your machines perform Operations.
Examples: a machine does die-cutting, while another one does glueing, etc.

When you select Operations in the data menu, you are presented with the list of the already created operations (page 32).

Section 8 What are the operations?

In the Machine form (Figure 15, page 24), you may specify a default operation (provided that you have specified the working unit).

Linking an operation with a machine lets you:

- Create a second level of compatibility. In the schedule, if you move a job from a machine to another one that doesn't perform the same operation, you get a warning message.
  The scheduling module also complies with this control.
  We have already seen the first level of compatibility on page 27 (working units).
- Impose the average setting time and work rate that have been discussed on page19.
  An example is given on page 39, Figure 30.

To be linked with a machine, the operation must have the same working unit as the machine.

Section 9 The list of operations

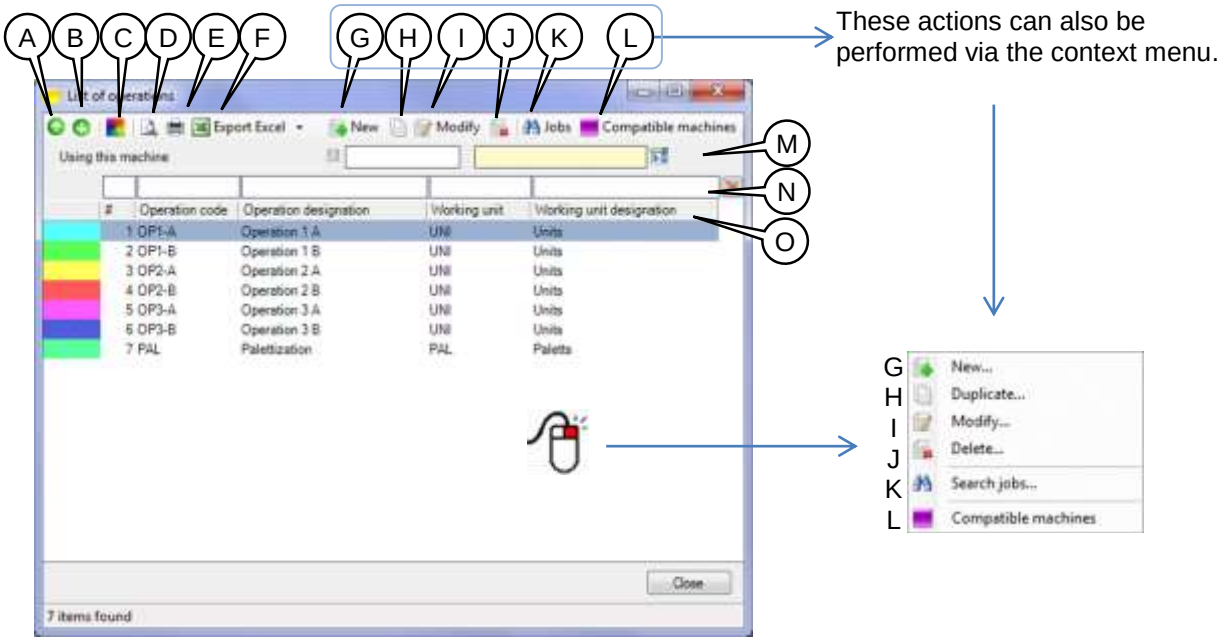


Figure 23 – The list of operations

A You can change the display order of the operations in the entry screen of the Operations/Machines links (page 37).
To move an operation up, select it and click this button.

B To move an operation down, select it and click this button.

C Colors can play a significant role in the layout of the schedule.
Depending upon the display modes configured by the administrator, colors can focus on such or such piece of data.
When you create an operation (page 34), it is automatically or manually assigned a color, according to the administrator's setting.
Clicking this button displays this window. ⬇

You can reset to white the colors of all the operations.
You can also assign a color to all the operations, or only to those that are white.

Figure 24 – Assigning colors to operations

D Print preview of the list of operations

E Print the list of operations

F Export the list of operations to Excel® (page 188)

G Create a new operation

H Duplicate the selected operation: don't forget to give the new operation a different code and wording; remember there may be no duplicate neither in the code nor in the wording.
This is a general rule in Direct Planning.

I Modify the selected operation. Can also be performed by double-clicking the operation.
If you don't have the required rights to modify, the wording of this button is *Consultation*.

J Delete the selected operation.
If the operation is used by a machine, you can't delete it.

K Initiates a search for jobs of machines performing this operation.
Displays a result table. Job search: page155

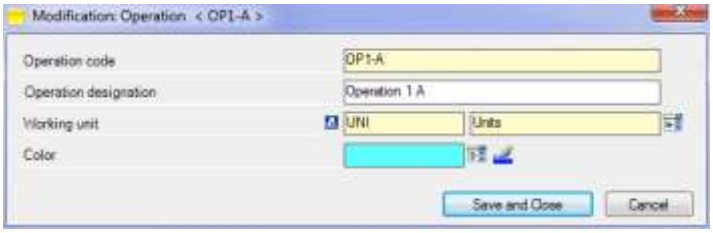
L Displays the list of machines using this operation.

M You can filter the list of operations by specifying a particular machine.
Click to select a machine in the list.
After you've selected a machine, clicking directly accesses the machine form (Figure 15, page 24).

N Quick filters. Enter one or more character(s) to directly reach an item in the list.

O Click a column header to sort.Click again to reverse sort order.

Section 10 Creating / Duplicating / Modifying an operation



All it takes is a code and a wording to define an operation.

Then you enter the working unit.
Working units are explained in the previous chapter.

Figure 25 – The Operation form

When you create an operation, it is automatically or manually assigned a color, according to the administrator's setting. Click to select a color.
Click to get the first available color (as it would be automatically assigned by Direct Planning).

The working unit of the operation

The working unit, already linked with the machine (Figure 15, page 24), guarantees the consistency of the association that youre are going to set between operations and machines (page 37).
To be linked with the machine, the operation must have the same unit as the machine.

Click to choose a working unit from the list.
Once you've chosen a working unit, clicking gives direct access to the working unit form (Figure 22, page 31).

Warning	If you have already associated this operation with a compatible machine (page 37), you won't have the possibility to change the working unit. You will have to first remove this association prior to changing the working unit.

Chapter 14 TECHNICAL ELEMENTS

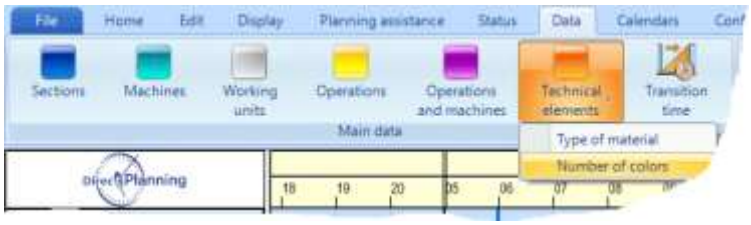
Technical elements are additional features of your machines.
Examples in the carboarding area: Number of colors, Fluting type, Splicing type …
The technical elements first need to be configured according to your needs.

Section 11 What are technical elements?

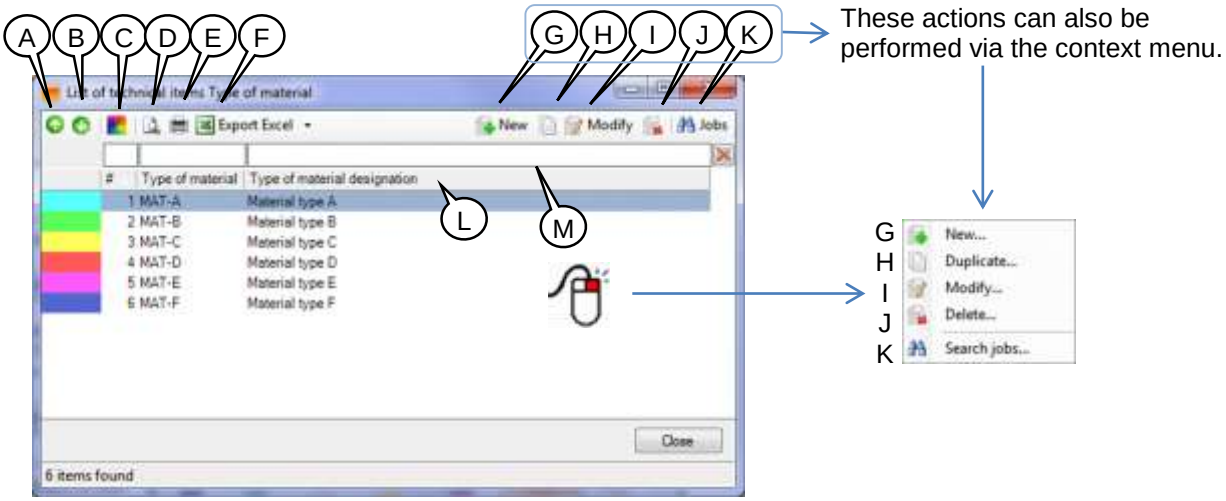
They may be involved in the calculation of the average settting / running time that have been discussed on page 19.
Their implementation is explained on page 37.

Section 12 The list of technical elements

Selecting *Technical elements* in the *Data menu* displays a sub-menu that shows the technical elements that have been configured by the administrator. ➔



In this chapter, we'll introduce the *Type of material* as an example of possible technical element ↙



If you want to impose a setting time and a work rate for the machine/operation pair, involving one technical elements (page 40) or two technical elements (page 41), you can impose the display order of the technical elements in the list that you'll be presented.

A To move a technical element up in the list, select it and click this button.
B To move a technical element down in the list, select it and click this button.

C Colors can play a significant role in the layout of the schedule.
Depending upon the display modes configured by the administrator, colors can focus on such or such piece of data.
When you create technical element (Figure 28, page 36), it is automatically or manually assigned a color, according to the administrator's setting.
Clicking this button displays this window. ⬇

You can reset to white the colors of all the operations.
You can also assign a color to all the operations, or only to those that are white.

Figure 27 – Assigning colors to technical items

D Print preview of the list of technical elements
E Print the list of technical elements
F Export the list of technical elements to Excel® (page 188)
G Create a new technical element
H Duplicate the selected technical element: don't forget to give the new technical element a different code and wording; remember there may be no duplicate neither in the code nor in the wording.
This is a general rule in Direct Planning.
I Modify the selected technical element. Can also be performed by double-clicking the technical element. If you don't have the required rights to modify, the wording of this button is *Consultation*.
J Delete the selected technical element.
If the technical element is linked to a job, you can't delete it.
K Initiates a search for jobs using this technical element.
Displays a result table. Job search: page 155
L Click a column header to sort. Click again to reverse sort order.
M Quick filters. Enter one or more character(s) to directly reach an item in the list.

Section 13 Creating / Duplicating / Modifying a technical element

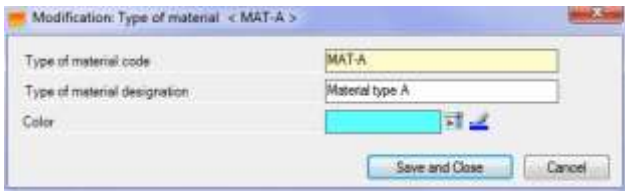


Figure 28 – The Tecnical element card

All it takes is a code and a wording to define a technical element.

As mentioned above, when you create a technical element, it is automatically or manually assigned a color, according to the administrator's setting.

Click to select a color.
Click to get the first available color (as it would be automatically assigned by Direct Planning).

Chapter 15 OPERATIONS AND MACHINES

This feature lets you link machines and operations.
There are 2 targets to this association.

Target 1 Create family of machines that are compatible with one another. These machines have the same working unit as the operation. In the schedule, if you move a job to an incompatible machine, you get a warning message.
The scheduling module complies with this compatibility: in its search for optimization, it will be able to move a job to another machine, provided that both machines belong to the same family.

Target 2 Impose the average setting time and the average work rate that are discussed on page 19:

- Level 2 Setting times and work rate are imposed by the machine / operation pair.
  More information on page 3937.
- Level 3 Setting times and work rate are imposed by the machine / operation pair and vary depending on one technical element. More information on page 40
- Level 4 Setting times and work rate are imposed by the machine / operation pair and vary depending on 2 technical elements. More information on page 41

In order to fully grasp this chapter, you must have read and understood the following chapters:

- page 19 - Technical data
- page 22 - Machines
- page 27 - Working units
- page 32 - Operations
- page 35 - Technical elements

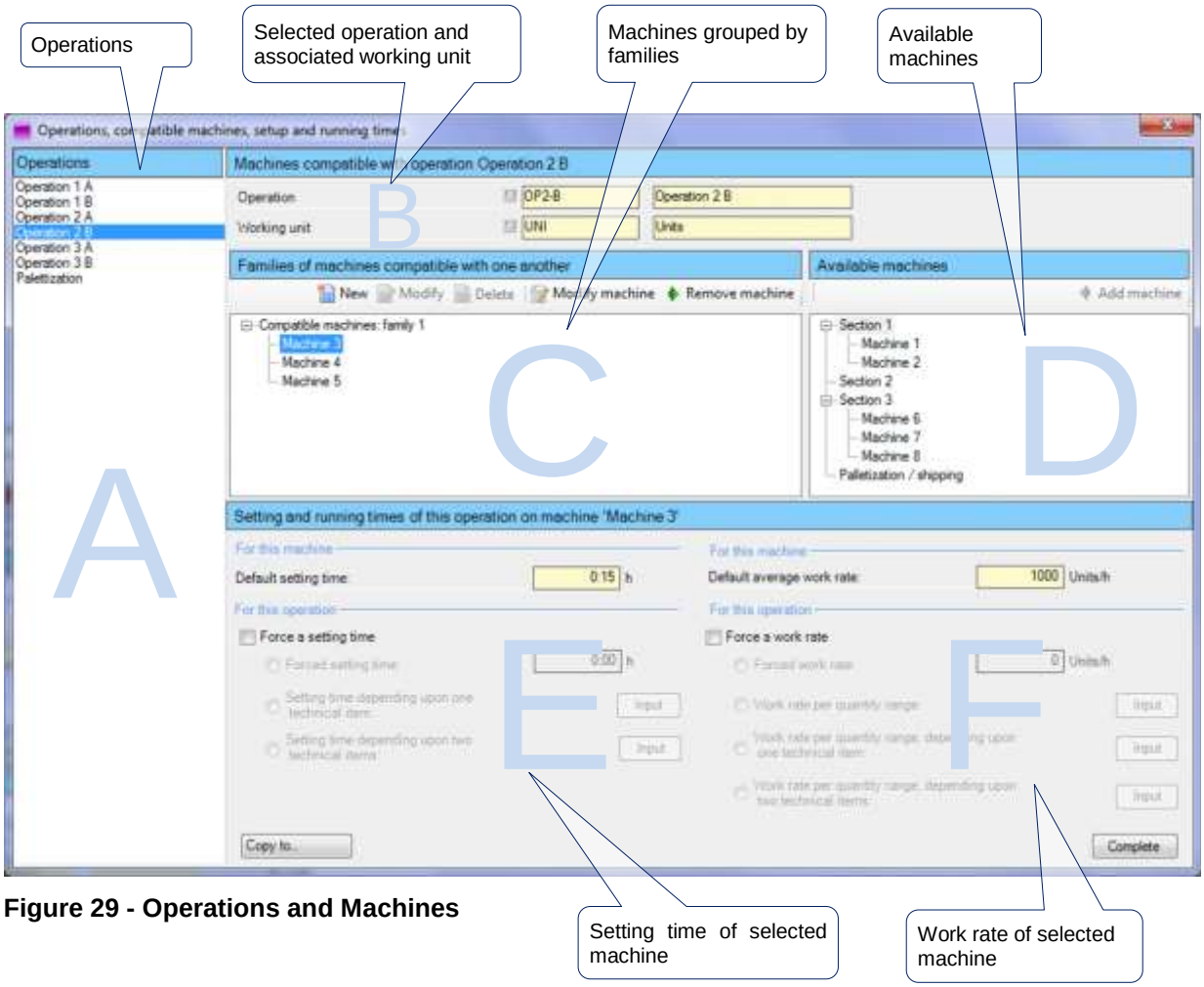


Figure 29 - Operations and Machines

How to create families of machines compatible with one another

In order to make the following explanations easier, the window depicted in Figure 29 has been cut up in 6 areas marked from A to F.

Select an operation in the **A** area. In our example, the OP2-B operation.
The **B** area shows the selected operation as well as the associated working unit.
The **C** area shows the machines compatible with one another (same working unit, same operation).

Use the mouse to pick machines in the **D** area and drop them in the **C** area, in one of the families.
Initially, the family 1 exists; you can rename it. To create other families, see below.

You can also select a machine in the D area and click *Add machine*.
Or perform the reverse operation: select a machine in the **C** area and click *Remove machine*.
You can
- create a new family of machines: button *New*
- rename a family: button *Modify*
- delete a family: button *Delete*
- modify a machine: button *Modify machine* (or double-click the machine)

Section 14 Imposing a setting time and a work rate for a machine / operation pair

This section addresses the Level 2 of Target 2 announced at the beginning of this chapter (page 37).

The **E** area lets you impose a setting time for this machine/operation pair.
The **F** area lets you impose a work rate for this machine/operation pair.

In both cases, the default values (entered in Figure 15, page 24) are recalled on a yellow background.

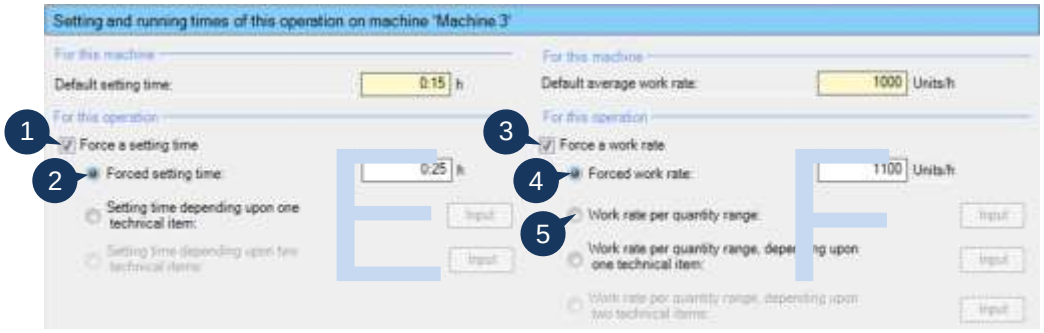


Figure 30 – Impose a setting time and a work rate for a machine and an operation

To impose a setting time, you must first tick ☑ the box ❶.
This lets you enter an imposed setting time (❷): *0:25*, in the above example.

To impose a work rate, you must first tick ☑ the box❸.
This lets you enter an imposed work rate (❹): *1100*, in the above example.

You can also have the work rate vary depending on quantity ranges.
Click the button (❺) then, if necessary, click the **Entry** button.

You are then presented with an entry grid that lets you enter quantity ranges and corresponding work rates.

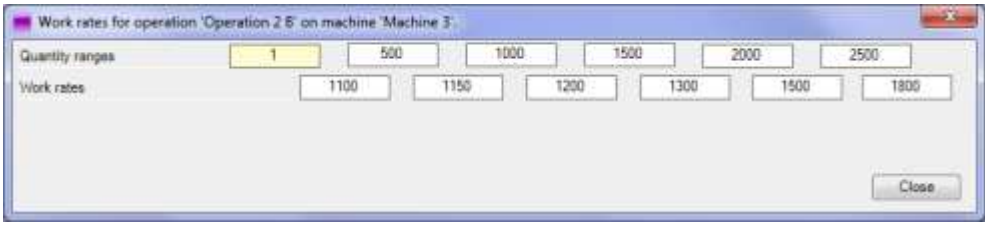
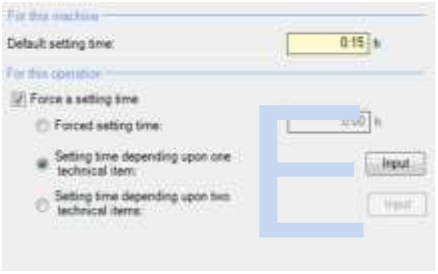


Figure 31 – Specifying a work rate by quantity range

Section 15 Imposing a setting time and a work rate for a machine / operation pair while involving a technical element

This section addresses the Level 3 of Target 2 announced at the beginning of this chapter (page 37).



Now, let's say that the setting time varies upon a technical element: the **type of material**.

In the **E** area, the default setting time is recalled on a yellow background (*0:15 h*).

Select ⊙ the relevant button to open the entry grid of the setting times according to the technical element. 🡻

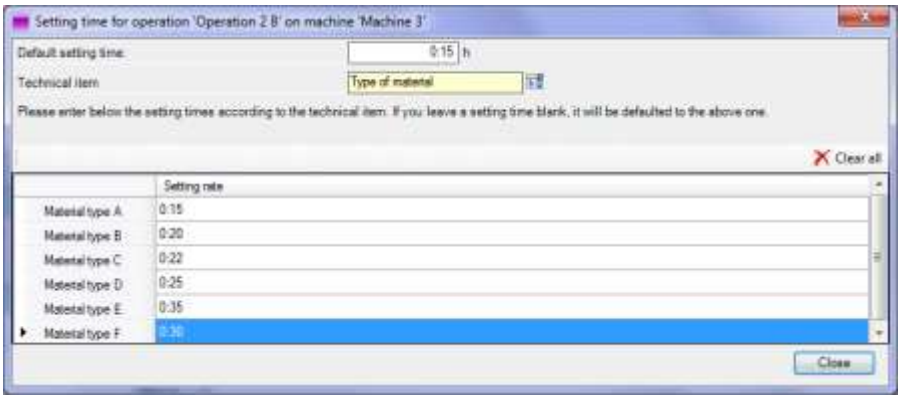
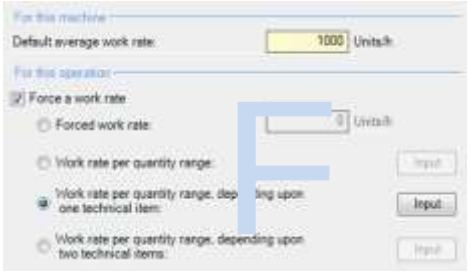


Figure 32 - Grid of setting times depending on a technical item

Now, let's say that the work rate varies upon the quantity and one technical element: the **type of material**.

In the **F** area, the default average work rate is recalled on a yellow background (*1000 units / hour*).
Select ⊙ the relevant button to open the entry grid of the work rate according to the quantity and the increase or reduction coefficients depending on the technical element you select. 🡻



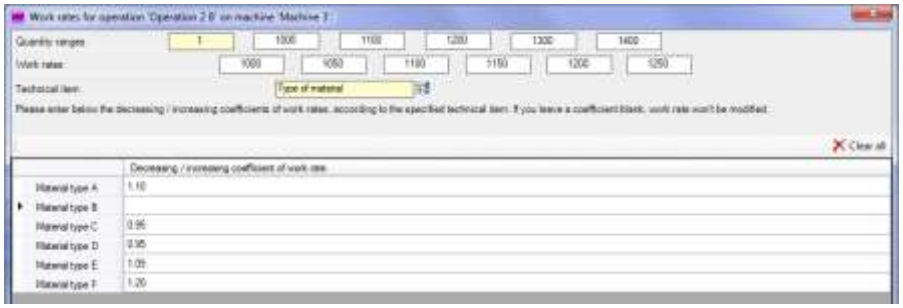
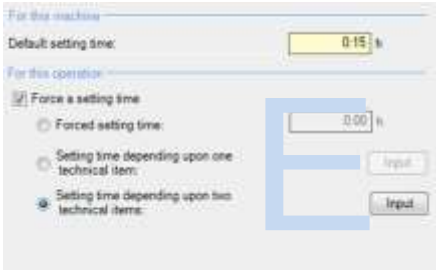


Figure 33 - Grid of work rates depending on one technical item

The resulting work rate is the multiplication of the work rate by the increase or reduction coefficient.
🡸 In this example: If quantity = 1350, initial work rate = 1200
Material type C → reduction coefficient = 0.95
Actual work rate = 1200 X 0.95 = 1140

Section 16 Imposing a setting time and a work rate for a machine / operation pair while involving 2 technical elements

This section addresses the Level 4 of Target 2 announced at the beginning of this chapter (page 37).



Now, let's say that the setting time varies upon 2 technical elements: the **type of material** *and* the **number of colors**.

In the **E** area, the default setting time is recalled on a yellow background (*0:15 h*).

Select ⊙ the relevant button to open the entry grid of the setting times according to the technical elements. ↙

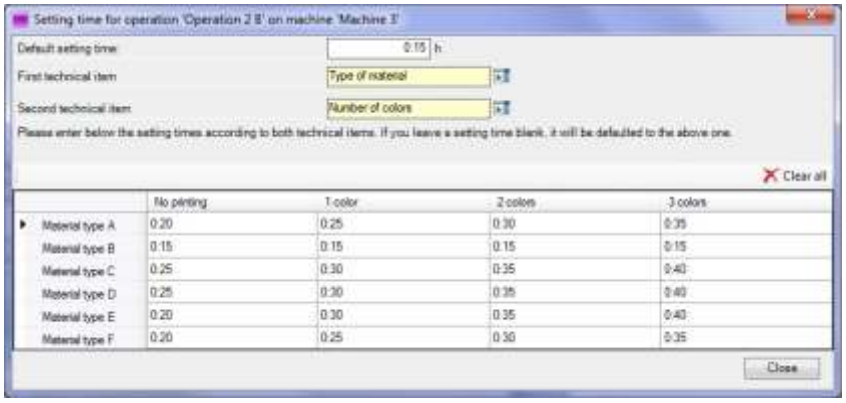
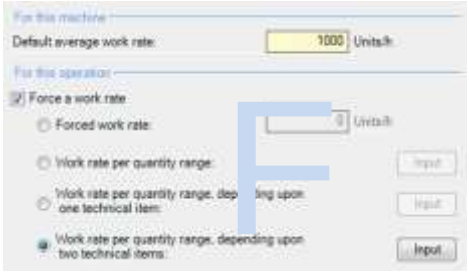
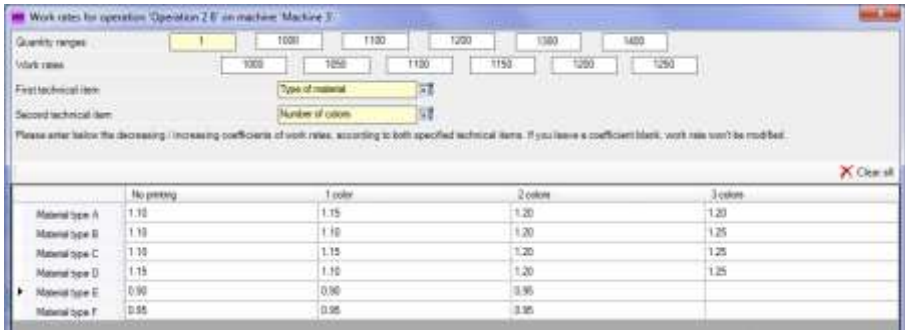


Figure 34 - Grid of setting times depending on 2 technical items

Now, let's say that the work rate varies upon the quantity and 2 technical elements: the **type of material** and the **number of colors**.
In the **F** area, the default average work rate is recalled on a yellow background (*1000 units/hour*).
Select ⊙ the relevant button to open the entry grid of the work rate according to the quantity and the increase or reduction coefficients depending on 2 technical elements you select 🡻



The resulting work rate is the multiplication of the work rate by the increase or reduction coefficient.



🡐 In this example: If quantity = 1350, initial work rate = 1200
Material type C and 2 colors → increase coefficient = 1.20
Actual work rate = 1200 X 1.20 = 1440

Figure 35 - Grid of work rates depending on 2 technical items

Chapter 16 TRANSITION TIMES

Section 17 What are the transition times?

A transition time between two consecutive jobs is the required time to change the configuration of the machine (changing tool, assembling, disassembling, formatting…)
This is an additional notion to the traditional *Setting time* present on each job.
In Direct Planning 2, transition times can be automatically assigned (according to a change of technical element between 2 jobs).
A transition time may also be manually imposed upon job entry (page 95).

A transition time will be automatically added whenever a technical element changes between 2 consecutive jobs.

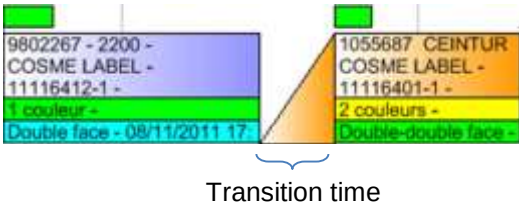
A few examples…

- Time required to wash a printing machine upon change of color
- Time required to change tool on a machine
- Time required to change splicing mode

In the schedule, a transition time is indicated by a triangle between the involved jobs.
The color of the triangle has a meaning.

In the opposite example, we switch from a monochrome printing to a bi-color printing.

Figure 36 – Transition time



Transition times are taken into account in the calculation of scheduling.
There are 2 ways of managing transition times:

1) Simple transition time
You specify a single transition time for one machine and one type of technical element.

Example

Your technical element represents the number of a die-cutting form.
If the die-cutting form changes between 2 jobs, a transition time can be automatically added.
In that case, we don't specifically focus on the fact that we switch from number X to number Y, but simply to the fact that there is a change.

This method turns out to be necessary when you manage a large number of technical elements (for example, hundreds of die-cutting forms, in the case of a cardboard converter).

If the technical element is not provided, then no transition time will be taken into account.

2) Detailed transition time

When several technical elements change between 2 consecutive jobs, transition times are cumulated.

Exemple
Switching from stiching to stapling: 30 minutes
Switching from four-color printing to Pantone printing: 60 minutes
The total transition time is 90 minutes.

To describe these times, we'll use transition time arrays as shown below.

Example
Machine: Printing machine
Type of technical element: Splicing type
Technical elements: Stapling, Binding, Glueing, No splicing

Technical element	Stapling	Binding	Glueing	No splicing
Stapling		30	30	15
Binding	30		**35**	15
Glueing	30	30		15
No splicing	15	15	15	

In this array, for example, you can see that it takes 35 minutes to switch from binding to glueing on this machine.

Important

In order to manage particular cases, you might as well combine a simple transition time with a detailed one.

This way, for example, we could imagine the following scenario: any change in the technical element results in a simple time of N minutes, to which we add a detailed time from the array.
In that case, we only feed the array for the involved technical elements.

Section 18 Implementing transition times

In the *Data* menu, select *Transition times*.

1. In the [1] area, select a machine.
2. In the [2] area, select a technical element.
   Only the technical elements regarding this machine (page 26) are proposed.
3. In the [3] area, select a simple and/or detailed transition time:
   - For a simple transition time, tick the **A** box and specify the single transition time in **B**, stated in minutes.
   - For a detailed transition time, tick the **C** box and fill in the array in **D**.
     Each transition time, stated in minutes, should be entered at the intersection of a row and a column.

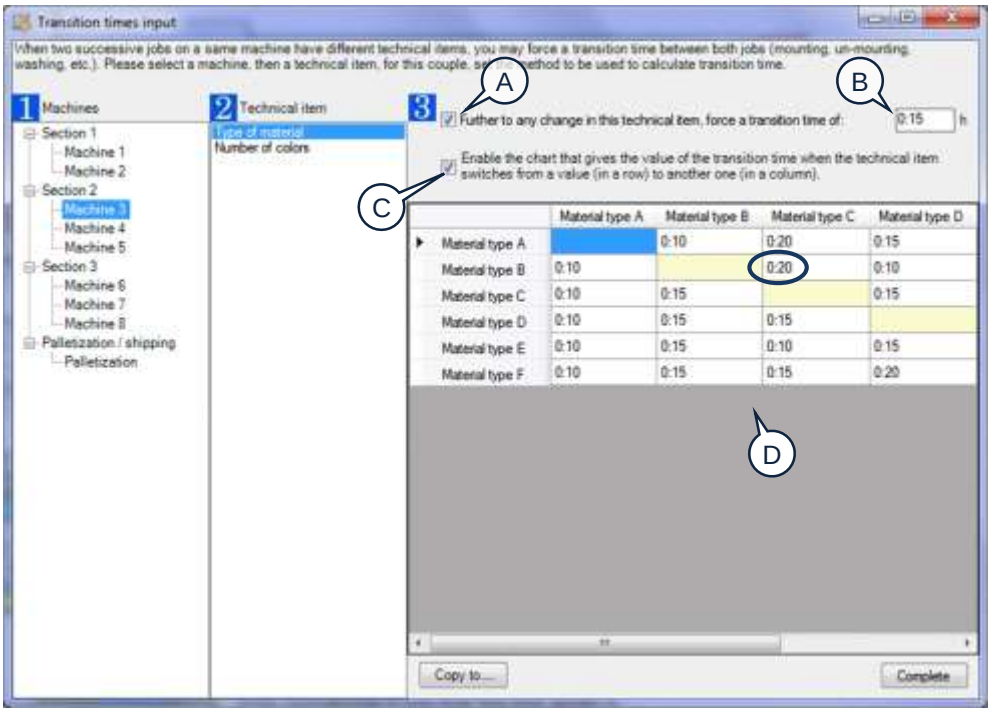


Figure 37 – Transition times

Note | If you clear the **C** box later, the management of detailed transition times is disabled, but all your settings are kept.
They will be operational if you tick the box again.

Remember: you can combine simple and detailed transition times.
In the above screenshot, we have a 15-minute “fixed” transition time + a 20-minute transition time from the array. Total: 35 minutes

When you are done entering the transition times, click the **Close** button.

Transition times – Copying onto other machines

The **Copy to** button lets you copy the displayed array onto another machine.
In the case of identical machines, this will keep you from having to re-enter the times.

In the left part, select the machines onto which you want to copy the current array and click to bring them in the right window.
You can select several machines in the same operation.
To take all the machines into account, click without doing any prior selection.

On the contrary, you can remove machines from the right part with the and buttons to send them back to the left part.
Click **Copy** to start copy.

Figure 38 - Transition times: copying

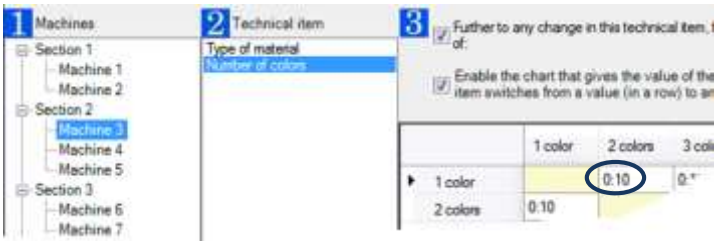
Transition times – Visual aspects

The administrator has configured the way the transition times are colored

- The triangle may be colored according to the job coloration.
- The triangle may be colored according to the predominant technical element.

What is the predominant technical element?

In Figure 37, page 44, for the splicing type, the array indicates a transition time of 20 minutes minutes for the switching from *type B to C Material*.
Let's say that we have also entered transition times for the *Number of colors*, switching from 1 to 2 colors: this gives a transition time of 10 minutes.



The transition time of the *Type of Material* has a greater value (**20 minutes**) than the *Number of colors* (**10 minutes**).
Thus, the *Type of Material* is the predominant technical element.

Finally, we have 3 transition times

Splicing type "fixed" time	15 minutes
Switching from B to C-type	20 minutes
Switching from single to bicolors	10 minutes

Total transition time	45 minutes

Chapter 17 ENTITIES

Entities are data lists that evolve along with your activity (sales persons, customers, orders…)

Entities require to be configured first, according to your need.
When you configure entities, you get a list for each of the data.
Entites may be automatically imported from an ERP (unlike other technical data whose list is assumed to be exhaustive, showing little change over time).

Section 19 What are entities?

Entities give additional information about the jobs of the schedule, but they have no technical nature. However, when they are well organized, they can transmit essential information: for example, an entity often gives commercial information about the customer, the order, etc.
For example, the *Customer* and *Order* entities will be useful to the sales department: thanks to a dedicated display mode, the sales person can continually view the orders of a customer who calls him to know the progress status of his order.
Entities can hold any other type of information based upon your needs.

When you create a job, you specify the related entities (page 100).
Subsequently, entities will be useful to:

- focus on such entity in a particular display mode,
- search jobs with one ore more entities,
- create lists that can be printed or exported to a spreadsheet.
- …

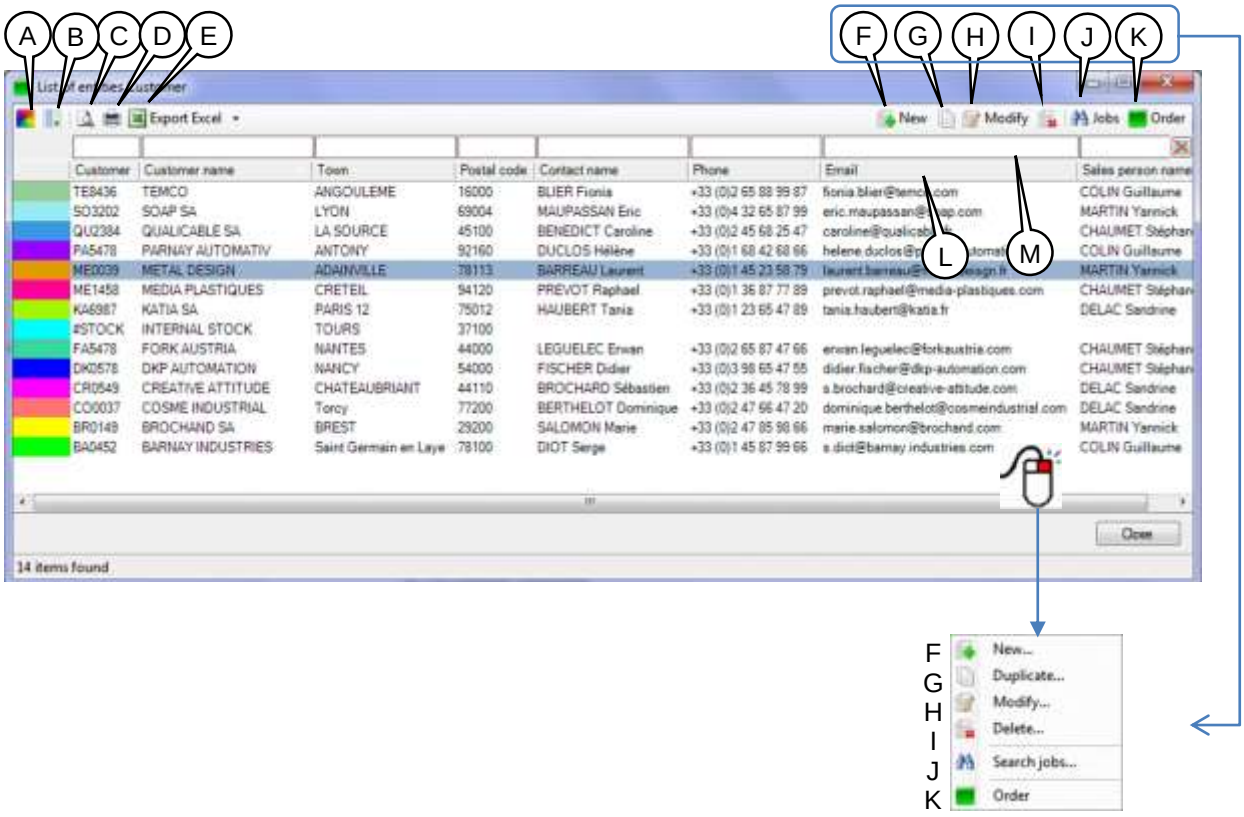
Section 20 The list of entities

Select Entities in the data menu to open a sub-menu displaying all the entities created by the administrator. ↗

Figure 39 - Example of the entity menu

Remark The above screenshot is just an example of the entity menu.
The wordings *Sales person*, *Customer* and *Order* have been defined and named by the administrator according to your needs.

In this chapter, we'll develop the *Customer* entity as an example.
Select *Customer* to get the list of the customers (next page).



A Colors can play a significant role in the layout of the schedule.
Depending upon the display modes configured by the administrator, colors can focus on such or such piece of data.
When you create an entity (Figure 43, page 49), it is automatically or manually assigned a color, according to the administrator's setting.
Clicking this button displays this window. ↓

You can reset to white the colors of all the entities.
You can also assign a color to all the entities, or only to those that are white.

Figure 41 – Assigning colors to entities

B Manage the columns of the grid. Click to display the field selector.

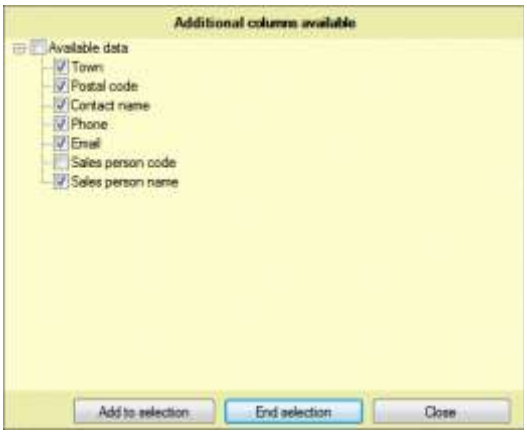


Figure 42 – Field selector for the list of entities

The field selector displays the available columns.

Tick the fields you want to be displayed in the list of entities, and clear the other ones.

Note: there is another way to display the field selector: right-click any column header.

C Print preview of the list of entities
D Print the list of entities
E Export the list of entities to Excel® (page 188)
F Create a new entity
G Duplicate the selected entity: don't forget to give the new entity a different code and wording; remember there may be no duplicate neither in the code nor in the wording.
H Modify the selected entity. Can also be performed by double-clicking the entity.
If you don't have the required rights to modify, the wording of this button is *Consultation*.
I Delete the selected entity.
If the entity is linked to a job, you can't delete it.
J Initiates a search for jobs using this entity.
Displays a result table. Job search: page 155
K Displays the list of this customer's orders.
Note: *Customer* and *Order* are entities that have been configured by the administrator.
Depending on your requirements, other entities may feature in this menu.
Please check Figure 39, page 46 and the remark just underneath.
Moreover, in our case, the administrator has linked the *Order* entity to the *Customer* entity: this hierarchy makes it possible to retrieve the orders of a customer.
L Click a column header to sort. Click again to reverse sort order.
M Quick filters. Enter one or more character(s) to directly reach an item in the list.

Section 21 Creating / Duplicating / Modifying an entity

Code and Wording are the minimum information to enter for an entity.

Upon creation, every entity is automatically or manually assigned a color, depending on the administrator's setting.

Click to choose a color.
Click to get the first available color (as it would be automatically assigned by Direct Planning).

Next, you enter the information that depends on the administrator's configuration, according to your needs.

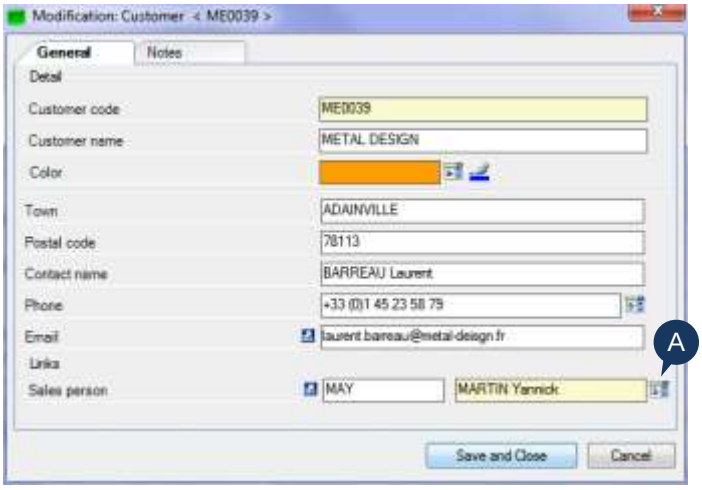


Figure 43 – The entity form

This information is optional. They may be displayed in the schedule, the job details and the lists. According to their nature, you will enter a text, a number, a date, a checkbox…

Links

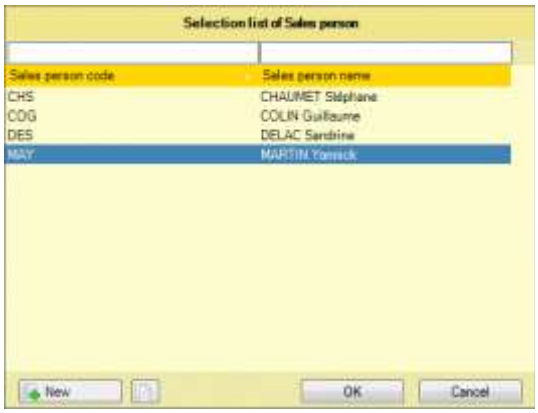
As described in the **K** point of Figure 40, page 47, the administrator defines the hierarchical links in the entities.
This way, in our example, the *Order* entity is linked to the *Customer* entity, itself linked to the *Sales person* entity.
Besides, this hierarchy can be seen in the menu as shown in Figure 39, page 46, from the top mevel to the bottom level.

Here, we are in the *Customer* form, that's why we can see the *Sales person* in the links.

A Click to display a list like this one. ➔

From this list, you can choose a *Sales person* entity.
You can also create a new one, just by clicking the **New** button.

When you create a new entity from this window: if this entity is linked to an upper-level entity, then the latter will be automatically filled (but you can still select another one).



The icon lets you access the upper-level entity.

CALENDARS

For each machine, the calendar lets you specify:

- the regular working periods
- the special working periods (occasional work overload, extra opening days, etc)
- Special work periods (occasional overwork, extra opening days, etc.)
- Regular inactivity periods (periods beyond working hours, week-ends, maintenance periods, etc.)
- Occasional and scheduled inactivity periods (non-working days, holidays, etc.)
- Occasional and non-scheduled inactivity periods (sick leaves, machine breakdowns, etc.)

The calendar management has been fully revised and offers an intant view which lets you perform all the current operations.
Besides, the shift management has been implemented.

In the schedule, the inactivity periods are represented by areas whose look is defined by the administrator in the schedule display mode: color, shading, and gradient may be configured.
The Figure 7, bullet **E** (page 17) shows a shaded inactivity area.

As each machine may have its own constraints, each machine may be assigned its own calendar.

When you create a calendar, you can specify a standard week, that applies to all the weeks troughout the year. Exceptions can then be managed per week.
If you don't have a standard week, you can configure each week individually.
In a standard week, there may be exceptions that can be managed per day.

You may also want the public holidays to be automatically applied to the machine calendars, in full or in part.

Moreover, a tool lets you perform simultaneous updates on several calendars.

Creating a calendar involves preliminary steps:

- ⇨ Creating one machine at least (page 24)
- ⇨ Defining standard days and their shifts (page 51)
- ⇨ Defining standard weeks (page 54)
- ⇨ Defining the calendar itself (page 57)

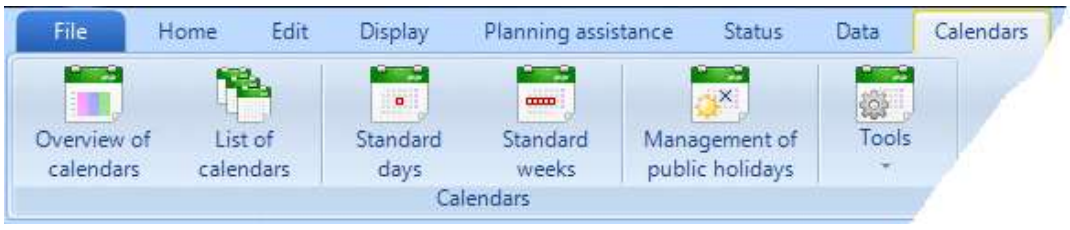


Figure 44 - The Calendar menu

Chapter 18 THE STANDARD DAYS

Standard days are required to create a calendar.

You must create a standard day at least to specify the working hours of your machine.

A standard day is characterized by a wording and shifts.
Each standard day is defined using the working hours of the shifts (Morning, Afternoon, Night or Day). This results in increased clarity and ease of use.
In particular, you can create a standard day with an end time after midnight, enabling you to clearly model the night shifts.
Each standard day can be assigned a color. Upon automatic coloring, a non-working day is white.
In the case of an industrial schedule, further to a Direct Planning upd
te, if you were not using the shifts, it is strongly advised to use them, redefining your standard days.

Section 22 List of standard days

In the *Calendar* menu, click this icon to display the list of the already created standard days, including “special” standard days (in blue) 🡻

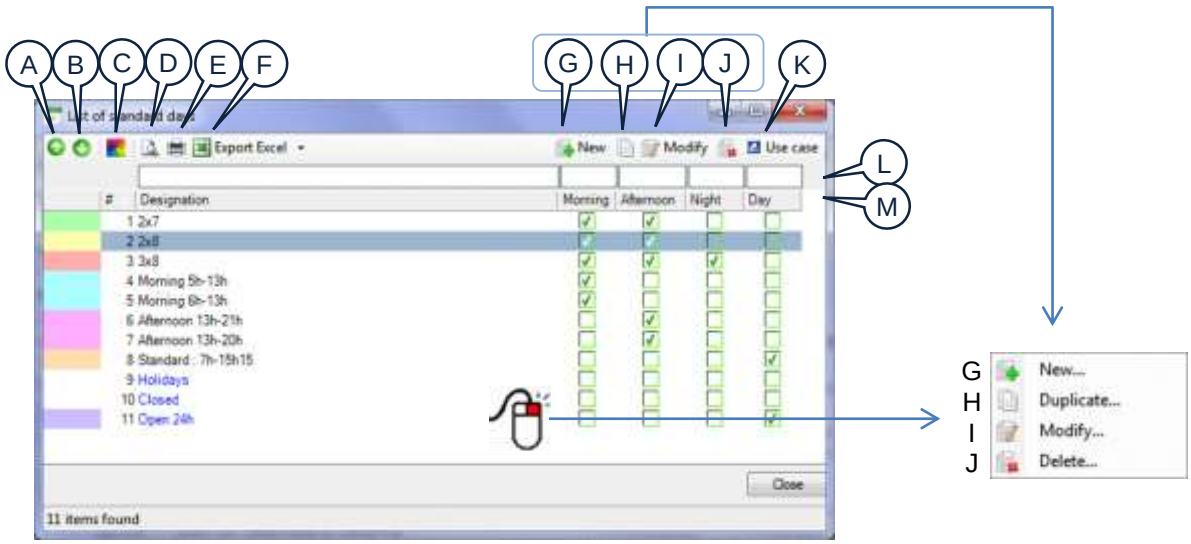


Figure 45 - Calendars: list of standard days

The list displays the wording and the shifts of each standard day.

- A Select a standard day and press this button to move it up in the list.
- B Select a standard day and press this button to move it down in the list.
- C This button lets you manage the colors of the standard days (see Figure 46 below)
- D Print preview of the list of standard days
- E Print the list of standard days
- F Export the list of standard days to Excel® (page 188)
  Clicking ▾ on the right lets you choose the export format from the scrolling list (page 188).
- G Create a new standard day (Figure 48)
- H Duplicate the selected standard day (Figure 48)
- I Modify the selected standard day (Figure 48)
  Double-clicking the standard day does the same.

J Delete the selected standard day.
If the standard day is part of a standard week, you can't delete it.

K Instances: indicates the standard weeks that use this standard day (see below).

L Lets you filter the list of the standard days, just keying in a few characters.
To filter the list on checkboxes, enter **1** to only see the ticked boxes, or **0** to only see the cleared boxes.

M Click a column header to sort the list. Click again to reverse sort order.

The colors let you visually distinguish the standard days.
When you create a standard day (Figure 48), it is assigned a color.

Clicking the (**C**) button of Figure 45, you display that window which lets you:

Figure 46 – Standard days: color management

- reset to white the colors of all the standard days.
- assign a color to all the standard days, or only to those that are white.

