
GRUBER & PETTERS
Untis
User Tips
grupet.at

Contents

1 User tips

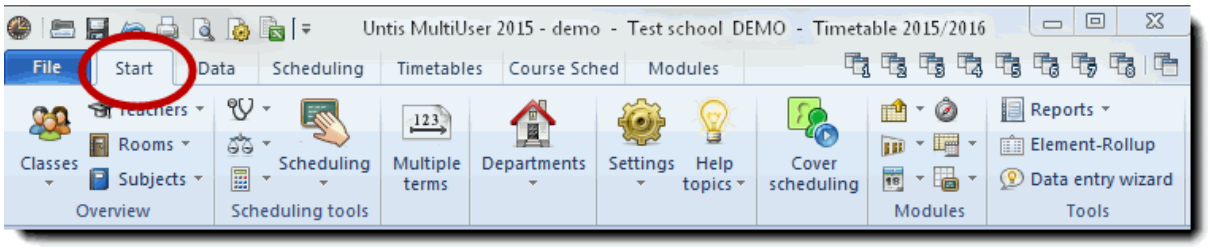
This chapter describes additional options and useful settings not covered under master data and lessons. These should help you to take full advantage of Untis in working with your timetables.

2 Ribbon

2.1 General

From Untis 2015 version onwards Untis has a ribbonor *multi-functional bar* control. In the following section the most important differences between the ribbon and the classic menu control will be explained.

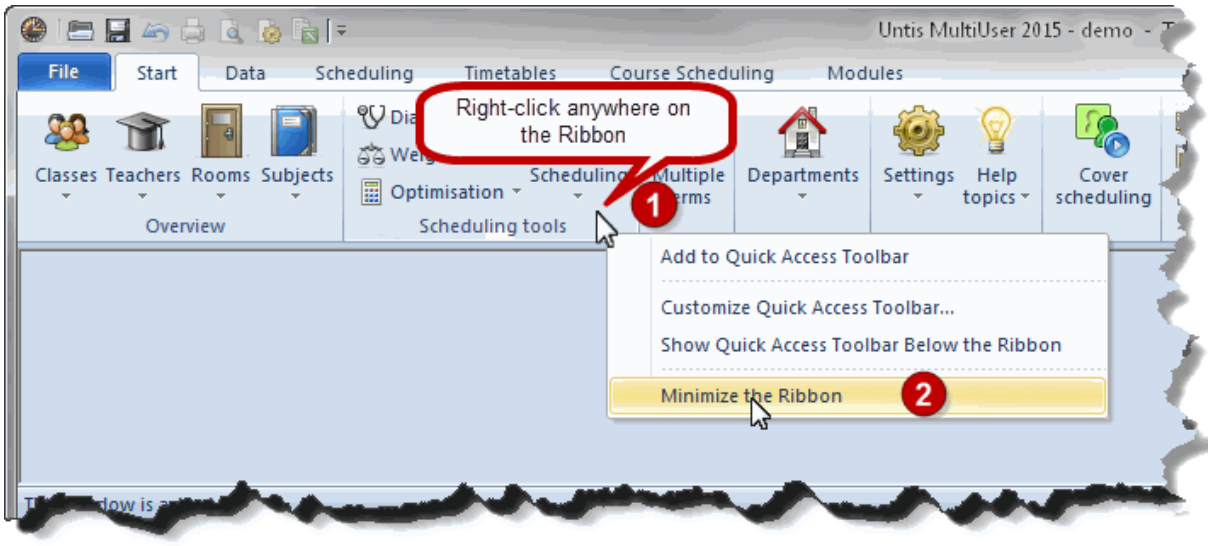
In general you will find the majority of all functions you need on the *Start* button.