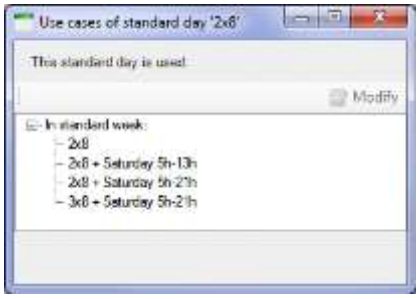


Figure 47 – Instance of a standard day

(K) - Instances of a standard day (use cases)

The standard weeks using this standard day are displayed.

Double-click a standard week (or click the **Modify** button) to instantly access the selected standard week (Figure 52).

Click **Close** to go back to the list of standard days.

As you can see in Figure 45, some standard days are in blue: these "system" standard days are preconfigured and cannot be deleted. However, you can modify the wording.

Section 23 Creating / Modifying / Duplicating a standard day

When you create a standard day, you have to give it a wording so that it can be easily referred to later on, when you create your standard weeks and calendars.
The new standard day is automatically assigned a color, unless you change it, clicking .

A standard day is characterized by **shifts**. You can select several shifts for the same standard day. However, the *Day* shift cannot coexist with another shift, because it covers a full 24-hour cycle.

Choosing a shift leads to displaying the corresponding time slot. You can still modify it according to your needs.
Hours can be directly keyed in or entered using the icon.

For each shift, you can specify breaks: this entry is performed in the same way as for the worked slots.

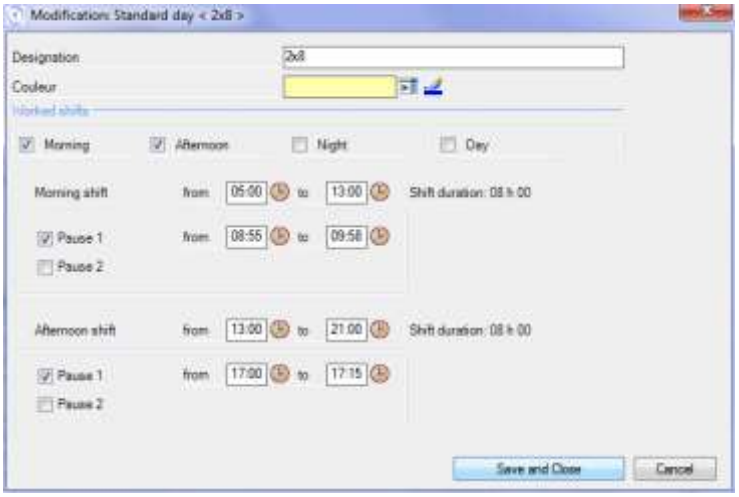


Figure 48 – The standard day form

About breaks

IMPORTANT

The condensed time scale calendar (page 79) hides the breaks of the day shifts.
This allows compatibility with the existing operation in case of update from Direct Planning 1 to Direct Planning 2; indeed, in that case, all your former time slots are converted to day shifts, whatever their timetables.

On the other hand, if you create *Morning*, *Afternoon*, or *Night* shifts, the breaks of these shifts won't be hidden by the condensed time scale.

This saves you having to create standard weeks and days dedicated to the condensed time scale.

Chapter 19 THE STANDARD WEEKS

Standard weeks are required to create a calendar.

You have to create one standard week at least to specify the days of the week when your machines work.

A standard week is characterized by a wording and a configuration for each of the 7 days of the week.
The list of standard weeks has also been revised.
The basic working principle remains unchanged: a standard week is composed of various standard days.
Like the standard days, each standard week can be assigned a color.
In the detail window of a standard week, it takes a simple click to view and select the color of any standard day of the week.
For example, if you modify a “2x8” standard week, you may also choose its color, clicking one of the “2x8” standard days of the week.

Section 24 List of standard weeks

In the Calendar menu, click this icon to display the list of the created standard weeks

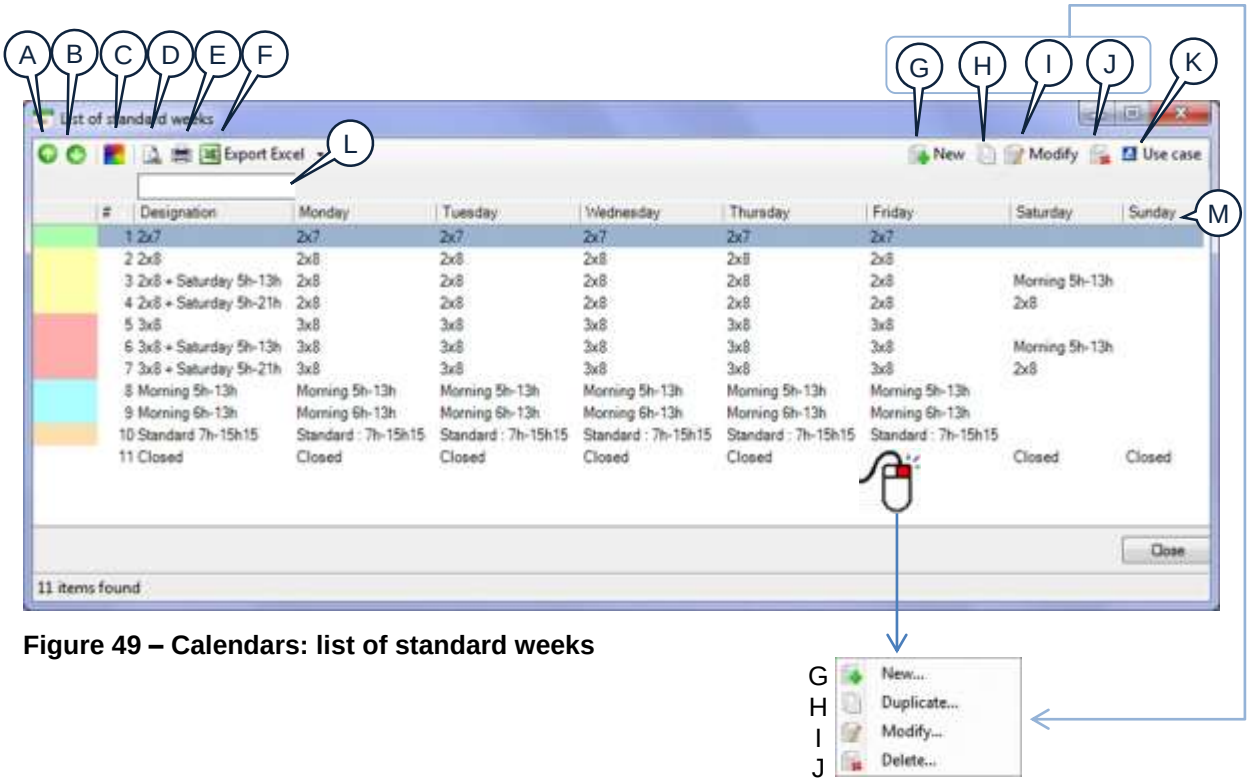


Figure 49 – Calendars: list of standard weeks

For each standard week, the list displays its wording and the 7 days of the week.

A Select a standard week to move it up in the list.
B Select a standard week to move it down in the list.
C This button lets you manage the colors of the standard weeks (see page 56).
D Print preview of the list of standard weeks
E Print the list of standard weeks

F Export the list of standard weeks to Excel® (page 188)
Clicking ▾ on the right lets you choose the export format from the scrolling list (page 188)..

G Create a new standard week (Figure 52)

H Duplicate the selected standard week (Figure 52)

I Modify the selected standard week (Figure 52)
Double-clicking the standard week does the same.

J Delete the selected standard week.
If the standard week is used in a calendar, you can't delete it.

K Instances: indicates the calendars using this standard week (see below).

L Lets you filter the list of the standard weeks, just keying in a few characters.
For example, enter `*Saturday*` to only display the standard weeks with a wording that contains the word *Saturday*.

M Click a column header to sort the list. Click again to reverse sort order.

The colors let you visually distinguish the standard weeks.

When you create a standard week (Figure 52), it is assigned a color.

Clicking the (**C**) button of Figure 49, you display that window which lets you:

Figure 50 – Standard weeks : Color management

- white-reset the colors of all the standard weeks.
- assign a color to all the standard weeks, or only to those that are white.

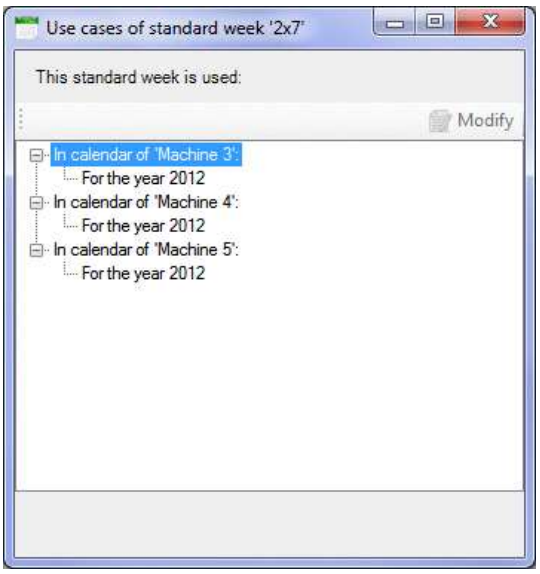


Figure 51 – Instances of a standard week

(K) – Instances of a standard week

The calendars using this standard week are displayed.

Double-click a year of a standard week (or click the **Modify** button) to instantly access the selected calendar (page 57).

Click **Close** to get back to the list of standard weeks.

Section 25 Creating / Modifying / Duplicating a standard week

When you create a standard week, you have to give it a wording so that it can be easily referred to later on, when you create your calendars.

Refer to the *Color of a standard week* (below).

Figure 52 – The standard week form

For each of the 7 days of the week, you have 3 possibilites:

- Choose a standard day from those you created in the last section.
- Give a specific time slot that is not listed in the standard days.
- Leave this day of the week as a *Non-working day* (default).

Clicking the zoom icon, you can view the window of the standard day.

A To define a standard day, tick the ☑ *Standard day* box.
To redefine a standard day (the box is already ticked), click at the end of the line.
This displays the list of standard days (same as the one of Figure 45), which lets you chose one of them.

B To define a specific time slot, tick ☑ the relevant box.
To redefine a specific time slot (the box is already ticked), click at the end of the line.
This opens a window similar to Figure 48, where you can create a specific time slot, as you would do for a standard day, but it won't be saved as such. The specific time slot you create here will only be saved in this standard week.

C If this day of the week is not worked, don't tick any of the A / B boxes.
The *Non-working day* wording is displayed.
In automatic coloring mode, a non-working day is displayed in white.

The **Standard days** button displays the list of standard days (Figure 45).

Section 26 Color of a standard week

Colors play an important role to visually identify the weeks in a calendar.
Each standard week is automatically assigned a default color.
Click to assign a different color.
You may also select the color of one of the standard days (one of the colored squares) to make it the color of this week.

In our example (Figure 52), if you click one of the days of the week (yellow square), this week will be yellow.
The button lets you reset the color of this week.

Chapter 20 OVERVIEW OF THE CALENDARS

Section 27 The configuration screen of calendars

Please read the general points at the beginning of this chapter (page 50). Once you have configured one standard day and one standard week at least, you can configure your calendars

In the **Calendar** menu, click this icon to display the overview of calendars.

Figure 53 – Overview of calendars (initial view, empty)

Initially, this window is empty because you've not created any calendar so far.

To configure your calendar, you have to define its scope first.

- Which period?
- Which machine(s)?

1. The first step consists in having the current year displayed, and –if necessary- the week you want to start from.

A If necessary, use the left and right arrows to display the desired year, or key in the year.

B You may want to only display a part of the year.
For example, if you create a schedule starting fom July 1st, you don't need the weeks before.
To limit the calendar display, click **Period selection**. ↓

This window lets you display the weeks of a chosen period.

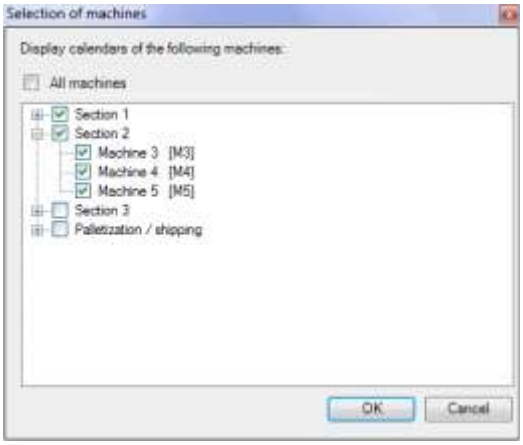
Click the calendar to specify your dates or just key in the start and end dates.

Another, simpler way consists in clicking the **Starting today** button.
If necessary, you may also click the button **The whole year**.

2. The second step consists in selecting the machines for which you want to define a calendar.

Ⓒ If you wish so, you may only display some of the machines.
As a matter of fact, all the machines do not have necessarily the same calendars, the same opening hours.
To filter the machines, click **Machine selection➔**

By default, all your machines are selected. You can clear the machines / sections that you do not want to include in this configuration



Ⓓ When you're done, only the chosen machines are displayed in the array.

Remark | You do not have to filter the machines: you can leave them all displayed, even if their calendars are different: when you create your calendars, you can select the involved machines.

Ⓔ The involved weeks are displayed in this area. 1 line = 1 week.

➔ Now that you've determined *When* and *What*, you can start filling the calendar.

Ⓕ The cursor (the blue rectangle) is on the first cell of the array.

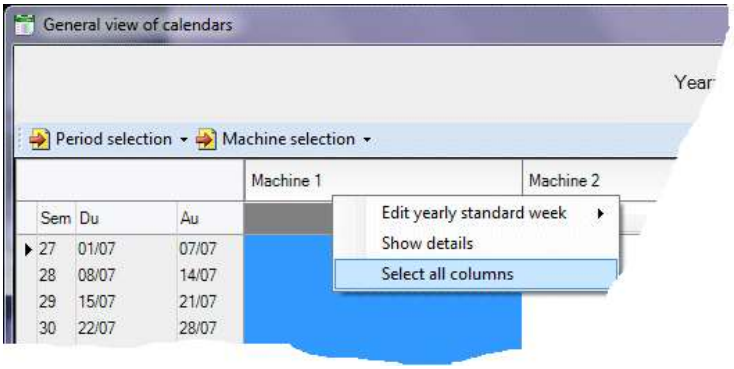
Ⓖ The array is empty; we can now fill it in.

Remark | The screenshots of this chapter have been "shrinked" to hold in the document.
In reality, you will likely enlarge the window to get a wider view of your calendars.

Section 28 The annual standard week

The annual standard week lets you define the reference standard week, which is used throughout the year. You'll be able to manage exceptions later (page 61 and following).

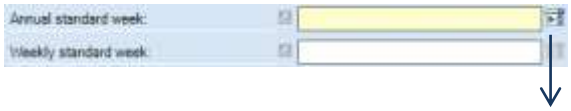
This part shows you how to define the annual standard week.



1st case: you assign the same annual standard week to all the displayed machines.
Right-click one of the column headers and choose **Select all columns**.

2nd case: all the displayed machines don't have the same annual standard week.
Click on the desired column headers (ie the machines).
If necessary, do a multiple selection (using the Shift and Ctrl keys according to Windows standard).

In both cases, when your selection is completed, you can indicate the annual standard week to apply.



At the bottom of the screen, at the end of the line **Annual standard week**, click .

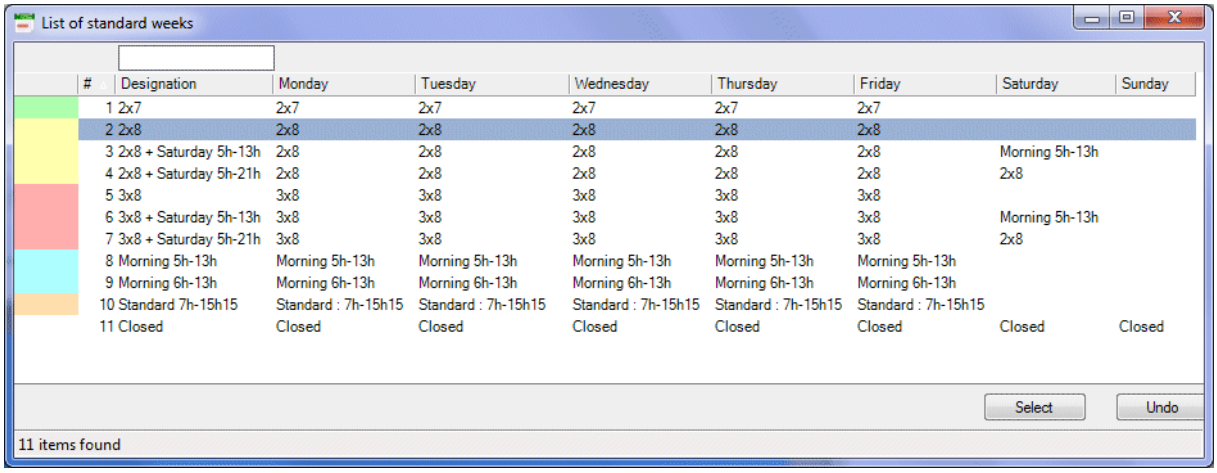
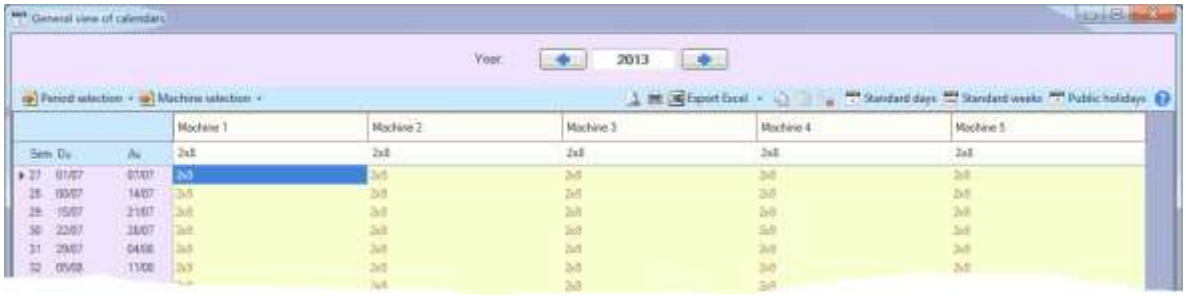


Figure 54 – Selecting a standard week

You are presented with the standard weeks you've created, each one with its color and daily time slots. Select the standard week and confirm.

Overview of the calendars

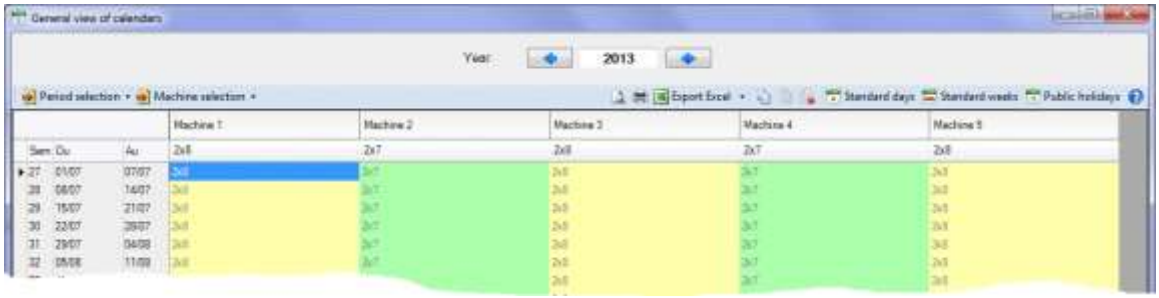
Your calendar is now filled for all the selected machines.
If some machines have no calendar so far, their columns are empty: you can repeat the same operation as from page 59



Remark | Since you've just selected several (or all) columns, the array is probably blue, due to the selection.
Maybe you'd prefer clicking any cell to deselect all the other ones and get back to the "natural" color of the array.

In our example, we've chosen the week *Sem. 2x8* as the annual standard week for all the machines. When creating this standard week (page 56), we had kept the proposed color (yellow), which explains why all the weeks are displayed on a yellow background in the above array. ↑

If we had assigned different annual standard weeks depending on the machines (and we can still do it), we would have something like that: ↓



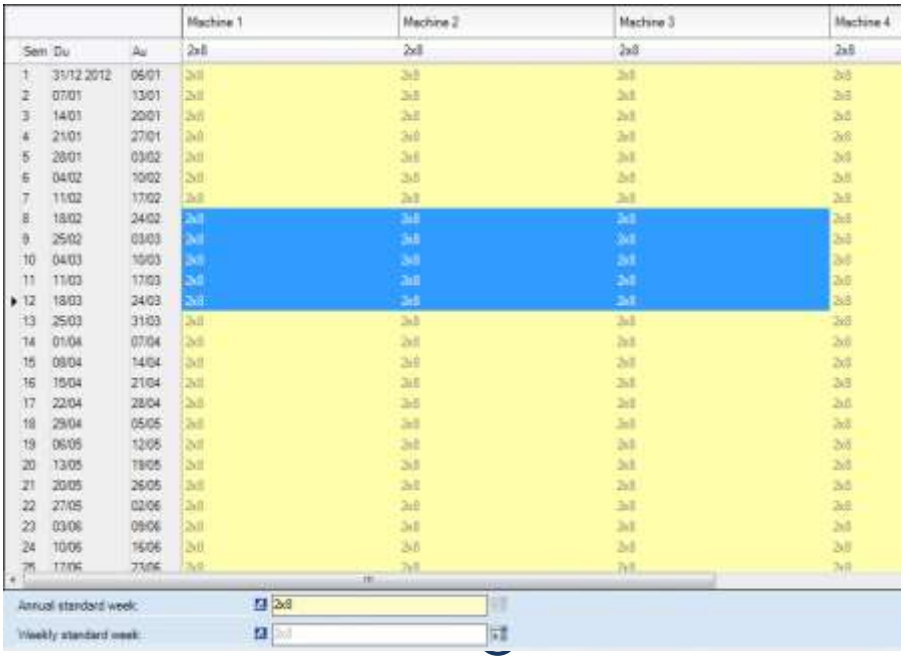
This example shows you the interest in assigning a different color to each standard week, as we already said on page 56.

Section 29 The weekly standard week

You may want to impose weeks (different from the annual standard week) for some machines.
This is a way of managing exceptions.
To do so, you must first select the involved weeks and machines prior to selecting a week.

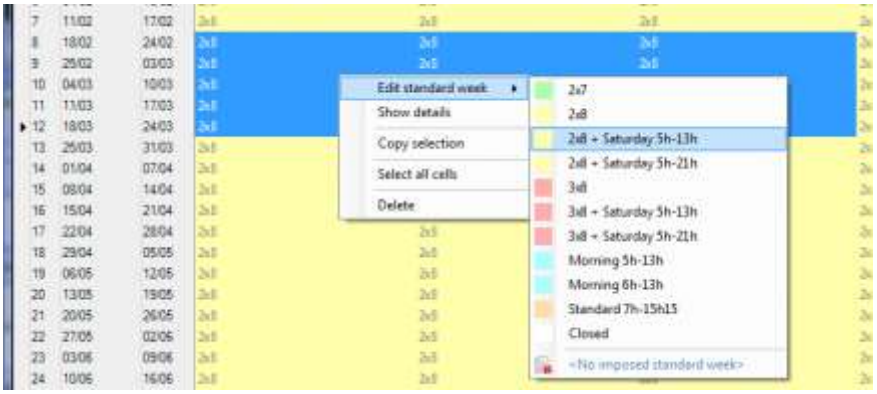
Tip | *To select weeks, machines, etc… just do as you would do with any selection in Windows.*

In the opposite example, we select the weeks *8 to 12* and the machines *1-2-3*. ➔

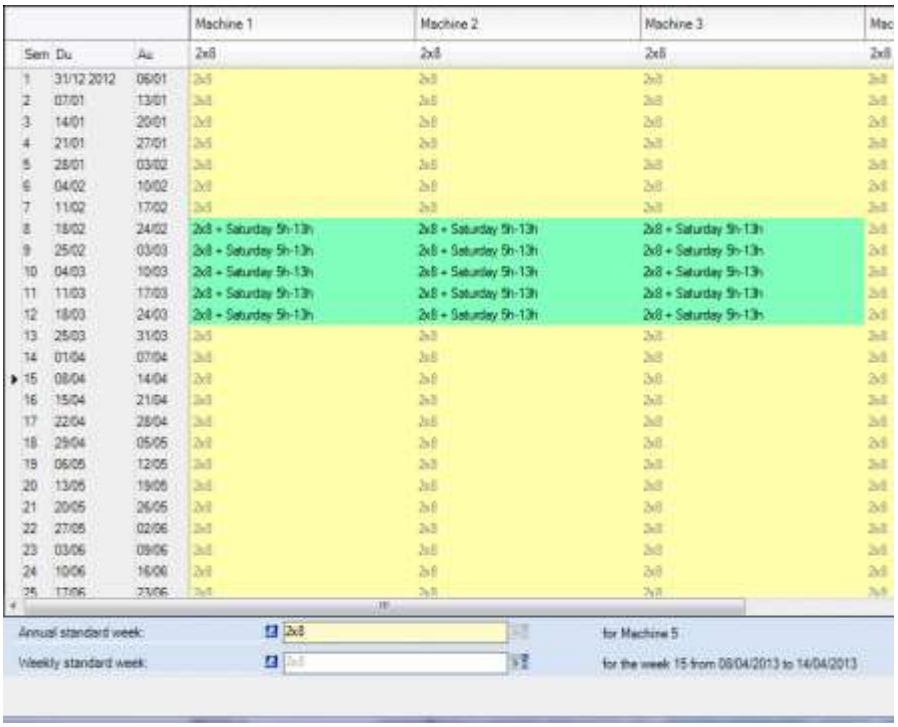


Then (method 1) you click to select a weekly standard week. ➔

Or (method 2) you right-click the selection to choose **Edit standard week** in the displayed menu. ➔



Note | *Generally, remember that right-clicking always shows a context menu proposing the most common actions.*
Try right-clicking to see the possible actions! On a selection of weeks / machines, on a column header (ie a machine), on a week, etc.



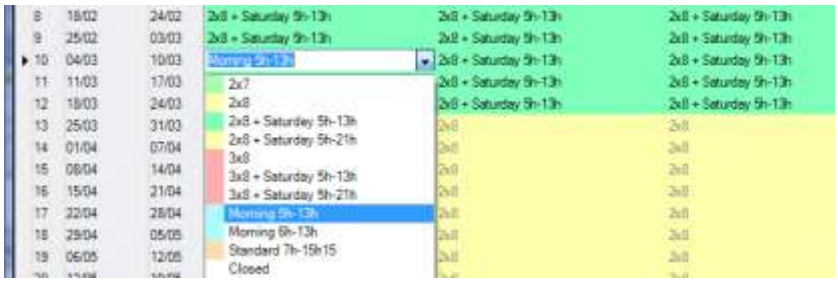
Résult:

➔ In our example, we selected the *2x8 + Saturday 5h-13h* to get the opposite result.

The selected week is shown in its own color, which makes it more visible in the calendar.

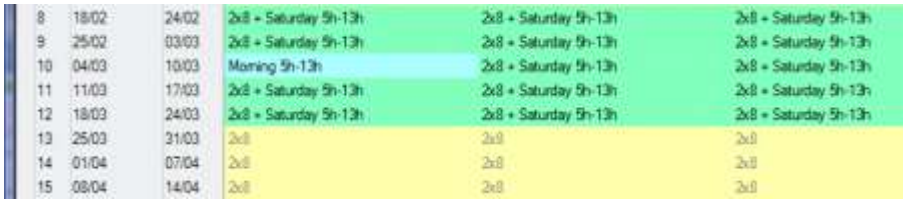
Remember: further to a selection and to choosing a week, the selection remains active. You may click anywhere else to unselect and get back to the original colors of the weeks.

In the previous example, we have redefined several weeks for several machines.



If you want to redefine only one week for one machine, there's a shorter way:
➔ Double-click the corresponding cell, then double-click the desired week.

In our example, the result is like this. ➔



Removing a weekly standard week

Whether it's an annual or a weekly standard week, you can still remove it from the calendar.

To do so, all you have to do is click on this icon ↑ after you've selected the week.

This removes the week from the calendar, but it doesn't delete it from the weeks you've created.

Section 30 Detail of a week

You can display the detail of a week. This detailed view offers 2 possibilities:

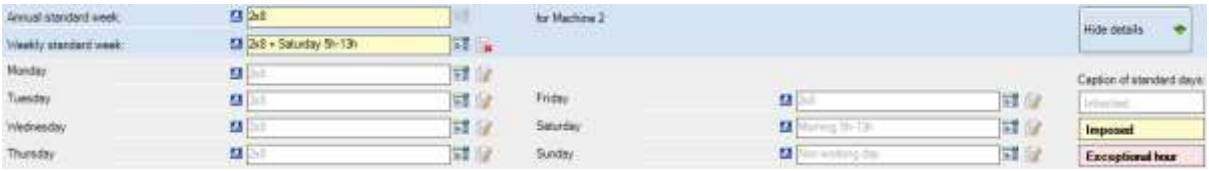
a) Impose one or several days in this week (day-level exception).
b) Impose the timetable of a specific day (hour-level exception)

To display the details of a week, you must first select the involved week.
Then, right-click to choose **Show details** in the context menu.
Or you may click the appropriate button in the lower right corner of the screen. ➔

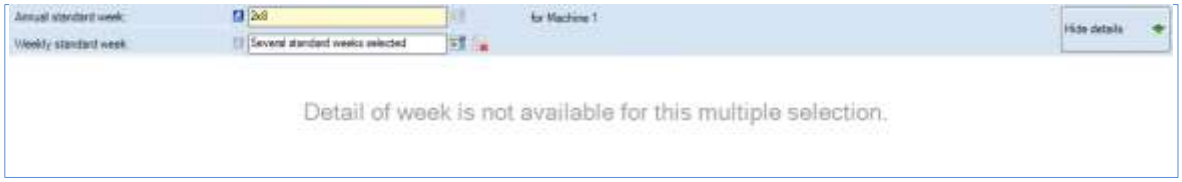
At that point, there may be 3 cases:

1) Your selection only covers one week (in our example: week 9 for the machine 1).
   The detail of the 7 days is displayed with specific dates. You may change the dates you want.
   If you change one of the 7 days, your change will only affect that very day, unique in the year (in our example, further in this section, we'll change a single day).

2) Your selection is across several identical weeks. Detail is displayed without specific dates. You can still change days within this selection.
   If you change one of the 7 days, for example the Monday, your change will affect every week within the selection.



3) Your selection is across several different weeks. Detail is displayed without specific dates.
   No detail is available within this heterogeneous selection.

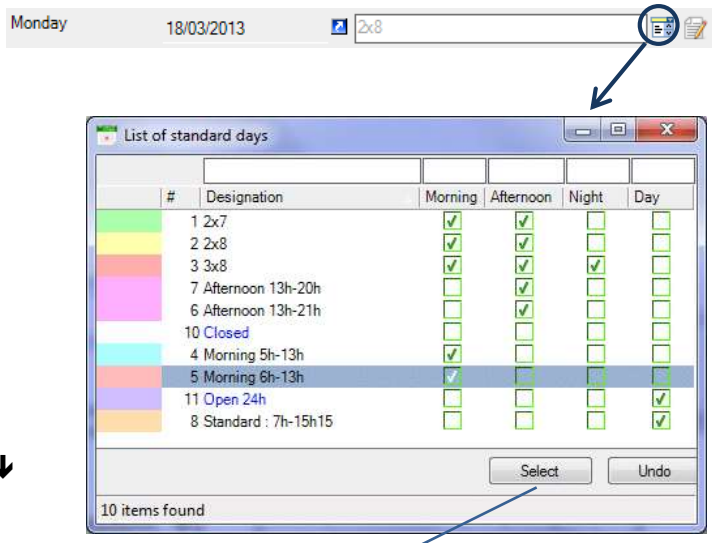


Remarks

a) Regardless of the cases mentioned above, your selection may cover several machines or even all.
b) To select all machines in one go, click in the left column (where there are the weeks). At this level, you can perform a multiple selection with the Shift and Ctrl keys.

Overview of the calendars

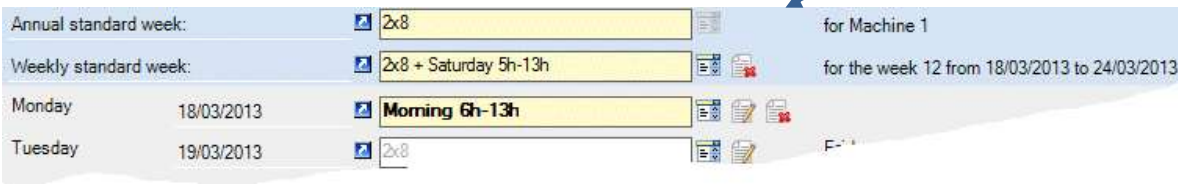
For our example, we'll take case 1, ie we'll change a specific date, March 18th, 2013 (week 12).



The list of standard days is displayed. ➔

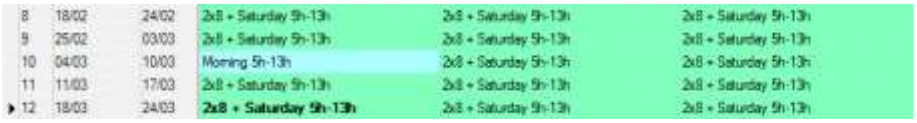
For example, choose standard day Nr 5.

This day is shown in **bold characters** to remind you that this is an imposed day. ➔



Now we have a special day in a special week in the year.

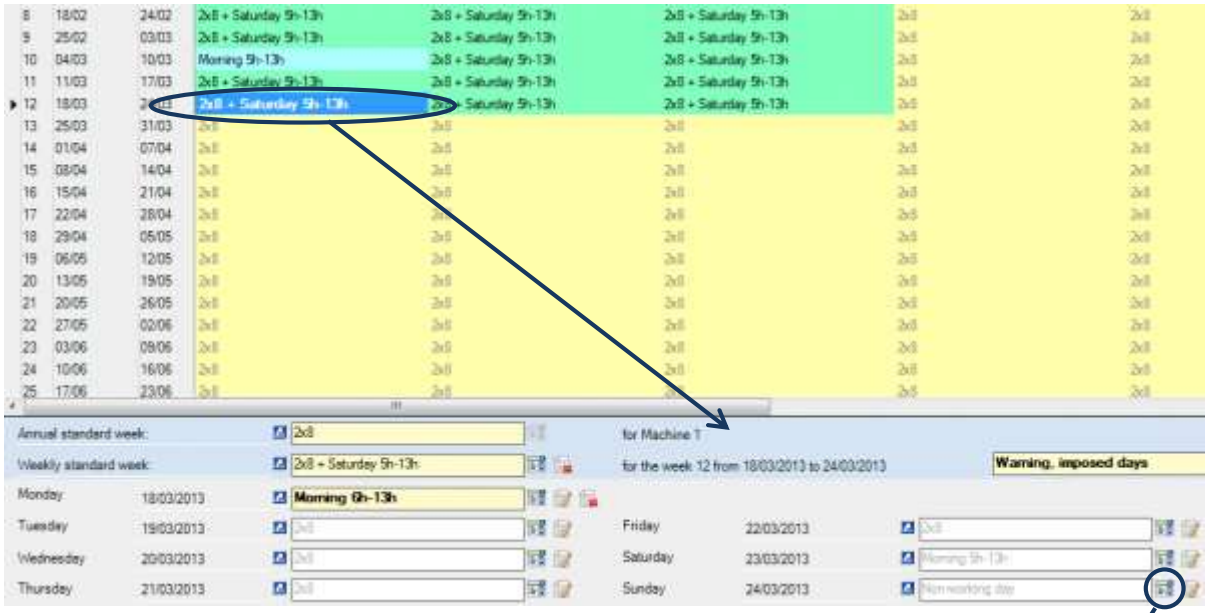
Here's the result after you've chosen standard day Nr 5 in the week 12. ➔



You have just imposed a specific standard day within a week (or a selection of weeks).

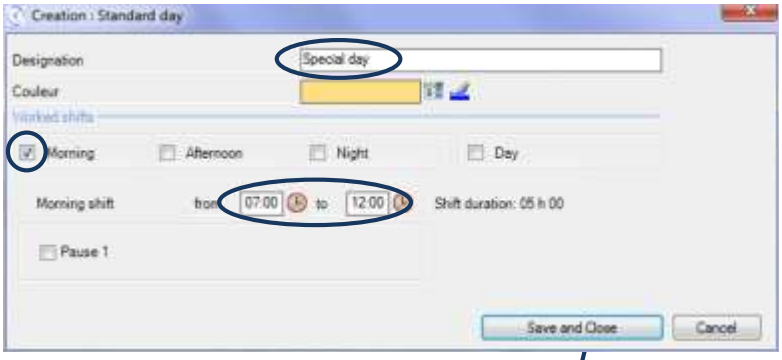
➔ This week is shown in **bold characters** to remind you that it contains an imposed day.

You may also impose a particular timetable for a given day.
To do so, please select the week 35 again and observe the details in the lower part of the window.



By the way, please note that March 18th is in bold characters to remind you that this is an imposed day.
Another reminder is displayed above: **Warning,** (there are) **imposed days**.
You are going to assign the 1st September a special timetable.

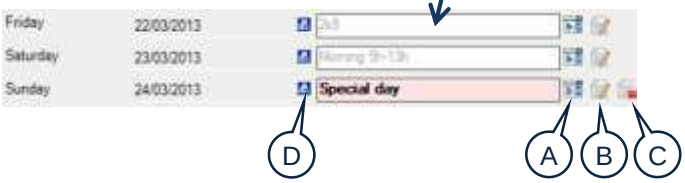
The creation window of a standard day is displayed, as seen on page 53.



The difference is that this day, unlike the ones you'd previously saved, cannot be seen in the list of standard days (page 51). It is an exceptional schedule, dedicated to a single day in the calendar.

In this example, you can name it *Special day* and assign it a morning shift that doesn't exist in the standard days.

<u>Operations on standard days</u>



(A) Lets you <u>choose a standard day</u> from the list (page 51).

(B) Lets you <u>change</u> this exceptional timetable.

(C) Lets you <u>remove</u> this exceptional day from the calendar.

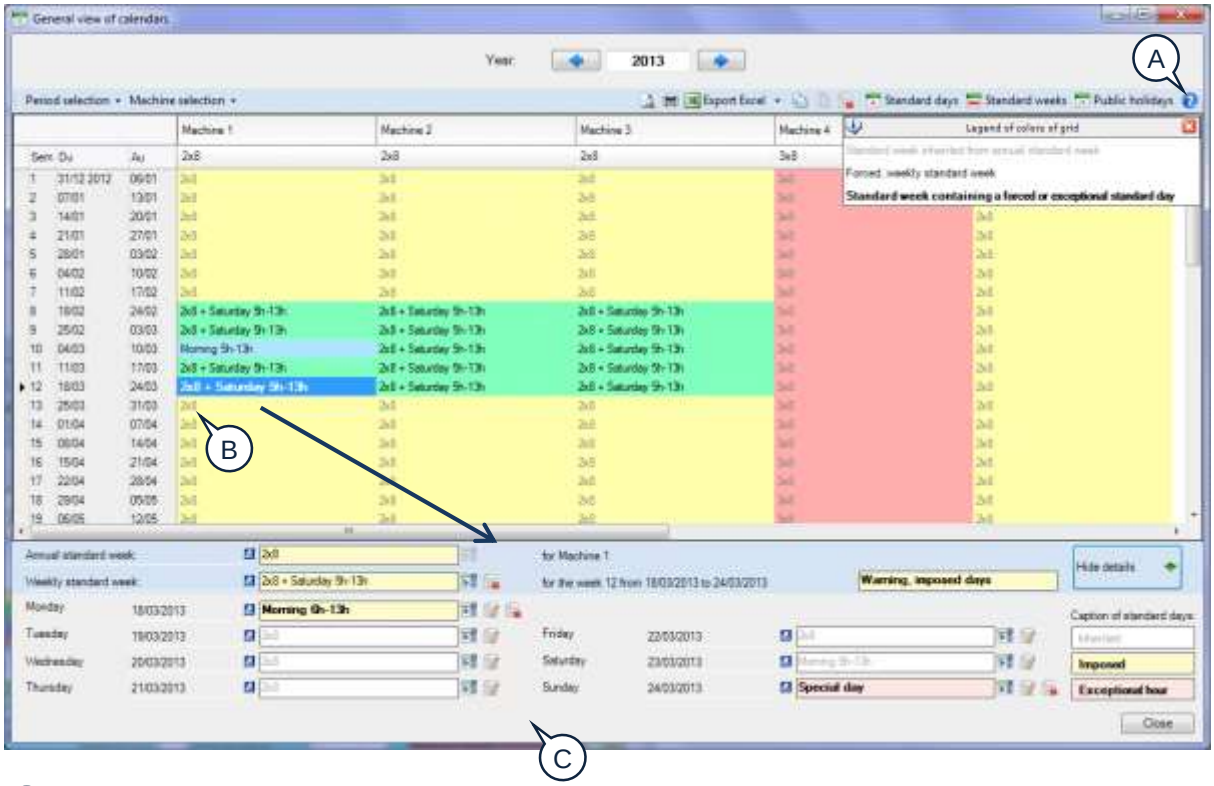
(D) Lets you <u>view</u> this standard day.

Section 31 The captions of the calendar

When the calendar starts to get filled and contains several exceptions, it is important to understand the captions at first sight.
Several visual characteristics allow for a better spotting.

In the calendar below, 4 standard weeks are used and may be spotted thanks to their background color.

1. An annual standard week on some machines (page 59)
2. Another annual standard week on other machines (page 59)
3. A weekly standard week on some machines and some weeks (page 61)
4. Another weekly standard week on a machine and a week (page 61)



A Clicking the question mark opens a caption window, which you can move, concerning the calendar overview.

- The weeks inherited from the annual standard weeks are displayed in gray.
- The imposed weeks are displayed in black.
- The weeks that contain an imposed standard day or a day with an exceptional schedule are displayed in black, bold characters.

B In our example, the selected week is the one that contains exceptions (week 12).
The detail is displayed in the lower part of the window.

C This is the detail of the selected week. It contains:

- The name of the annual standard week
- The name of the weekly standard week
- The name of the machine (unless you have selected several machines in the upper part)

- The name of the standard week (unless you have selected several standard weeks in the upper part)
- The detail of the 7 days of the week. Each day may be:
  - inherited from the standard day of the week (no exception): in this case, it is displayed in gray.
  - a standard day that you have imposed (page 63): in this case, it is displayed in bold characters on a yellow background.
  - an exceptional timetable that you have imposed (page 65): in this case, it is displayed in bold characters on a pink background.

Note

Bold characters point out the exceptions.
This is true in the upper part of the window (calendar display) as well as in the lower part (week detail).

Section 32 Copying / Pasting / Deleting within the calendar

These operations take up the Windows standard operating mode. Here's a short reminder:

Prior to any copy, you have to select the cell or the range of cells to copy.

How to select

- Click on a cell to select it.
- To select several *adjacent* cells, there are 2 ways:
  - click the first cell and move the mouse to enlarge the scope of the selection.
  - click the first cell, then maintain the ⇧ (also called shift) key while clicking the last cell.
- To select several *non-adjacent* cells, click each cell maintaining the Ctrl key down.

When doing a multiple selection, you can un-select one cell: click the cell while maintaining the Ctrl key down.

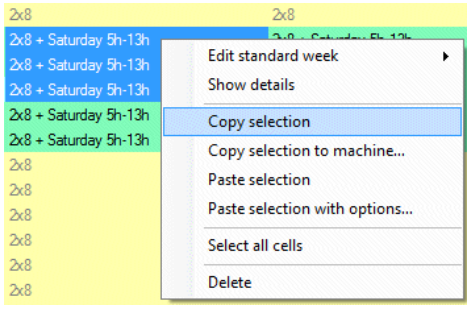
After selecting, the following operations are available:

- Copy selection
- Copy selection onto a machine
- Paste selection
- Paste selection with options

Remark | There is no *Cut*.
If you try to cut a selection with Ctrl X, Direct Planning will perform a simple copy.

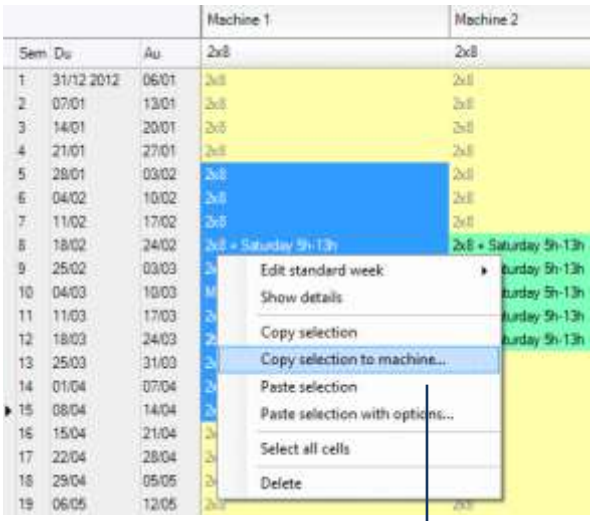
Copy a selection

- Press Ctrl C
- or right-click to get the context menu ➔ and choose *Copy selection*.



The selection can now be pasted (page 70).

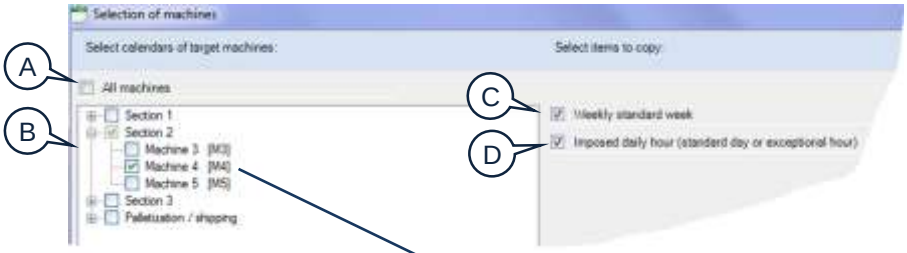
Copy a selection onto a machine



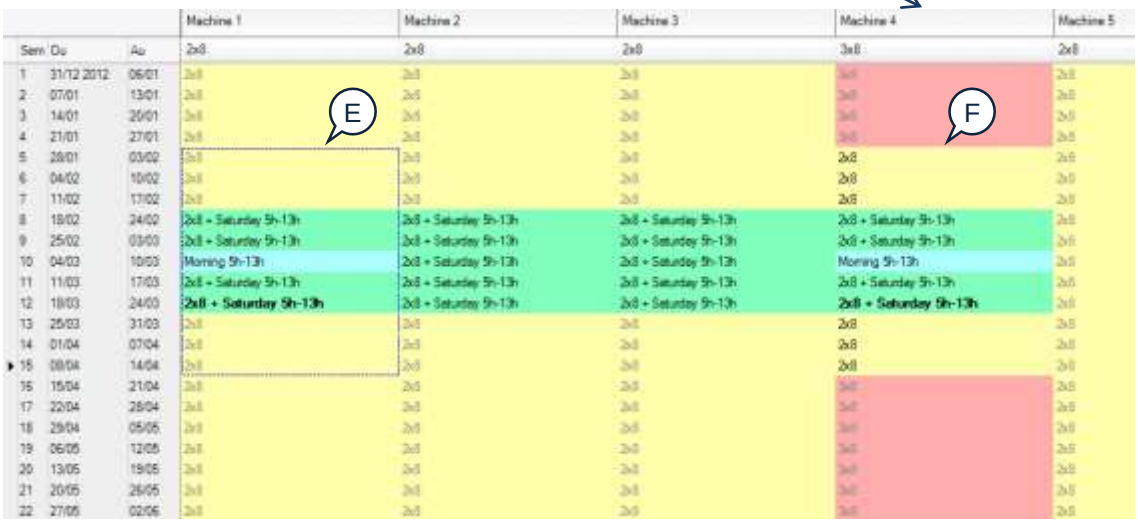
If your selection is about a single machine, you can copy it onto one or several other machines.

This copy will be identically performed (same weeks).
For example: you select weeks 27 to 39 of machine X to copy them onto machine Y.
Copy will be performed on weeks 27 to 39 of machine Y.
Here's an example of the source situation:

Captions are explained on the next page.



Here's the target situation:



Copy a selection onto a machine (continued)

A — You can specify that the copy of the selection will be performed on all machines.
In that case, just tick ☑ this box.

B — You can choose the machines and / or sections onto which the copy will be performed.
Click the plus sign + to expand a section, or the minus sign – to collapse it.
Tick ☑ the boxes regarding the machines / sections onto which the copy will be performed.

C — Scope of the copy: do you want to copy the weekly standard week (the one that has been imposed, page 61)? If so, tick ☑ the box.

D — Scope of the copy: do you want to copy the particular timetable (the one that has been imposed, page 65)? If so, tick ☑ the box.

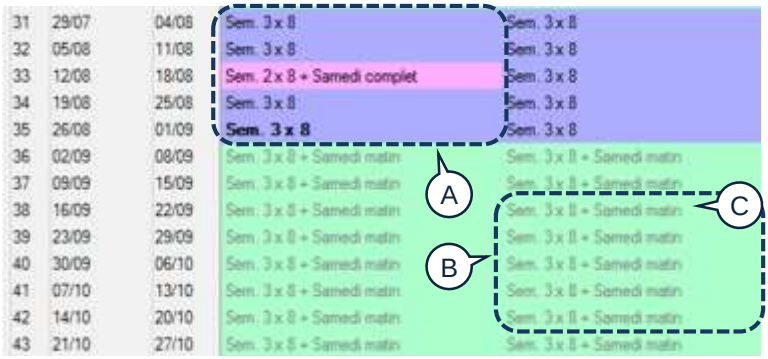
E — The dotted rectangle shows the selection you've just copied.

F — The target area (F) has been identically pasted from the source area (E).
Reminder about captions (page 66):
The background color reflects the color of the involved weeks.
All the cells you've pasted are displayed in black because you have imposed them.
Some of them are in bold characters because the involved weeks contain an imposed day or a day with an exceptional timetable.

Paste a selection

Once you've copied a selection (page 68), you can paste it.
Select the target cell [1], then:

- Press Ctrl V
- or right-click to get the context menu ➔ and select *Paste selection*.

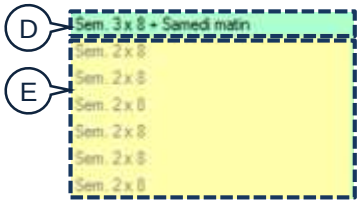


[1] If it is a multiple selection, you just have to select the upper left cell that will receive the *Paste* or the multiple selection.

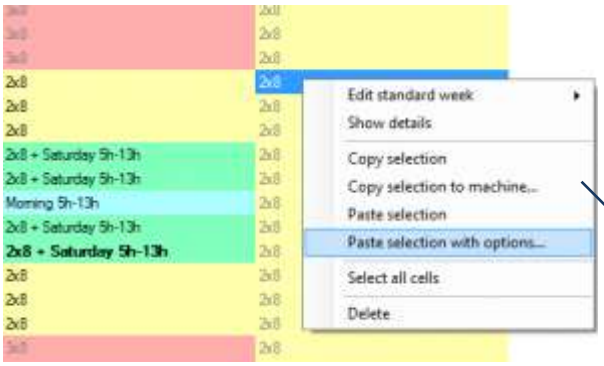
For example, you copy the selection of the **A** block.
To paste it in the **B** block, you just need to select the first cell (**C**) of the block.

To paste a simple selection onto a multiple selection:
Example:

- Copy the **D** cell.
- Select all the cells of the **E** block and paste: the **D** cell will be copied as many times as you've selected cells.



Paste a selection with options



Once you've copied a selection (page 68), you can paste it while specifying some options.

➔ Select the target cell, and then choose *Paste selection with options*.

Do you want to paste the weekly standard week (which has been imposed on page 61)?
If so, tick ☑ the box.

Do you want to paste the particular timetable (which has been imposed on page 65)?
If so, tick ☑ the box.

Other methods to Copy / Paste on a calendar

If you click a column header, this means you select the calendar of this machine.
Right-clicking then offers a context menu, from which you can perform the following operations:

1. Copy calendar: you can then paste it onto another machine.

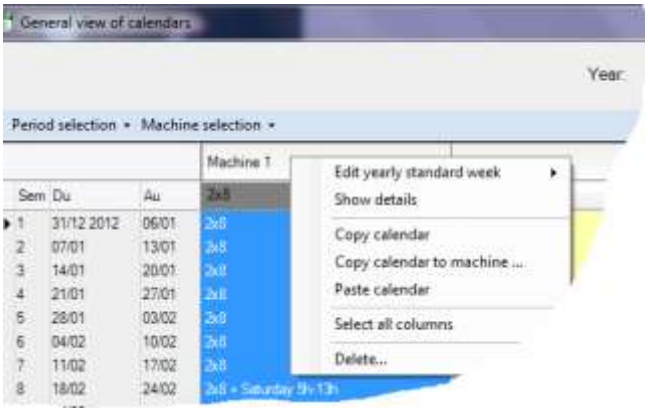
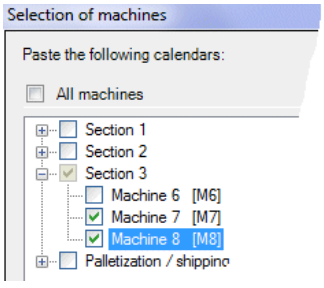


Figure 55 – Context menu on a machine

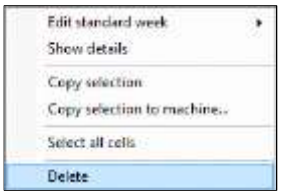
2. Copy calendar onto machine. A window lets you select the target machines. ➔
   You can choose the machines and / or sections onto which the selection will be copied.
   Click the + sign to expand a section, or the – sign to collapse it.
   Tick ☑ the boxes corresponding to the machines / sections onto which the selection will be copied.
3. Paste the calendar that you've copied at point 1.

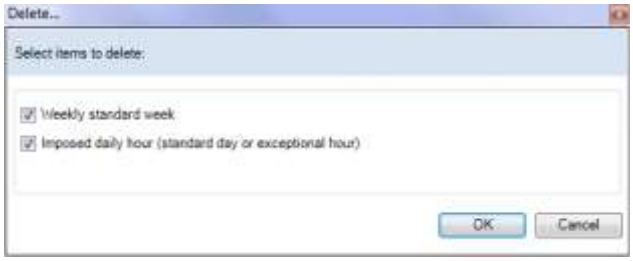


The *Copy, Paste, Paste with options* operations are also available on a row of the array (ie on a standard week, across all machines).

Deleting items from the calendar

Right-clicking a selection lets you delete items from the calendar, amongst others.



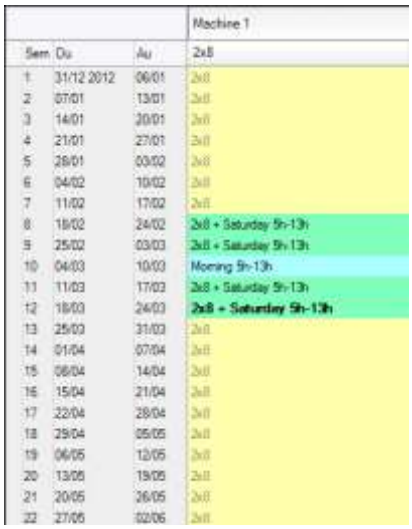


Tick the boxes according to the items you want to delete.

☑ The weekly standard week that has been imposed on page 61.
☑ The particular timetable that has been imposed on page 65.

Figure 56 – Choosing items to delete

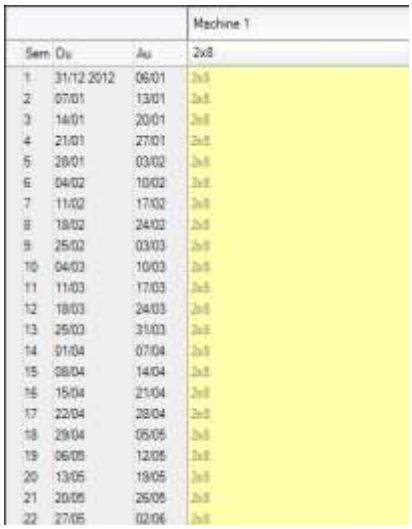
Clicking the header of a column means selecting the calendar of this machine.
Here again, right-clicking offers a context menu where you can delete some items of the calendar.
Please refer to Figure 55 in the previous paragraph.



← Before

This deletion results in restoring the initial values of the calendar of the machine: all the weeks are reset to the annual standard week, which is also displayed in the header.

After →

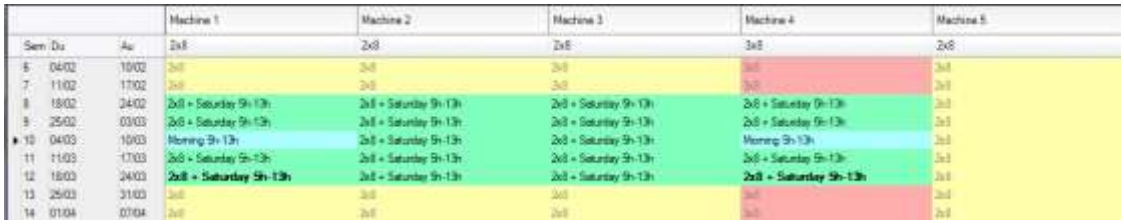


This deletion concerns a column.
The following page shows that deletion can also concern a row.

Deleting items from the calendar (continued)

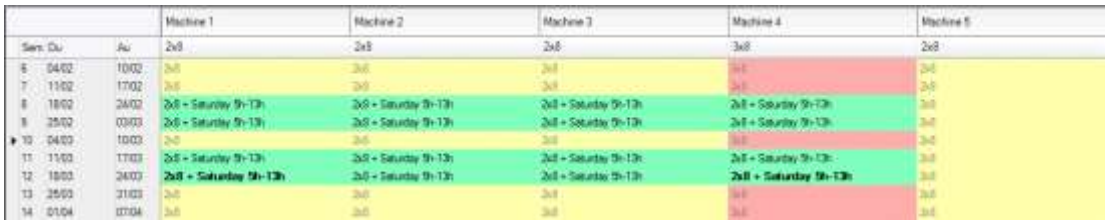
Clicking a week (on the left side of the screen) means selecting the calendar of this week, across all machines.
Here again, right-clicking offers a context menu that lets you delete some items or the calendar.

In the below example, we have selected the week 10 and asked for a deletion.



↑ Before

After ↓

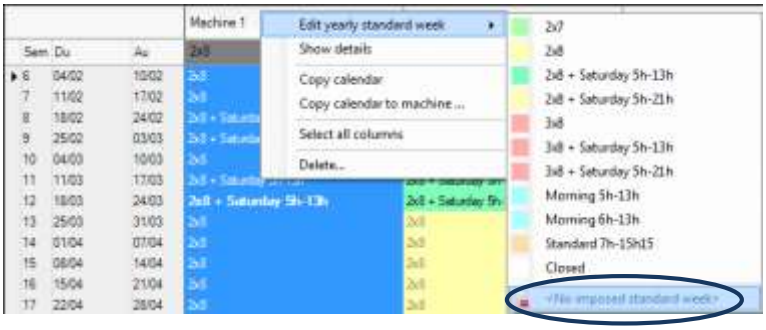


You can notice that, this week 10, all the machines have retrieved their annual standard week (displayed in the header).

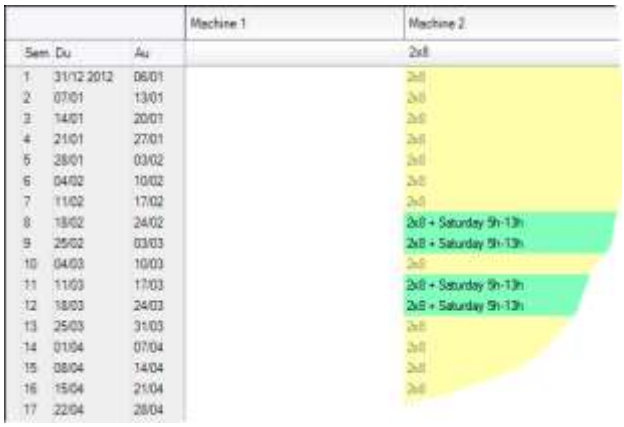
Full deletion of a calendar

In the previous examples, we only deleted some selected items (Figure 56).

Another, more radical method consists in deleting the calendar of the machine itself.
.



The context menu of the machine offers this feature.



Select *No imposed standard week*.
You will have to confirm.

Warning! This operation cannot be undone.

Section 33 Toolbar of the calendar overview

The toolbar lets you access some features that have been described in the previous sections.

Note For some layout reasons, the proportions of the above toolbar are not respected. In reality, there's a wider space between the B and C bubbles.

A Clicking **Period selection** lets you filter the calendar display.
This has been seen on page 57.

This window also lets you tick a box to reduce the information displayed. ➔

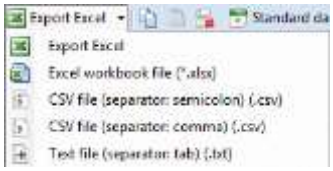
As a matter of fact, you may wish to only display the standard weeks that are different from the annual standard week. In other words, this means only having the exceptions displayed.
The imposed weekly standard weeks (page 61) and the weeks containing an imposed timetable (page 65) will be the only ones displayed.
A comparison example is given on the next page: Figure 57 and Figure 58.

B Lets you filter the machines displayed in the calendars. Seen on page 57.

C Print preview of the schedule.

D Printing the schedule

E Export to Excel.
The file remains open in Excel, you just have to save it.
Clicking the triangle ▾ on the right lets you choose the export format (page 188).
All these formats are available even if the required program is not installed on your machine.



F Copy selection in the clipboard. Page 68 and following.

G Paste the copied items. Page 68 and following.

H Delete current selection. Page 68 and following.

I Management of standard days. Page 51

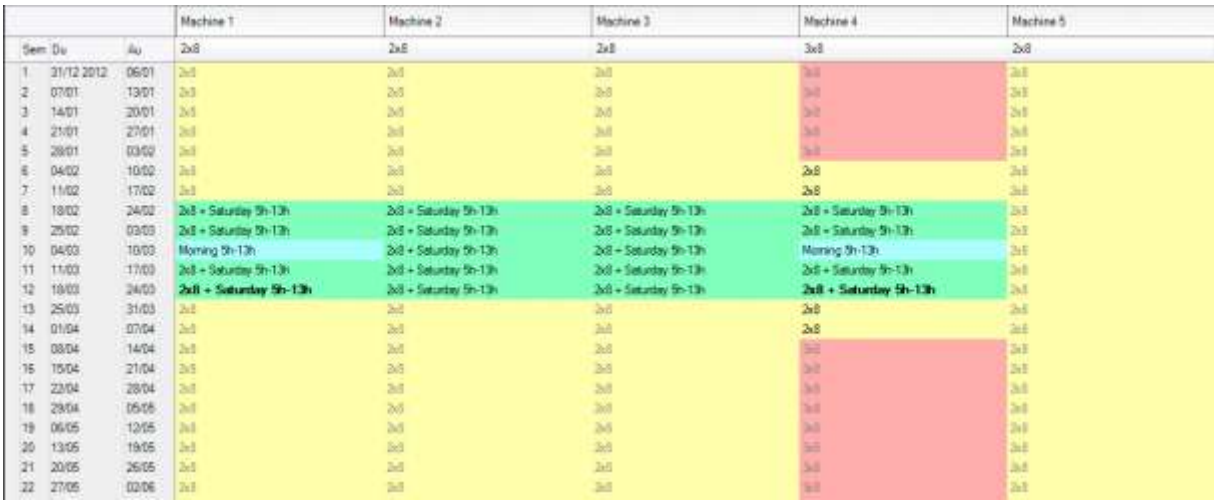
J Management of standard weeks. Page 54

K Management of public holidays. Page 81

L Displays the caption of the grid colors. Page 66

Ⓐ Example of point A of previous page.

In the below example, there's no filter on the week type.



			Machine 1	Machine 2	Machine 3	Machine 4	Machine 5
Sem	Du	Au	2x8	2x8	2x8	3x8	2x8
1	31/12 2012	06/01	2x8	2x8	2x8	3x8	2x8
2	07/01	13/01	2x8	2x8	2x8	3x8	2x8
3	14/01	20/01	2x8	2x8	2x8	3x8	2x8
4	21/01	27/01	2x8	2x8	2x8	3x8	2x8
5	28/01	03/02	2x8	2x8	2x8	3x8	2x8
6	04/02	10/02	2x8	2x8	2x8	2x8	2x8
7	11/02	17/02	2x8	2x8	2x8	2x8	2x8
8	18/02	24/02	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8
9	25/02	03/03	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8
10	04/03	10/03	Morning 5h-13h	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	Morning 5h-13h	2x8
11	11/03	17/03	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8
12	18/03	24/03	**2x8 + Saturday 5h-13h**	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	**2x8 + Saturday 5h-13h**	2x8
13	25/03	31/03	2x8	2x8	2x8	2x8	2x8
14	01/04	07/04	2x8	2x8	2x8	2x8	2x8
15	08/04	14/04	2x8	2x8	2x8	3x8	2x8
16	15/04	21/04	2x8	2x8	2x8	3x8	2x8
17	22/04	28/04	2x8	2x8	2x8	3x8	2x8
18	29/04	05/05	2x8	2x8	2x8	3x8	2x8
19	06/05	12/05	2x8	2x8	2x8	3x8	2x8
20	13/05	19/05	2x8	2x8	2x8	3x8	2x8
21	20/05	26/05	2x8	2x8	2x8	3x8	2x8
22	27/05	02/06	2x8	2x8	2x8	3x8	2x8

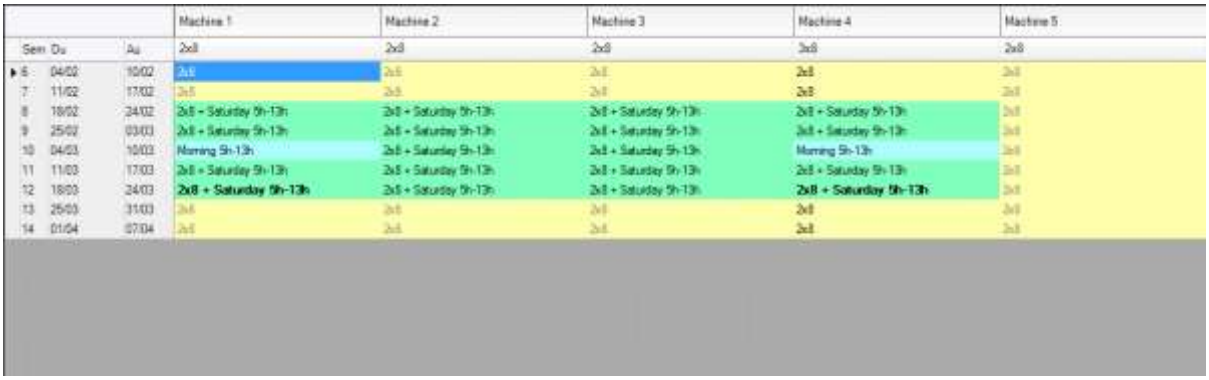
Figure 57 – Displaying calendars without filter

In the below example, the filter on the week type is enabled ☑.
Only the weeks that are different from the annual standard week are displayed, that is to say:

- The imposed weekly standard weeks (page 61)
- The weeks containing an imposed particular timetable (page 65)

This lets you globally focus on exceptions.

You might notice that some machines still display their annual standard week: as a matter of fact, they share their row with other machines that have impositions for the same week.



			Machine 1	Machine 2	Machine 3	Machine 4	Machine 5
Sem	Du	Au	2x8	2x8	2x8	3x8	2x8
6	04/02	10/02	2x8	2x8	2x8	2x8	2x8
7	11/02	17/02	2x8	2x8	2x8	2x8	2x8
8	18/02	24/02	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8
9	25/02	03/03	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8
10	04/03	10/03	Morning 5h-13h	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	Morning 5h-13h	2x8
11	11/03	17/03	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	2x8
12	18/03	24/03	**2x8 + Saturday 5h-13h**	2x8 + Saturday 5h-13h	2x8 + Saturday 5h-13h	**2x8 + Saturday 5h-13h**	2x8
13	25/03	31/03	2x8	2x8	2x8	2x8	2x8
14	01/04	07/04	2x8	2x8	2x8	2x8	2x8

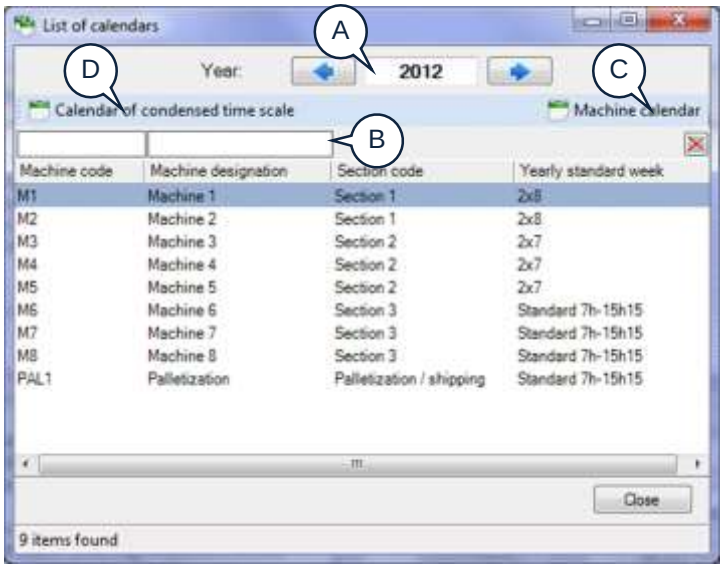
Figure 58 - Displaying calendars with filter

Chapter 21 LIST OF CALENDARS

Please read the general points at the beginning of this chapter (page 50).
This window presents all the calendars.
From there, you can then access the detailed calendar of a machine.
Thus, you can display the imposed standard days for a whole year.
From this window, you can also access the calendar of the condensed time scale.

In the *Calendar* menu, click this icon to display the list of calendars.

The list of your machines (= the list of your calendars) is displayed.



(A) If needed, use the left and right arrows to display the desired year, or key in the year.

(B) You can filter the list of displayed calendars, entering characters in the code or in the wording.

(C) Select the calendar in the list and click the **Machine calendar** button (or double-click the calendar): this opens the calendar. More details on next page.

(D) Click the **Condensed time scale calendar** button to display this particular calendar. This calendar lets you specify time slots that will be hidden when you select the *Condense time scale* option in the *Display* tab (page 148).
Typically, this approach is aimed to specify the non-worked time slots that are shared by all your machines. Therefore these slots don't need to be displayed in the schedule. More details on page 79.

Section 34 Detailed view of a calendar

The detailed view offers an overview of a calendar (of a machine).
Each row of the array represents a week, while each column represents one of the 7 days of the week.
The background color is linked with the color of the selected standard week (which has been automatically assigned or which you have chosen, page 56).

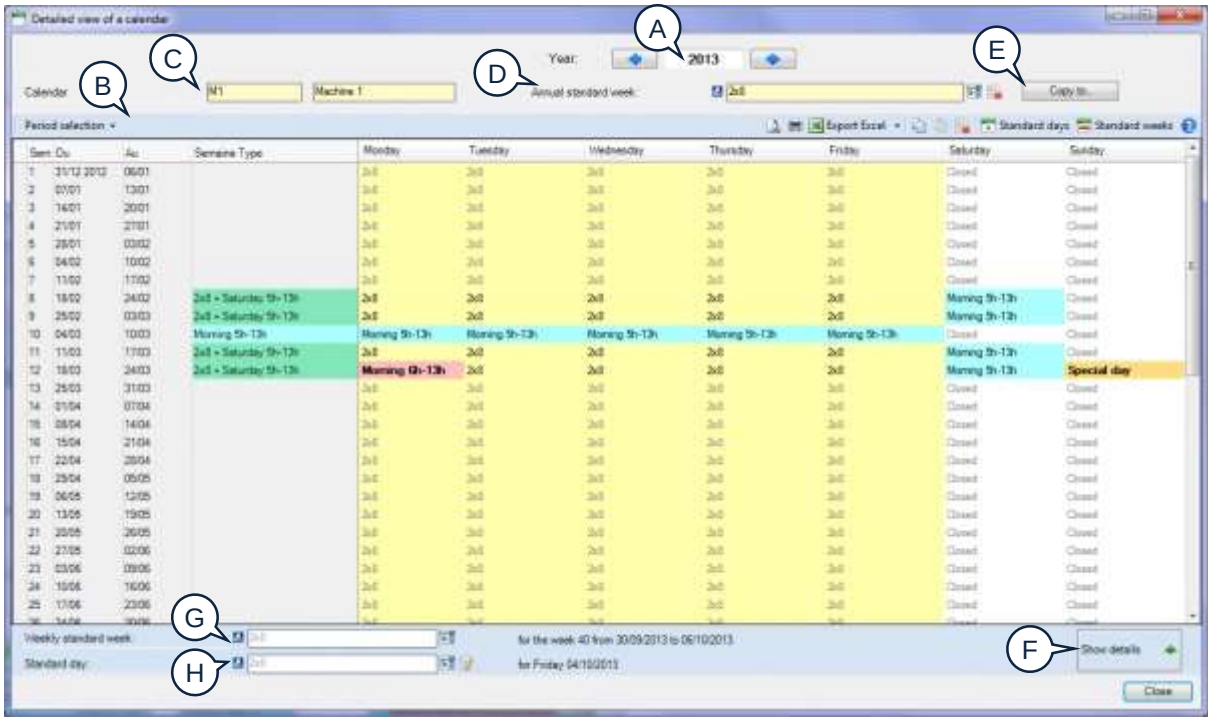


Figure 59 - Detail of a calendar

A If needed, use the left and right arrays to display the desired year or key in the year.

B Filter on the period. Also exists in the overview of calendars (page 57).
If you wish so, you can only display a part of the year.
For example, if you create your schedule from July 1st, you won't need the previous weeks.
To restrict the display of the schedule, click **Selection of period**. ↓

This window lets you display the weeks of a selected period.

Click the calendar to specify your dates or directly key in the start and end dates.

Another, simpler way consists in clicking the **Starting today** button.
If necessary, you may also click the **The whole year** button.

C The code and the wording of the machine are displayed here.

D The annual standard week is recalled here. Clicking lets you view it.
The annual standard week lets you specify the reference standard week used throughout the year. It may be specified here, clicking , or from the calendar overview (more details on page 59).
The icon lets you delete the annual standard week of this machine (which is the same as deleting the calendar of this machine). You will have to confirm this operation.

E The **Copy to** button lets you copy the calendar of this machine onto another machine.
This feature is explained in the calendar overview, page 71.

F The **Detail** button lets you alternately display / hide the detail at the bottom of the screen.

When you're in the screen of a calendar detail (Figure 59, page 77), some operations are available: These operations are described in the chapter about the calendar overview (page 57), notably:

G Imposing a weekly standard week (page 61).

H Imposing a standard day and / or a specific timetable within a day (page 63).

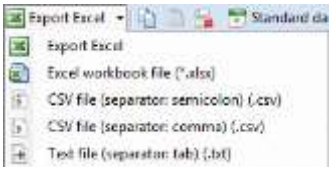
Copying / Pasting / Deleting (page 68).

The toolbar of a calendar detailed view practically offers the same features as the ones of the overview (page 74).

C Print preview of the schedule

D Printing the schedule

E Export to Excel.
The file remains open in Excel; you just have to save it.
Clicking the triangle on the right lets you choose the export format (page 188).
All these formats are available even if the required program is not installed on your machine.



F Copy selection in the clipboard. Page 68 and following.

G Paste the copied items. Page 68 and following.

H Delete current selection. Page 68 and following.

I Management of standard days. Page 51

J Management of standard weeks. Page 54

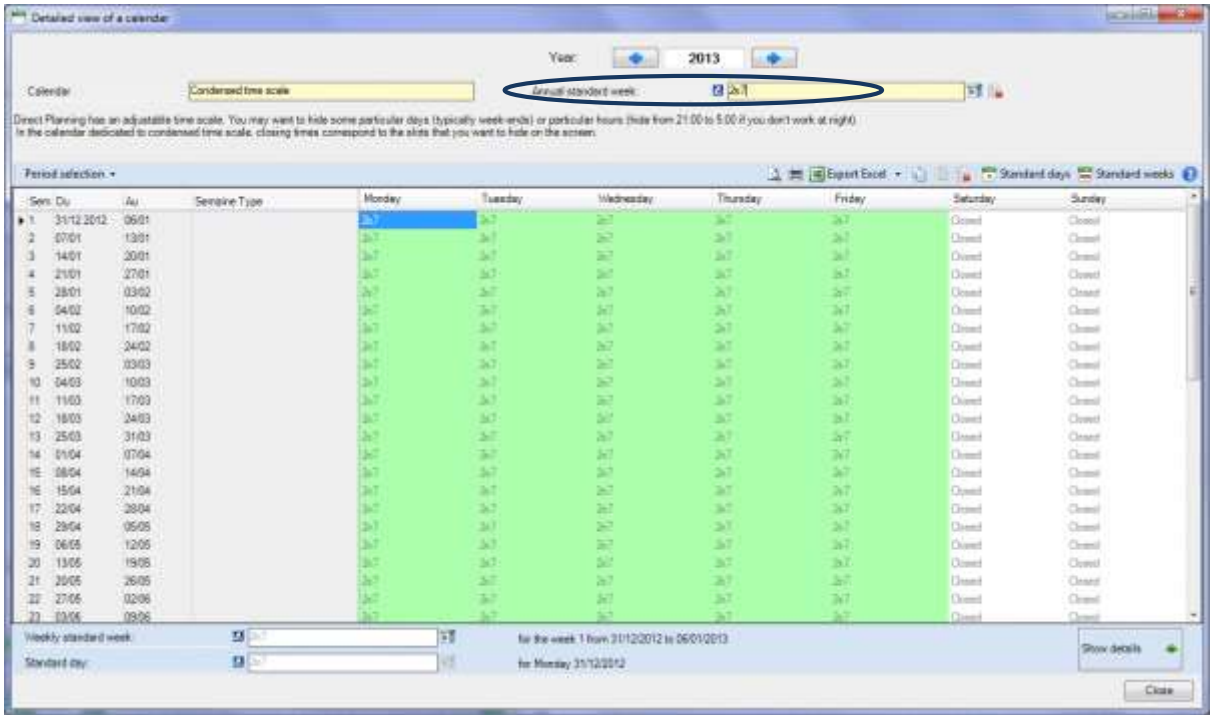
L Displays the caption of the grid colors. Page 66

Section 35 The calendar of condensed time scale

This calendar lets you specify the time slots that will be hidden when you select *Condense time scale* in the *Display* tab (page 148).
This screen lets you specify the non-working time slots that are shared by all your machines. Therefore these slots don't need to be displayed in the schedule.

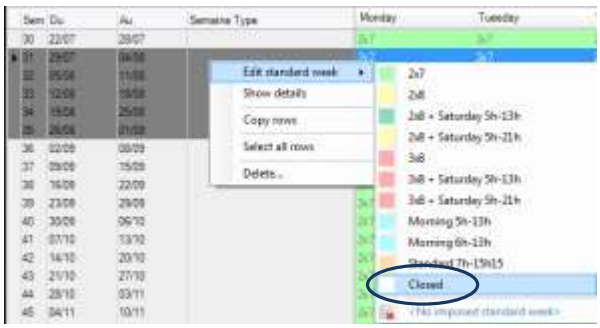
Thus, the calendar of condensed time scale concerns your company, and not only such or such machine.

First, enter the annual standard week.
In our example, Saturdays and Sundays are non-working days, thus we know that they won't be displayed when we condense the time scale to make room on the screen.



You can add non-working weeks, or weeks that don't have the same timetable as the one of the annual standard week.

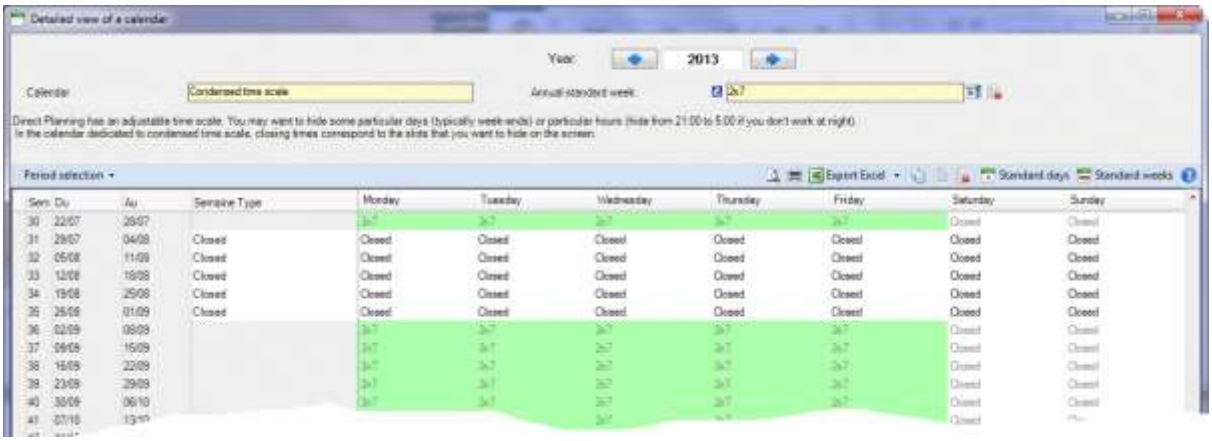
Within the scope of our example, please select weeks 31 to 35, which correspond to the month of August.
If needed, refer to page 68 to do a multiple selection.



Right-clicking lets you change the standard week, which you can do, selecting **Closing week**.

Click anywhere in the schedule to deselect the cells and thus to have a better view of the result. ➔ Next page.

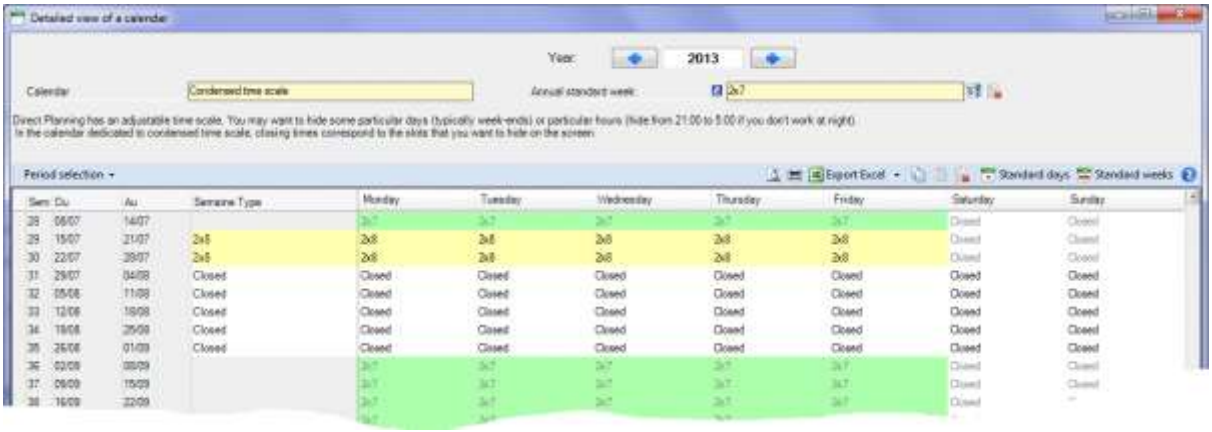
List of calendars



↑ You've just declared the weeks 31 to 35 as non-working: as a matter of fact, they are now displayed on a white backround, the color dedicated to non-working periods (in this example).

They are written in black characters to indicate that they have been imposed, while the rest of the calendar is displayed in gray characters (annual standard week).

When you display the schedule with the condensed time scale, these weeks are not visible.
On the same principle, we can impose the 2nd half of July, saying that they are 2 x 8 weeks.
The result will be displayed as shown below. ↓



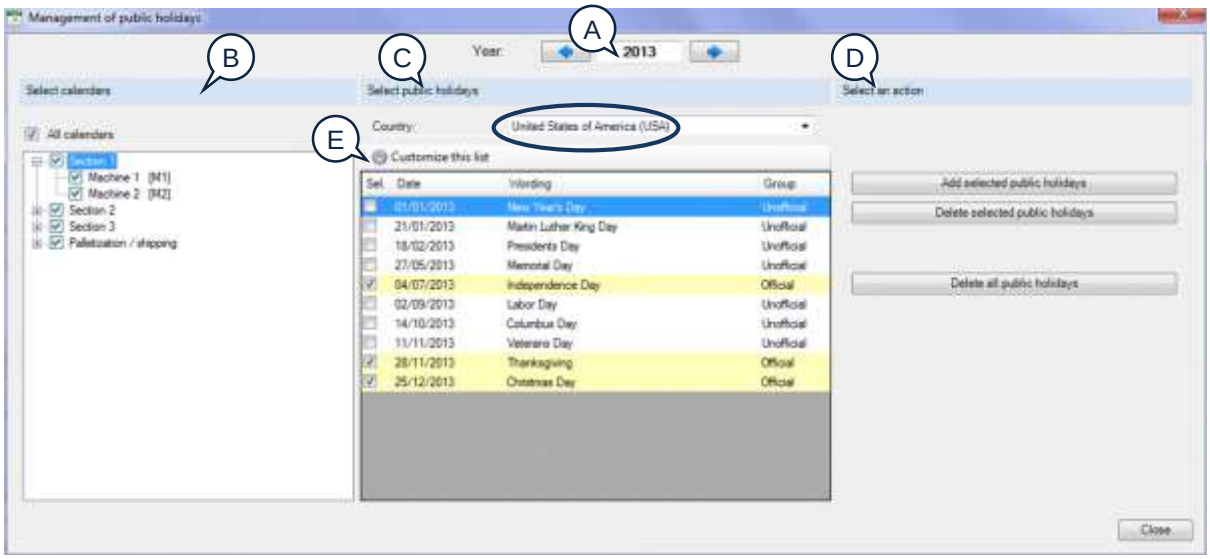
Weeks 29 and 30 are now in 2 x 8 mode: as such, they are displayed on a yellow background, which is the color of this standard week.
When you display the schedule on these two weeks with the condensed time scale, the corresponding time slot won't be display, thus saving room on the screen.

IMPORTANT	The breaks of the *Day* shifts are hidden by the condensed time scale. The breaks of the *Morning*, *Afternoon* or *Night* shifts are not hidden. Please read the remark about breaks on page 53.

Chapter 22 MANAGEMENT OF PUBLIC HOLIDAYS

Please read the general points about calendards at the beginning of this chapter (page 50).
For each machine, this feature lets you define your public holidays.
The public holidays of some countries are provided until year 2020.
For each country, the following is provided: the official public holidays, “partial” days (those which only apply to part of the territory), and “non-offical” days.
A “customization” mode lets you specify the public holidays.
The customized public holidays can then be exported in XML format.

In the *Calendar* menu, clicking this icon displays the management window of public holidays.



Section 36 Automatically include official public holidays

(A) First, check you’re on the right year.
If needed, use the left and right arrows to get the desired year, or key it in.

(B) Select the involved calendars.
Remember: one machine = one calendar
You can choose the machines and / or sections for which you want to define public holidays.
Generally, public holidays are defined at the enterprise level, thus for all the machines, most often, you would leave all the boxes ticked.
Click the plus sign to expand a section, or the minus sign to collapse it.
Tick the boxes ☑ that match the involved calendars.

Ⓒ Then select the public holidays in the displayed list.
Above the list of public holidays, check that the right country is displayed.
If necessary, open the list ▾ to change.

The background color depends on the nature of the public holidays:

- On a yellow background, they are official public holidays; by default, they are ticked ☑.
- On a grey background, these are partial holidays: they only apply to part of the territory. By default, they are not ticked.
- On a white background, these are non official holidays. By default, they are not ticked.

Tick / Clear the days according to your organization.

Ⓓ At last, in the right part, select the action **Add the selected public holidays**.

Ⓔ Customize this list. Lets you customize the list of the public holidays.

Section 37 Remove public holidays

In the right part of the window, you have 2 buttons to delete:

1. **Delete the selected public holidays**. The public holidays that are ticked in the central part of the window are removed from the calendars of the involved machines.
2. **Delete all the public holidays**. ***All*** the public holidays are removed from the calendars of the involved machines. This deletion is based upon the calendars of the machines.
   It is not based upon what is (or is not) displayed in the central part of the window.
   In other words, if you had previously added public holidays of other countries, or customized public holidays, etc. all of them will be removed, whatever their origin.

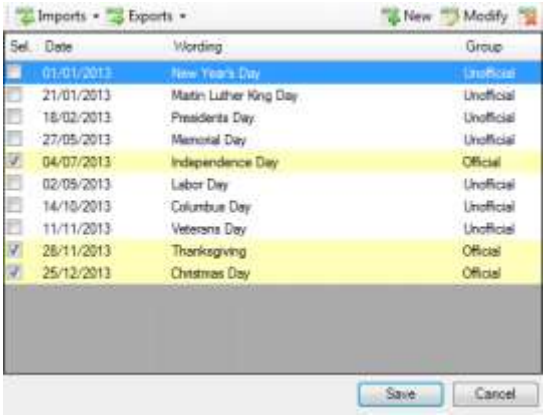
Section 38 Customize the list of public holidays

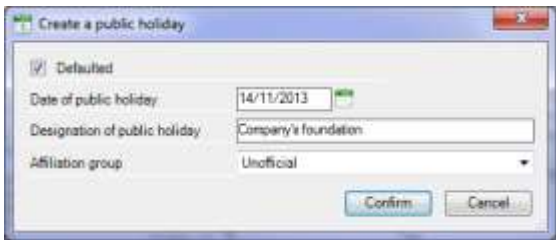
When you click the **Customize this list** button, the presentation of the wcreen changes.

From here, you can **import** or **export** a list of public holidays in the xml format.

You can also create a **new** public holiday or modify an existing one.

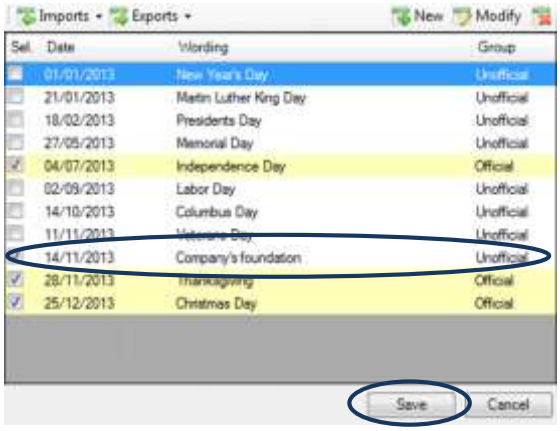
The presentation of the creation screen is the same as the one of the modification. ↓





←When you create a new public holiday, please specify if it is selected by default in the list. Then you enter the date, a wording, a group and you confirm.

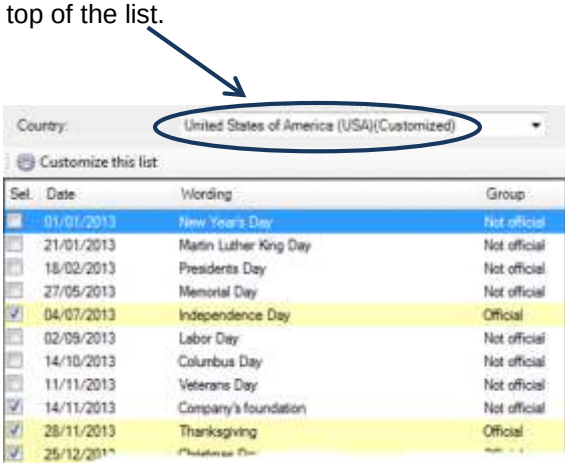
The 3 proposed groups are as follows: Official, Partial and Non official.



If you want to get back to the standard list, you have to click the **Customize this list** button again; this displays the **Delete this customized list** button at the bottom of the list.

← Once your day is created (or modified), it is displayed in the list, but you still have to save it, clicking the **Record** button at the bottom of the list.

Your calendar is now customized, which is reminded at the top of the list.



Chapter 23 CALENDARS: TOOLS

In the **Calendar** menu, clicking this icon displays the toolbox.

This menu proposes 2 options:

1. **Batch processing**: to perform mass actions on all or part of your calendars: modifying or deleting annual standard years, weekly standard years or standard days.
2. **Display the calendar of the condensed time scale**: lets you access the calendar of condensed time scale (page 79).

Section 39 Batch processing

This toolbox lets you perform grouped processings on a selection of machines.

A — First of all, check that you're on the right year.
If necessary, use the left / right arrows to display the desired year or key it in.

B — Select the involved calendar(s).
You may choose the machines and / or sections for which you want to apply a batch processing.
Click the plus sign to expand a section, or the minus sign to collapse it.
Tick ☑ the boxes corresponding to the concerned calendars.

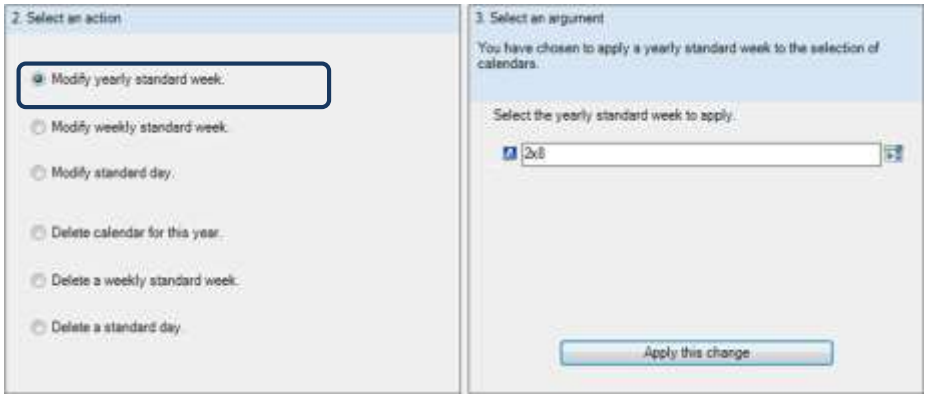
C — Then choose from the proposed actions.

D — Finally, in the right part, enter the required information, depending on the selected action.
The proposed actions are described further.

You can modify an annual standard week.

In the right part, enter the standard week.

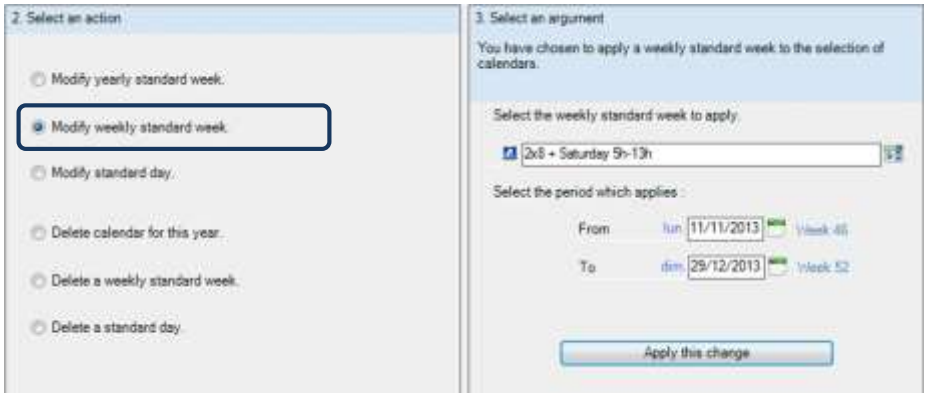
This action has been described on page 59.



You can modify a weekly standard week.

In the right part, enter the standard week and the application period.

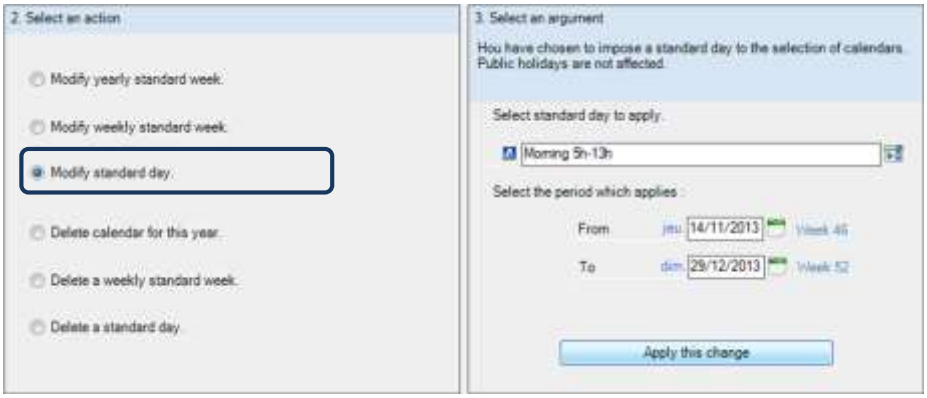
This action has been described on page 61.



You can modify a standard day.

In the right part, enter the standard day and the application period.

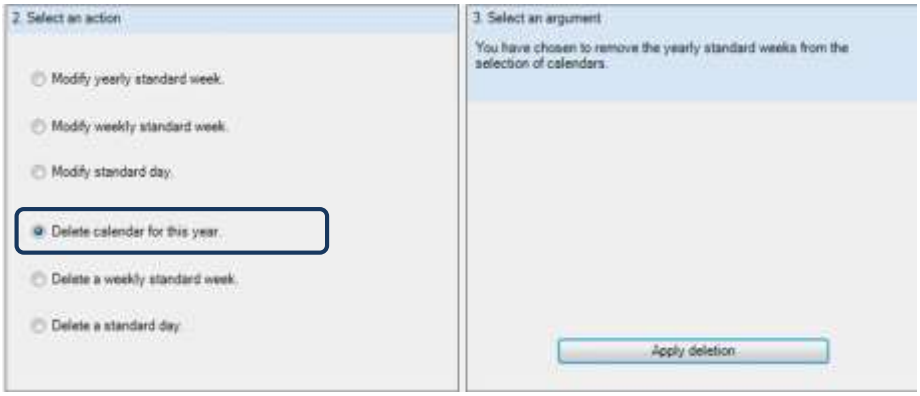
This action has been described on page 63.



You can modify a calendar for the whole year.

No particular information to enter in the right part.

This action has been described on page 63.

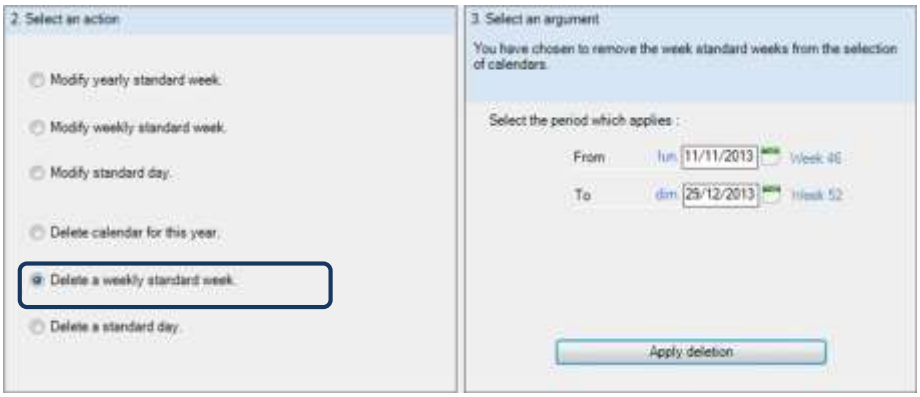


Calendars: tools

You can delete a weekly standard week.

In the right part, enter the application period.

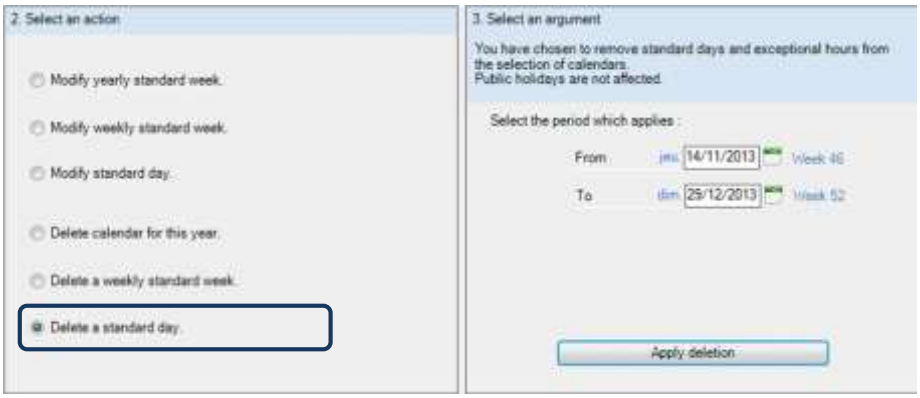
This action has been described on page 62.



You can delete a standard day.

In the right part, enter the application period.

This action has been described on page 72.



THE JOB DETAILS

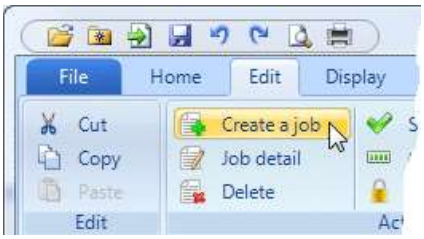
Chapter 24 HOW TO CREATE A JOB

There are 3 methods:

- The first method is the only possibility to create a job on a machine that you can't see in the projection (page 14).
  Such a case occurs when you're creating the very first jobs in your schedule.
  In other words, during the startup phase of the schedule.
- The 2nd method should be used for occasional job creations.
- The 3rd method is the fastest when you create several jobs one after the other.

1st method

In the **Edit** menu, choose **Create a job** (page 89).
The machine is not pre-entered.

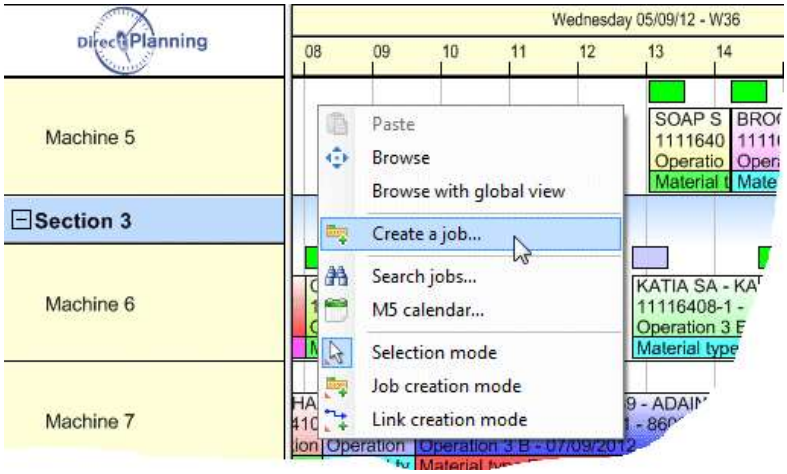


2nd method

Set the cursor on a free area of the schedule, in front of the machine on which you want to create a job.

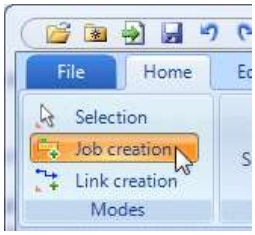
Right-click to open the context menu. Choose **Create a job**.

This opens the job detail window (page 89).
The machine is pre-entered.



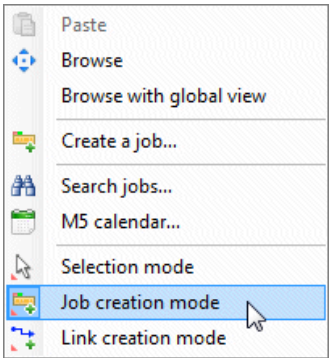
3rd method

Switch to **Job creation mode**: this mode lets you create jobs in one mouse move.
There are 2 ways to swith to Job creation mode:



↑ 1st way
In the **File** menu, choose **Job creation**

2nd way-➔
Set the cursor on a free area of the schedule and right-click to open the context menu. Choose **Job creation mode**.



You are now in **Job creation** mode: when the cursor hovers the schedule, it takes the following shape: ┼

As long as you remain in this mode, you can create jobs in one mouse move:

- Set the cursor on a free area of the schedule, on the row of the desired machine.
- Click and hold down the left button.
- Move the mouse about one centimeter to the right (regardless of the accuracy).
  This displays a small, blue rectangle next to the cursor: ▭┼
- Release the mouse button.
  This opens the job detail window (next page). The machine is pre-entered.

Note | To get back to the Selection mode, choose **Selection** in the **File** menu or the context menu: the pointer gets back to its original shape:

Chapter 25 INTRODUCING THE JOB DETAIL WINDOW

The job detail window may have 2 different layouts:

➲ **Your machine has a working unit**:

- You have specified the working unit in the machine form (page 24).
- The operation and the planned, engaged quantity must be entered (area 1 in the screenshot).
- The setting and running times are automatically calculated, but you can still change them (area 2 in the screenshot).
- The *Progress status* tab displays the planned and performed quantities and work rates (area 3 in the screenshot).

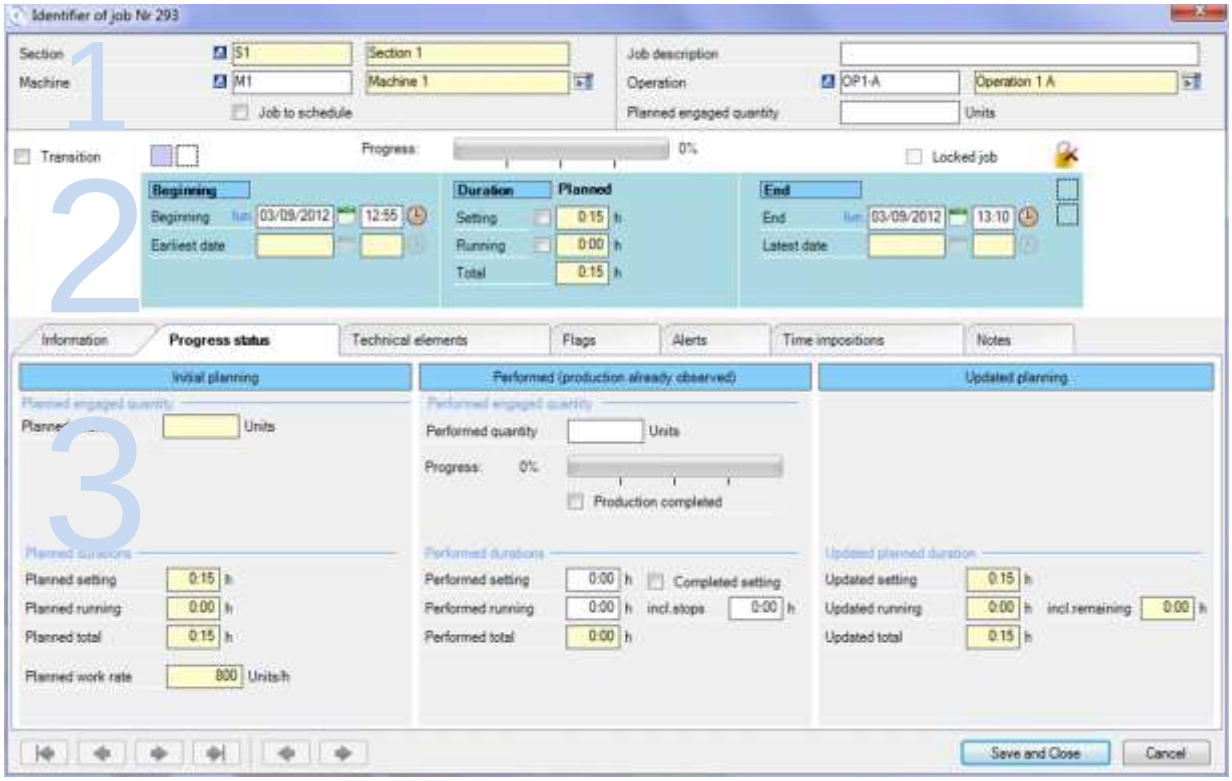


Figure 60 – Job details: machine with working unit

The job detail window is divided in 3 areas:

1. General information on job (page 91)
2. Information on date / time and duration (page 95)
3. Other information, depending on the selected tab (page 99).

The content of the areas 1 and 2 remain permanently on screen, whereas the content or the area 3 depends upon the selected tab. These 3 areas are explained in the next 3 chapters.

At the bottom of the window, a series of arrows let you flip through the jobs while remaining in the job detail window. Browsing can be performed within the same resource or the same route.
More details on page 151.

➲ **Specific case of machines without working unit**:

- You have not specified the working unit in the machine form (page 24).
- There's neither operation nor planned, engaged quantity (area 1).
- You have to enter the setting and running times, which are not automatically calculated (area 2).
- Quantities and work rates do not feature in the *Progress status* tab (area 3).

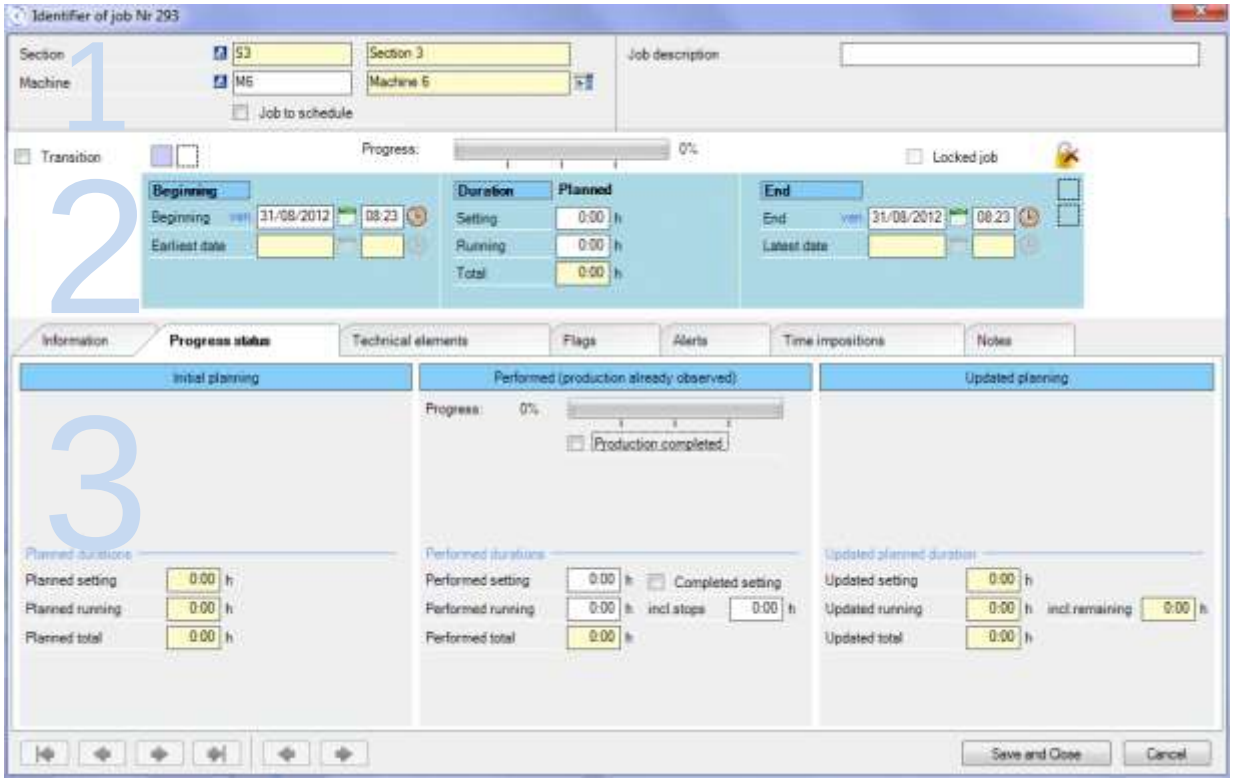


Figure 61 - Job details: machine without working unit

The job detail window is divided in 3 areas:

1. General information on job (page 91)
2. Information on date / time and duration (page 95)
3. Other information, depending on the selected tab (page 99).

The content of the areas 1 and 2 remain permanently on screen, whereas the content or the area 3 depends upon the selected tab. These 3 areas are explained in the next 3 chapters.

At the bottom of the window, a series of arrows let you flip through the jobs while remaining in the job detail window. Browsing can be performed within the same resource or the same route.
More details on page 151.

Chapter 26 GENERAL INFORMATION ON JOB

In this chapter, we'll explain the area 1 of pages 89 and 90.

Job identifier

The window header displays **Job ID #67**: this is a sequence number, automatically assigned by Direct Planning. You can't change it.

Section - Machine

The *machine* is the essential piece of information of the job. It "belongs to" to its *section*.
Also, it is the basis of the information enabling the calculation of the **setting time** and the **work rate**.
Setting time and work rate produce the duration of the job and, subsequently, an end date and time.
The activity of a machine at a given time and during a certain time influences its place in the schedule.
To perform these calculations, and depending on your configuration, the machine will be possibly linked to an **operation** and one or two **technical element**(s).
Finally, another key part of these calculations is the **planned, engaged quantity** that you'll enter in the area 1.
Page 19 gives more information on the role played by this data.

Note	When you started creating your job, maybe the mouse cursor was on the row of the involved machine (method 2 or 3, page 87): in that case, Section and Machine are automatically pre-entered (but you can still change them).

To specify a machine, click here

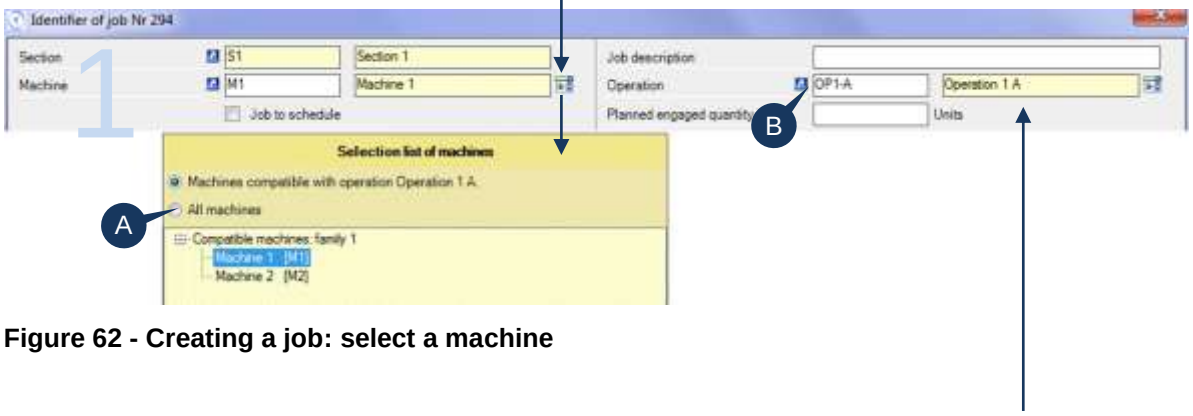


Figure 62 - Creating a job: select a machine

By default, the list of machines only displays the machine that are compatible with the specified operation. You defined these associations on page 38.
The list may display all the machines in 2 cases:

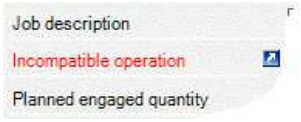
- You have selected ⊙ *All the machines* (bullet **A**).
- No operation has been entered yet (bullet **B**).

The current machine may be already selected (on a blue background).

Choose your machine and click OK.

If you select a machine that is not compatible with the operation:

- You get this warning message. ➔
- If you confirm, the **Operation** wording turns red and becomes Incompatible Operation.↙



When you select a machine, the matching section is automatically displayed.

You can view the machine form (page 24) and the section record (page 21), clicking .

Job to schedule

You've got a job to schedule, yet you are unable to assign it a date.
If you don't want to forget it, you may record it in the schedule, in an area reserved to the jobs awaiting formal planning.
These jobs, when they exist, are displayed in a special row in the schedule.
This special row is located just under the formal planning row, in a differenr color, with the name of the machine followed by **[*]**.
To indicate that a job is not yet scheduled (awaiting planning), tick the box ☑ **Job to schedule**.
Your job will be displayed this way in the schedule. ➘

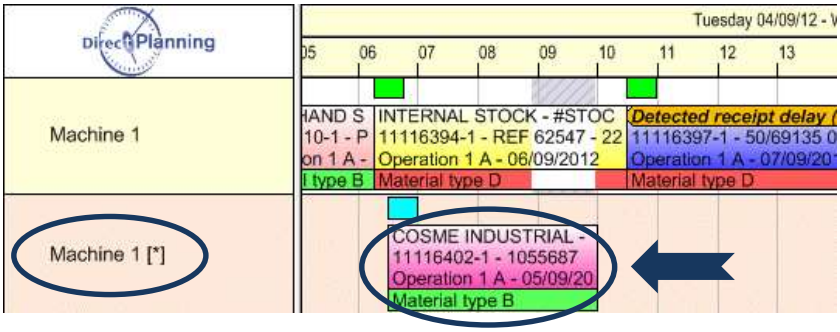


Figure 63 – A job to schedule

The job is awaiting planning: here, you can see that it is overlapping another job, which doesn't matter since it is not scheduled yet.
Later on, when you are able to schedule that job, you can clear the **Job to schedule** box, or merely move the job one row up with the mouse.
You can also schedule the job with the context menu (page 120).
More information on job moves: page 134

Remark	When you import jobs from an ERP software, all imported jobs are assigned the *to schedule* status, thus there are displayed on that row.

Job description

This is a free area in which you can enter a short description of the job.
While being concise, try to be as detailed as possible, because this description will likely feature in one of the display modes or lists of your schedule.

Operation

Remember	In the particular case of machines without working unit, operation is not entered (see the beginning of this chapter, page 90).

The operation indicates what your machine can do.
It may be involved in the calculation of the **setting time** and the **work rate**.
Page 19 gives more details on the role played by these data.

Note	When you started creating your job, maybe the mouse cursor was on the row of the involved machine (2nd or 3rd method on page 87): in this case, the operation is automatically pre-filled if you have specified a default operation for this machine (page 24). However, you can still change it.

To specify an operation, click here.

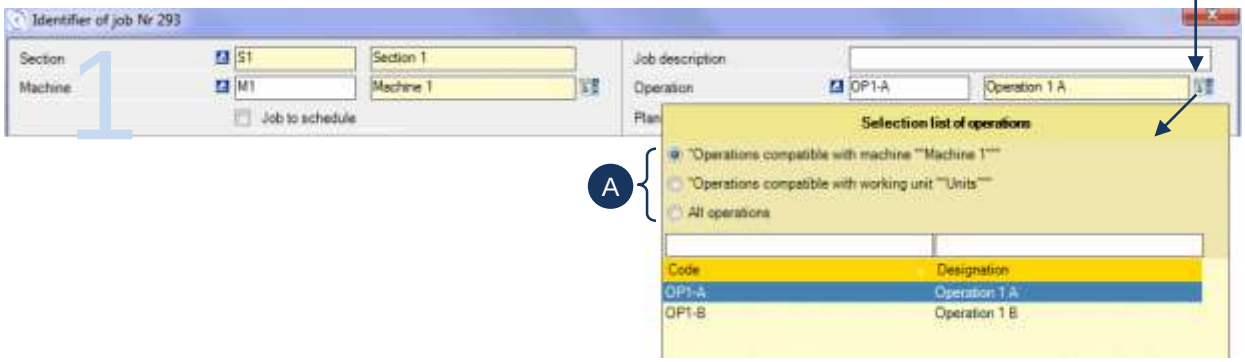


Figure 64 – Creating a job – selecting an operation

By default, the list of operations only displays ⊙ the operations that are compatible with the entered machine. You defined these compatibilities on page 38.
You may also want to display (bullet **A**):

- ⊙ The operations compatible with the working unit
- ⊙ All the operations

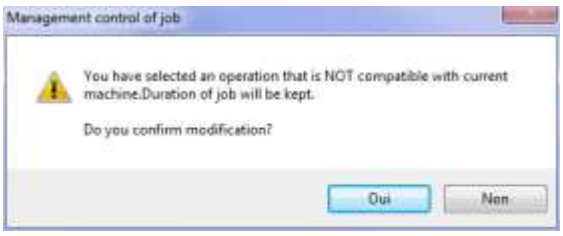
The current operation may be already selected (on a blue background).

Select the operation, then click OK.
If you select an incompatible operation, you will receive a warning message.

You can view the operation record (page 34), clicking .

If you select an operation that is not compatible with the machine:

- You get this warning message. ➔
- If you confirm, the **Operation** wording turns red and becomes Incompatble operation.



General information on job

Planned, engaged quantity

Remember | In the particular case of machines without working unit, operation is not entered (see the beginning of this chapter, page 90).

The planned, engaged quantity is stated in the working unit of the machine.
It is used to calculate the running time.
This running time is based upon the **average work rate** of the machine (page 24).
According to your configuration, the average work rate may also depend upon the operation and one or two technical elements (page 38).

Once you have entered the planned, engaged quantity, you can press the Enter key while having a glance at the running time (in the area 2) that has just been updated.

Chapter 27 MISCELLANEOUS DATA, DATES AND DURATIONS

In this chapter, we explain area 2 of page 89 / page 90.
This area is repeated below to facilitate the reading of this chapter.

Your machine has a working unit: setting and running times are automatically calculated (see the beginning of the chapter, page 89), but you can force them. ↙

Figure 65

Particular case of the machines without working unit: you have to enter the setting and running times, which are not automatically calculated (beginning of the chapter, page 90). ↙

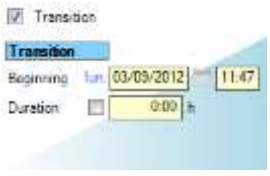
Figure 66

Transition

Remember | A transition time between two consecutive jobs is the required time to change the configuration of a machine between two jobs (changing tool, assembling, disassembling, formatting…)

On page 42, we've seen that it's possible to define transition times according to a machine and one or more technical elements.

Occasionally, you can add a transition time to a specific job.
To do so, tick ☑ the **Transition** box.
This displays the opposite entry area: ➔



The triangle that is displayed in the background reminds the one that materializes the transition times on the schedule (Page 17, Figure 7, bullet **K**).

Upon job modification
If you have already defined a transition time, the box ☑ is already ticked and the transition time displayed. You can still change it and give it another value.

The start date and time are recalled just for information: you cannot change them.
They are determined by the job start date and time.
To specify a transition time, tick ☑ the **Duration** box and enter the transition time.

Flags

Flags are coloured, possibly hatched bullets, located above or on the right side of the jobs.
They allow the planner to instantly view the various status of the job.
They may be compared to clips and stickers attached to index cards on traditional wall schedules.
Figure 7, bullet **C** (page 17) shows a job with two flags (on above and one on the right side).

The administrator has configured the flags according to your needs.
The screenshots of this document show examples of flags, which will be likely different from yours.

The flags you can use can be seen in the area 2 (Figure 65 & Figure 66, page 95) : the (**A**) bullet shows a flag that will be located on top of the job in the schedule, whereas the (**B**) bullet shows flags that will be located on the right side of the job.

Clicking a flag opens a window letting you enable or disable it, or change its status.
This window is described further on page 108.

Progress

When creating a job
When you create a new job, the progress status is equal to zero.
Thus, there is no reason why you would change it (but you can still do it as indicated below).

When modifying a jov
You can modify the progress status, clicking in the bar.
Depending upon where you click, the progress will be changed by stage of 25%: 25, 50, 75, and 100.
If you want to fine-tune the progress, keep the mouse button down and move the mouse to the right to increase or to the left to decrease, while observing the percentage displayed in digits.

Remark	If the **Progress status** tab is selected in the area 3, you can also see the progress status in relation with the produced quantity (provided that the machine has a working unit). Changing the produced quantity affects the progress status. More details on page 102.

Locked job

A locked job cannot be changed, nor moved.

Tick this box to lock the job.
Clear it to unlock the job.

Clicking the padlock also lets you lock / unlock the job.

Section 40 Beginning of job

Start date and time

Before you enter a start date, you have to understand the concept of left-adjusting and right-adjusting.

Left-adjusting	Also called Adjusting at the earliest, it is used to achieve each job as soon as possible. When the left-adjusting mode is enabled, Direct Planning applies the following rule to all the jobs located within the two limit dates of the planning assistance: If there are "holes" between two jobs without valid reasons, the holes are eliminated in order to squeeze the schedule.
Right-adjusting	Also called Adjusting at the latest, it is used in case of just-in-time working mode: in this mode, production is performed as late as possible regarding the demand. When the right-adjusting mode is enabled, Direct Planning applies the following rule to all the jobs located within the two limit dates of the planning assistance: All the jobs are moved as late as possible, keeping up with the constraints (page 114).

If you create, modify or move a job without complying with these constraints, Direct Planning will automatically make the necessary corrections.
Planning assistance, left-adjusting and right-adjusting are explained on page 171.

➲ If you create a job at a date/time where there's already another job, the new job takes the place of the other one, pushing it to the right together with the following jobs, if any.

➲ If you create a job in a free place:

- If the left/right-adjusting mode is enabled (page 171), the start date that is displayed here has no significance: indeed, as soon as you save the job, the scheduling adjusts it to the left or to the right, whatever the date displayed, or modified.
- If the left/right-adjusting mode is disabled (page 171), you can modify the date and time, keying in the information or using the and icons.

Earliest start date and time

This piece of information is displayed here as a reminder, but you can't change it.
This earliest date may have 3 origins:

1. You can manually impose it.
2. It may be imposed by upstream jobs, within the frame of a route.
3. It may be imposed by a flag (awaiting receipt of a necessary item to start the job).

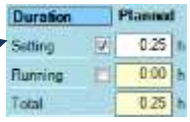
The earliest date is governed by rules that we will study later on in this chaper, on page 114.

Section 41 Job duration

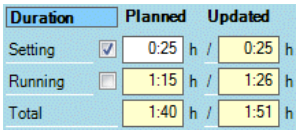
At the beginning of this chapter, we explained the difference between the machines **with** a working unit and the machines **without** working unit. Reminder:

If your machine has a working unit: the setting and running times are automatically calculated, but you can force them. ⬇

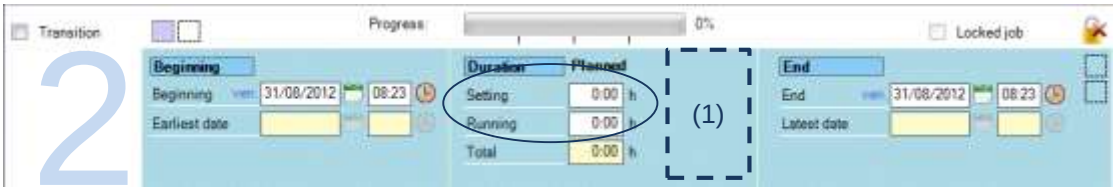
In fact, once you've entered the planned, engaged quantity, Direct Planning has automatically calculated the setup time and the running time. This calculation has been performed according to the method you've chosen to fix these durations by default (page 19).
Thus, setting and running times are displayed on a yellow background.
However, you can change them by ticking ☑ the relevant box.
In the opposite example, the setup time was initially set to 15 minutes.
Due to the circumstances, we chose to extend it up to 25 minutes.
We left the running time as is (calculated by Direct Planning).



(1) If the area with a dotted line shows an updated duration, this means you have updated the setup and / or running time in the area 3, job progress status (page 105).



Particular case of the machines without a working unit: you have to enter the setting and running times, which are not automatically calculated. ⬇



Section 42 End of job

Before entering an end date, you have to understand the concept of left-adjusting and right-adjusting, described on page 97 (job start date and time).

➲ If you create a job at a date/time where there's already another job, the new job takes the place of the other one, pushing it to the right together with the following jobs, if any.

➲ If you create a job in a free place:

- If the left/right-adjusting mode is enabled (page 171), the end date that is displayed here has no significance: indeed, as soon as you save the job, the scheduling adjusts it to the left or to the right, whatever the date displayed, or modified.
- If the left/right-adjusting mode is disabled (page 171), you can modify the date and time, keying in the information or using the and icons.

Latest end date and time
This piece of information is displayed here as a reminder but you can't change it.
This earliest date may have 2 origins:

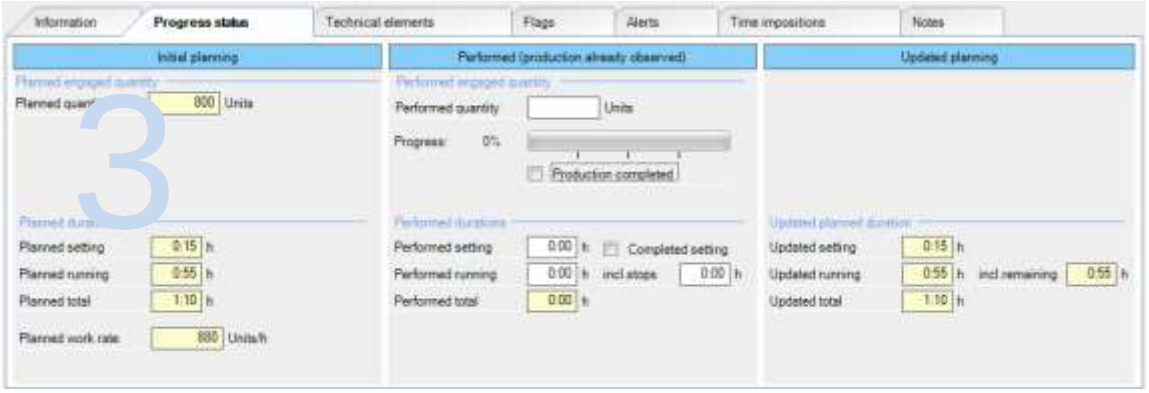
1. You can manually impose it.
2. It may be imposed by downstream jobs, within the frame of a route.

The latest date is governed by rules that we will study later on in this chaper, on page page 114.

Chapter 28 OTHER INFORMATION ON JOB

This 3rd area of the job detail screen is subdivided into 7 tabs as shown below:

When you open the job detail window, the displayed tab is the one that was opened last time (*Progress status*, in our example).



Section 43 Other information on job, Entities

This tab is only available if you have at least configured one entity or one configurable area on the job.

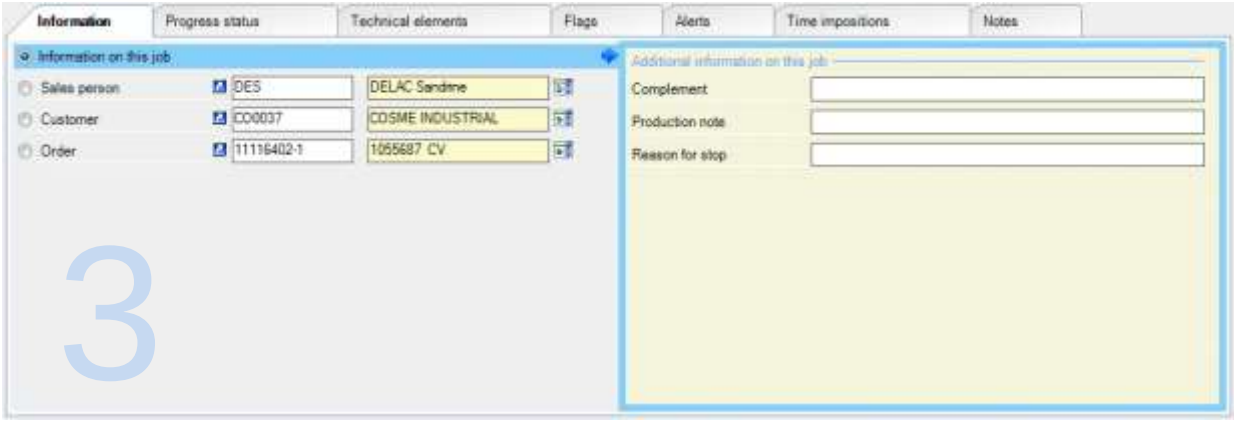


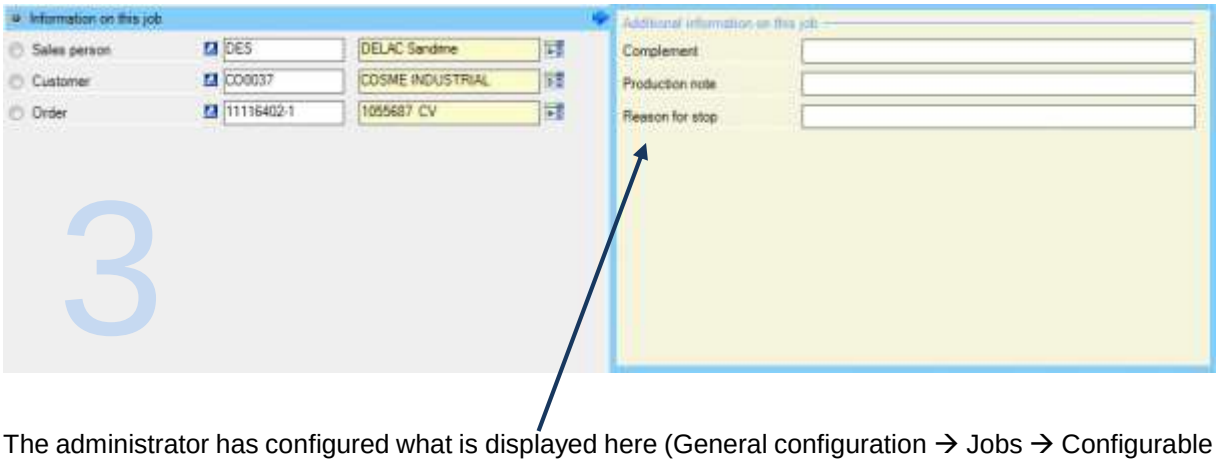
Figure 67 – Information on job and Entities

The layout of this tab depends upon the configuration set by the administrator.

- Information on this job — This item is displayed if there are configurable areas enabled on this job.
- Sales person
- Customer
- Order

These 3 entities depend upon your configuration. Your administrator can create up to 10 of them according to your needs.

The right part provides details on the item selected on the left.
In the below screenshot, we've selected ⊙ **Information on job**. 🡻



The administrator has configured what is displayed here (General configuration → Jobs → Configurable areas). If these areas don't have any impact on the planning, they bring very useful information to any people consulting the job details.

According to the configuration, the (optional) entry of a configurable area will be performed in the form of free text or in a more structured form: a number with or without decimal places, date / time, checkbox, email address, or phone number.

You can find these configurable areas, for each entity, as shown below.
If you select another button, ⊙ **Order**, for example, you get this ↓

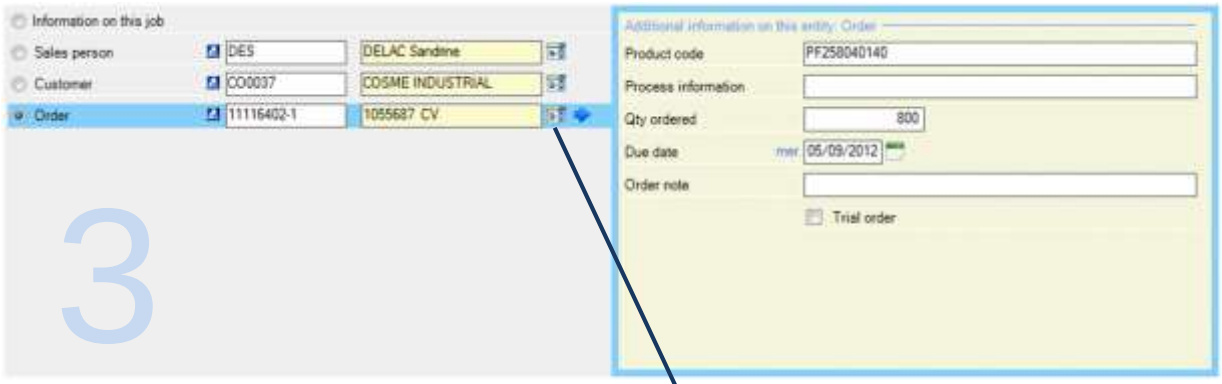


Figure 68 ↑ Detail of an entity for a job

Once again, the *Order* wording and all the information in the right part have been configured by the administrator. The same applies to the *Sales person* and the *Customer*. You have entered these entities (page 46) or you have imported them from your ERP software.

Click at the end of the line to display the list of orders. ➔

You can filter this list, keying in the beginning of an identifier or a wording in the **A** area.

You can also sort the list, clicking the header of a column. Click again to reverse the sort order.

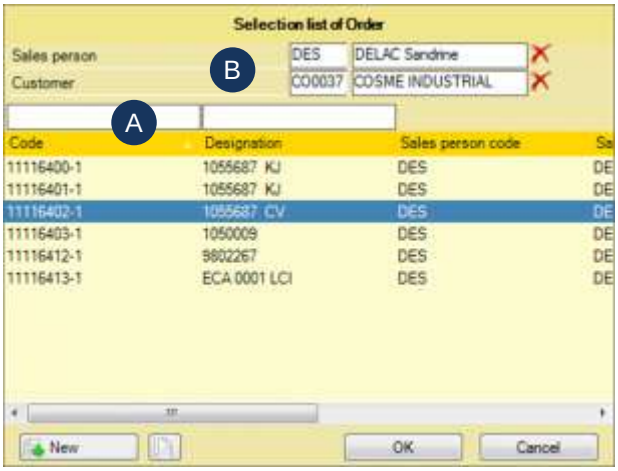


Figure 69 - Sélectionner une entité pour une tâche

Upon job modification, if you click at the end of the *Order* line, the **B** area (Figure 69) displays the entities of higher level.

You can choose an *Order* from the list of *Orders*.
You can also create a new one (page 49), clicking the **New** button.

When you create a new Order from this window: if this entity is linked to an entity of higher level, then the latter will be automatically pre-filled (but you can still choose another one).

Click to display the matching *Order* entity record (Figure 43 page 49).

Once your *Order* is selected, click OK (or double-click).
The *Order* is now displayed in the area 3.

Note	In our example, the administrator has configured links between entities: the *Order* entity is linked to the *Customer* entity, which is linked to the *Sales person* entity. Thus, when you select an *Order*, Direct Planning retrieves the matching *Customer*, and subsequently, the *Sales person* who's in charge of this *Customer*. Your case may be the similar: selecting a low-level entity automatically leads you to the higher level entities.

Section 44 Progress status

This tab is the dashboard of the job progress status.
Every component is recalled here to let you check them at a glance, and possibly modify them.

This tab is divided into 3 parts:

- Initial planning
- Performed (production already observed)
- Updated planning

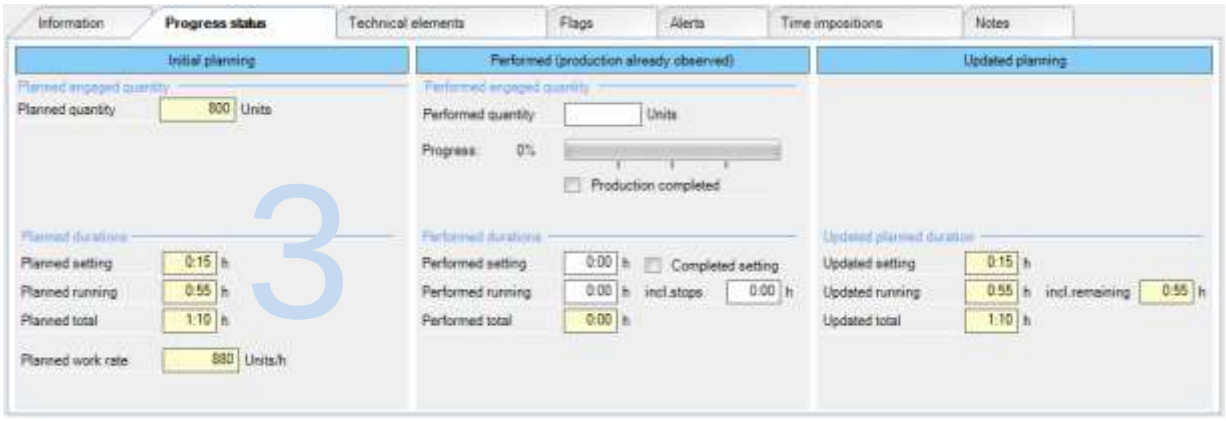


Figure 70 – Progress status of a job (machine with working unit)

Particular case of the machines without working unit: the planned / produced quantities and work rates do not feature in this tab (please refer to the beginning of this chapter, page 89).

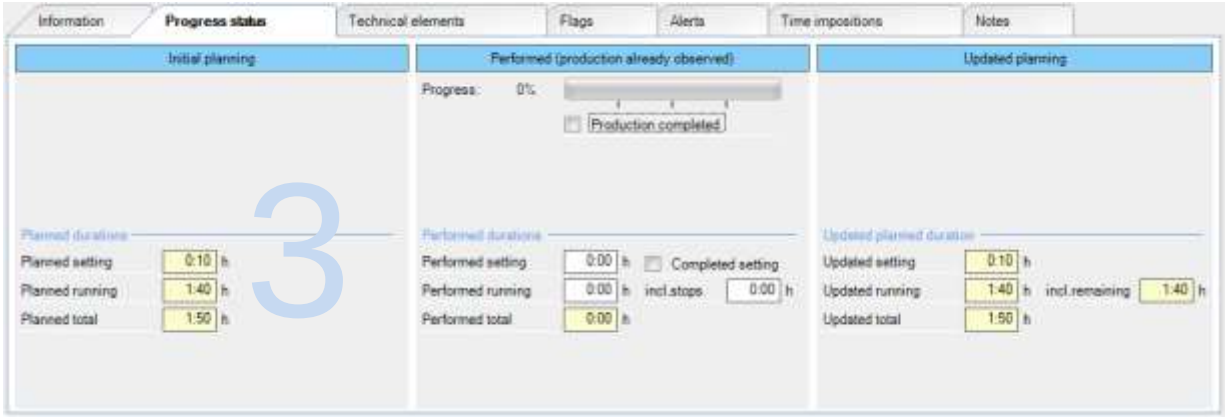


Figure 71 - Progress status of a job (machine without working unit))

Initial planning

The information displayed here is displayed as reminder but it cannot be modified.

Planned quantity
Your machine must have a working unit.
You have entered the planned quantity in the area 1 (Figure 60 page 89).

Remember	The planned engaged quantity is stated in the working unit of tha machine. It is used to calculate the running time. This running time is based upon the **average work rate** of the machine (Figure 15 page 24). According to your configuration, the average work rate may also depend on the **operation** and one or two **technical elements**. (Figure 29 page 36).

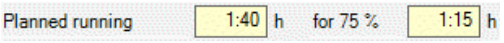
Planned setting time
➲ If your machine has a working unit:
The planned setting time has been automatically calculated.
It is displayed in the area 2. If necessary, you may have changed it (page 98).
➲ In the particular case of machines without working unit:
The planned setting time has not been automatically calculated.
You have entered or modified it in the area 2 (page 98).

In all cases, the planned setting time is displayed here.

Planned running time
➲ If your machine has a working unit:
The planned running time has been automatically calculated.
It is displayed in the area 2. If necessary, you may have changed it (page 98).
➲ In the particular case of machines without working unit:
The planned running time has not been automatically calculated.
You have entered or modified it in the area 2 (page 98).

In all cases, the planned running time is displayed here.
When the job progress status in entered (thus > 0%), the planned running time is displayed in 2 forms:

1. Machine with working unit: as calculated by Direct Planning, and possibly modified by you.
   Machine without working unit: as entered by you.
2. In proportion to the job progress ➔



Planned total
It's the sum of the planned setting and running times.

Other information on job

Performed (production already observed)

The information in this part is displayed as reminder: some of them can be changed here.

Performed quantity
Your machine must have a working unit.
When creating a job, you'll likely leave this area blank.

When modifying a job, you may specify a performed quantity.
The performed quantity may be greater than the planned engaged quantity, which you may have entered in the area 1, if your machine has a working unit (page 94).
When you modify the performed quantity, the progress percentage is automatically updated under the performed quantity AND in the area 2 (Figure 65 / Figure 66, page 95).
If the performed quantity is greater than or equal to the planned engaged quantity, the progress percentage rises up to 100% and the box ☑ *Production completed* is ticked.

When you modify the performed quantity, Direct Planning recalculates the performed work rate (at the bottom of this part of the screen).

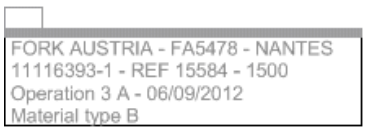
Progress
This gauge mirrors the progress status displayed in the area 2 (page 96) (and vice-versa).

When creating a job
When you create a new job, the progress status is equal to 0%.
You'll likely leave it as is (but you can still change it as indicated below).

When modifying a job
You can modify the progress status, clicking in the bar.
Depending upon where you click, the progress will be changed by stage of 25%: 25, 50, 75, and 100.
If you want to fine-tune the progress, keep the mouse button down and move the mouse to the right to increase or to the left to decrease, while observing the percentage displayed in digits.

When you modify the progress status, the performed quantity is consequently updated.
This has an impact on the updated planning (area 3): you'll have to choose from 2 calculations methods of the remaining time (page 106).

If you tick the box ☑ *Production completed*, the progress status automatically turns to 100%.
When a job is completed, it is automatically grayed in the schedule.



Performed setting time

When you modify the performed setting time, Direct Planning automatically updates the total duration of the job (in the right part of the screen).

- As long as the performed setting time is lower than or equal to the planned setting time, and the setting is not completed, the updated setting time peaks at the planned value.
  If you specify that the setting ☑ is completed, then the updated setting time aligns with the performed setting time.
- As soon as the performed setting time exceeds the planned setting time, the updated setting time aligns with the performed setting time, whether the setting is completed or not.

An example

	Setting			
	planned	performed	completed	updated
Case 1	0:15	0:10	☐	0:15
Case 2	0:15	0:10	☑	0:10
Case 3	0:15	0:20	☐	0:20
Case 4	0:15	0:20	☑	0:20

In the cases 2, 3 and 4, the area 2 (page 98) changes layout: the updated values are displayed next to the planned values.

Performed running time

When you change the performed running time, Direct Planning:

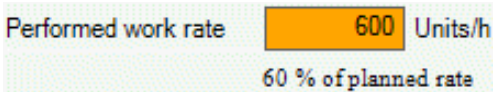
- Recalculates the performed work rate (at the bottom of this part of the screen),
- Updates the job total time (in the right part of this screen) according to the method you chose to calculate the remaining time (page 106).

Stops

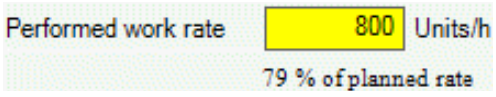
You can specify the machine downtime, whatever the reason.
This time will be deducted in the calculation of the updated running time.

Performed work rate

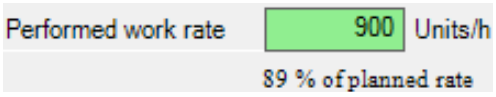
The performed work rate is recalculated when you change the performed quantity or the performed running time. The background color changes according to the proportion to the planned work rate.



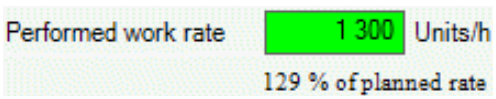
Performed work rate ≤ 60%: poor performance (orange background).



60% < Performed work rate ≤ 80%: performance to improve (yellow background).



80% < Performed work rate ≤ 120%: good performance (pale green background).

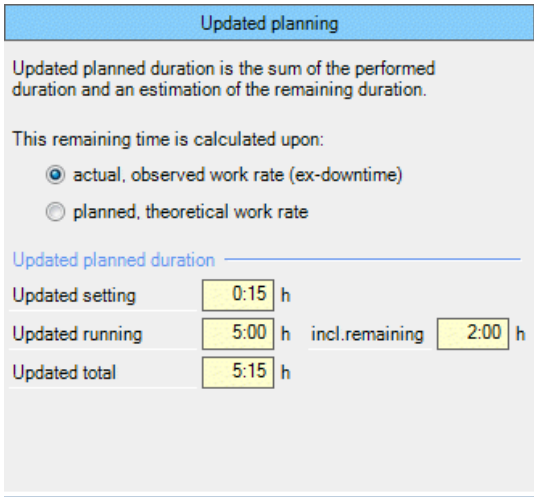


Performed work rate > 120%: outstanding performance (dark green background).

Other information on job

Updated planning

This information is displayed as a reminder but you you can't change it.



However, if you changed the job progress and / or the performed running time, you have to choose from 2 calculation methods for the remaining time as shown opposite.➔

The default choice is defined by the administrator.
You may choose either method.

Updated setting time
The updated running time depends on the performed setting time you've entered in the middle part of the screen.

Updated running time
The updated running time depends on the performed running time you've entered in the middle part of the screen, and on the calculation method that you are prompted to specify if necessary.

Section 45 Technical elements

Tehnical items are additional characteristics of your machines.

Examples in the cardboarding:

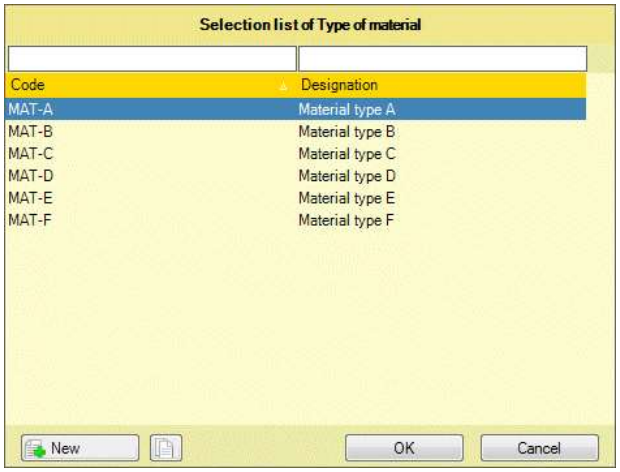
- Number of colors
- Fluting type
- Splicing type

A few reminders

- The administrator has configured the technical elements according to your needs.
- You have entered them on page 36.
- In the Machine form, you may specify which ones concern which machines (page 26).
- They may be involved in the calculation of the average setting time and the average work rate we explained on page 19.
- Their involvement is explained on pages 40 and 41.

The technical element tab is a 2-column array that may contain up to 20 technical elements.

Click to display the list of the technical elements (in our example: *Number of colors*) ➔



Click the header of a column to sort the list.

Enter the beginning of a code or a wording to filter the list.

You can choose one technical element from this list.
You can also create a new one (page 36), clicking the **New** button.

Click OK to confirm.

When a technical element is displayed in this tab, clicking displays its record (Figure 28, page 36).

Section 46 Flags

Remark | This tab won't be displayed if you configured no flag.

Flags are coloured, possibly hatched bullets, located above and / or on the right side of the jobs in the schedule.
In the opposite example, the job has 3 flags (2 ones on top and 1 on the right. ➔

Thanks to them, the planner can instantly view the various status of the job.
They may be compared to clips and stickers attached to index cards on traditional wall schedules.

In order to be used, the flags have to be configured by the administrator.

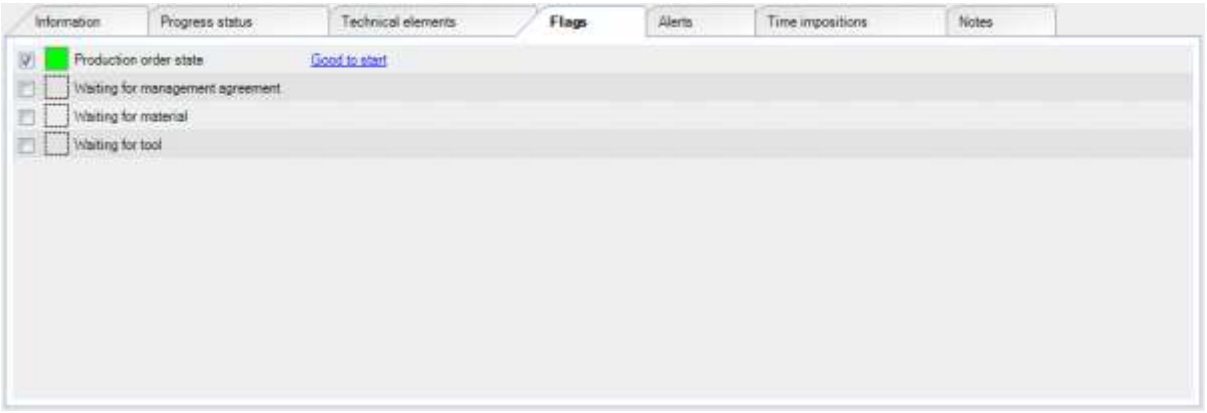
Info | For each flag, the administrator configures:

- Its function (thus its name)
- Its position: on top of the job or on the right side
- Its type: indicative, two-state flag, multi-state flag (maxi 5 states) or multi-state flag awaiting item receipt
- Its visual layout according to its type and whether it's active or not
- Its scope (local or extended)
- Possible complements, for the multi-state flags.

The available flags are displayed in this tab. 🡻
In the below example, we have 4 flags; one of them is active. Here's how they've been configured:

- When it is active, the *Production order state* flag is green.
- When they are inactive, the other flags are not visible in the schedule but they are materialized here by dotted lines so you can see them (and activate them).

In your case, the existence of the flags, their number, their name, their color etc. will be likey different.



To activate a flag, tick the box ☑ next to it or click its square.

3 cases may then occur, according to the flag type (see next page).

Indicative flag

This is the simplest case: an indicative flag has two states: active, or inactive.
We might compare it with a flag that is raised or lowered, or an On/Off switch.

Since it only has two states, you just have to tick the box ☑ on its left or to click its square to activate it.
A second click deactivates it.
The color changes according to its state and the way it has been configured.

Multi-state flag

A multi-state flag can have up to 5 states.
To activate it, tick the box ☑ on its left or click its square.
This brings up a window where you can choose a state. ➔

In our example, 3 states are proposed.
Once again, their number, wording and color have been specified by the administrator.

Click the desired button ⊙ to select a state.

The same window lets you deactivate the flag, clearing the box ☐.

You can also enter a few notes for your colleagues.

Click *Save and close* to get back to the flag tab. The flag is now displayed with its new state and matching color (red, here).

To change the flag state again, tick the box ☑ on its left or click its square, or its wording.

In the schedule, we had this ➘

After activating the flag, or changing its state, we now have something like this ➚

Other information on job

Multi-state flag awaiting item receipt

This flag has the same characteristics as the ones described on the previous page, but it has an additional feature: *awaiting receipt of an item*.

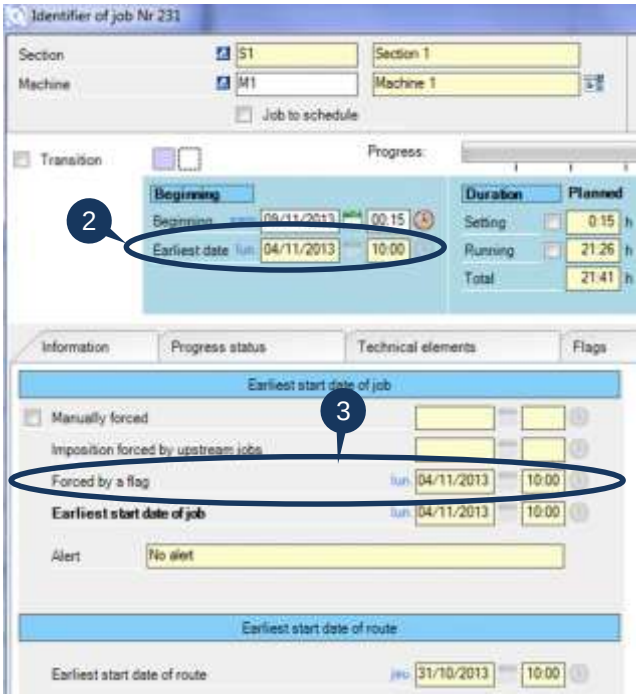
Before starting a job, it is often necessary to gather required conditions.
For example, a special tool is expected for the job to start.

This flag is attached a planned receipt date: for example, the material is expected on such date.
Upon material receipt, the flag is advised, and the job can start at the right time.

If the planned date has come and the tool has not been received yet, a message warns you about the delay.

In the job detail window, in the flag area, you set the **Waiting for material** flag (❶).
You specify that the die-cutting form has been ordered and is expected on November 4th, 2013 at 10 o'clock am (❶).
If necessary, you provide additional data.

This date is recalled in the main part of the job window (❷) and in the **Time impositions (constraints)** tab (❸).



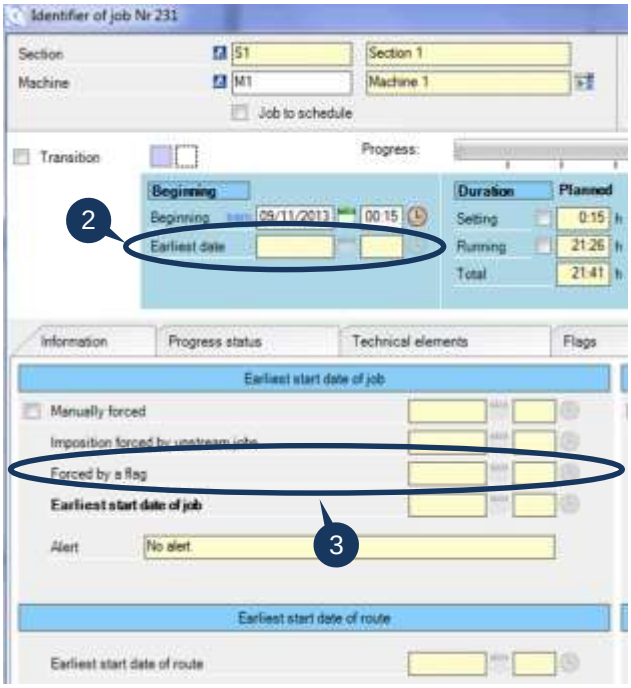
Please note that in that case, we have switched straight from the inactive flag to the state *Materiel ordered*.

We didn't go through the first state, *Material to order*.

In fact, you do not have to respect the order of the states for a flag.

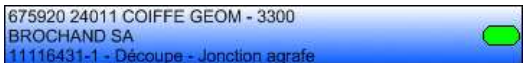
In the schedule, the job is displayed with a yellow flag, which means “The material has been ordered”. ➔
(In other words, it is expected).

Upon material receipt, you advise the flag, selecting the button (❹) and entering the date (❺) ➔



➔ The constraint is removed, which can be seen in the main part of job window (❷) and in the **Time constraints** tab (❸).

In the schedule, the job is displayed with the green flag. ➔
The job can now start at the right time.



If the material is late ⇨⇨⇨ next page.

The planned receipt date has passed, and you haven't entered the receipt date yet.
The material is late: an alert is displayed on the job. ↓

Double-clicking the job opens the job detail window, where the **Flags** tab is highlighted to draw attention ↓

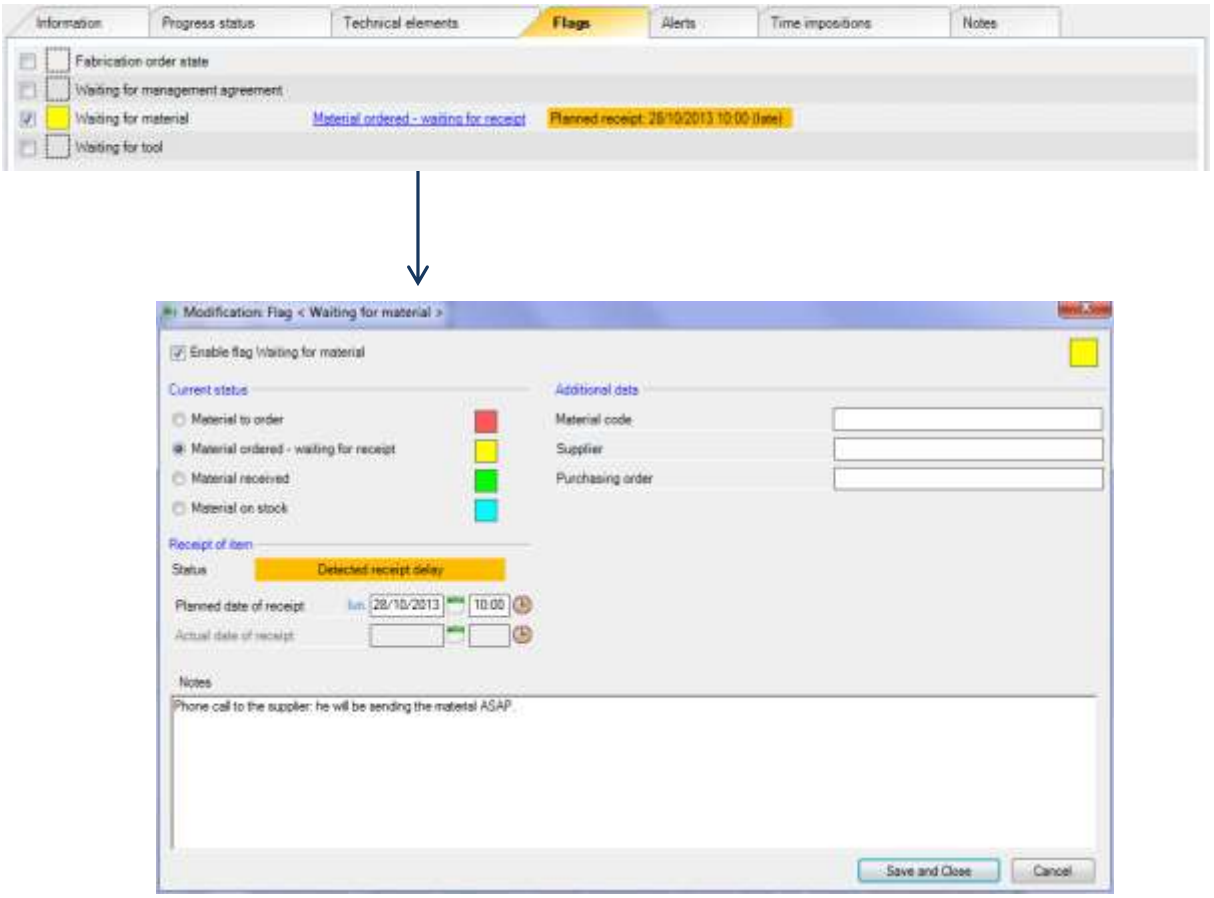


Figure 72 – Details of a flag awaiting an item

In the screen above, a short comment has been entered, notifying that an action has been taken.

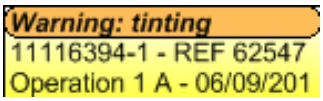
Section 47 Alerts

This tab is dedicated to manual or system alerts (warnings).
As shown in the screenshot below, a manual alert is an alert that *you* set on a job. This type of alert is not the result of any date comparison like in the case of flags awaiting receipt of an item (previous page).

A manual alert has a title and a comment. ➧

When you are done entering the title, it turns to orange, as well as the tab, in order to draw your attention in the job detail window.

Like any alert, the title is shown in the job in the window of the schedule. ➔



As for the system alert, it is fully automatic and cannot be manually updated.
A system alert may occur further to a job import, if there is a cycle (a route with a conflictual chronology).

Summary of existing alert types

- Alert linked to an item that is late (expected, nor received) (page 110)
  These alerts are shown in their own tab (flags).
- Manual alerts (which you occasionally enter) (this page)
- System alerts (automatically generated in case of conflict) (this page)
- Alerts on overdue or premature jobs (next page)
  These alerts are shown in their own tab, named *Time impositions* (constraints).

Section 48 Time constraints

This tab gathers all the types of constraints that may affect a job.
The constraints may be

- manually imposed,
- the result of a route (a series of jobs in a given order),
- imposed by a flag (receipt of a required item to start a job).

Only the dates that you want to impose can be entered.
The other dates are displayed as reminders (on a yellow background) but they can't be changed.

The window is divided in two parts: earliest start date, latest end date.
Each part indicates the constraints: job-level constraints, and route-level constraints.

Earliest start date of job

A - Date (and time) manually imposed

Production requirements may call you to manually force an earliest start date.

This window lets you force your date, which will be kept to in all cases, particularly by the planning assistance and the scheduling modules.

Tick the relevant box and directly key in a date or use the built-in calendar (icons and).

B - Constraint imposed by upstream jobs

If the job is part of a route, then Direct Planning automatically calculates the earliest start date (imposed by upstream jobs).

This date, calculated by Direct Planning, is recalled here but you can't change it.

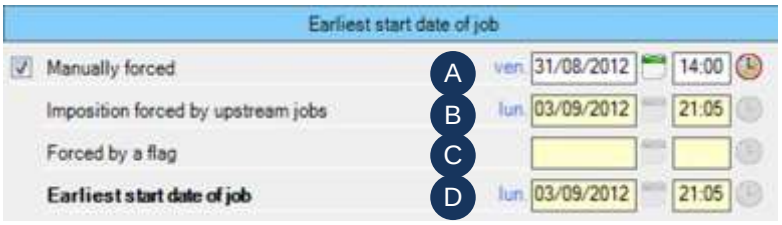
C - Constraint imposed by one of the flags

The multi-state flags, awaiting receipt of an item, let you specify the state of an item to order, ordered or received. As long as the item has not been received, its planned receipt date is a constraint that is recalled here. We have already got into that on page 110.

Earliest start date of job

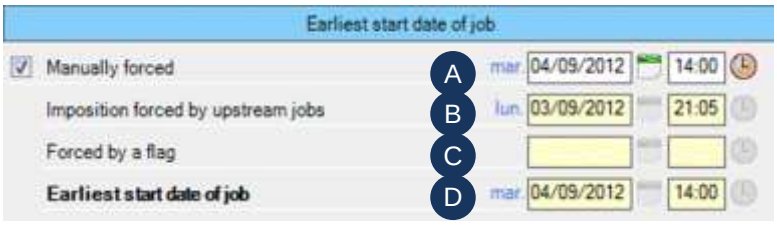
From the 3 dates A/B/C that we've just seen, Direct Planning takes account of the most binding date and displays it in D.

If you manually force a date that is earlier than one of the calculated constraints, Direct Planning will see that this manual constraint is poor and will ignore it.
Example ➔



You force August 31st (A). ➚
One of the flags specifies that the planned receipt date of an item is September 3rd (C).
Thus, Direct Planning will retain September 9th as the job earliest start date (D).

On the other hand, if you force a date that is later than one of the calculated constraints, Direct Planning will see that this manual constraint is even more binding and will take it into account.
Example ➔



You force September 4th (A). ➚
One of the flags specifies that the planned receipt date of an item is September 3rd (C).
Thus, Direct Planning will retain September 4th as the job earliest start date (D).

Alert

If the job starts before the earliest start date (retained by Direct Planning), an alert message will be displayed here. Moreover, the wording of the *Time constraints* tab will be displayed on a red background to draw your attention. ➘

Earliest start date of route

It's always the earliest start date of the first job of the route.

Latest end date of job

A - Date (and time) manually forced

Production requirements may call you to manually force a latest end date.

This window lets you force your date, which will be kept to in all cases, particulartly by the planning assistance and the scheduling modules.

Tick the relevant box and directly key in a date or use the built-in calendar (icons and).

B - Constraint imposed by downstream jobs

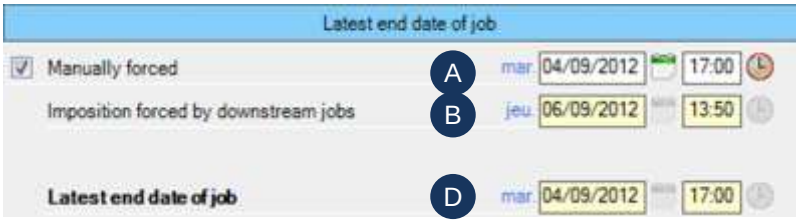
If the job is part of a route, then Direct Planning automatically calculates the latest end date (imposed by downstream jobs).

This date, calculated by Direct Planning, is recalled here but you can't change it.

Latest end date of job

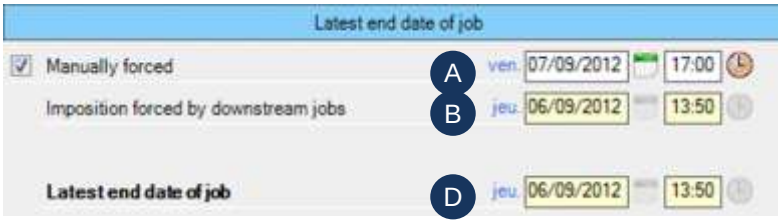
From the 2 dates A/B that we've just seen, Direct Planning takes account of the most binding date and displays it in D.

If you manually force a date that is earlier than the calculated constraint, Direct Planning will see that this constraint is even more binding and will take it into account.
Example ➔



You force September 4th (A). ➚
One of the flags specifies that the constraint imposed by the route is September 6th (C).
Thus, Direct Planning will retain September 4th as the job latest end date (D).

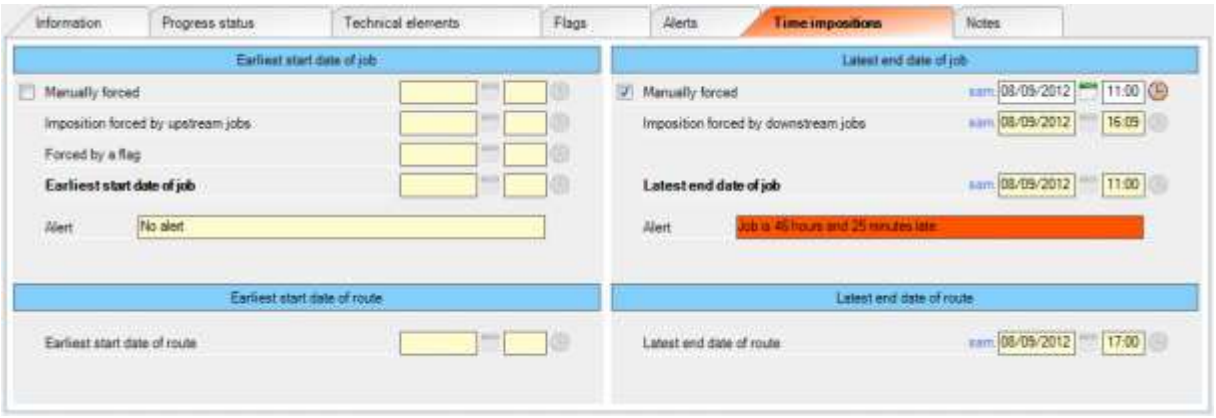
On the other hand, if you force a date that is later than the calculated constraint, Direct Planning will see see that this manual constraint is poor and will ignore it.
Example ➔



You force September 7th (A). ➚
One of the flags specifies that the constraint imposed by the route is September 6th (C).
Thus, Direct Planning will retain September 6th as the job latest end date (D).

Alert

If the job ends after the latest end date (retained by Direct Planning), an alert message will be displayed here. Moreover, the wording of the *Time constraints* tab will be displayed on a red background to draw your attention. ⬇



Latest end date of route

It's always the latest end date of the route's last job.

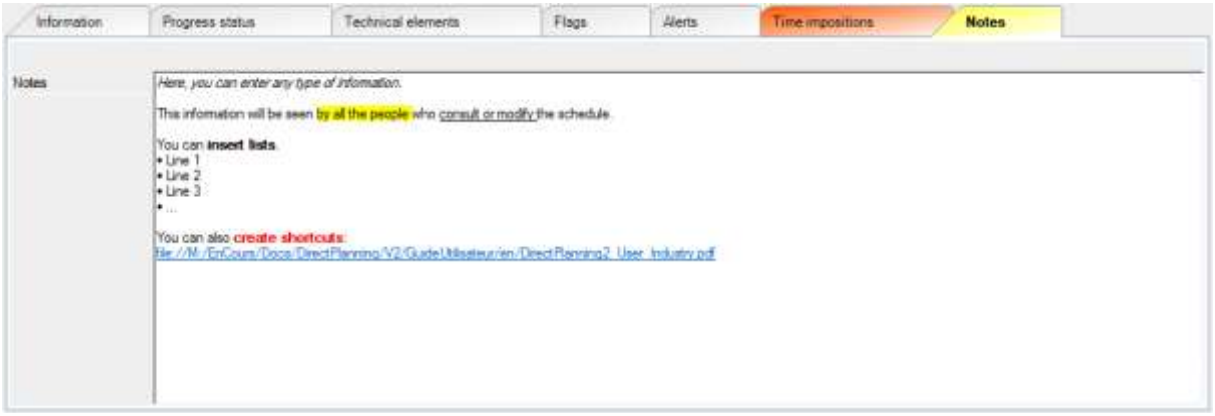
Section 49 Notes

This tab lets you enter notes on a job.

You have a few tools to format the text.

- Cut, Copy, Paste
- Delete
- Styles
- Bold, italics and underlined characters
- Highlight color of the text
- Bulleted lists
- Dynamic links to documents (that have to be on a shared resource).

When there are notes, the tab turns to yellow to draw your attention in the job detail window.



MANIPULATING JOBS

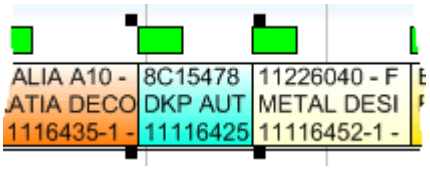
In the previous chapters, we've seen how to create jobs, and how to fill in the various areas of the screen.

When managing your schedule, you'll likely have to manipulate the jobs.
The following chapters show you how to:

Chapter 29 SELECTING JOBS

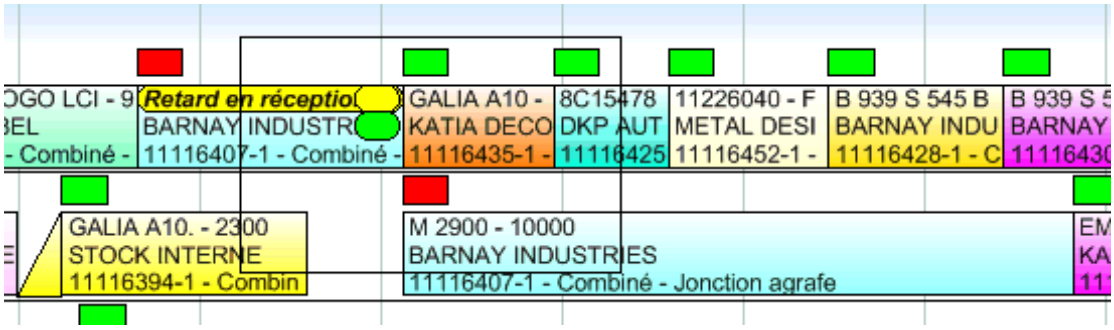
Selecting a job is required prior to performing the various actions explained in the next chapters.

When you click a job, it is selected: it is surrounded by 4 small black squares as shown opposite➔

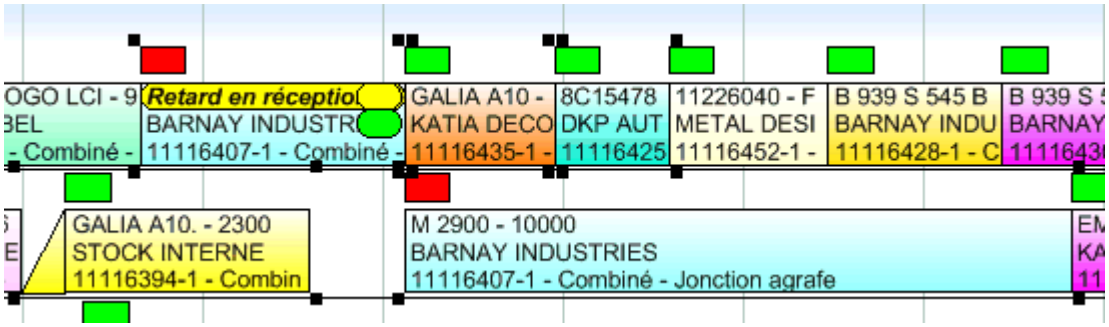


To select several jobs, there are several methods:

- Hold the **Ctrl** key down while you click the desired jobs.
- To select several jobs that share a common point, please go to page 122.
- Use the mouse to draw a rectangle over the jobs you want to select.
  In the screenshot below, we drew a rectangle over 5 jobs (even partially). ➔

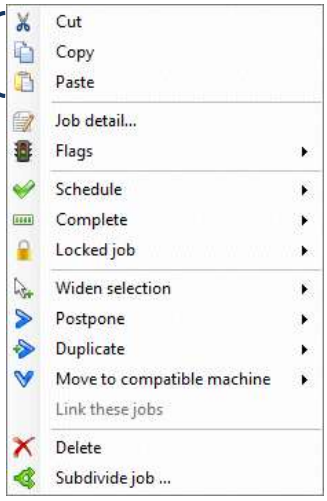


As soon as you relaease the mouse button, all 5 jobs are selected. ➔



To cancel a selection: select another job, or click in a free area of the schedule, or start any other action, for example choose an item from the menu.

Context menu on a selected job



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Page 132

← Right-clicking on a selected job displays the context menu.

The opposite menu may be slightly different from yours depending on your rights, the context, and the availability of the proposed features …

Moreover, some actions may not be available if you have selected several jobs. Particularly, if the selected jobs are not compatible with each other.

Most of the actions of the context menu can also be called from the **Edit** menu. ↓

Important

Remember you can always undo an action, pressing **Ctrl Z**.
Thus, you can always go back over an unfortunate job deletion or move.
Likewise, pressing **Ctrl Y** lets you restore an undone action.
The **Undo** and **Restore** features may also be called from the toolbar on top of the Direct Planning window.

Chapter 30 WIDENING A SELECTION OF JOBS

After selecting a job (previous chapter), you may need to widen your selection to other jobs having a point in common.

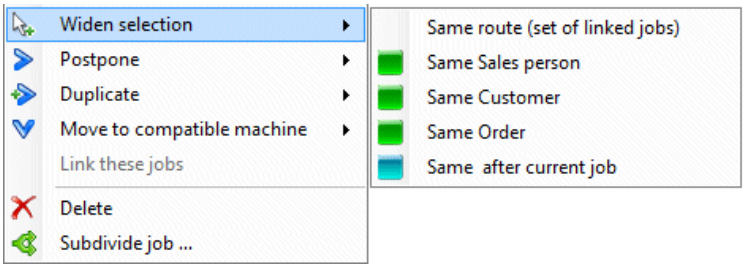
For example, you want to select all the jobs of a route.

Remember | A route is a series of linked jobs, in a given order.

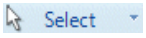
Another example: you want to select all the jobs of such a sales person, customer or order.

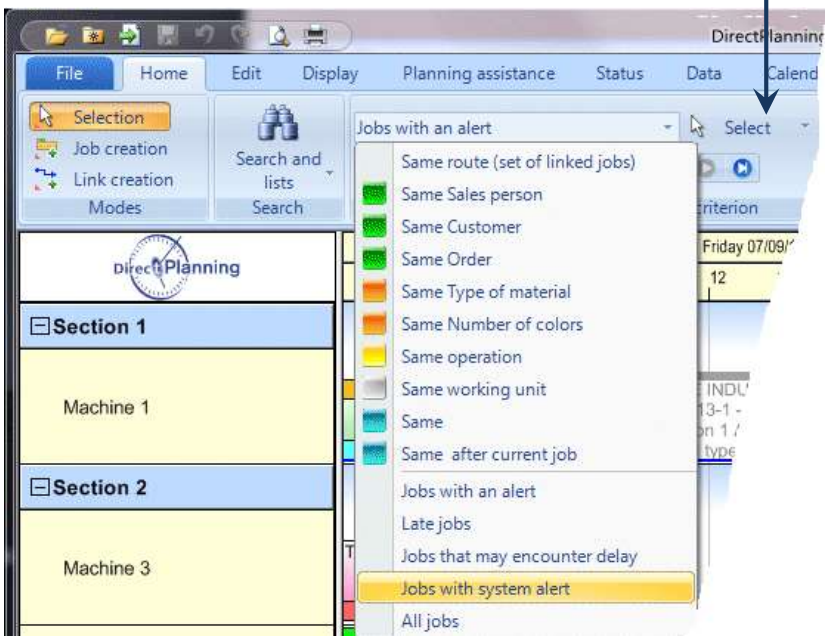
Note | Sales person, customer and order are entities (page 46).
In your case, you will likely have other entities with other wordings.

1st method: In the job context menu, when you choose **Widen selection**, a sub-menu displays all the widening possibilities. ➔

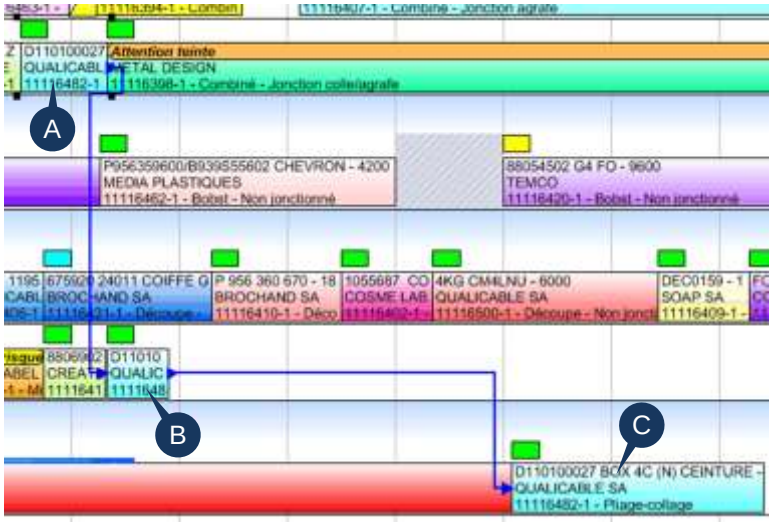


2nd method: In the **Home** menu, the scrolling list gives access to a larger number of possibilities, particularly from the technical data or the job characteristics.

1. Select a job as a starting point
2. Select a widening mode in the list below ➔
3. Click 



Section 50 Selecting all the jobs of a same route



In this example, we have selected the **A** job.

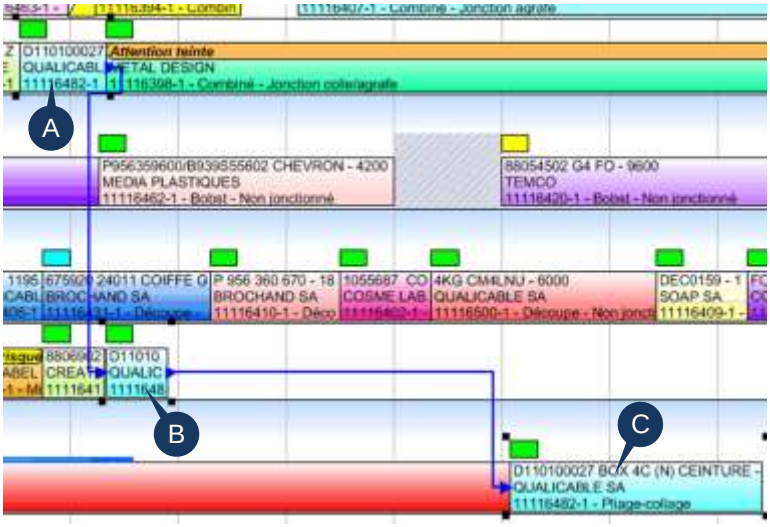
As this job is part of a route, the links with the other jobs are displayed: thus, you can see the 3 jobs **A**, **B** and **C**, that make up the route.

More information on links between jobs on page 139.

Right-click on job **A**.
Widen selection
Same route
(a series of linked jobs)

The other jobs of the route (**B** and **C**) are in turn selected, like job **A**.

Another right-clicking on one of the 3 jobs displays the context menu in which you may choose an action that can be applied to the whole route.



Widening a selection of jobs

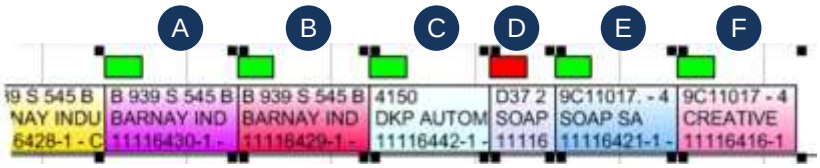
Section 51 Selecting the jobs of a same entity

To select all the jobs of the same entity (same sales person, same customer, same order, etc.): in the **Widen selection** menu, choose one of your entities.
Direct Planning will then select all the jobs with the same entity.

Your entities are in the **Data → Entities** menu (page 46).
The administrator has configured them according to your needs.
In the job detail window (page 100), you can specify the entities you've created.
For example, you can attach such sales person, customer or order to a given job.
Sales person, customer and order are examples. Your entities may have different wordings.

Section 52 Selecting the following jobs on a machine

When the workload of a machine is too high, or in case of unexpected events (downtime, machine breakdown, maintenance, etc.), you can select all the jobs of a machine, starting from the currently selected job; you can then move all these jobs to another machine, for example.



In this example, we have first selected the **A** job.
Then:
Right-click the **A** job,
Choose **Widen selection**
Choose **Same machine after current job**.

The **A** job and all the following jobs (on this machine) are now selected.

Chapter 31 CUTTING, COPYING, AND PASTING JOBS

At the top of the context menu on a job, you'll find the basic features of Windows: Cut, Copy, and Paste. Thus, you can cut or copy the selected jobs in order to paste them onto another place.

Section 53 Cutting a job

Cutting a job is the same as removing it: if the left-adjusting mode is enabled, all the following jobs (on the right of the cut job) will shift to the left in order to fill the gap.

Cutting a job in order to paste it onto another place is the same as moving a job: maybe you'll find it easier to move the job with the mouse, if the target place is not too far from the source place.
More information about job moves on page 134.

Section 54 Copying a job

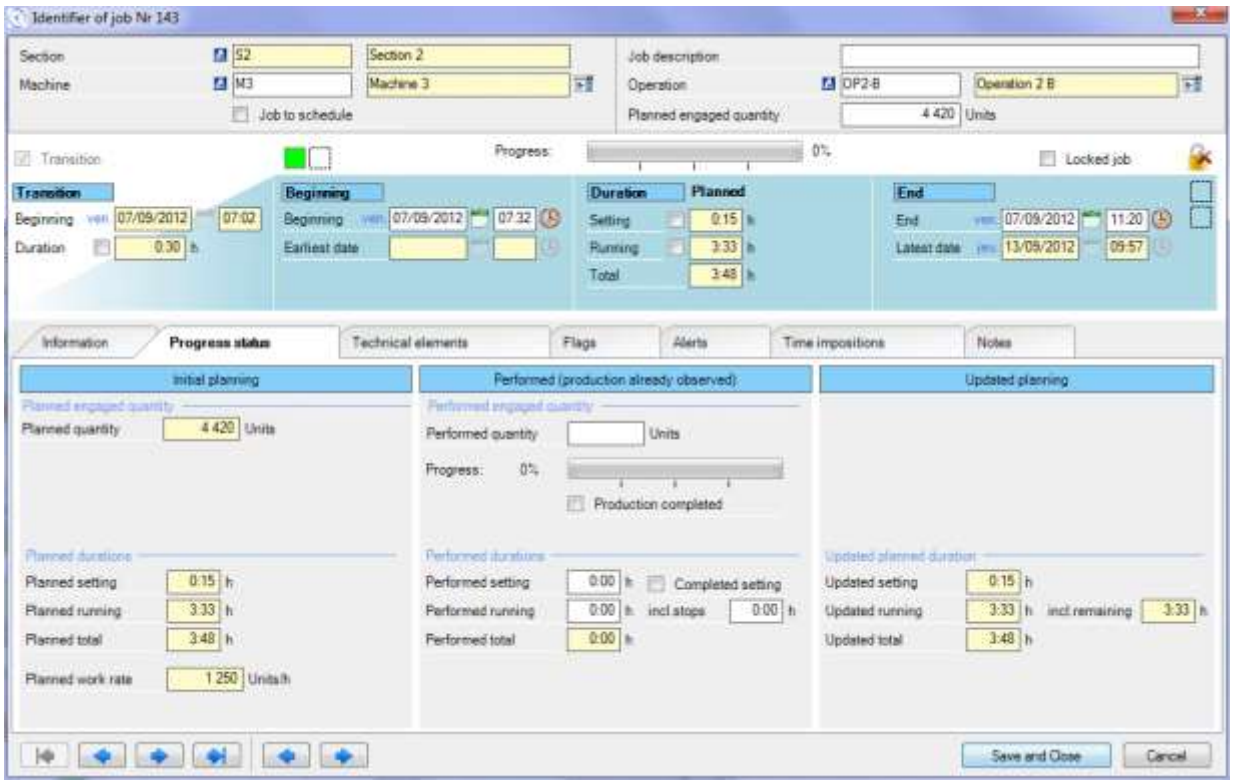
Copying and Pasting a job is a quick way to create a new job having similar characteristics to those of the source job: rather than creating a new job from start to finish, you may save time by copying / pasting an existing job. All you have to do then is to slightly change the new job if necessary.
The context menu also features job duplication (page 130): it's up to you to check which method is best for you.

Section 55 Pasting a job

Pasting a job is the same as creating a job. Time constraints apply: earliest start date (page 97) and latest end date (page 99), if planning assistance is active andif left / right adusting is active (page 173). However, there is no machine compatibility control when you paste a job.

Chapter 32 ACCESSING JOB DETAILS

The job detail window, which has already been discussed on page 89, is the dashboard containing all the information on a job.
To access it, select **Job detail** or double-click the job in the schedule.



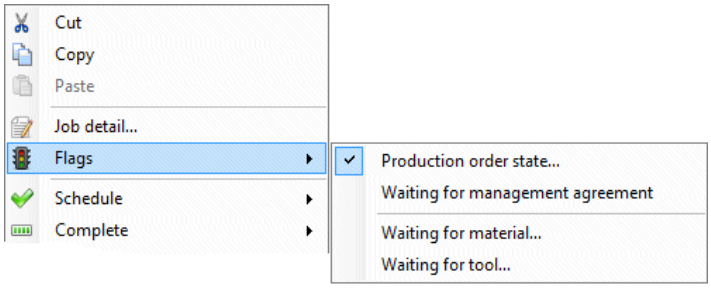
Chapter 33 MANAGING THE JOB FLAGS

If there is no flag, this feature is not shown in the context menu.

Flags are colored, possibly hatched rectangles, located on top or on the right side of jobs in the schedule ➔

When you select **Flags**, a sub-menu displays the different existing flags. ➔

You can then activate / deactivate the flag as shown on page 108.



Chapter 34 SCHEDULING / UN-SCHEDULING JOBS

In the schedule, a job to schedule is shown in a special row.
This row has 2 purposes:

1. Further to importing data, it contains the jobs from the ERP: as a matter of fact, any imported job is assigned the *To schedule* status in Direct Planning.
2. It also lets you place pending jobs in order to remember them.

This row can only be seen if there are jobs to schedule.

It is located just under the actual scheduling row, in a different color, and the name of the machine is followed by an **[*]**, as shown in this screenshot. ➔

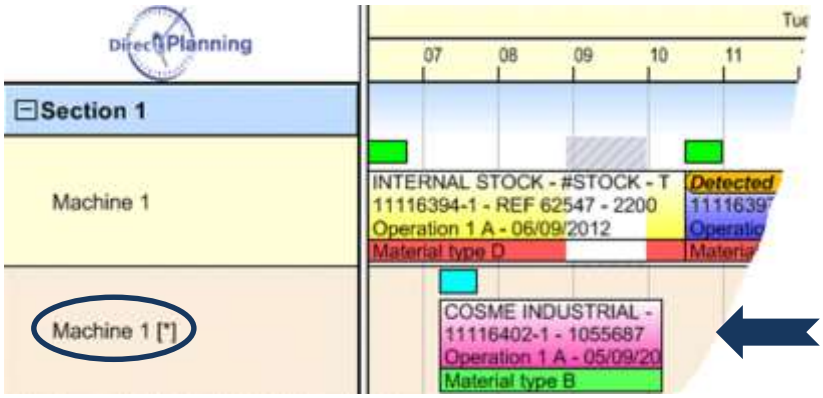


Figure 73 – Job to schedule

When you select *Schedule*, a sub-menu provides the following 2 possibilities:

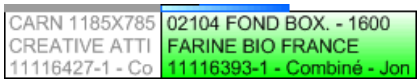
- Un-schedule the selected jobs, if they are scheduled,
- Schedule the selected jobs, if they are not scheduled.

The fastest way consists in moving the jobs with the mouse (page 134).

Chapter 35 COMPLETING JOBS

In the job detail (pages 96 and 104), you can specify the progress status of a job.

The progress status is materialized by a gauge located just above the job in the schedule. ➔



In the above screenshot, there are 2 jobs: the one of the left is completed (job and gauge are grayed), while the one on the right has reached 50%.

When you specify that a job is completed, it means the progress status has reached 100 %.

On the contrary, when you specify that a job has not started, this means that its progress status is equal to 0 %.

When you select **Complete** in the job context menu, a sub-menu provides the following 2 possibilities

- **Complete** the selected jobs,
- Or mark them as **not started**.

Chapter 36 LOCKING JOBS

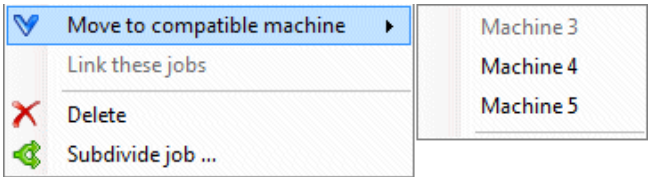
You can lock / unlock a job.
A locked job cannot be modified nor moved.
The lock feature is also available in the job detail (page 96). ➔

Chapter 37 MOVING A JOB TO A COMPATIBLE MACHINE

When the workload of a machine is too high, or in case of unexpected events (downtime, machine breakdown, maintenance, etc.), you can move jobs to a compatible machine.

When you choose **Move to a compatible machine**, a sub-menu proposes the different machines that can perform this operation.

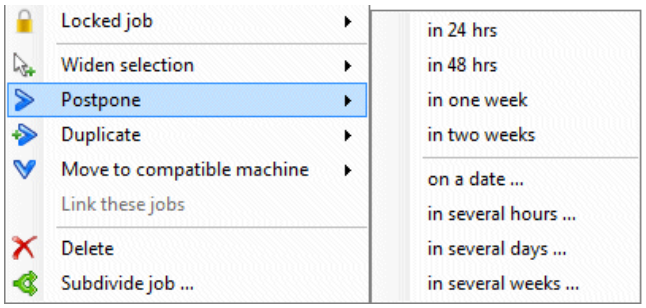
The machines that feature in this sub-menu are the ones which you have grouped by family on page 37.
The compatible machines are proposed.
The current machine is displayed in gray as a reminder.



When you move a job, please keep in mind that the planning assistance may automatically shift it to the right or to the left. Therefore, the moved job may go outside your field of vision.
Scroll the window to the left or to the right to locate the moved job.

Chapter 38 POSTPONING JOBS

Many reasons may be bring you to postpone a job: awaiting an item not received, technical hazards, etc. Once the job has been created, right-click it to get the context menu.



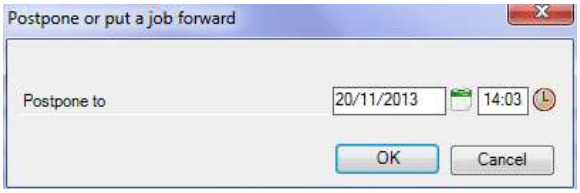
Select **Postpone**.

🡐 The sub-menu provides "fixed" postponements (in 24/48 hours, in 1 or 2 weeks).

It also provides postponements that require further information. 🡓

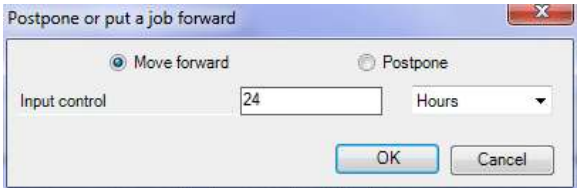
Postpone a job on a date

Directly key in the date or use the and icons.



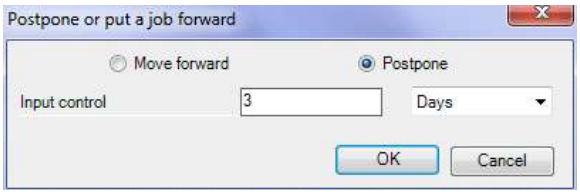
Postpone a job in several hours

You can postpone or bring a job forward a number of hours you specify here.



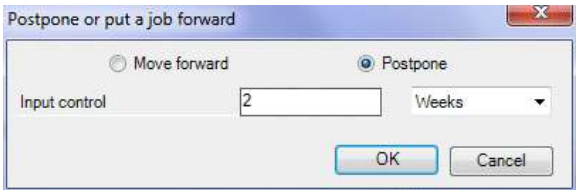
Postpone a job in several days

You can postpone or bring a job forward a number of days you specify here.



Postpone a job in several weeks

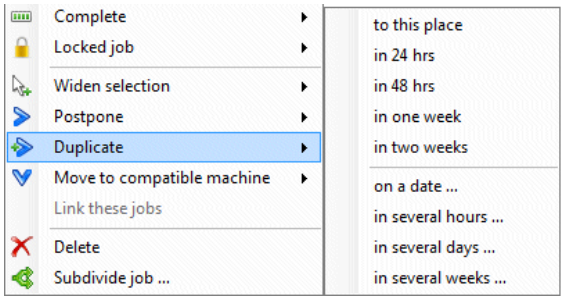
You can postpone or bring a job forward a number of weeks you specify here.



Remark Your choice may be affected by the left or right adjusting (planning assistance – page 171).

Chapter 39 DUPLICATING JOBS

Job duplication lets you create a new, identical job, leaving it as is or modifying it.
Thus, you can quickly create a job when it is similar to another one.
Once the job is duplicated, you can modify it if necessary.



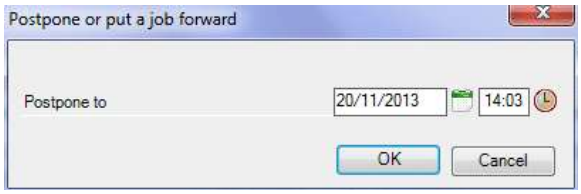
Right-click a job to get the context menu. Select **Duplicate**.

← The sub-menu provides "fixed" duplications (to this place, in 24/48 hours, in 1 or 2 weeks).

It also provides duplications that require further information. ↓

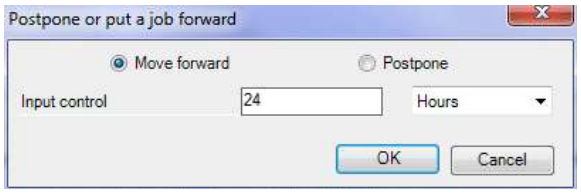
Duplicate a job on a date

Directly key in the date or use the and icons.



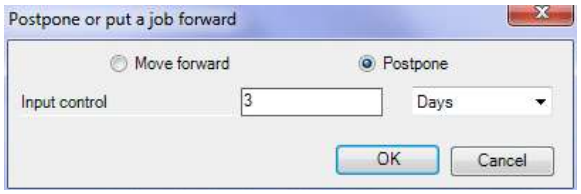
Duplicate a job in several hours

You can duplicate a job in a number of hours you specify here.



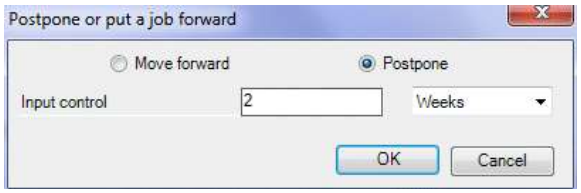
Duplicate a job in several days

You can duplicate a job in a number of days you specify here.



Duplicate a job in several weeks

You can duplicate a job in a number of weeks you specify here.



Remark | Your duplication may be affected by the left or right adjusting (planning assistance – page 171).

Chapter 40 DELETING JOBS

On a job selection, select **Delete**.
Another, faster way consists in using the **Del** key.

Remember	Any accidental deletion can be undone, pressing Ctrl Z. Conversely, you can re-do an undone deletion, pressing Ctrl Y. You can also use the tools  in the toolbar.

Chapter 41 SUBDIVIDING JOBS

For some internal organization reasons, you may need to subdivide a job.

For example, due to delivery constraints, you might have to produce a part immediately in order to deliver it as soon as possible, and postpone the other part.
Or you might want to free up an overloaded machine, assigning part of the job to another machine.

A subdivided job can in turn be subdivided, and so forth.
Direct Planning keeps the existing links and transmits them to the resulting job.

In the schedule, right-click on a job to get the context memu.
Select **Subdivide job**.

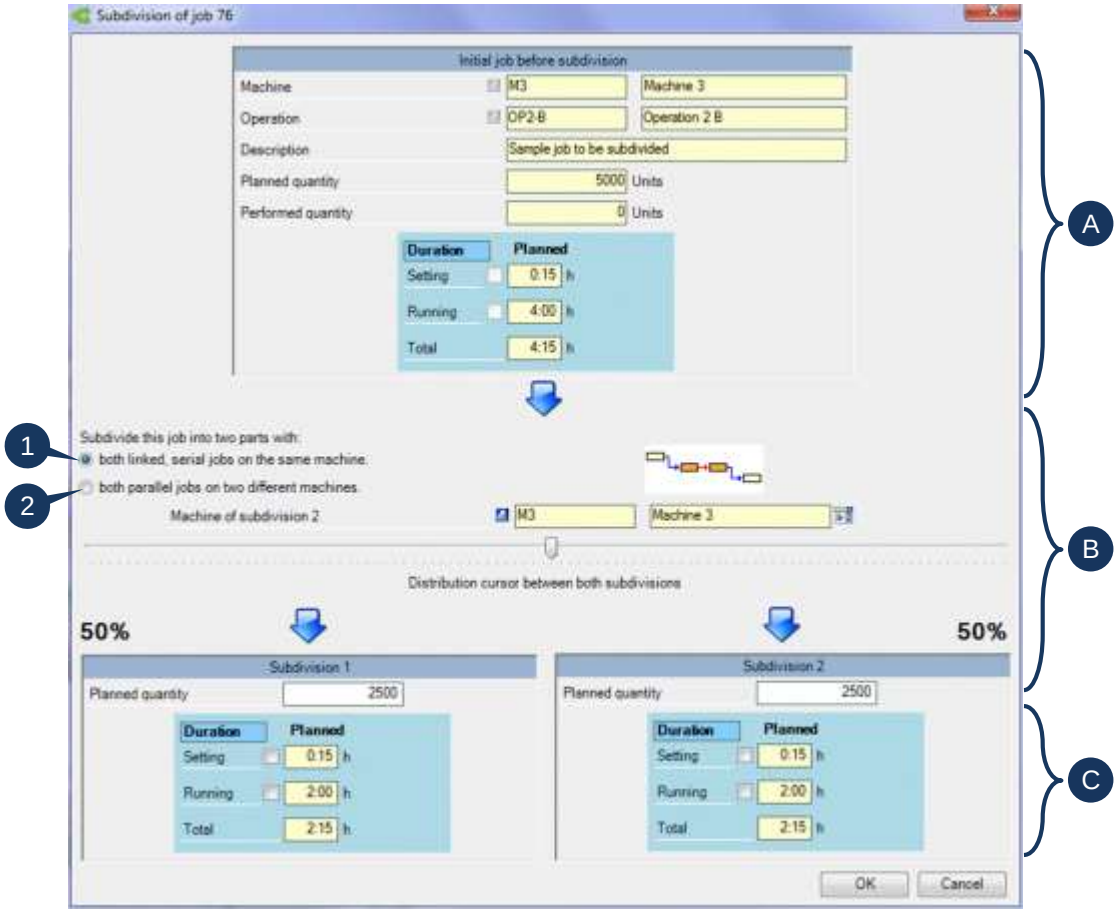


Figure 74 – Subdividing a job

The subdivision window is divided into 3 parts:

- A The upper part shows the job as it is currently, before the subdivision.
- B The middle part proposes the subdivision mode and the distribution percentage between both resulting jobs.
- C The lower part shows what the result would be if you confirm this screen.

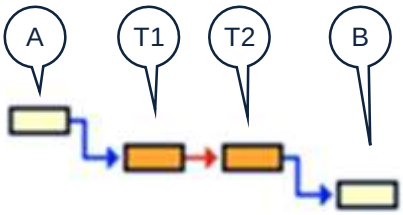
Section 56 Subdivision mode

When subdividing a job, you may choose from 2 possibilities:

1. The 2 resulting jobs stay on the same machine (by default).
2. The source jobs stays on its machine, while the target job gets to another machine.

Let T be the source job: T1 and T2 are the resulting jobs.

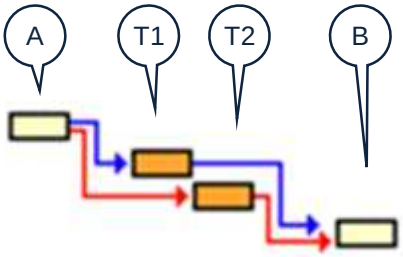
1 – The 2 resulting jobs stay on the same machine



Leave the button ❶ selected ⊙ (Figure 74 page 132).
In orange: the subdivided jobs, in series, on the same machine.
A link is automatically created between both jobs.

In yellow: the existing linked jobs, if any:
If the job T was linked to the job A upstream and to the job B downstream, the links are transmitted, in series, as shown here. ↗
A → T1 → T2 → B

2 – The target job moves to another machine



Select ⊙ the button ❷ (Figure 74 page 132).
In orange: the subdivided jobs, in parallel, on 2 different machines.

In yellow: the existing linked jobs, if any:
If the job T was linked to the job A upstream and to the job B downstream, the links are transmitted, in parallel, as shown here. ↗
A → T1 → B
A → T2 → B

In both figures, the links that existed before the subdivision are shown in blue, whereas those created by the subdivision are displayed in red. More information on links on page 139.

If you choose the 2nd method, you have to specify the machine you assign the 2nd subdivision of the job.
Click to select a machine.

Clicking lets you see the record of the selected machine.

Remark | Left or right adjusting mode (planning assistance, page 171), may have an impact on the final destination of the subdivided jobs..

Section 57 Distribution between subdivided jobs

Use the cursor to control the distribution percentage between both subdivided jobs.
The distribution is defaulted to 50% for each subdivision.
Move the cursor while observing the figures of each subdivision at the bottom of the screen.

Chapter 42 MOVING JOBS WITH THE MOUSE

One of the key features of Direct Planning is its ability to intuitively manage the schedule.
The *drag and drop* method is a perfect example of this ease of use.

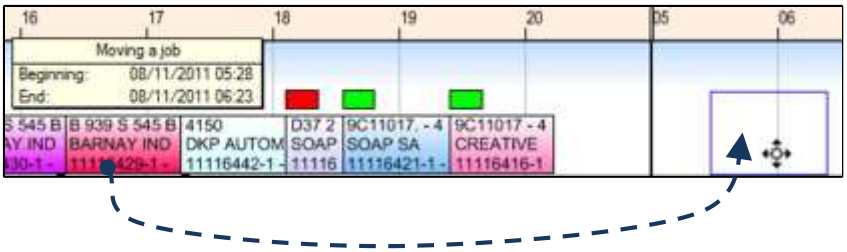
To move a job, all you have to do is drag and drop it to its place with the mouse.

Remark | If the left or right adjusting mode is enabled, the end result may be different from what you expected: as a matter of fact, Direct Planning is seeking to optimize the schedule according to the settings you have specified.
More information on planning assistance on page 171.
Similarly, Direct Planning can modify –or even refuse– your move if the involved jobs are part of a route, further to its constraints.

There are several kinds of moves:

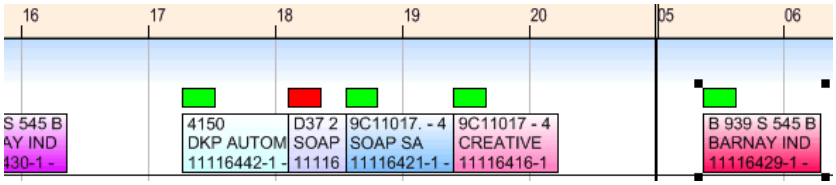
Case 1 – Moving a job to a free place, staying on the same machine

In this example, we're moving the job *BARNAY INDUSTRY* to the right.
The target place is materialized by a blue frame. ➔

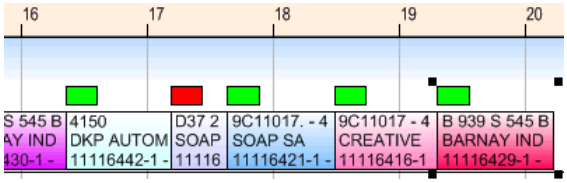


When you release the mouse button:

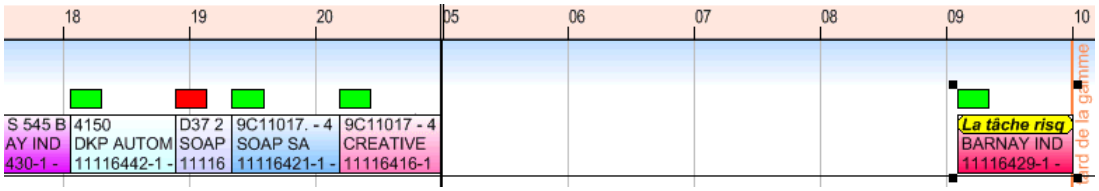
- If no adjusting mode is enabled, the job is moved to the target place you've chosen (the blue frame), leaving a gap on its source place. ➔



- If the left-adjusting mode is enabled, Direct Planning moves the job immediately after the last job (of this machine), while filling the gap. ➔

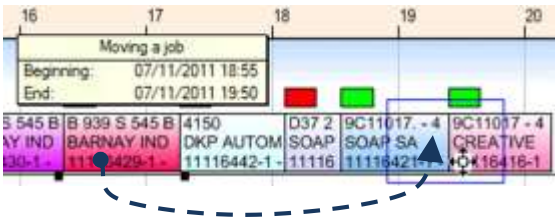


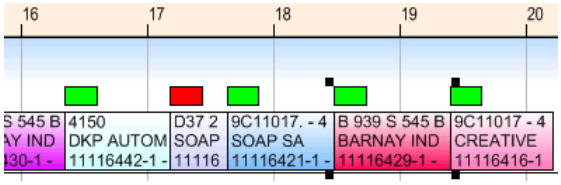
- If the right-adjusting mode is enabled, Direct Planning moves the job just before the latest end date of the route, while filling the gap. ➔



Case 2 – Moving a job to an occupied place, staying on the same machine

Hre again, we're moving the job *BARNAY INDUSTRY* to the right. The target place is materialized by a blue frame ➔
The moved job takes place between the jobs *SOAP SA* and *CREATIVE*. ➘



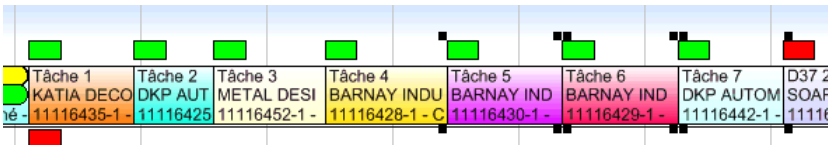


As the left-adjustung mode is enabled, the gap has been filled. This move amounts to just changing the order of jobs.
If there's no adjusting, the gap is not filled.

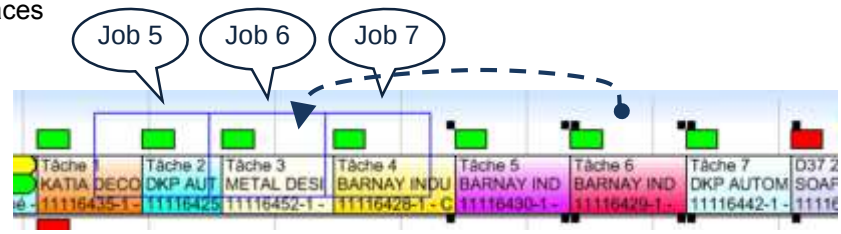
Case 2 bis – Moving a group of jobs to an occupied place, staying on the same machine

To make the explanations clear, we've renamed the 7 jobs involved in this move: *Job 1*, *Job 2*, etc. ↙

Let's select 3 adjacent jobs named *Job 5*, *Job 6* and *Job 7*. ➔

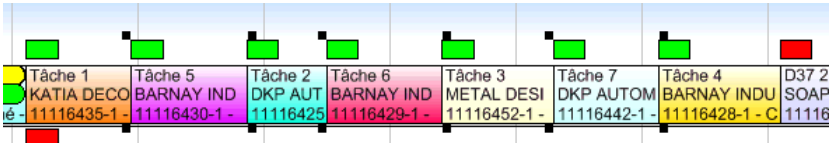


Let's move them to occupied places on their left. ➘
During the move, the target place of the 3 jobs is materialized by blue frames.
Each job has its own blue frame. ➔



- The job 5 will be moved after the job 1, because its frame "starts" in the job 1.
- The job 6 will be moved after the job 2, because its frame "starts" in the job 2.
- The job 7 will be moved after the job 3, because its frame "starts" in the job 3.

At the end of the mouse, the order of the jobs is:
1 – 5 – 2 – 6 – 3 – 7.
The moved jobs stay selected.

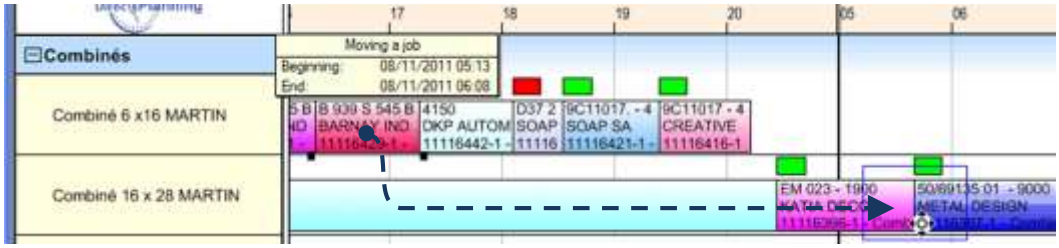


Conclusion	Jobs that were adjacent before a move may be separated upon the move. Moreover, other factors may step in: time constraints, left or right adjusting, chronology of linked jobs, etc.

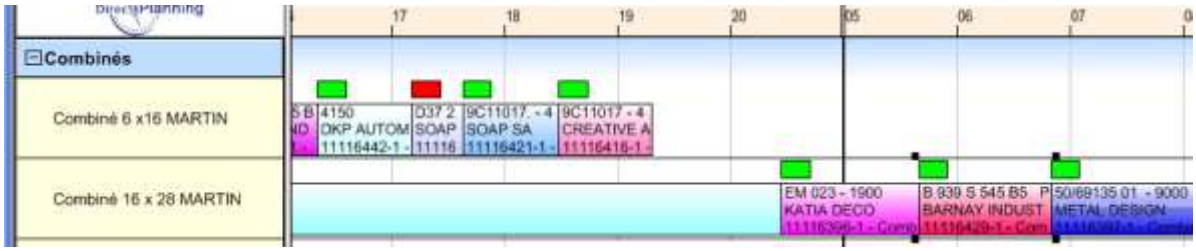
Case 3 – Moving a job to another compatible machine

Direct Planning controls that the target machine is compatible.
If the target machine is compatible, the move complies with the rules of cases 1 and 2, whether the target place is free or occupied.

In the following example, we still move the same job: *BARNAY INDUSTRY*. ↓



Here's the result after the move ↓



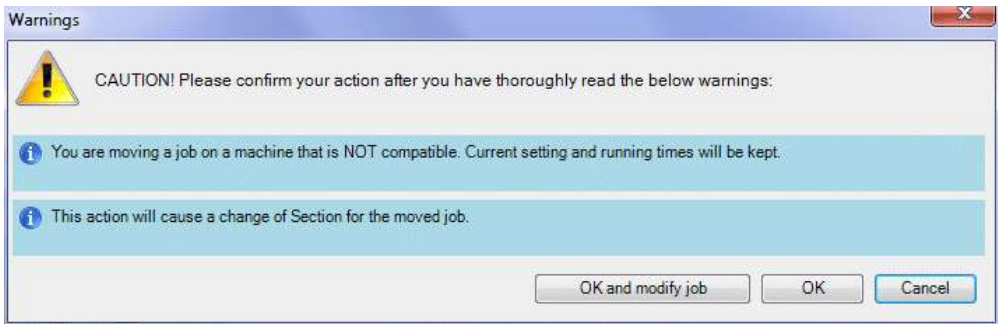
We have moved the job from the machine *Combiné 6X16 Martin* to the machine *Combiné 16X28 Martin*.

As the left adjusting mode is enabled, Direct Planning has filled in the gap left by the job that we've inserted between 2 jobs on another machine.

However, at first sight, you may have noticed a difference: at the time, the job seems to have "widened": as a matter of fact, although being inter-compatible, these 2 machines don't have the same work rate. Thus, it is normal that it takes the target machine more time, with the same workload.

Case 4 – Moving a job to another non-compatible machine

Direct Planning checks that the target machine is compatible.



If the target machine is not compatible, Direct Planning warns you.
If you confirm (button **OK**), the job will be moved following your request, but you will have to check the job details.
You can also confirm, clicking the button **OK and modify job**, which opens the detail window of the moved job. Thus you can check it and modify it if required.
This move complies with the rules of cases 1 and 2, whether the target place is free or occupied

Important

Please remember you can always undo an action, pressing **Ctrl Z**.
Thus, you can always go back over an unfortunate job deletion or move.
Likewise, pressing **Ctrl Y** lets you restore an undone action.
The **Undo** and **Restore** features may also be called from the toolbar on top of the Direct Planning window.

Case 5 – Moving a job from the row "to schedule"

On page 127, we've seen that it's possible to schedule / un-schedule a job.
A job to schedule is located on a special row that can only be seen if there are jobs to schedule.
This row is located just under the "real" scheduling row, in a different color, and the name of the machine is followed by an **[*]**, as shown in the screenshot below. ↓

You can move a job up from this row to the real scheduling row. ↓
This move is processed the same as the cases 1 and 2

If you move a job to schedule to a compatible machine, this is processed as case 3.
If you move a job to schedule to a non-compatible machine, this is processed as case 4.

You can also perform the reverse move: move a job to the row "to schedule".
In this case, the planning assistance has no effect: only the compatibility check is performed.

Moving a job – See also

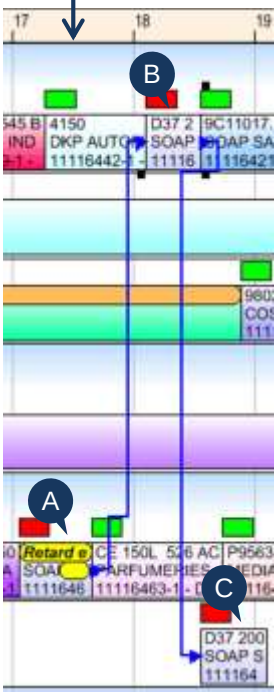
- Page 128 : Moving a job to a compatible machine, in the job context menu.
- Page 125 : Cutting / Pasting a job amouts to moving a job, WITHOUT checking the compatibility between the machines.

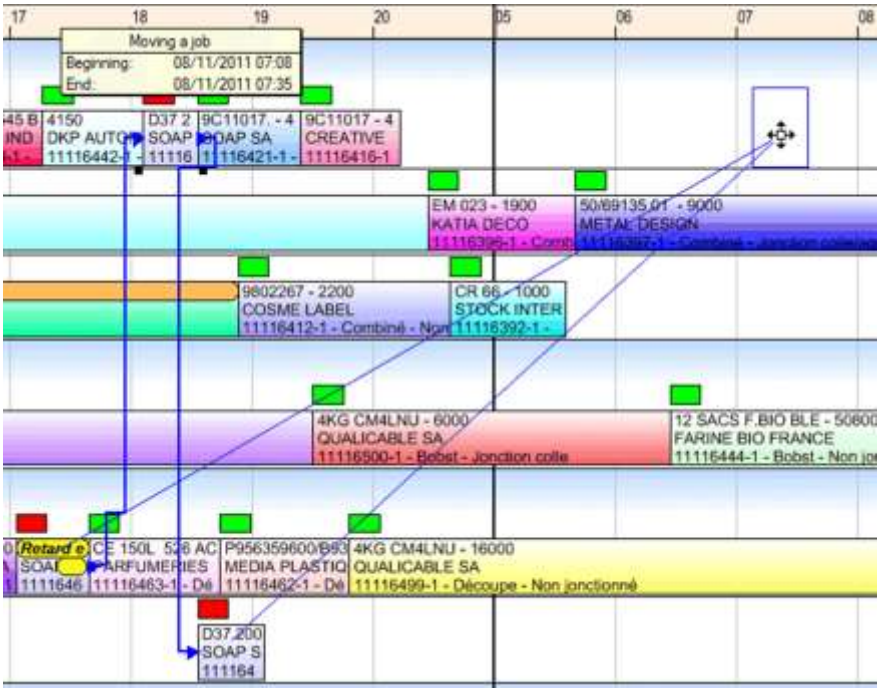
Moving jobs with the mouse

Moving a job or moving a route?

Moving a job involved in a route is not the same as moving the route!
Let A, B and C be 3 jobs; the three of them are part of a route. The job A is selected.
The links between jobs are materialized by blue lines, as we'll see on the next page.

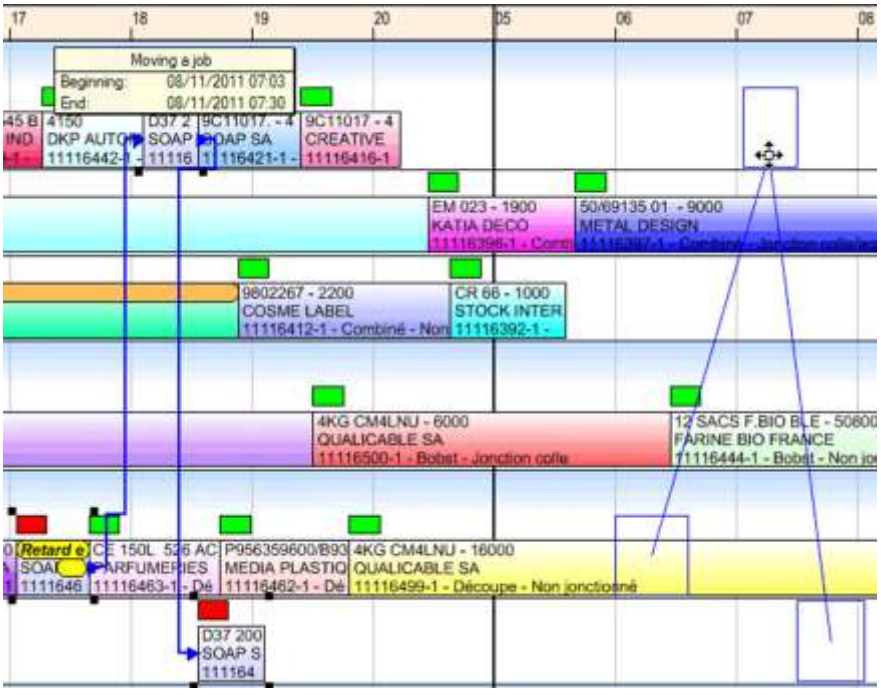
Move the job A: the blue frame shows the *supposed* target place of the A job (without taking account of possible adjustments). The links follow the move. ↓





In the **Home** menu, select **Same route**, and then click the button **Select**.

This time, the entire route is moved. The blue frames let you see the future places.



Chapter 43 CREATING LINKS BETWEEN JOBS

A fast way to create simple links:
To link several lobs of the same machine together, select them, and then right-click to get the context menu (page 120) from which you choose **Link these jobs**. This method is useful to quickly create a route. You can later move some jobs of this route to other machines.

For a good understanding of the mechanisms of the links, please read this chapter thoroughly.

Section 58 The concept of route

We use the word *Route* for a concept that has many different wordings, depending on the trade: *Route*, *Routing*, *Manufacturing Program*, *Route sheet*, *Production Range*, etc.

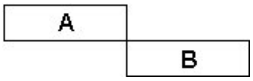
When a series of jobs has to be achieved in a given chronological order, we refer to a *Route*.

A route gathers a number of jobs that can be performed by one or several machines.

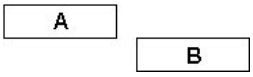
The stream of jobs is materialized by links (blue arrows).

Section 59 Shifting and overlapping

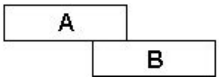
When you create a link between a job A and a job B, 3 cases may occur:

Case 1 

B can start as soon as A is over. Neither shifting, nor overlapping. This is an “exact” sequencing.

Case 2 

B can only start a certain period of time after the end of A (shifting). This shift may be required for an ink to dry, for example.

Case 3 

B can start although A has not yet finished (overlapping). If the machine of B has a work rate faster than A’s, this has to be considered for the overlapping time.

When you create a link, you have to specify which one of these cases you want to use.

Section 60 Links and limit dates

When a date is selected, its limit dates are shown in the form of vertical, dotted lines:

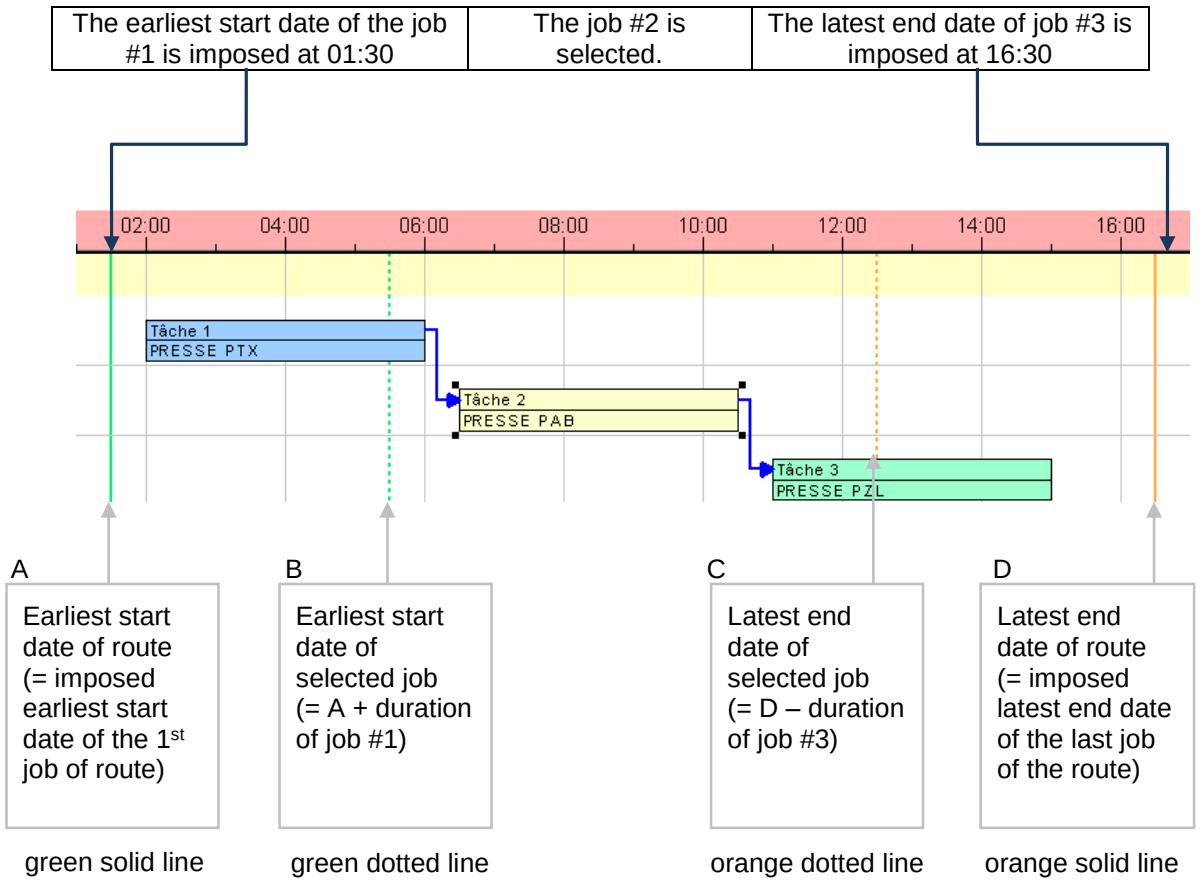
Earliest start date of job	green dotted line
Latest end date of job	orange dotted line

When the job is part of a route, the route also has its limit dates in the form of vertical, solid lines:

Earliest start date of route	green solid line
Latest end date of route	orange solid line

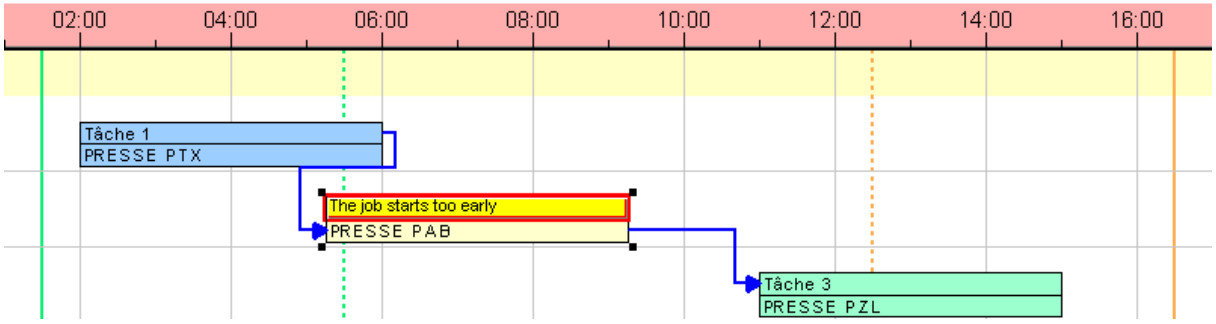
The following screenshots give you a better sight and understanding of these dates.

Example of a simple route with 3 jobs

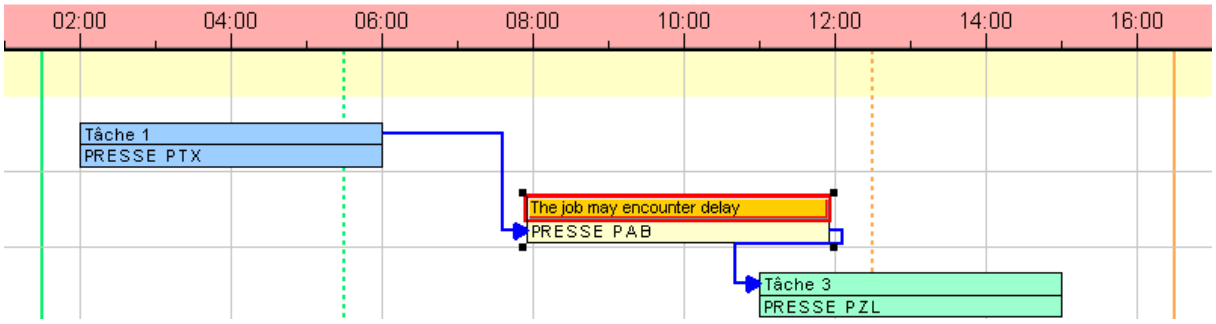


If we move the job beyond its limit dates, the following cases may occur:

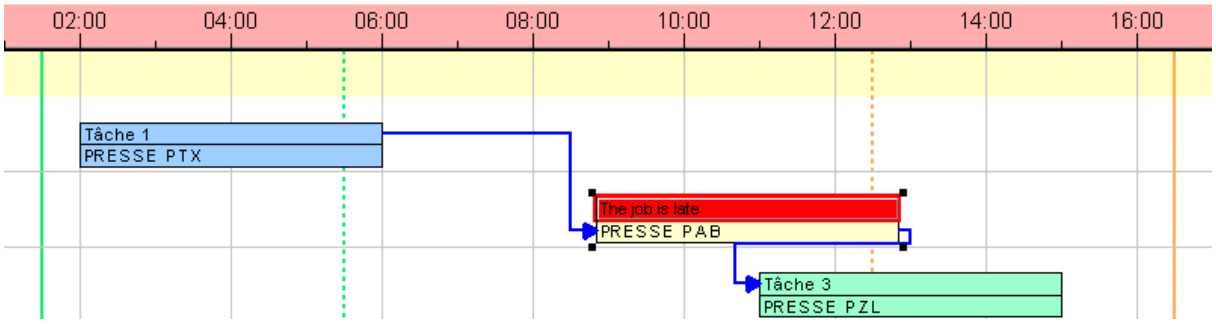
❶ The job #2 starts too soon: it starts before the green dotted line. 🡻



❷ The job #2 may encounter delay: it ends short before the orange dotted line. 🡻



❸ The job #2 is late: it ends after the orange dotted line. 🡻



Section 61 Creating a link between 2 jobs

To create a link, use the mouse to draw a line from the source job to the target job.
Proceed as follows:

- Switch to the link creation mode
  either by right-clicking a free area of the schedule and choosing *Link creation mode* in the context menu,
  or by clicking the button *Link creation* in the *Home* menu**.**
  ⇨ The mouse cursor takes the shape of a small pencil .
- Set the cursor on the source job.
- Click and hold down the left button of the mouse.
- Drag the cursor onto the target job (you may use the shortest way from source to target).
- Release the left button of the mouse.
  ⇨ The link creation / modification window opens up.

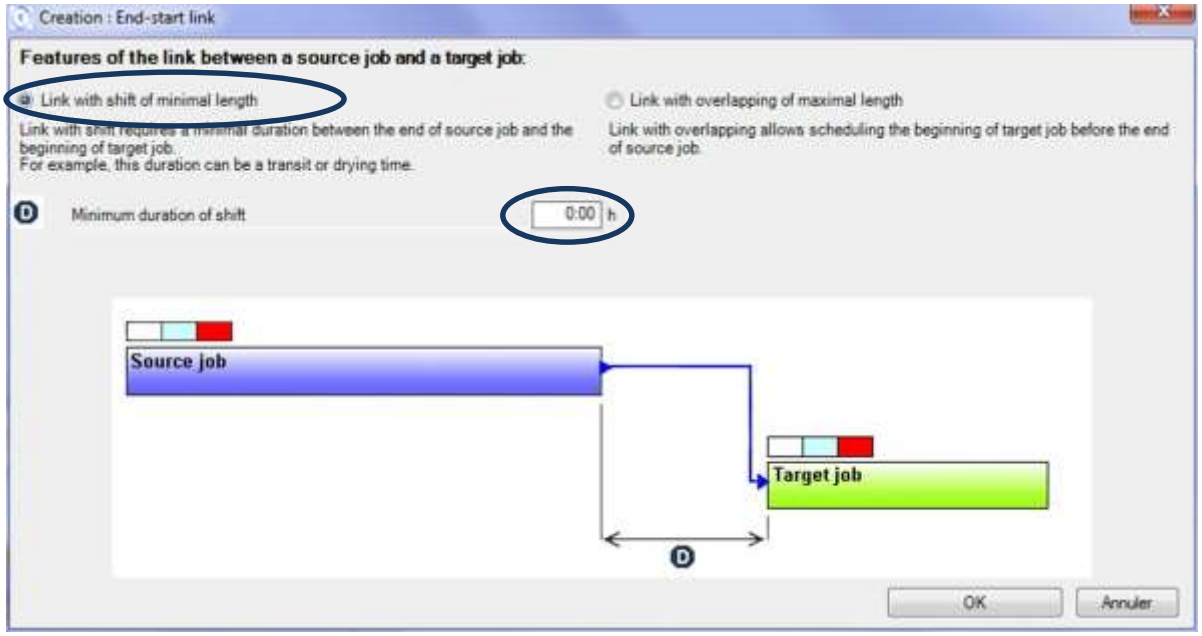


Figure 75 - Link between jobs: Case 1

The minimum duration of shift is defaulted to zero: in other words, no shift. Thus, we're in the case of an "exact" sequencing: the target job can start as soon as the source job is over.

Note	To abandon an initiated link creation, just release the left button of the mouse over a free area of the schedule, or outside the schedule.

Once your link is created, you're still in the link creation mode, which lets you create other links while you're at it.

If you don't want to create any more links right now, don't forget to come back to the selection mode.

- either by right-clicking a free area of the schedule and choosing *Selection mode* in the context menu,
  or by clicking the button *Selection* in the *Home* menu

In the following example, we've specified a shift duration of 25 minutes between the end of the source job and the beginning of the target job. ↓

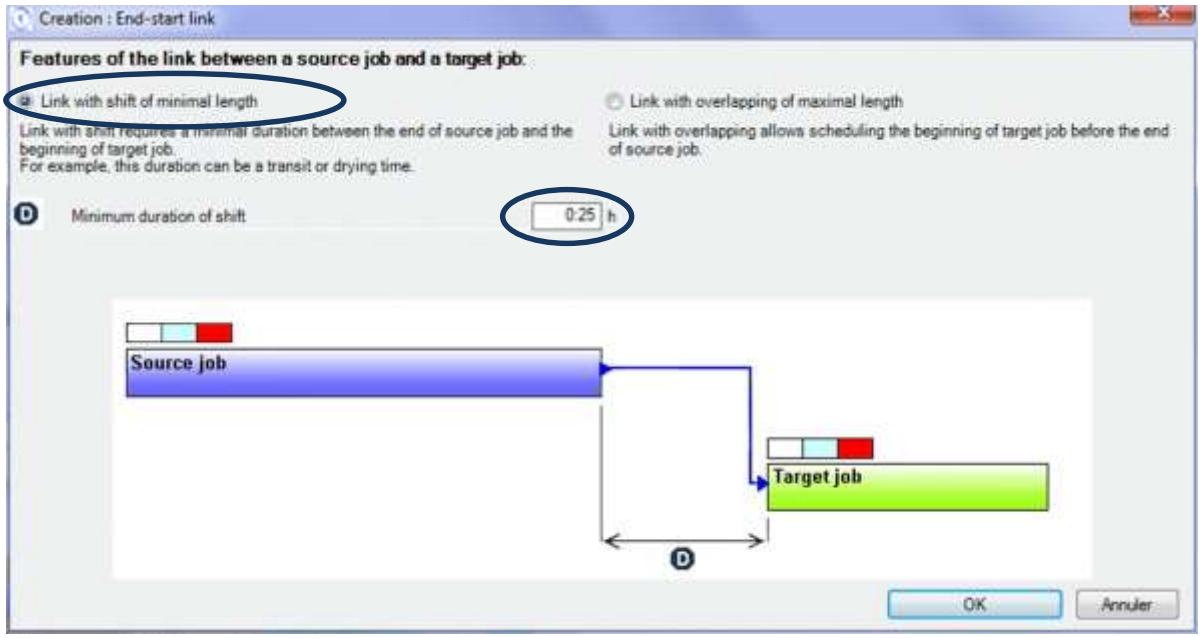


Figure 76 – Link between jobs: Case 2 ↑

In the next case ↓, we've declared a possible overlapping of the 2 linked jobs..
The target job can start 10 minutes before the end of the source job.
Enter 10 minutes in the **C** area. You may also choose to say: "We have to wait 16 minutes after the source job has started before starting the target job": in that case, enter 16 minutes in the **A** area. This is the same.
In both cases, Direct Planning is based on the running time **P** and calculates **A** from **C** or **C** from **A**.

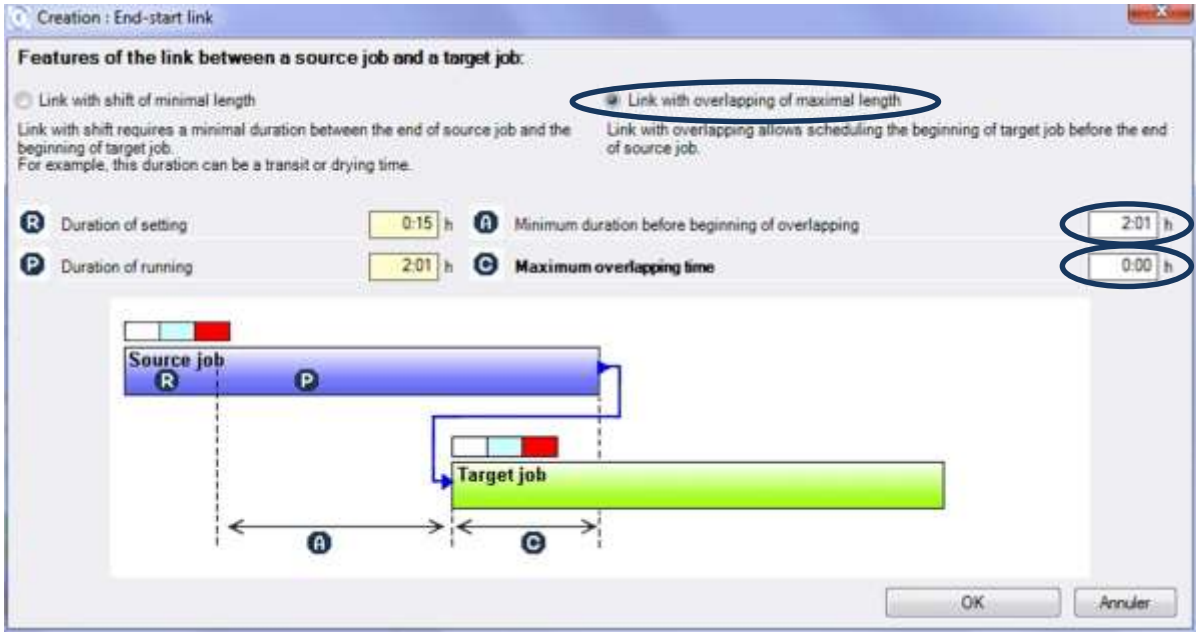


Figure 77 – Link between jobs: Case 3 ↑

Section 62 Visibility of links

Links are materialized by blue lines that may have 3 different looks according to the case:

Case 1	Exact sequencing	Solid line
Case 2	Shift	Dashes
Case 3	Overlapping	Dashes & Dots

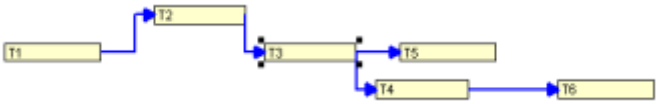
Only the links of the route of the selected job are displayed, which avoids overloading the display.

Note | Sometimes, two links may visually overlap.

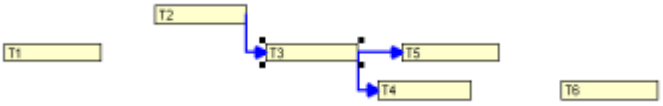
You may want to only display the direct links of the selected jobs: this will only display the incoming and the outgoing links of the selected job.

To do so, in the menu, tick ☑ *Display* ➔ *Only display direct links.*

Example: the T3 job is selected, all the links can be seen. ⇨



Result if you tick *Only display direct links* ⇨



Only the incoming and the outgoing links of the selected job (T3) are displayed.

To display all the links again, clear the box ☐ *Display* ➔ *Only display direct links*.
See also page 146, *Customizing display*.

Section 63 Modifying a link

You can modify a link in the 3 modes (selection, job creation, link creation).
Proceed as follows:

- Put the cursor anywhere on the line of the link.
- Right click to display the context menu and choose **Modify link**.
  ⇨ The link creation / modification window opens up:
  Proceed as if you were creating a link.

Section 64 Removing a link

You can modify a link in the 3 modes (selection, job creation, link creation).
Proceed as follows:

- Put the cursor anywhere on the line of the link.
- Right click to display the context menu and choose **Remove link**.
  ⇨ The link is removed.

SEARCHING JOBS

A full schedule means a major concern: how do I retrieve my jobs?

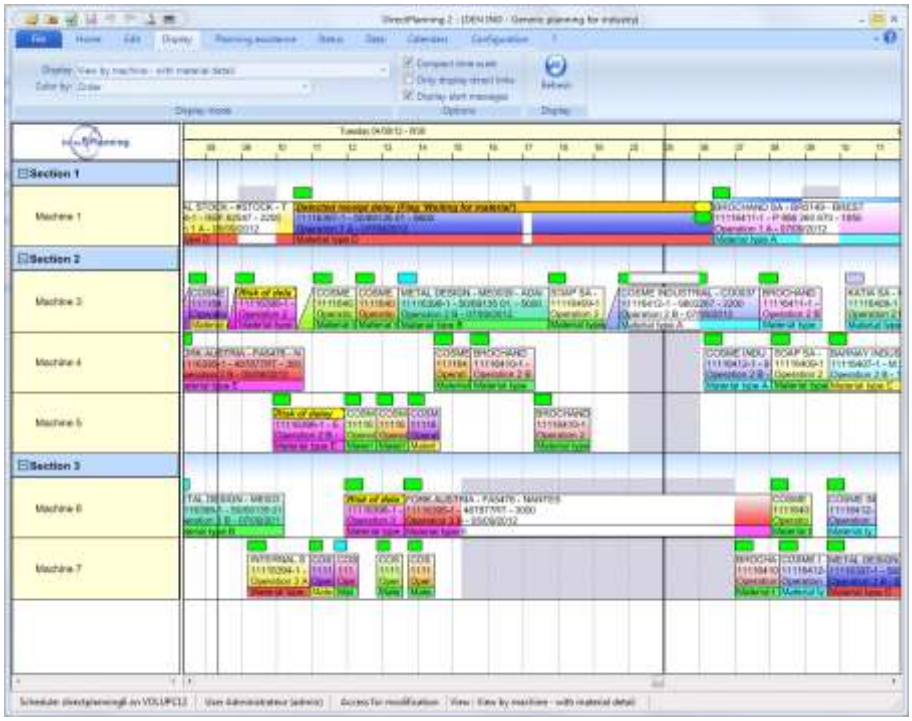
Direct Planning proposes various tools to:

- customize display
- browse the schedule
- highlight jobs
- filter jobs
- look for jobs

Chapter 44 CUSTOMIZING DISPLAY

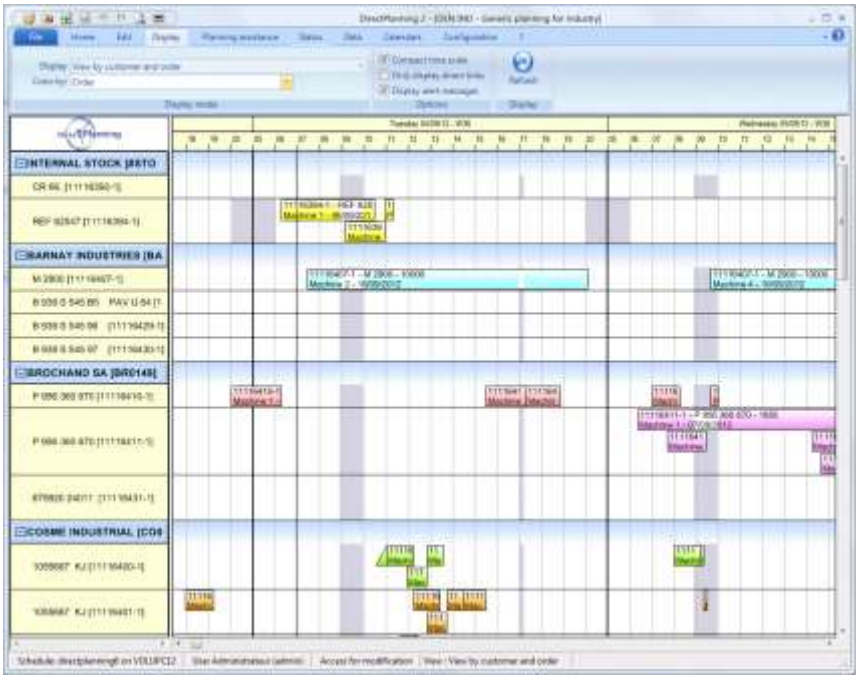
This original feature is an important characteristic of Direct Planning: it lets the administrator create as many display modes as needed, according to the users' profile and need.

Below, you can see 2 different display modes for the same schedule. The displayed items, the projection of the schedule, the time scale, the colorization and many other items may be specified in the display modes.



← Display mode by section and machine, for the workshop manager.

Display mode by customer and order, for the sales manager ➔

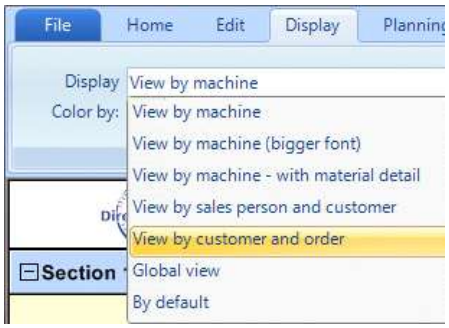


When the administrator creates the display modes, he specifies:

- The time scale (page 12)
- The projection (page 14)
- The way the jobs are displayed in the schedule (page 17)
  - The number of lines occupied by each job
  - The content and the color of each line
  - The visibility of the warning messages, locks, progress status, links, and transition times.
  - The flag behavior, visibility and color.
- The display restrictions

The display mode of links

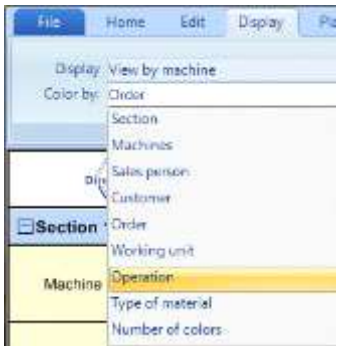
Open the **Display** tab to select one of the display modes created by the administrator. ➔



In the opposite example, the display mode *by customer and order* is chosen.

Even if the administrator has defined display modes according to your requirements, you may need to temporarily modify these settings. To do so, you are provided with the following possibilities:

Change the color of jobs

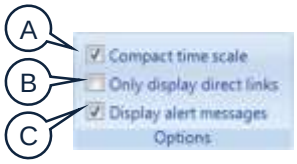


In the schedule, the colors are displayed according to the above selected display mode. ↗

You can choose another color to bring out jobs according to such or such piece of data.

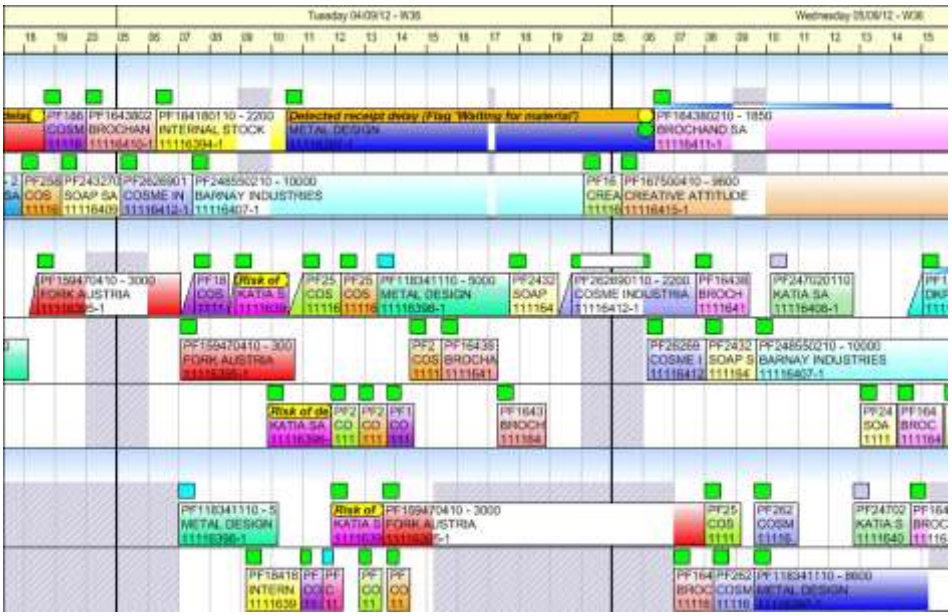
➔ To do so, select a piece of data in *Color by*.

Other display options are available. ➔
(See next pages)



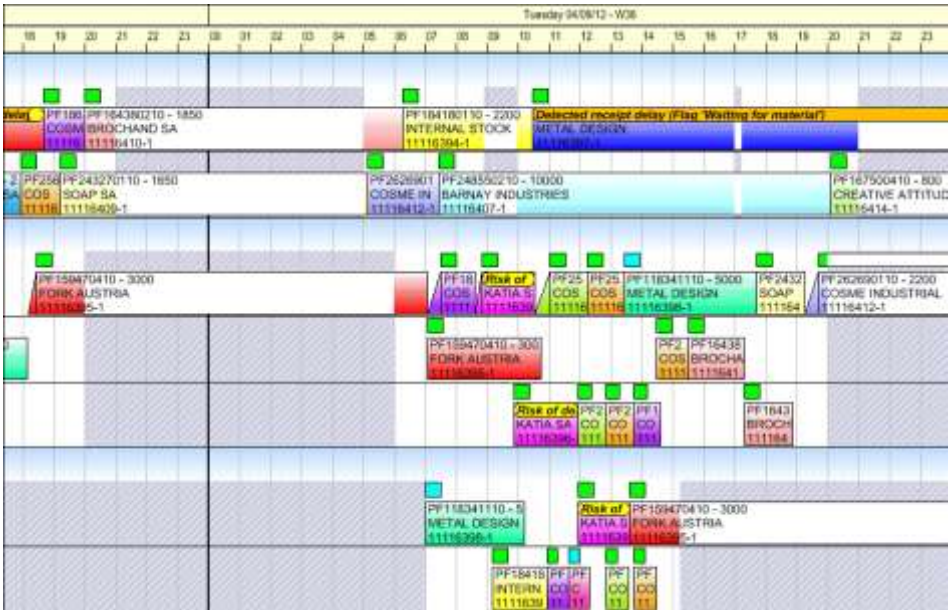
Compact the time scale (A)

The non-operating time-slots, the weeks-ends, the public holidays, etc. are inactivity periods (or idle periods) (page 50). They occupy significant room in the schedule. That's why they are often hidden to let you better focus on the essential. Tick the box ☑ *Condense time scale* to hide the periods of inactivity, or clear it ☐ to display them.



↑ The time scale is condensed. Many jobs can be seen on the schedule.

Now, the time scale is not condensed. The jobs cross idle periods ↓
The idle periods are hatched (depending on the display mode).
The schedule displays less information.

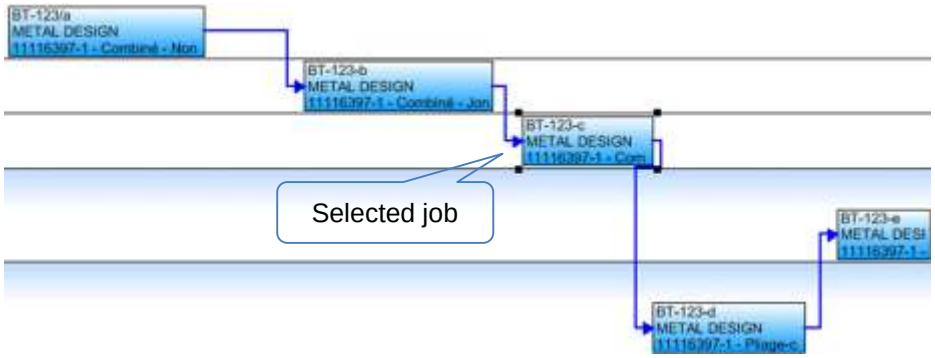


Only display direct links (B)

When you select a job in the schedule, you automatically view the links of these jobs, whether upstream or downstream. Links are materialized by blue arrows.

In the case of a complex schedule, with lots of jobs, if you experience important waiting times when selecting a job, you may want to clear that case.

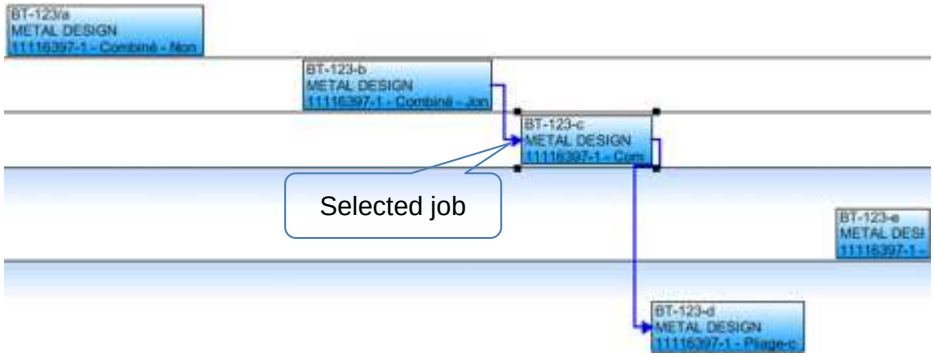
Example
For a better visibility of this example, we applied a filter on the selected job.



← The box *Only display direct links* is **not** ticked ☐.

All the links are shown, upstream and downstream.

C



If you tick the box ☑ *Only display direct links*, only the links directly attached to the selection job are shown.

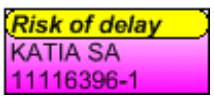
← The box ☑ *Only display direct links*, is ticked ☑.

See also page 144, *Visibility of links*.

Display warning messages (C)

The alert (warning) messages can be displayed on the jobs.

Tick the box ☑ *Display alert messages* to see the messages, or clear it if you don't want to see them. They may hide a line of the job, which may lead you to hide them when you want to see all the lines of the job.



← A job with a warning message displayed (on the first line, which can be configured in the display modes).
The same job, with the warning message not displayed. →

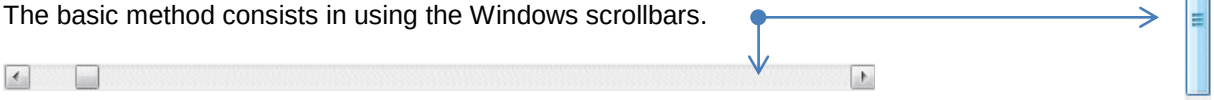
Chapter 45 BROWSING THE SCHEDULE

The time scale (page 12) plays an important role when browsing the schedule.

There are also key combinations (shortcuts) that let you quickly move across the schedule. These keys are described on page 188.

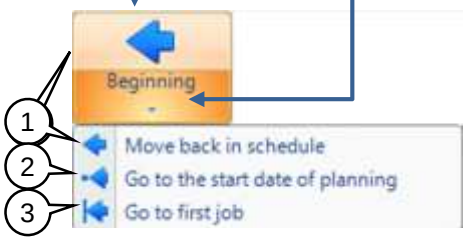
There are several ways to browse the schedule.
To try them, please open a schedule containing jobs in order to better view the moves.

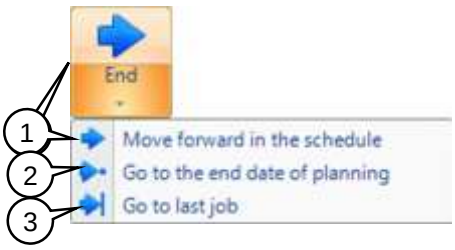
The basic method consists in using the Windows scrollbars.

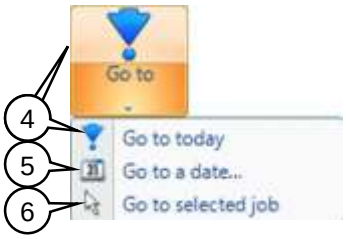


Besides, many tools are available in the *Home* menu. ➔

Each of the 4 buttons is divided in 2 parts:
Click in the upper part: instantly performs the action.
Click in the lower part: opens the scrolldown menu



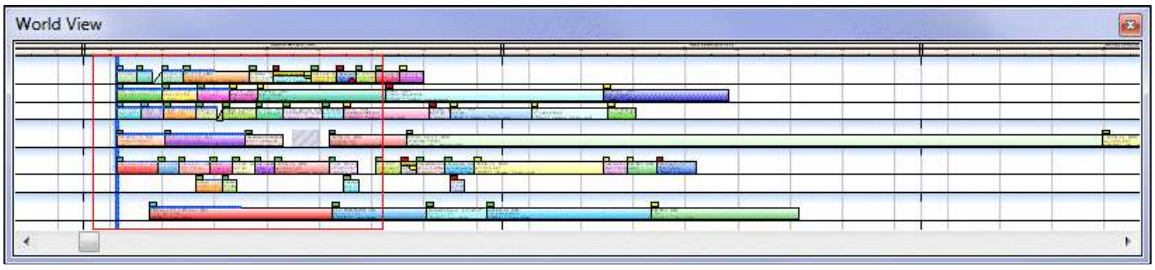




1) Move backward / forward in the schedule.
2) Go to the start / end date of planning
3) Go to first / last job.
4) Goes straight to the current date
5) Opens a calendar that lets you choose a date.
6) Goes to the last selected job of the schedule. If, in the meanwhile, you had moved around in the schedule, this is a convenient way to go back to where you were.
7) Sets a starting point in the schedule: this lets you browse the schedule simply by moving the mouse once to the left or to the right. The further you move the mouse, the faster the scroll. Click anywhere to stop the the motion.
8) Browse with the global view: see next page.

8) Browse with the global view

This option displays a window showing (if possible) a global view of the schedule: click anywhere inside this window and move the mouse to the left or to the right (holding down the left button of the mouse); in the same time, keep an eye on the dotted rectangle that follow your moves: it materializes the area that will be displayed in the schedule. ↓



Release the mouse: the main window of Direct Planning displays the area of the dotted rectangle. Repeat the operation if necessary.
Click the cross in the upper right corner to close the window of the global view.

Right-clicking in a free area of the schedule also proposes the global view.

Browse from the job detail window

When you're in the job detail window (page 89), you can also browse the schedule, thanks to these buttons at the bottom of the window ➔

1. Go to the first job of the route
2. Go to the previous job of the route
3. Go to the next job of the route
4. Go to the last job of the route
5. Go to the previous job of this machine
6. Go to the next job of this machine

This browsing method always leave you in the same status **Scheduled** or **To schedule**: if you browse from a scheduled job, you won't see the jobs to schedule, and vice-versa.

Chapter 46 HIGHLIGHTING AND FILTERING JOBS

Section 65 Highlighting jobs

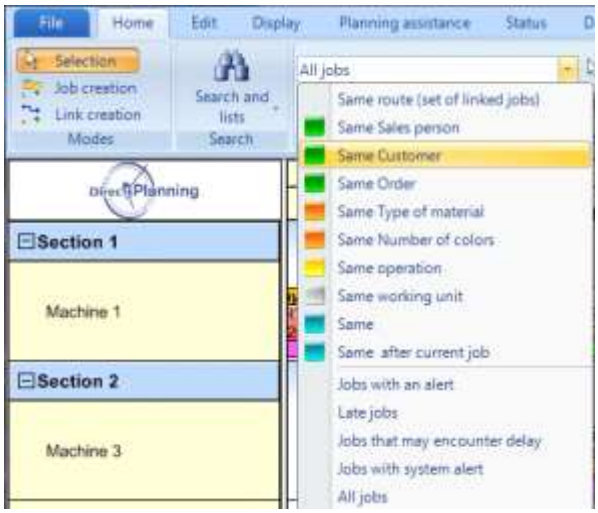
Highlighting is a very powerful feature of Direct Planning.
It lets you focus on some jobs according to their characteristics.

When you select a job (referred to as *reference* job) and you highlight it, this job and all the related jobs are displayed in color, while the other jobs are grayed: thus, the involved jobs stand out clearly, which makes them visible.
The related jobs are jobs that have a common point, which you choose from the machines, the entities, the technical elements, etc. or according to their status.

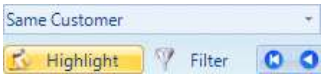
The highlighting color has been chosen by the administrator according to the machine, the entity or the technical element of the reference job.

Click the reference job to select it. Direct Planning will take account of the characteristics of this job for the rest of the operations.

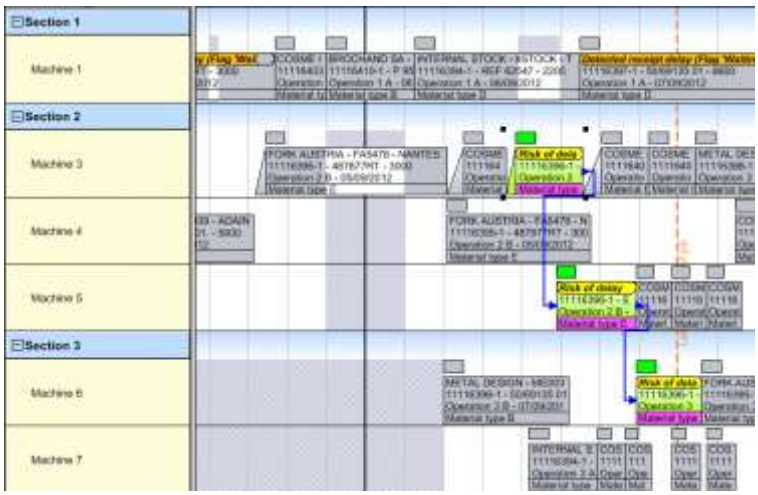
In the **Home** menu, select a common point. In the opposite example, we've chosen *Same customer*: as a matter of fact, we want to highlight all the jobs regarding the same customer as the one of the selected job. ➔



Click *Highlight*. ➔



Result: all the jobs of this customer are displayed in colors, while the other jobs are grayed. ➔



From this point, all the actions you can perform are the same as for the filters.
These actions are explained on page 154.

To cancel the highlighting, click the button *Highlight* again.

Section 66 Filtering jobs

Like highlighting, filtering is a very powerful feature of Direct Planning.
It lets you isolate some jobs according to their characteristics.

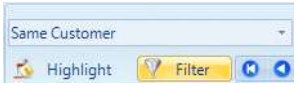
When you select a job (referred to as *reference* job) and you filter it, this job and all the related jobs are displayed, while the other jobs are hidden.
The related jobs are jobs that have a common point, which you choose from the machines, the entities, the technical elements, etc. or according to their status.

The operation mode is the same as the highlighting.

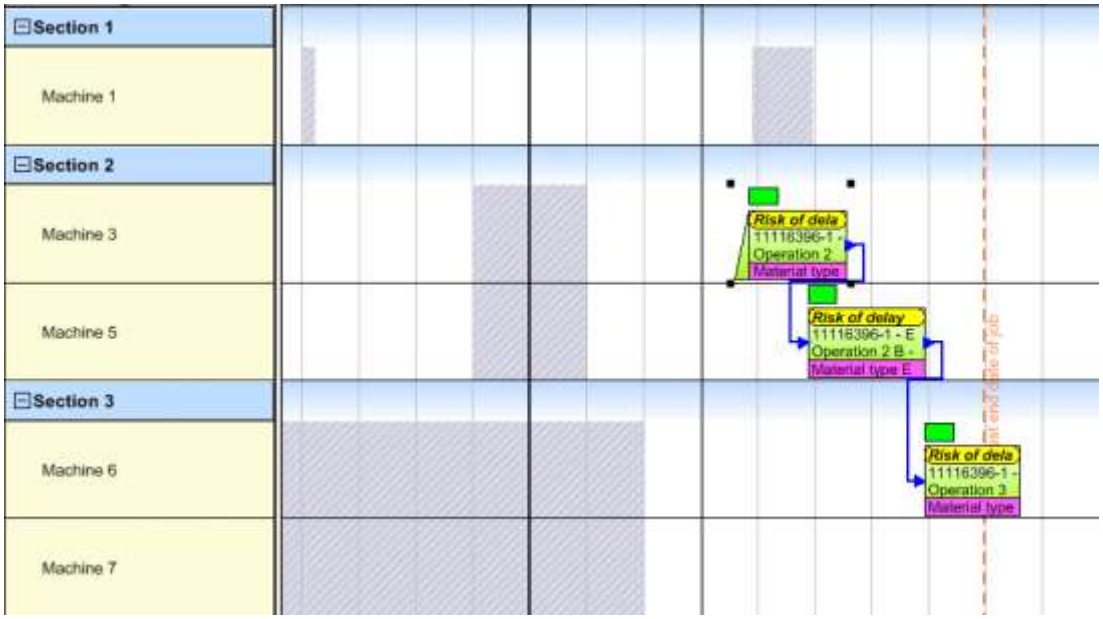
Click the reference job to select it. Direct Planning will take account of the characteristics of this job for the rest of the operations.

In the **Home** menu, select a common point. In our example, we've chosen *Same customer*: as a matter of fact, we want to filter all the jobs regarding the same customer as the one of the selected job.

Click *Filter*. ➔



Result: all the jobs of this customer are displayed, while the other jobs are hidden. ➔



Only the machines involved in the filter jobs are displayed in the projection.

To cancel the Filtering, click the button *Filter* again.

Section 67 Highlighting and Filtering: common actions

As long as the highlighting or the filtering is enabled, the button is orange.

Highlighting / Filtering jobs according to the characteristics of the jobs

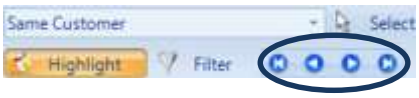
Our example concerns the jobs of a same *customer*.
The *customer* is one of the entities configured by the administrator in the scope of this demonstration schedule. In your case, you'll probably have other entities…
Entities are not the only common points that you can use:
Any other piece of data of Direct Planning (page 18) can be used as a common point.
Other characteristics of the jobs can be used as common points:

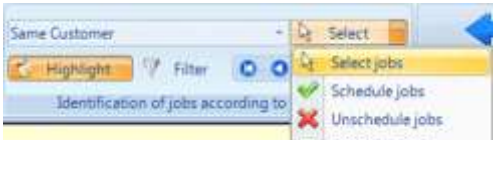
- The jobs of the route
- The jobs of the current search (next chapter)
- The jobs with warning (delayed jobs, for example) (page 113)
- The jobs that might encounter delay (page 113)
- The jobs with system warning (page 113)

Browsing the highlighted / filtered jobs

You can browse highlighted or filtered jobs, that is to say, you can select one by one each job involved in the highlighting or the filtering.

Click the arrows to reach the first / last job, or the previous / next job. ➔
Or just use the keyboard shortcuts (page 188).





➔ Several actions are available in the highlighting or the filtering.
They are explained below.
These actions may be performed even when there is no highlighting or filtering.

Select all the jobs (A)

This option lets you select all the jobs that are involved in the highlighting or the filtering. From this selection, you can perform the actions described in the title *Manipulating data* (page 119).

Schedule / Un-schedule jobs (B / C)

Select *Schedule jobs* (B) or *Un-schedule jobs* (C).
Both options are described on page 127.

Completing jobs (D)

Select *Complete jobs* (D). This option is described on page 127.

When the highlighting or the filtering is enabled, you can select another job, which then becomes the reference job. The highlighting or filtering takes account of this new piece of data and adjusts.

Chapter 47 SEARCH AND LISTS

The search features lets you find jobs and create lists based on your criteria.

In the **Home** menu:

This button is divided in 2 parts:
Clicking the upper part displays the search window.
Clicking the lower part lets you select a list (or create a new one if you have the right to).

1) Search jobs (next page)
2) Lists predefined by the administrator or a user who has a write access (page 161)
3) Configure lists (only for the users who have a write access) (page 163)

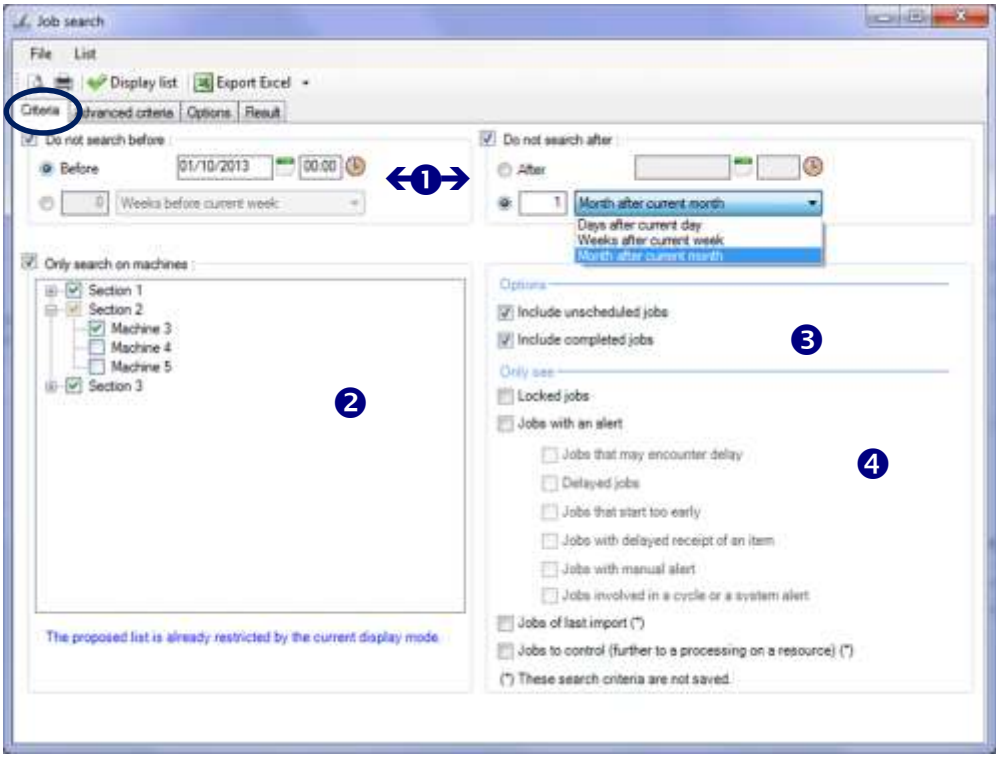
Section 68 Searching jobs

In order to create a search, you have 4 tabs:

- (Basic) criteria
- Advanced criteria
- Options
- Results

These 4 tabs are explained in the following chapters.

(Basic) criteria



❶ To filter on a date or on a number of days (before or after):

Tick the box ☑ *Don't search before / Don't search after*.

⊙ **Before** such date, **After** such date: directly key in a date (and possibly an hour), or use the provided calendar.
The jobs before and / or after that date won't be displayed.

If you prefer using an amount of time before or after, please use the other method:

Specify ⊙ a number of *days* / *weeks* / *months* before or after.
This lets you keep a constant interval, since it is based upon the current date.
The jobs that are outside this interval won't be displayed.

❷ To filter on machines / sections:

Tick the box ☑ *Only search on machines:*
Then choose the *Sections* or the *Machines* to filter.

❸ You may include or exclude unscheduled / completed jobs.

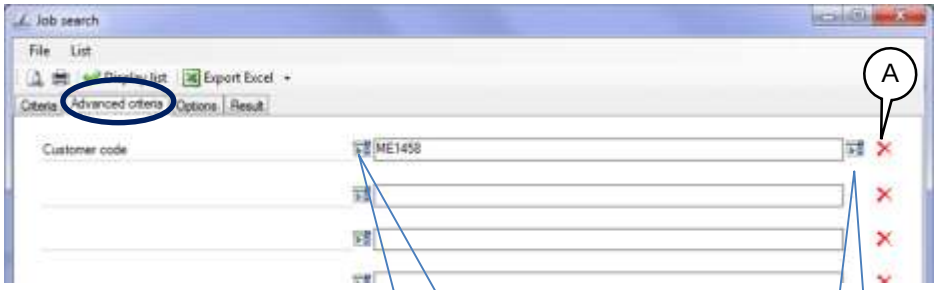
❹ You can limit the list to the locked jobs or the jobs with an alert (warning).

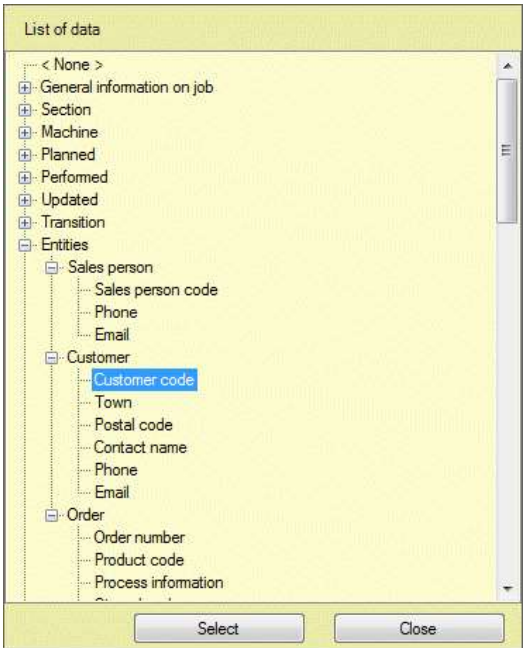
You can also limit the list to the recently imported jobs.

Jobs to control (further to a processing on a resource): if you modify the setting or running time of a machine that already has scheduled jobs, then this change has an impact on the duration of jobs: this is why it is useful to check those jobs.

Advanced criteria

The advanced criteria tab lets you perform more accurate selections choosing any piece of data used in your schedule.

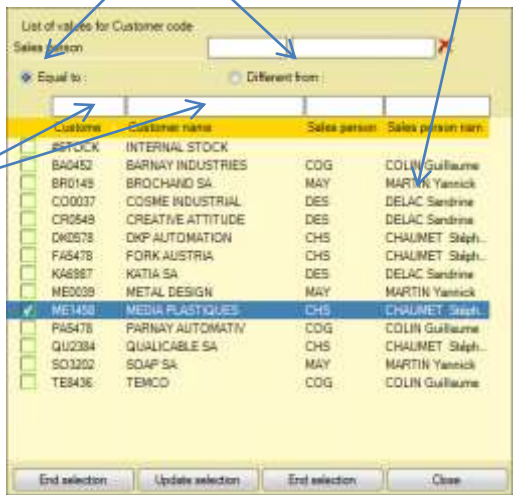




First, click here to choose a piece of data from this list.

Then, click here to choose one ore more value(s) for this piece of data.

Comparison type



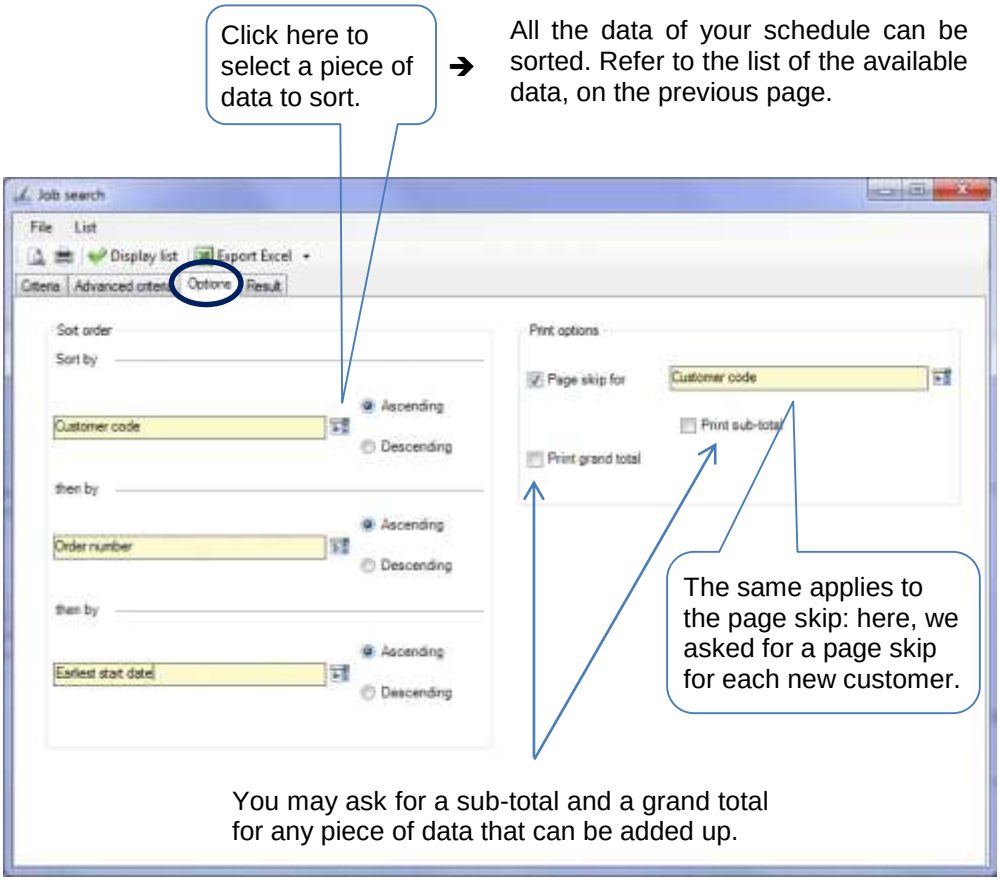
You can filter any list by keying in characters in these areas.

Click one of these crosses ✘ to remove the matching criterion. A

Options

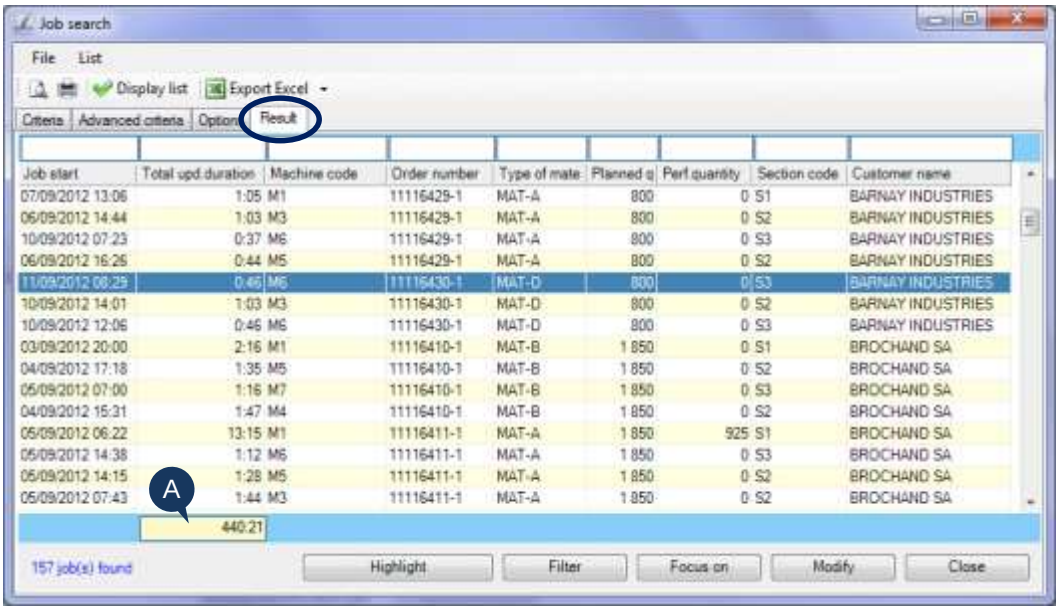
The option tab lets you specify the sort order as well as the paging options.

In the following example, we asked for a sort by customer, order and job start date.



Result

In the job search window, click *Display list*. The *Result* tab is now displayed. ⬇



You can perform several actions from this result window:

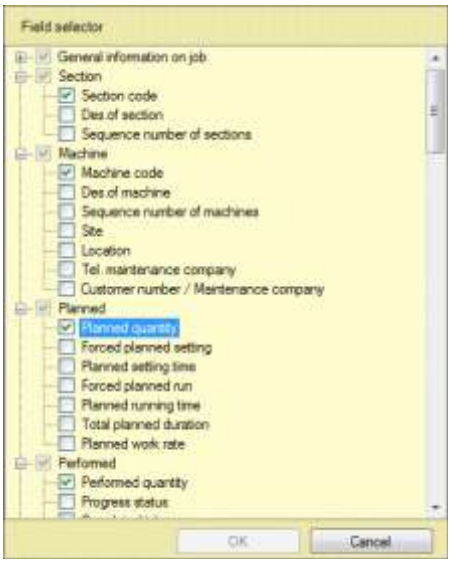
- Use the filters located just above the column headers.
- Double-click any line to access the job window. You can also select the job, and then click the *Modify* button at the bottom of the window.
- Quickly access frequently used actions: right-clicking the selected job displays the context menu (page 121).
- *Highlight the found jobs,* clicking the button at the bottom of the window. The scheduled is updated. Highlighting is explained on page 152.
- *Filter the found jobs,* clicking the button at the bottom of the window. The scheduled is updated. Filtering is explained on page 153.
- *Focus the schedule* on the selected job: the job is then selected in the schedule, which automatically scrolls to the left or to the right in order to center the job and make it visible.

Whenever it's possible, and if you've asked for it in the options, a counter sums up the columns and displays the result at the bottom.
In the above example, the counter (A) shows the total duration of the found jobs.

Other actions let you customize the layout of the result window.
They are explained on the next page.

➲ Adding / Removing columns

Right-click a column header.
The field selector is now displayed. ➔
Tick the fields that you want to see in this list.



➲ Moving columns
You want the C column to be displayed at the right of the X column: left-click the header of the C column and bring the mouse over the X column. Release the mouse button.

➲ Resizing columns
Left-click the field separator between two columns and move the mouse to the left or to the right.
You may also double-click the field separator to automatically adjust the column width to its content.

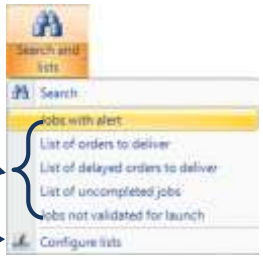
➲ Resizing the window
Resize the window as you would do with any other window.

Remarks

- When you close the search window, Direct Planning saves all your settings: next time you open this window, you'll retrieve your criteria, options, layout, etc. In that case, don't forget to click *Display list* to update the result that might have changed in the meanwhile.
- Should you frequently need to perform the same searches, you might save time creating and saving lists in order to retrieve them easily (page 163).

Section 69 Using pre-recorded lists

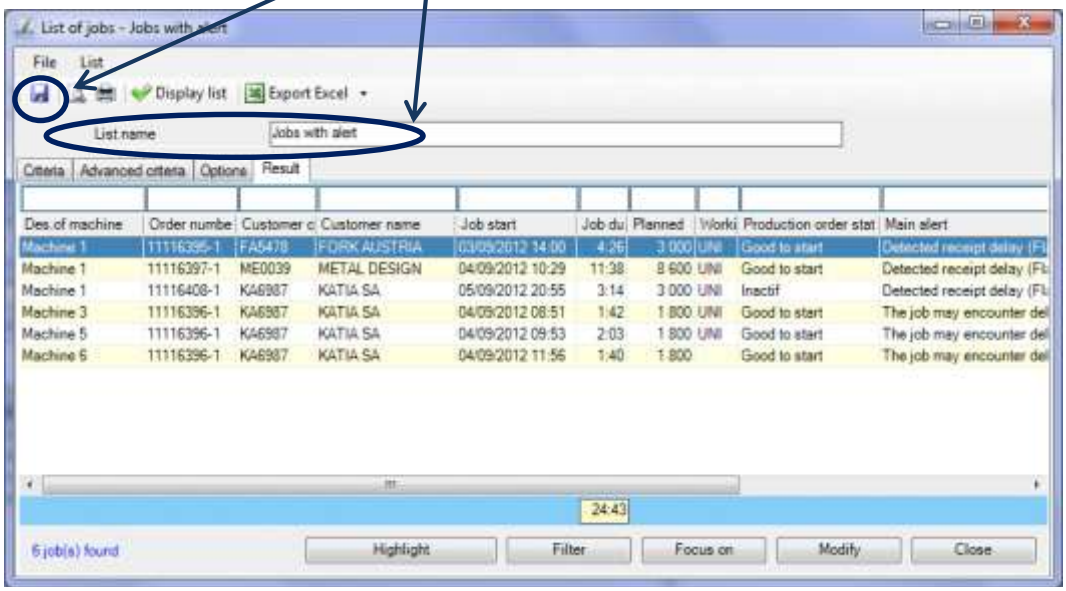
A user with write access can save frequently used searches.



The opposite screenshot shows a few examples.

Click one of these lists to get the result. ⬇

Only if you have the required rights.
(next section)



The result is displayed in the same form as when performing a job search (page 155). ⬆
The same actions can be performed as when performing a job search (page 159).
You can fine-tune the result, modifying the criteria and the options as you would do for a job search (page 155).
Moreover, if you have the required rights, you can save this list (page 163).

Printing a list

From the *File* menu, of from the toolbar of a list, it is possible to print the list or to have a print preview.

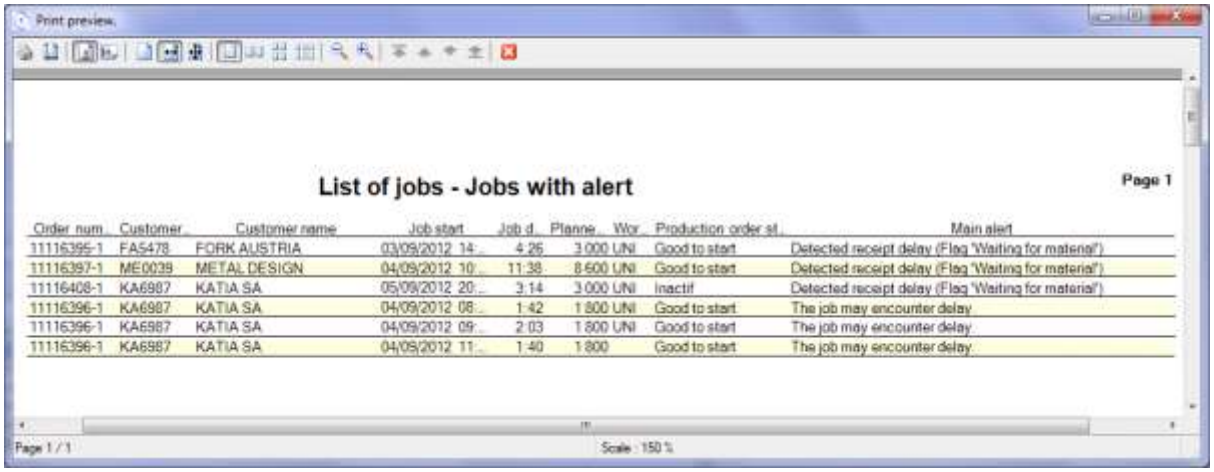


Figure 78 – Print a configurable list

The toolbar on top of the preview window lets you perform several actions:

1. Print
2. Change page layout
3. Switch to Portrait mode
4. Switch to Landscape mode
5. Remove the adjusting effect
6. Adjust to page width
7. Adjust to a single page
8. See one page
9. See 2 pages
10. See 4 pages
11. See 6 pages
12. Reduce preview scale
13. Increase preview scale
14. Go to first page
15. Go to previous page
16. Go to next page
17. Go to last page
18. Exit preview

Export a list to Excel

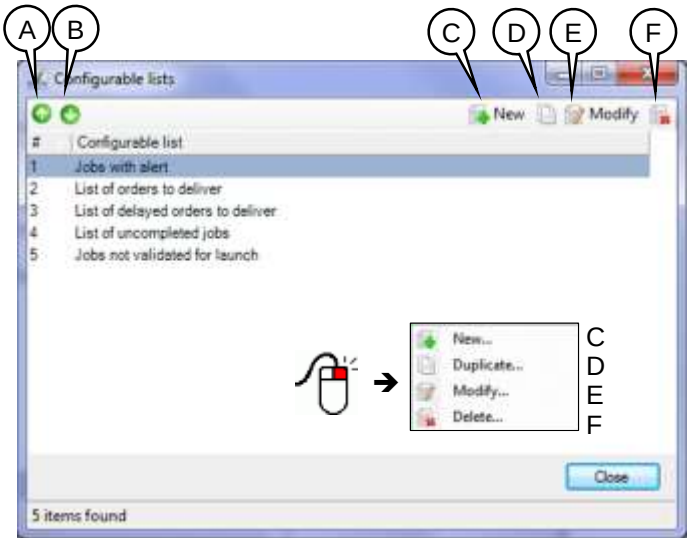
From the *File* menu, or from the toolbar of a list, you can export a list to Excel ®.
At the end of the export, the spreadsheet remains opened in Excel ®.
Please refer to page 188 for the possibilities of exporting to Excel.

Section 70 Configuring search lists

If you frequently need to perform the same searches, you may find it useful to create and save lists in order to retrieve them easily.

You have this possiblity if you have the required rights.

Click here ➔



A You can change the order of appearance of the configurable lists in the selection list.
To move a list up, select it and click .

B To move a list down, select it and click .

C Create a new configurable list

D Duplicate the selected configurable list to create another one (almost) identical.
Don't forget to give the new list a new name.

E Modify the selected configurable list.
Can also be performed by double-clicking the configurable list.

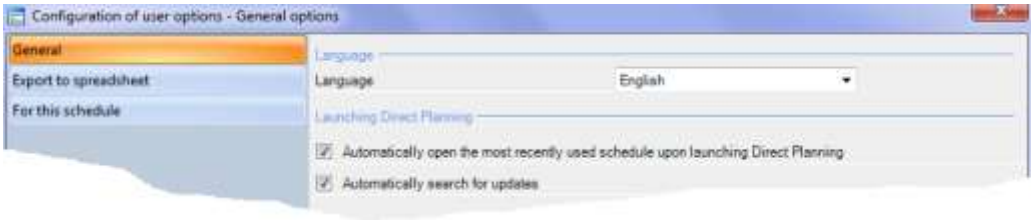
F Delete the selected configurable list.

Creating and modifying a list are exactly the same as searching jobs (page 155). Once you have reviewed all the tabs (*Criteria*, *Advanced criteria*, *Options* and *Result*), click the icon in the upper left corner of the window to save your settings.
The other users will have the possibility to use the lists you've created.

ADVANCED USE

Chapter 48 USER OPTIONS

File Menu → *User options*



↗ The first tab offers 3 possibilities:

- Choosing the language of Direct Planning.
- Automatically open the most recently used schedule upon launching Direct Planning.
- Automatically search for software updates.

↗ The second tab offers 2 possibilities:

- Choosing the spreadsheet software (used in the export from configurable lists).
- Choosing the date format according to the selected spreadsheet software.

↗ The third tab offers 2 possibilities:

- When you open a schedule, if you want Direct Planning to automatically go to the current date and time, check the (A) box.
- If you want a schedule (opened for consultation) to be automatically updated, check the (B) box.
  In that case, if you want Direct Planning to automatically go to the current date and time, check the (C) box.

Chapter 49 PURGING DATA

Completed jobs needlessly clutter the schedule.
Similarly, unused entities make it difficult to select useful ones.

Regular purges remove expired items, thus they alleviate the schedule, which significantly saves time.

Important

Before starting a purge:

- Save your schedule!
- Check that no one is using the schedule!

In the Data menu, select *Purge*.

The left part of the screen lets you specify the data to purge.
☑ Tick the relevant boxes.

You can purge all the jobs located before a specified date: click  to open a calendar and enter a date, or directly key in the date.

You can also purge the unused years of the calendars.

You can purge the unused items of each entity.
In the above screenshot, the available entities are the *sales person*, the *customer* and the *order*.
In your case, you'll likely have other entities.

Chapter 50 SCENARIOS OF ACCESS TO A SCHEDULE

Basic principle: a schedule cannot be simultaneously modified by 2 workstations.
This is to maintain the integrity of the database.

Let's consider a simple case. We have 4 users:

- U1, the administrator, has all the rights (particularly the write access permissions).
- U2, another user, who also has the write access permission).
- U3, a user who has an access with restricted modification.
  He may change the job progress status and the flags.
- U4, a user who has a read-only access.

Remember: the users rights are specified by the administrator.

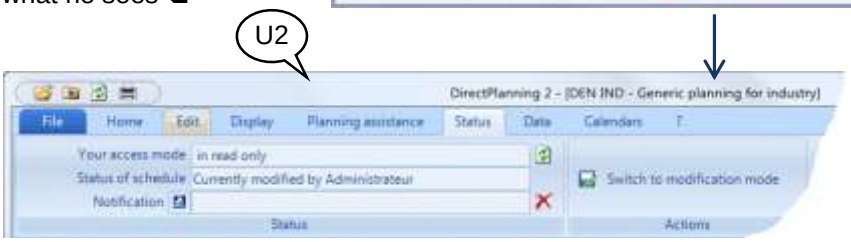
Section 71 Two users attempt to simultaneously modify the schedule.

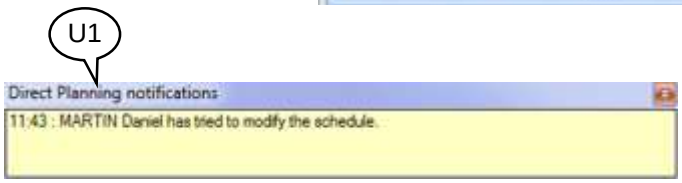
- The planner (U1) opens the schedule..
- U2 tries to open the schedule to make changes.

He won't be allowed to do so and he'll get the following message. ➔

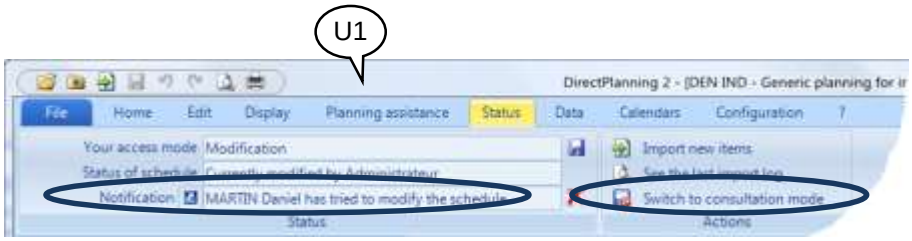
At that point, if he answers *No*, he doesn't open the schedule and nothing happens.

If he answers *Yes*, he agrees to open the schedule in read-only mode. This is what he sees ➘





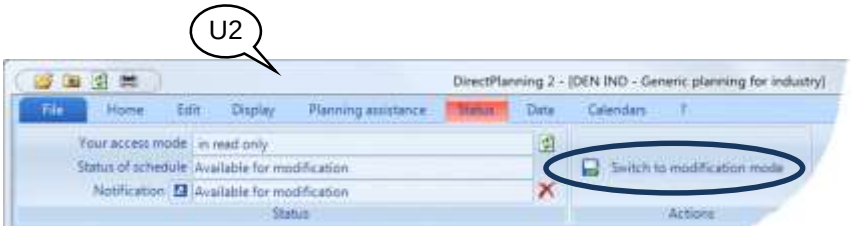
➔ In the same time, U1 has received a notification warning him that U2 has tried to modify the schedule. This notification is recalled in the *Status* tab. ➘



U1 can switch to read-only mode (or even close the schedule, which is the same).

This allows U2 switching to modification mode (next page).

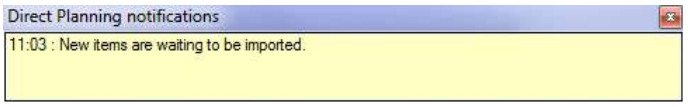
U2 receives a notification. He just has to click the relevant button to switch to write-access mode ➘



Section 72 Importing data from a 3rd party software

The mechanisms of import are explained in the administrator's guide.

Any user with the write access mode (U1 or U2 in our example) receives a notification telling him whenever there's a new file ready for import.



The color of the *Status* tab reminds you that new data are to be imported.
The user just just needs to click this button to start import.

When the import is over, this message is displayed. ➔

In all cases, all users are warned that there have been changes (see Figure 83 page 170).

Visual check of imported data

The job highlighting (as seen on page 152) also lets you clearly identify the recently imported jobs.

All the jobs of the latest import are displayed in a color that makes them visible, while the other jobs are grayed.

Clicking the *Filter* button lets you go further: only the jobs of the latest import are displayed, while the other jobs are hidden.

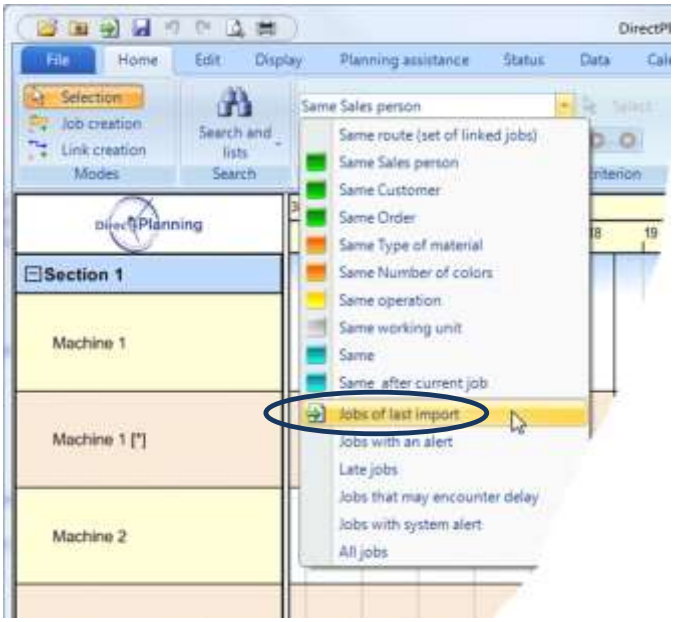


Figure 79 – Highlighting the imported jobs

Section 73 A user with restricted rights notifies the planner of changes

The planner (U1) opens the schedule to make changes (no matter whether he actually makes changes or not, the schedule is opened in write-access mode).
The user with restricted rights (U3) opens the schedule and changes the progress status of a job.

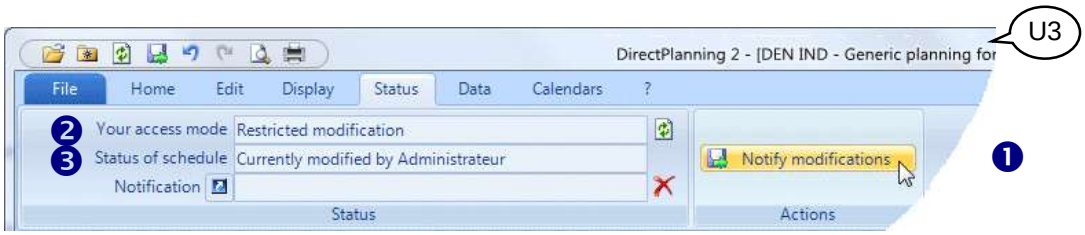


Figure 80 – A user notifies the planner of changes

❶ In the *Status* tab, the button *Notify modifications* is colored to draw your attention.
❷ This user's access mode is recalled.
❸ The schedule status is recalled.

The user informs the planner of his modifications, clicking the button ❶.
In return, he receives a confirmation that the planner has been informed of his modifications.
The button ❶ turns back to gray since there's nothing left to notify.

The planner is informed of the presence of items to import, in the Direct Planning notification area, in the lower right corner of the screen. This notification is always visible, even if the Direct Planning window is not in the foreground.

Figure 81 – The planner is informed.

Figure 82 – The planner is informed that there are new items to import.

❹ The planner is also notified in the *Status* tab: the button *Import new items* is colored to draw his attention.
❺ The planner access mode is recalled.
❻ The schedule status is recalled.
❼ The last notification is recalled.
❽ The planner can click here to view the import log.

The planner imports these new items, clicking the button ❹.
A message confirms the integration of the items.
The button ❹ turns back to gray since there are no more items to import.

Section 74 The planner modifies the schedule: the other users are notified.

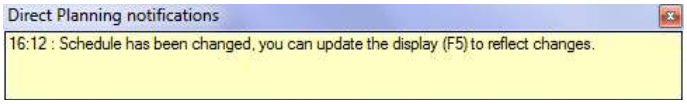
The planner can modify the schedule in various ways:

- Working directly in the schedule (creating, moving, changing jobs, etc.)
- Importing jobs
- Integrating the changes notified by a user with restricted rights

When he saves the schedule after making changes, all the other user are notified.

This mainly (but not only) concerns the users with read-only mode (the users with consultation rights). As a matter of fact, other users with write-access mode may be just viewing the schedule: they will be notified as well as the users with read-only mode.

They can update their schedule, pressing the F5 key or via the *Status* tab.
This lets them have the most recent version of the schedule right before their eyes.



All the users are notified that changes have been made in the schedule.

This notification is not only displayed after the importation of new items: it is also displayed upon any change made by the administrator.

The users can press the F5 key or click the button  : this updates the schedule to take account of the latest changes.

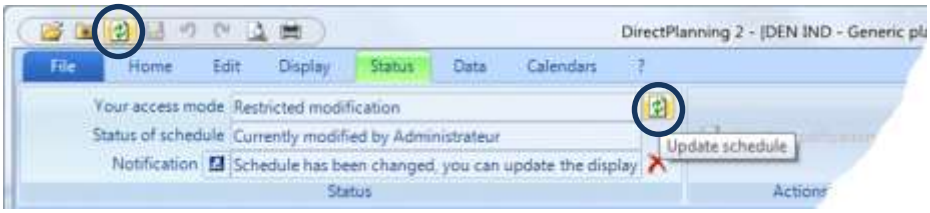


Figure 83 – Updating the schedule after a job import or after changes have been made by the planner.

Chapter 51 THE PLANNING ASSISTANCE

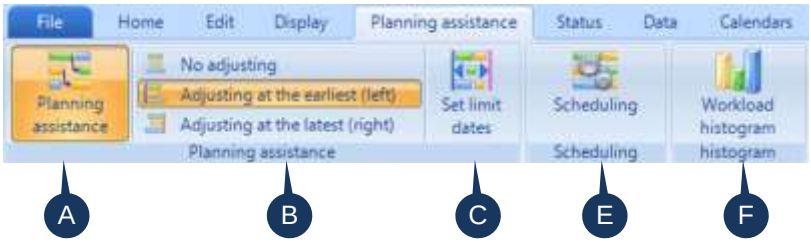
The planning assistance is a set of powerful tools that let you optimize you schedule while complying with the time constraints.

- Adjusting the jobs to the left or to the right (page 173)
- Scheduling (page 174
- Workload histogram (page 185)

When the planning assistance is enabled, Direct Planning applies the following rules to all the jobs located between the two limit dates of the planning assistance:

- Complying with the constraints of the route sheet: Direct Planning automatically moves all the jobs within the route (in relation with the moved job) in order to keep with the job precedence constraints. Keeping with these constraints also takes account of the shifting and overlapping durations (page 139).
- The jobs that started too early are automatically moved in order to start on time.
- The jobs that ended too late are automatically moved to end on time.
- Should you create or move a job without complying with these constraints, Direct Planning would automatically make the required adjustments.

Figure 84 – The planning assistance menu



Section 75 Specifying the limit dates of the planning assistance

In order to be efficient, the planning assistance module needs “boundaries” to delimit the time range on which it can work.
Thus, you have to specify a start date and an end date.

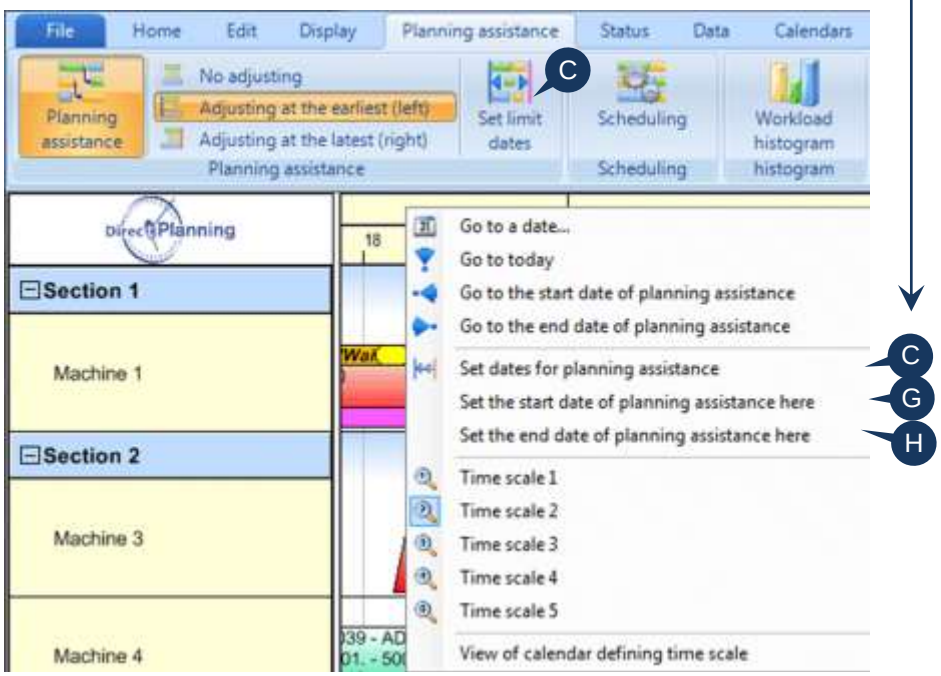
Only the jobs located withing these 2 dates will be subject to process by the planning assistance and scheduling modules.

Thus, you can position jobs in the long term, so that they are not affected by the planning assistance, nor integrated in the scheduling mechanisms.

The planning assistance

To specify the start date and the end date for the planning assistance, there are two possibilities:

- Right-click anywhere in the time scale to get the context menu.
  Select one of the options relating to the planning assistance.
- In the menu *Planning Assistance*, select *Set limit dates*.

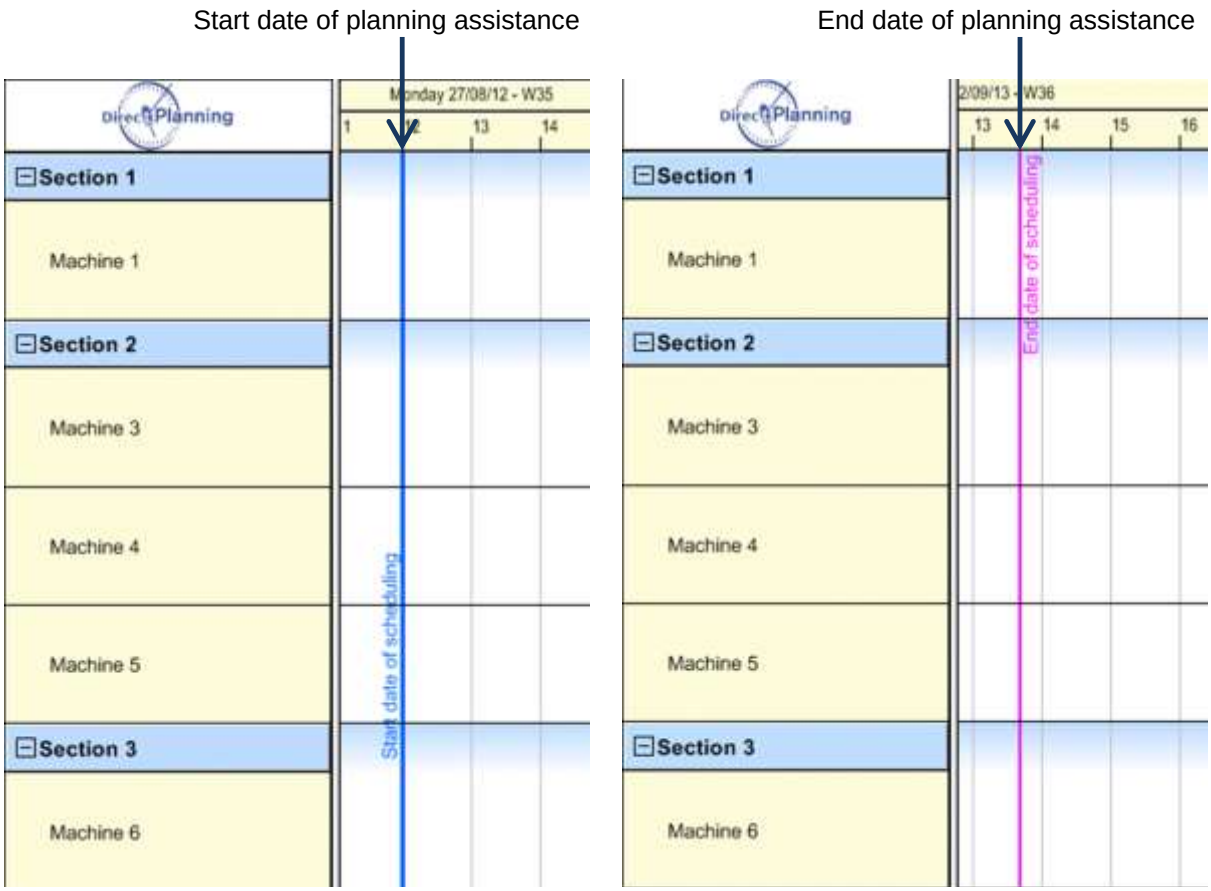


Selecting **C** (Set limit dates) displays this window. ➔

(G) Start date of planning asistance
Via the context menu, this action lets you set a blue, vertical bar that acts as a start limit date for the scheduling and planning assistance modules (see next page).
Via the menu *Set the limit dates*, you can key in the date and time or use the provided calendar.

(H) End date of planning assistance
Via the context menu, this action lets you set a pink, vertical bar that acts as an end limit date for the scheduling and planning assistance modules (see next page).
Via the menu *Set the limit dates*, you can key in the date and time or use the provided calendar.

(I) Minimum number of days between start date and end date
This number of days is the time frame within which the planning assistance can optimize the schedule.
If you enter an excessive number of days (**G** + **I** > **H**), then **H** will be automatically adjusted.



Note | Both blue and pink bars can also be moved with the mouse.

Section 76 Enabling / Disabling the planning assistance

In the Figure 84, you can see that the planning assistance is enabled: the button is displayed in orange.
To disable the planning assistance, click the button again.

Section 77 Left-adjusting / Right-adjusting

Left adjusting
Also called Adjusting at the earliest, it is used to achieve each job as soon as possible.
When the left-adjusting mode is enabled, Direct Planning applies the following rule to all the jobs located within the two limit dates of the planning assistance:
If there are “holes” between two jobs without valid reason, the holes are eliminated in order to squeeze the schedule.

Right adjusting
Also called Adjusting at the latest, it is used in case of just-in-time working mode: in this mode, production is performed as late as possible regarding the requirement.
When the right-adjusting mode is enabled, Direct Planning applies the following rule to all the jobs located within the two limit dates of the planning assistance:
All the jobs are moved as late as possible, keeping up with the constraints (page 114).

Section 78 Scheduling

The scheduling module is part of the *Integral* offer of Direct Planning Industry.
Please check that the license you have purchased includes this feature.

This module allows for an automatic arranging of the jobs that you have placed in the schedule.
The main features are as follows:

- Management of linear / non-linear routes
- Taking account of the earliest start date of each job (high constraint)
- Taking account of precedence constraints with management of shift and overlapping times (high constraint)
- Taking account of locked jobs
  Thus, it is possible to add high constraints, forcing the location of some jobs.
- Taking account of the latest end date of each job (the scheduling module will try to optimize this kind of constraint, called aim constraint).
- Taking account of a calendar of inactivity periods for each machine
- Taking account of the calendar when a job crosses an inactivity period
- Taking account of transition times between jobs
- Automatic selection of the most adapted machine

This scheduling module includes new heuristic algorithms that have been developed with a research unit specialized in the scheduling area.

The new scheduling module proposes several solutions that combine a set of criteria which you set the importance level of.

The criteria are as follows:

1. Number of delayed work orders
2. Sum of delays
3. Longest delay
4. End date of the last job

Remarks

- A WO (Work Order) is a series of interconnected jobs.
- A WO is delayed when at least one of its jobs is delayed.
- The scheduling module won't move:
  - The jobs to plan
  - The completed jobs
  - The jobs in progress
  - The locked jobs

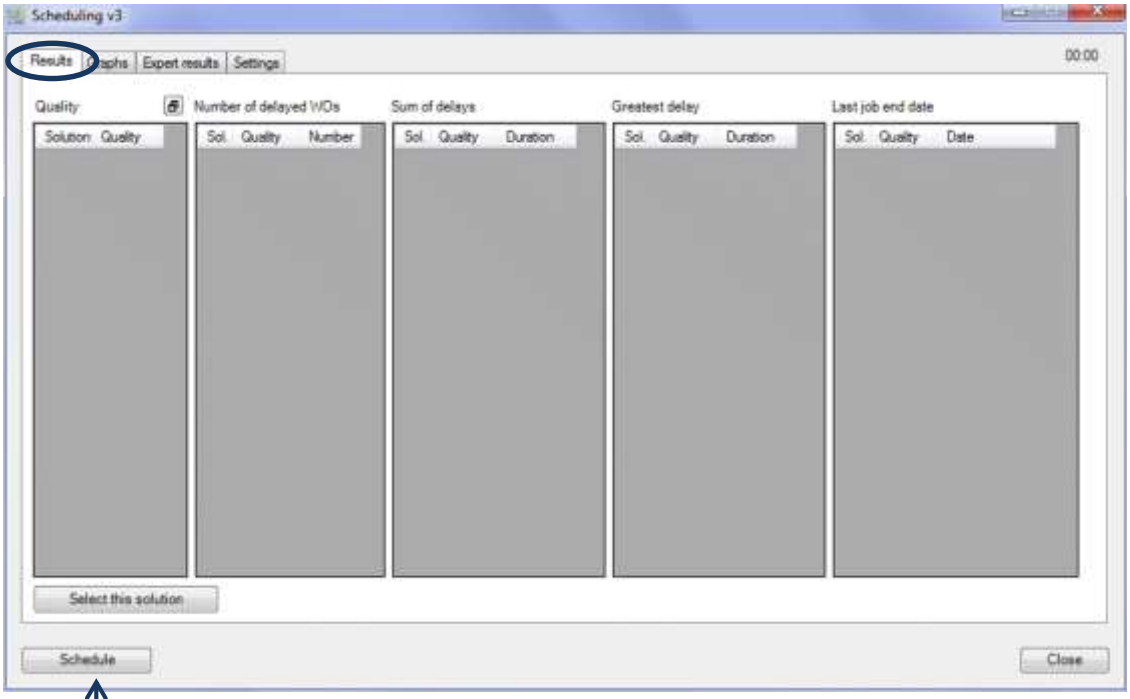
Tip

We recommend that you save your schedule before starting the scheduling.
If the result of the scheduling does not suit you, you can still click the ↶ button to cancel the operation, or close the schedule without saving it.

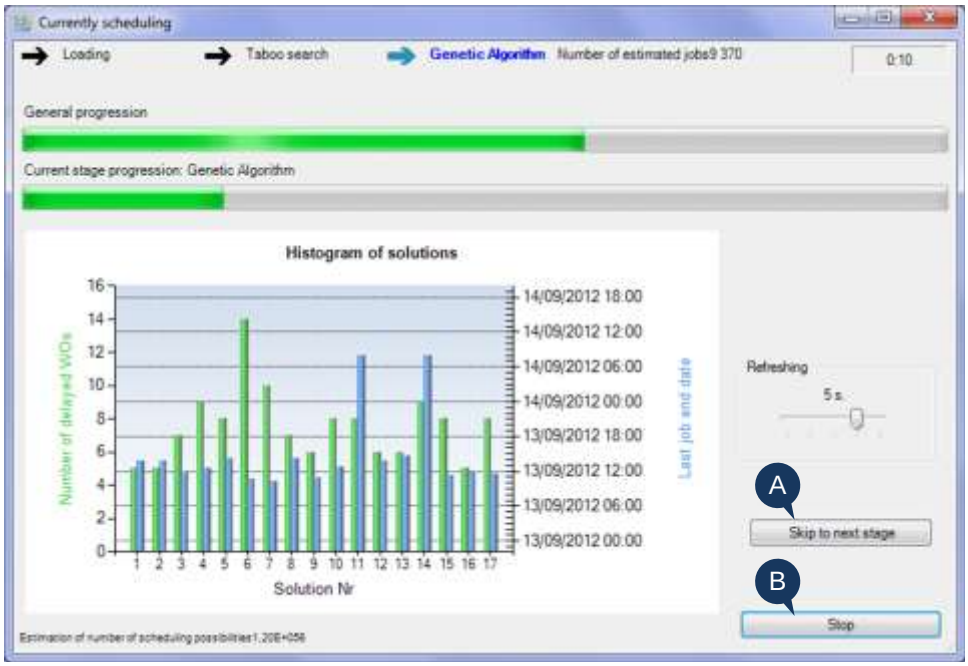
Starting the scheduling

🡸 In the *Planning assistance* menu, click the *Scheduling* button.

Upon first start, the window is empty, no data are displayed. 🡻



Click the *Schedule* button.



🡸 A progress window displays the research in progress.

At any time, if the research time seems too long, you can skip to the next step or terminate the research, clicking the (**A**) or (**B**) button.

In both cases, the result shows the solutions found so far.

Result of the scheduling

The duration of calculation depends upon the configuration of the scheduling.
When the calculations are over, Direct Planning displays the proposed solutions. ↓

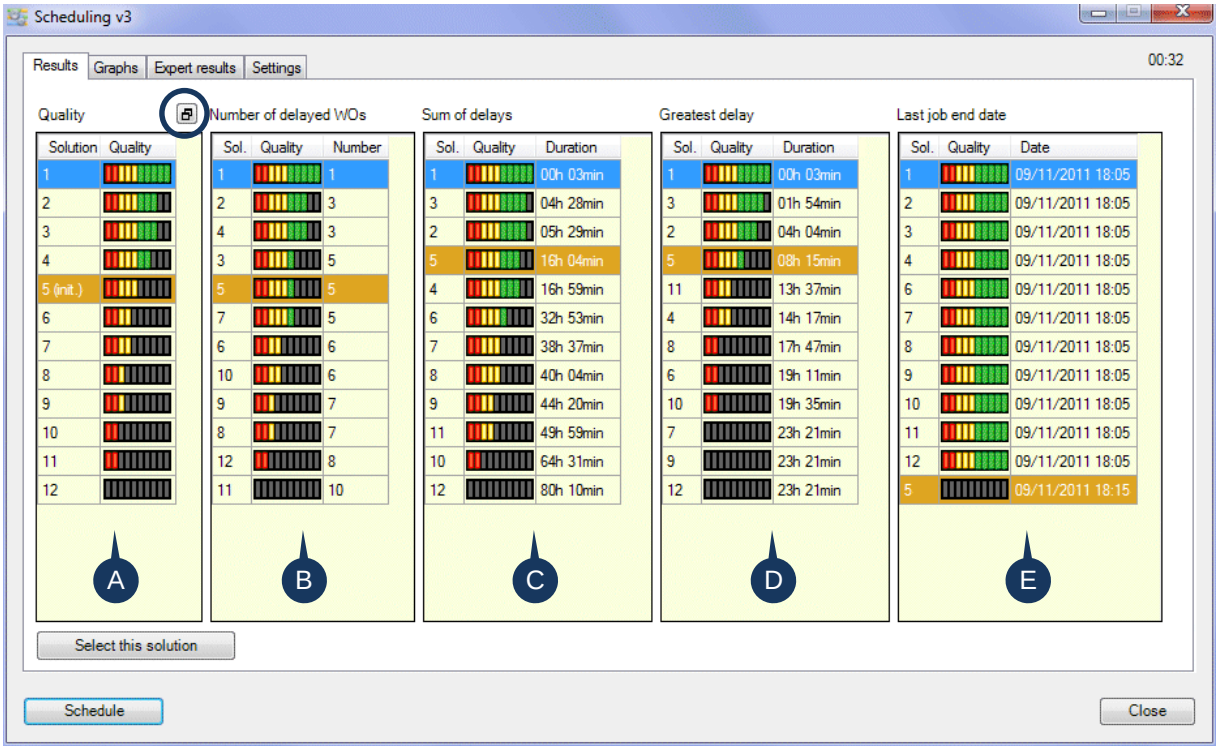


Figure 85 – Result of the scheduling

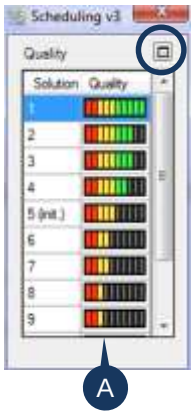
This chart shows 11 proposed solutions, ranked by descending order of quality.
You can change the sort order of each column, clicking its header.

The solution 1 is top-ranked for 4 criteria.

- Column **B** : Number of delayed WOs (only one delayed WO)
- Column **C** : Sum of delays (3 minutes)
- Column **D** : Longest delay (3 minutes)
- Column **E** : End date of the last job (18:05, ex aequo together with the other ones)

As a matter of fact, it is credited with 10 bars on each criterion.
Thus, it is at the top of the general ranking in the **A** colum.

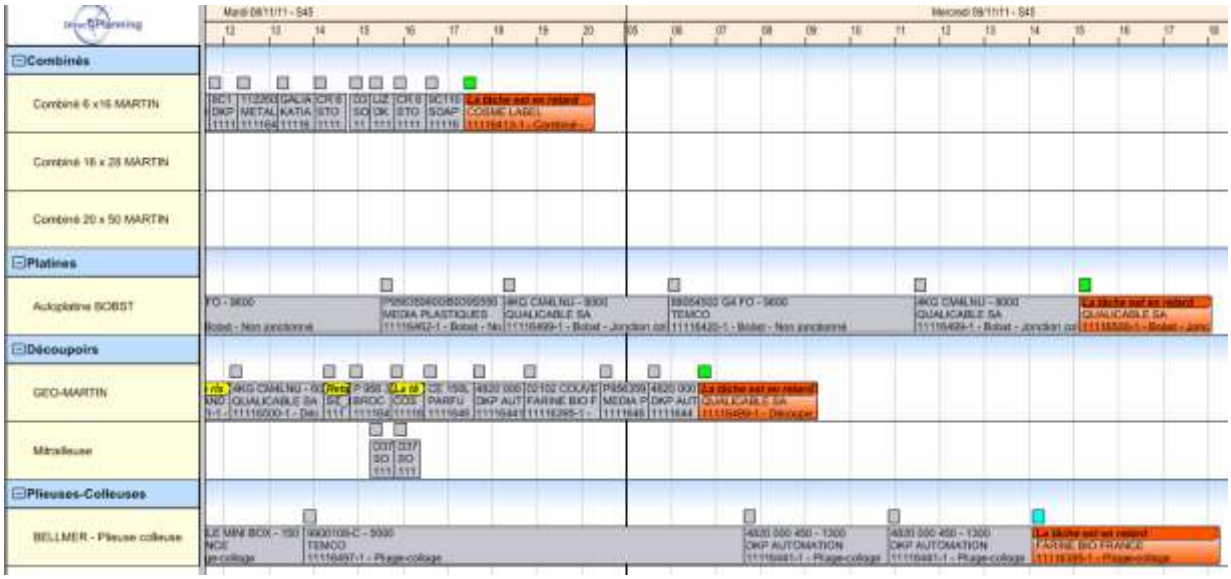
You can alternately select each solution to decide which one suits you the best.
When you select a solution, it is shown on a blue background for each of the 4 criteria and in the overall ranking. A solution may be well rated for a criterion and less well rated for another criterion: that is why they are not always displayed on the same line.
To view a solution in the schedule, just double-click it (or select it and click the button *Select this solution*).
The currently displayed solution is shown in red (if it is not selected).
To get back to the initial situation, just double-click the line marked (**init.**).



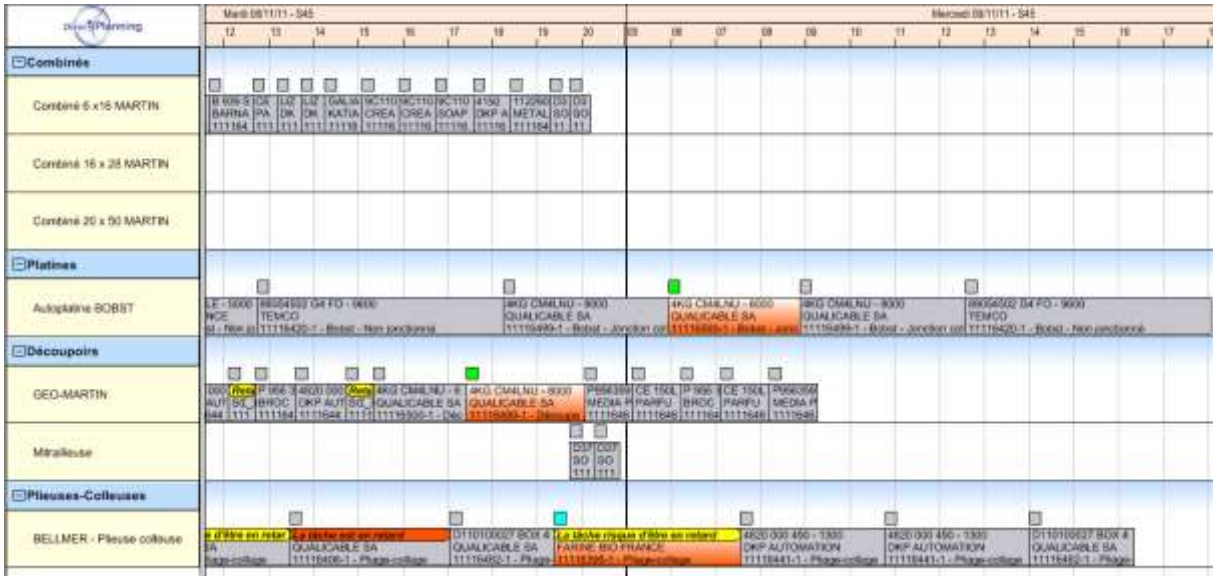
In order to better measure the effect of the scheduling on your schedule, minimize the scheduling window, so that only the *Quality* column is displayed (**A**).
➔ To do so, click the icon .

Click again the icon to come back to the full scheduling window.

Before the scheduling process, 4 jobs are delayed. In the screenshot below, they are highlighted. ➔



After the scheduling process (with solution #9), there is only one delayed job. ➔



Configuring the scheduling

You can change the way Direct Planning computes the scheduling and presents the results: select the *Settings* tab.

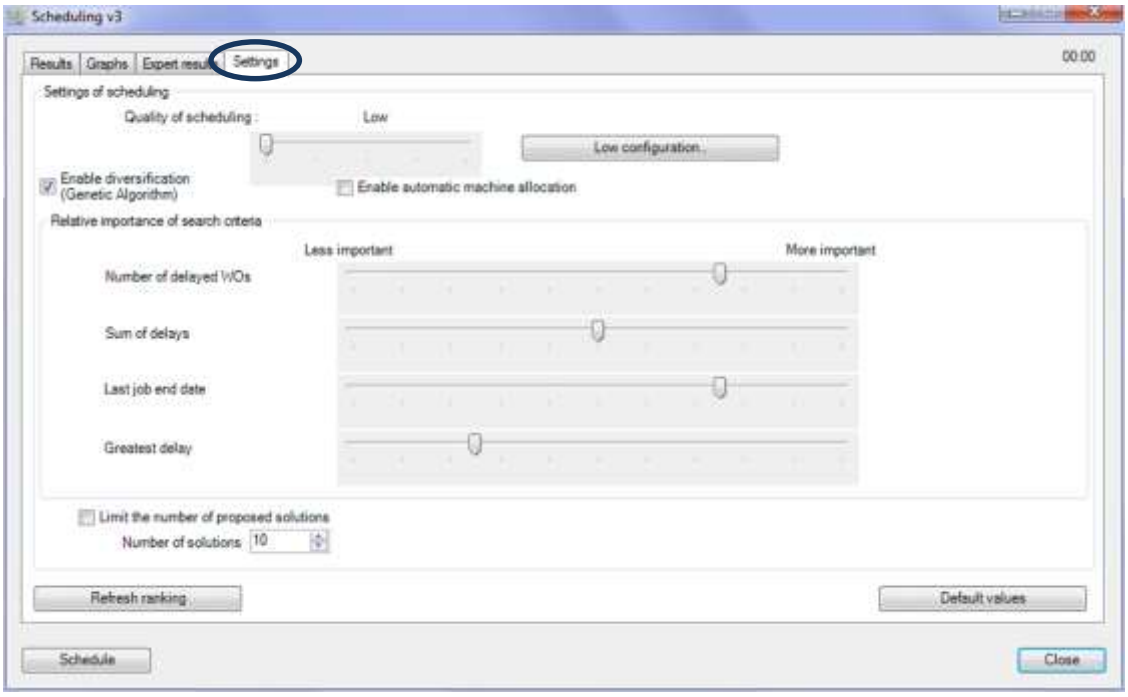


Figure 86 – Settings of the scheduling

Quality of the scheduling

Setting the quality can be performed via a slider that you move on the 5-level scale:

- Low
- Medium
- Intermediate
- High
- Very high

The higher the quality of the scheduling, the more solutions the module will look for, and the more efficient the results will be. As a balance, it will take more time to look for solutions.

If these 5 levels are not enough for you, you can fine-tune the settings, clicking the button next to the scale. This opens the expert configuration window, as seen on page 180.

Enable diversification (Genetic Algorithm)

The genetic algorithm randomly changes jobs to create research paths for solutions. When this box is ticked, the scheduling module explores more possibilities in its search for optimization.

Enable automatic machine allocation

In its search for optimization, the scheduling module can move a job from a machine to another compatible one.
Two conditions are required for this:

- The administrator must have declared families of compatible machines.
  (Administrator's guide, Section 19, Operations)
- You must tick the box ☑ *Enable automatic machine allocation*.

Upon machine change, the scheduling module automatic recalculates the duration of the job on that new machine (setting and running time).

Relative importance of search criteria

This setting only affects the layout of the results, not the calculation of the scheduling.
Reminder: the 4 scheduling criteria are as follows:

1. Number of delayed WOs
2. Sum of delays
3. Longest delay
4. End date of the last job

You may decide the importance you give to each of these 4 criteria.
This setting can be done with a slider that you move on the scale, from *Least important* to *Most important*.

After you've changed this setting, click the button *Refresh ranking*: the scheduling is not computed again, but the display order of the rows of the chart may change.

Limit the number or proposed solutions

When Direct Planning has finished computing the scheduling, it displays the different solutions found (Figure 85). You can limit the number of solutions found to reduce processing time.
Tick the box ☑ *Limit the number of proposed solutions* and specify a value.

Reset to default values

If you have changed several settings and you want to come back to standard values, click the button *Default values*.

Quality of the scheduling – Expert configuration

This window is displayed when you click the *Configuration* button, in the settings tab (page 178).

For more information on these settings, please contact us. In most cases, setting the quality (Low, Medium, Intermediate, High, Very high) will be enough and these settings won't have to be changed.

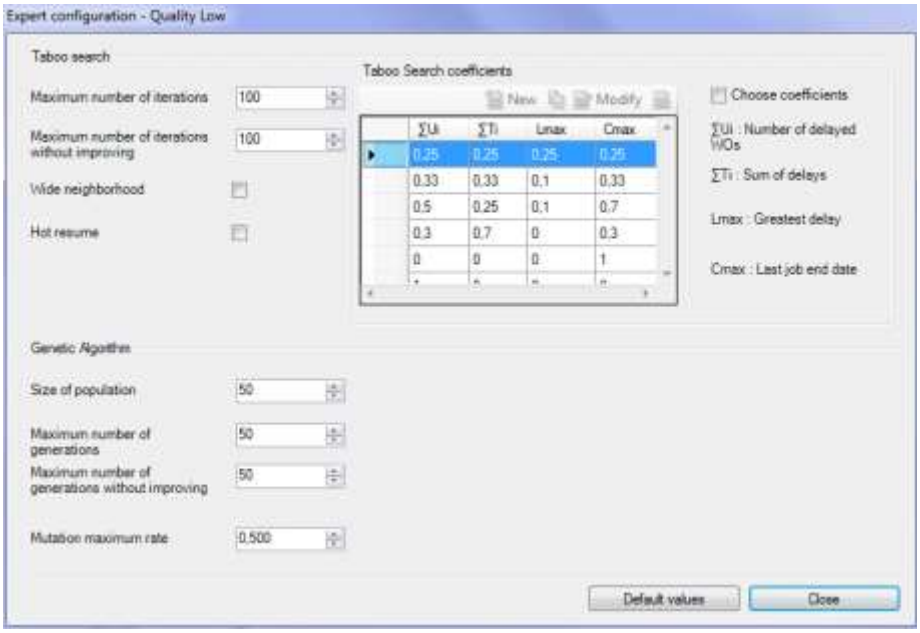


Figure 87 – Expert configuration of the scheduling

Before changing any of these settings, please make sure that the original settings are enabled: click the button *Default values*. This will bring back the initial values of the scheduling module of Direct Planning.

The window is divided in two parts:

1. Configuration of the taboo search
2. Configuration of the genetic algorithm

The taboo search: how does it work?

When exploring solutions, the taboo search avoids analyzing a solution that has already been explored. The program attempts to move jobs on the critical way (jobs with the longest delay or with the latest end date): but it may have to move the same job again; if this moves the job back to a location it has already occupied, then the scheduling module won't do that move and will try to make another one.
In this approach, it will perform a **maximum number of iterations** (configurable): as soon as it reaches this number, it stops looking for solutions.
The **maximum number of iterations without improving** can also be configured: for each move, the scheduling module evaluates the solution to check if the move improves the solution or not. If no improvement is found and the maximum number of iterations without improving has been reached, then the scheduling module will go back to the last best solution known and start exploring again from that point. This prevents from being stuck in a local situation.

By default, the scheduling module only explores the most critical jobs, those with the largest delay or the latest end date. If the box ☑ **Wide neighborhood** is ticked, the module explores all the jobs.
Warning! This option significantly increases the calculation time!

If the box ☑ **Hot resume** is ticked, the module starts from the current situation.
Otherwise, it starts from a calculated situation.

Coefficients of the taboo search
As a starting point, the scheduling module has to create solutions based upon the relative importance of each optimization criteria.
Reminder: the 4 criteria are as follows:

1. Number of delayed WOs
2. Sum of delays
3. Longest delay
4. End date of last job

In the example of the Figure 87 (page 180), in the first line of the chart, all of the 4 criteria have the same weighting, i.e. 0.25. Thus, this first line will initialize a first research axis where all the criteria are equal.
A few lines further in the chart, you can see that the sum of the delays is weighted **1**, whilst the other criteria are weighted **0**: thus, this first line will initialize a research axis where only the sum of the delays is important, whereas the other criteria are not.
No matter the sum of the coefficients per line: as you can see in the chart, sometimes it is equal to 1, sometimes it is not. Only the relative importance of each criterion against the other ones matters, line by line.
Thus, each line of the chart is a starting point for searching solutions.
Generally, you won't have to change any value in this chart.
Should you wish to do so, you can contact Volume Software to change the values.
To do so, tick the box ☑ *Choose coefficients* and change the values as follows:

- The button *New* lets you add a line.
- The button *Duplicate* lets you duplicate a line to create a new one similar to an existing one.
- The button *Modify* lets you modify the selected line (you can also double-click to modify a line).
- The button *Delete* lets you delete a line.

<u>The genetic algorithm: how does it work?</u>
The genetic algorithm randomly modifies the start dates of the jobs to create research paths for solutions. When this box is ticked, the scheduling module explores more possibilities in its optimization search.
The **size of population** is the number of jobs that will be modified for each exploration.
The **maximum number of generations** is the maximum number of times the module will try to modify each job.
The **maximum number of generations without improving** can also be configured: when the scheduling modules reaches this value, it leaves this generation to start another one.
The **maximum mutation rate** represents the percentage of chance that a job will be modified.
A rate of 0.500 indicates that a job has 50% of chance that its start date will be modified.

Reminder	Before changing any of these settings, please make sure that the original settings are enabled: click the button *Default values*. This will bring back the initial values of the scheduling module of Direct Planning. The previously entered values won't be saved.

Graphs of the scheduling

This tab lets you graphically view the different solutions proposed by the scheduling module.
Two types of graph are available:

- Quality of solutions (below)
- Cloud of solutions (next page)

To give your graph more room, click .
To go back to the display of the graph configuration panel, click .

⊙ Quality of solutions

This histogram displays:

- The index of each solution (the best solution has an index of 100%, the other solutions have a relative index).
- The contribution of each criteria to the quality of the solution.

You can hide the criteria you are not interested in, clearing the relevant boxes.

1. Number of delayed WOs
2. Sum of delays
3. Longest delay
4. End date of last job

In our example, if you only display the *end date of the last job*, you can see that all the solutions are ex aequo.

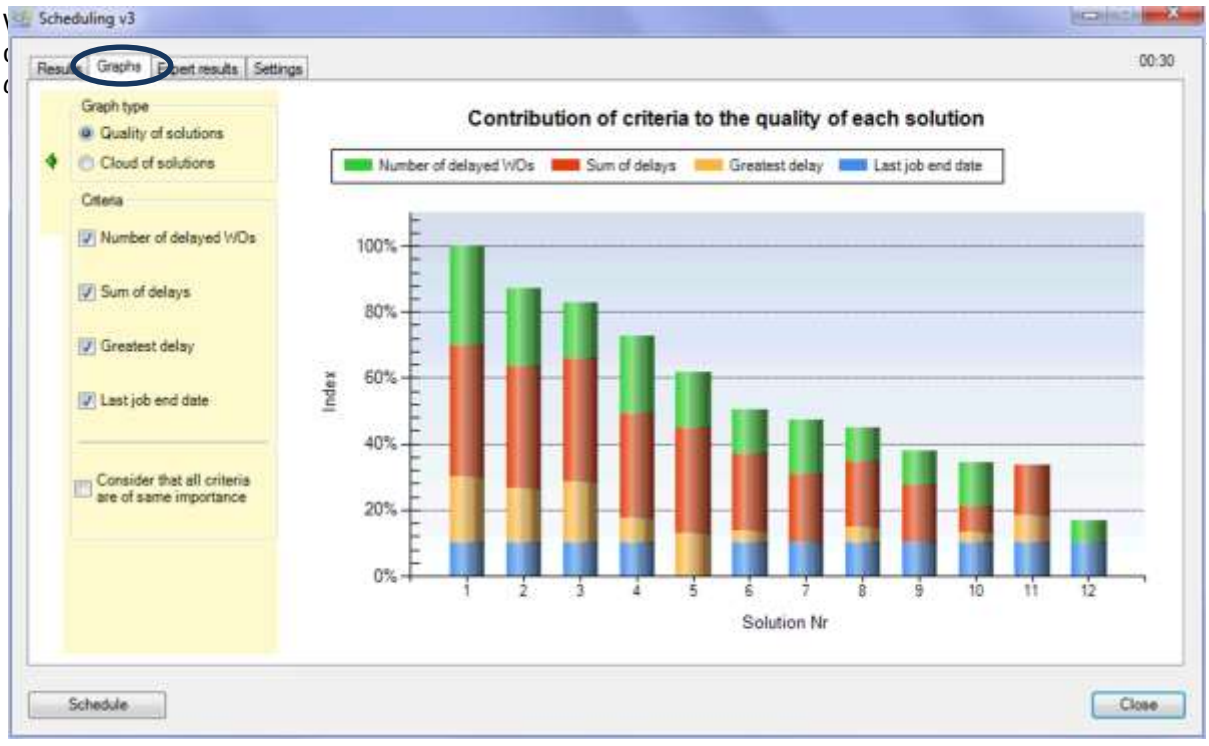


Figure 88 - Graphs of the scheduling: Quality of the solutions

⊙ Cloud of solutions

In this kind of graph, you select the criterion for the absciss and the one for the ordinate.
Once again, you can see that the solution 1 is the best when yhou choose the criteria *Longest delay* and *Sum of delays*. As a matter of fact, it is close to zero for both criteria, thus confirming its superiority.

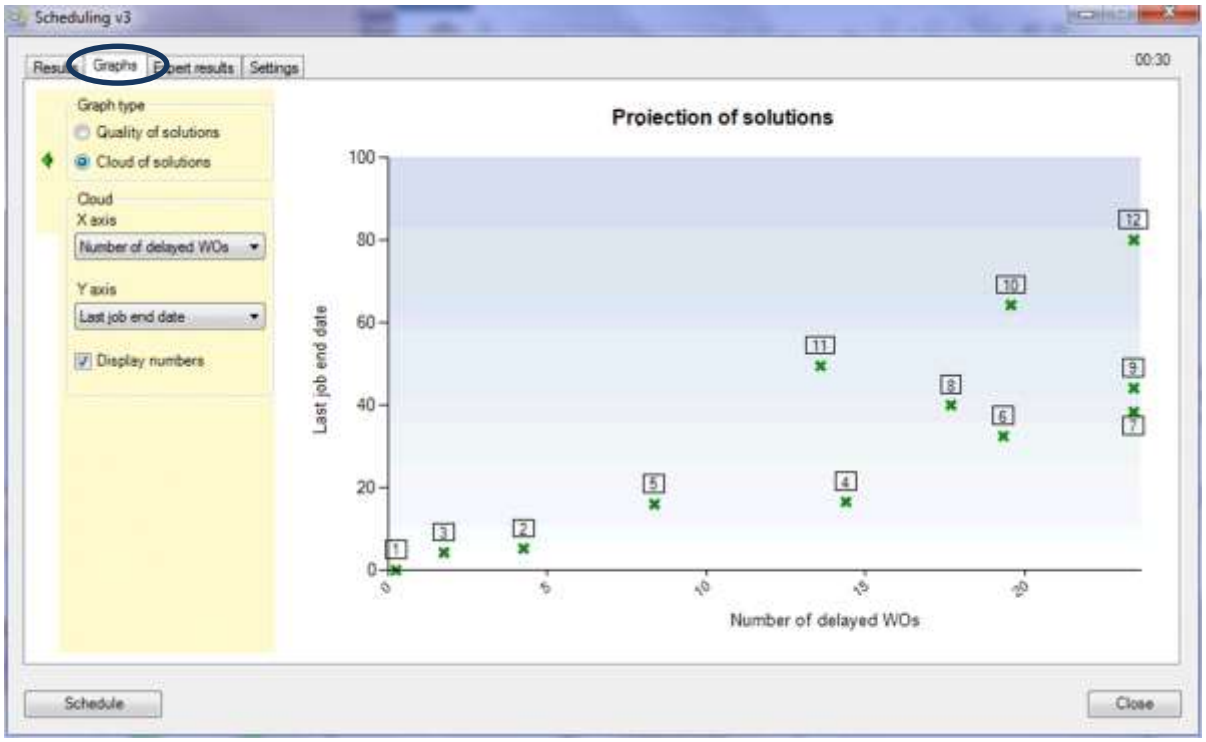


Figure 89 - Graphs of the scheduling: cloud of solutions

You can display / hide the numbers of the solutions, ticking ☑ or clearing ☐ the relevant box.

Expert results

This tab shows the results in the form of a chart specifying the rough numerical data of each solution. The 4 criteria are displayed in columns, and the solutions are displayed in rows.

1. Number of delayed WOs
2. Sum of delays
3. Longest delay
4. End date of last job

For each criteria, the best solution is displayed on a yellow background.

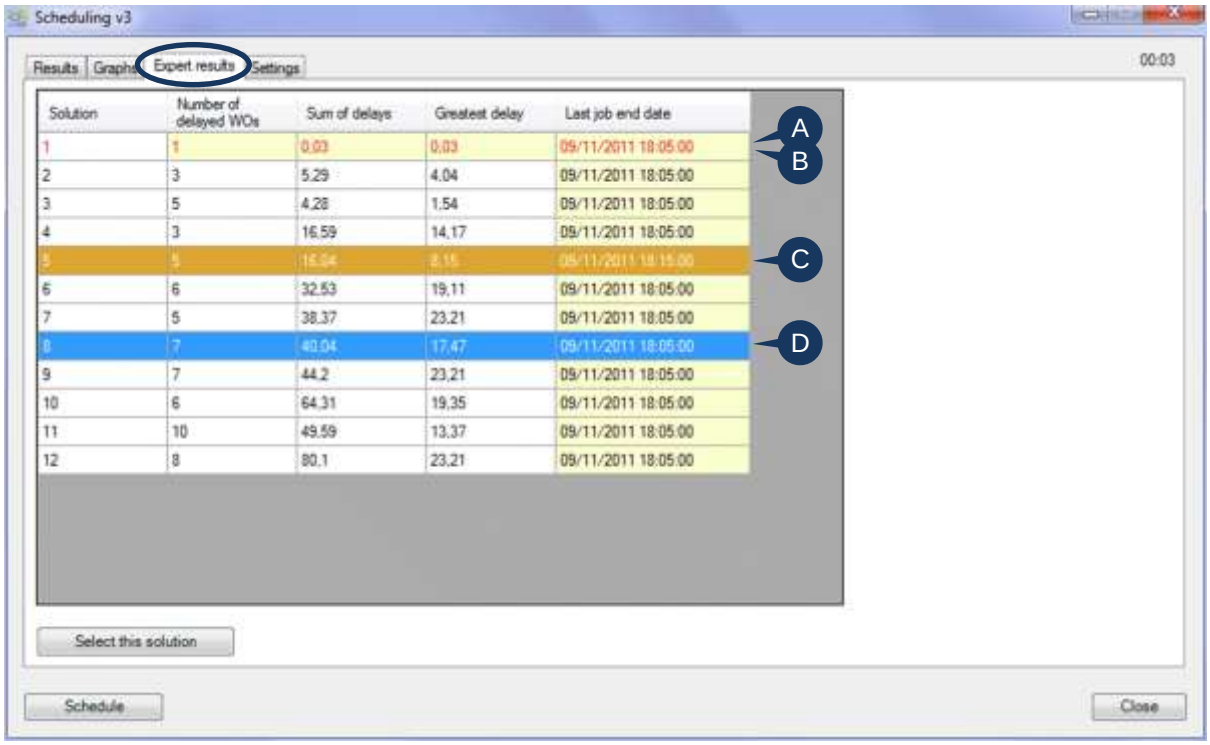


Figure 90 – Expert results of the scheduling

A The data displayed on a yellow background show the best solution.

B The solution currently displayed in the schedule is displayed in red (if it is not selected).

C The line displayed on an orange background shows the situation before launching the scheduling.

D You can alternately select each solution to decide which one suits you the best.
The selected solution is displayed on a blue background.
To display a solution in the schedule, double-click it (or select it and then click the button *Select this solution*).

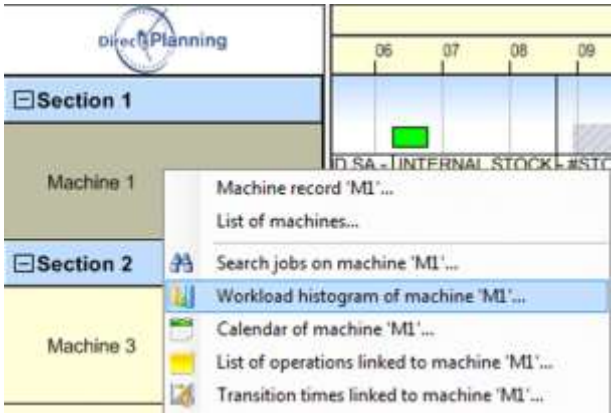
Section 79 Workload histogram

The workload histogram lets you analyze the workload and the capacity by machine and section.

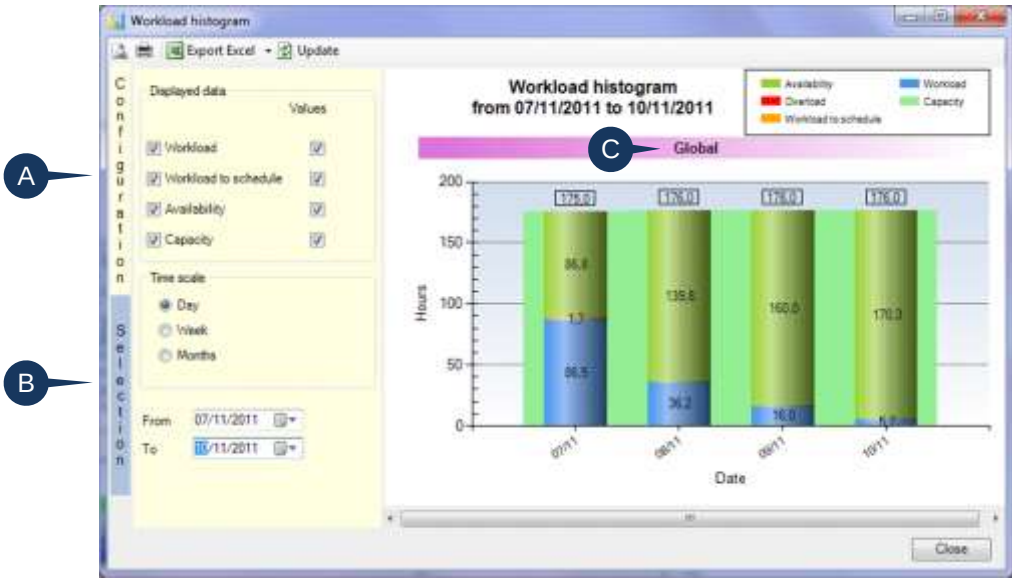
There are several ways to access the workload histogram:

- ↑ In the menu *Planning assistance*, click the button *Workload histogram*.
- In the projection of the schedule (on the left of the window), right-click a section. Choose *Workload histogram* from the context menu (for this section).

- In the projection of the schedule (on the left of the window), right-click a machine. Choose *Workload histogram* from the context menu (for this machine).



Result ➔



To hide the configuration panel, click the *Configuration* tab. (**A**).
Click again to display. Same thing for the *Selection* tab. (**B**).
Hiding the tabs gives the histogram more room to be displayed.

The title of the histogram (**C**) depends on the way you have asked for the histogram:

- It shows **Global** if you clicked the button *Workload histogram*.
- It displays the name of the section or machine which you have right-clicked.

(A) Building the histogram

You can choose the data displayed in the histogram:
Click the *Configuration* tab (**A**) if it is not displayed.

- ☑ **Workload**: displays the workload of the machine (in blue on the graph)
- ☑ **Workload to schedule**: displays the workload to schedule (in orange on the graph)
  If there is an overload to schedule, it is also displayed (in red on the graph)
- ☑ **Availability**: displays the idle time of the machine (in green on the graph)
- ☑ **Capacity**: displays the total capacity of the machine (the green background on the graph)

Next to the displayed data, you can tick ☑ the box **Values** if you want to display the values of the relevant piece of data.

Choose the Time scale of the histogram, selecting the matching button:

- ⊙ in days
- ⊙ in weeks
- ⊙ in months

Specify the period that the histogram must cover, giving the start and end dates.

By default, Direct Planning proposes a date range matching the currently displayed date range in the scheduling area.

If needed, click the **Update** button so that your settings are taken into account.

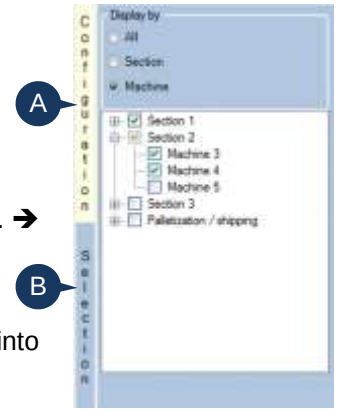
(B) Selection of the data to take into account in the histogram

Click the *Selection* tab (**B**) if it is not displayed.

Select one of the 3 buttons:

- ⊙ *All* for a histogram that includes all the machines
- ⊙ *Section* to choose sections
- ⊙ *Machine* to choose machines

Tick the sections / machines that should be displayed in the histogram. ➔

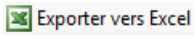


If needed, click the **Update** button so that your settings are taken into account.

Workload histogram – Previewing and Printing

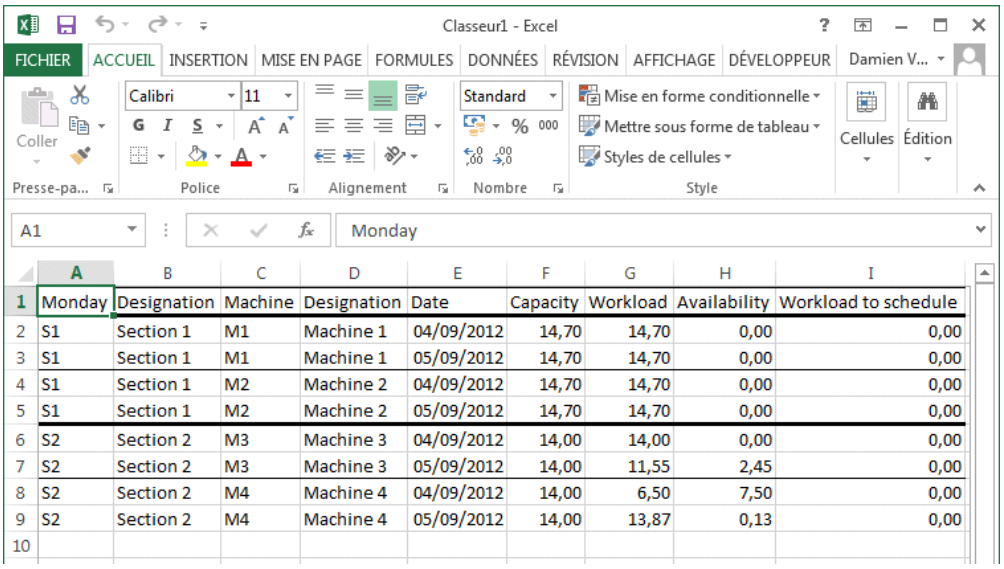
The buttons  let you preview and print your histogram.

Workload histogram – Exporting to Excel

The button 

lets you export the histogram.

Export is performed in the form of data, not in the form of graph.
The Excel exports are explained in the next chapter.



	A	B	C	D	E	F	G	H	I
1	Monday	Designation	Machine	Designation	Date	Capacity	Workload	Availability	Workload to schedule
2	S1	Section 1	M1	Machine 1	04/09/2012	14,70	14,70	0,00	0,00
3	S1	Section 1	M1	Machine 1	05/09/2012	14,70	14,70	0,00	0,00
4	S1	Section 1	M2	Machine 2	04/09/2012	14,70	14,70	0,00	0,00
5	S1	Section 1	M2	Machine 2	05/09/2012	14,70	14,70	0,00	0,00
6	S2	Section 2	M3	Machine 3	04/09/2012	14,00	14,00	0,00	0,00
7	S2	Section 2	M3	Machine 3	05/09/2012	14,00	11,55	2,45	0,00
8	S2	Section 2	M4	Machine 4	04/09/2012	14,00	6,50	7,50	0,00
9	S2	Section 2	M4	Machine 4	05/09/2012	14,00	13,87	0,13	0,00
10									

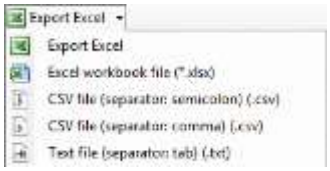
ANNEXES

Chapter 52 EXPORTING TO EXCEL

Generally, whenever an export to Excel is possible, you have 2 possibilitues:

1) Clicking the **Excel export** button opens the exported data to Excel, with the xlsx extension.
In order to be opened, the xlsx file format requires Office 2007 or higher on your workstation.
At the end of the export, the file stays opened in Excel, all you need to do is save it.

2) Clicking the ▾ triangle next to the button lets you choose from various export formats.
All these formats are available even if the required software is not installed on your machine.



Chapter 53 KEYBOARD SHORTCUTS

Frequently used actions

F1	Displays the documentation
F5	Refreshes the display
F3	Decreases the time scale
F4	Increases the time scale
F7	Displays the selection list of current item
F8	Displays the details (blue arrow) of the selected item
F11	Hides / Displays the ribbon
F12	About Direct Planning
ALT - 1 2 3 4 5	Switches to one of the 5 time scales

Frequently used actions with the CTRL key

Ctrl A	Select all jobs
Ctrl C	Copy
Ctrl X	Cut
Ctrl V	Paste
Ctrl S	Save
Ctrl F	Search
Ctrl Z	Undo
Ctrl Y	Redo
Ctrl 1 2 3… 9 0	Opens the list of entity #1 to #10 (0 for the entity 10)
Ctrl E	Selection mode
Ctrl T	Job creation mode
Ctrl L	Link creation mode
Ctrl M	Enables / Disables highlighting
Ctrl – (numeric pad)	Un-zoom
Ctrl + (numeric pad)	Zoom
CTRL F10	Trace mode

Job on the same criterion, browsing with the CTRL key (highlighting)

Ctrl ↖	First job
Ctrl ←	Previous job
Ctrl →	Next job
Ctrl Fin	Last job

Horizontal move in the schedule (left/right)

Mouse wheel ↑ or ↓	Horizontally moves (1/4 of the window). Vertically moves if the schedule is not visible in its full height.
← ou →	Moves in the time (1/4 of the window)
ALT wheel ↑ or ↓	Moves in the time (full window)
ALT ← or →	Moves in the time (full window)
↖	Moves to the start date of planning assistance
End	Moves to the end date of planning assistance
ALT ↖	Moves to the first job
ALT End	Moves to the last job
↑ or ↓	Moves to current job
ALT ↑ or ↓	Moves to the selected job

Vertical move in the schedule (left/right)

Shift wheel ↑ ou ↓	Vertically moves in the schedule
⬆ (page up)	Moves up in the schedule
⬇ (page down)	Moves down in the schedule

Quick access to tabs

Alt F	Displays / Hides the File Menu
Alt A	Home Menu
Alt E	Edit Menu
Alt I	Display Menu
Alt P	Planning assistance Menu
Alt S	Status Menu
Alt D	Data Menu
Alt C	Configuration Menu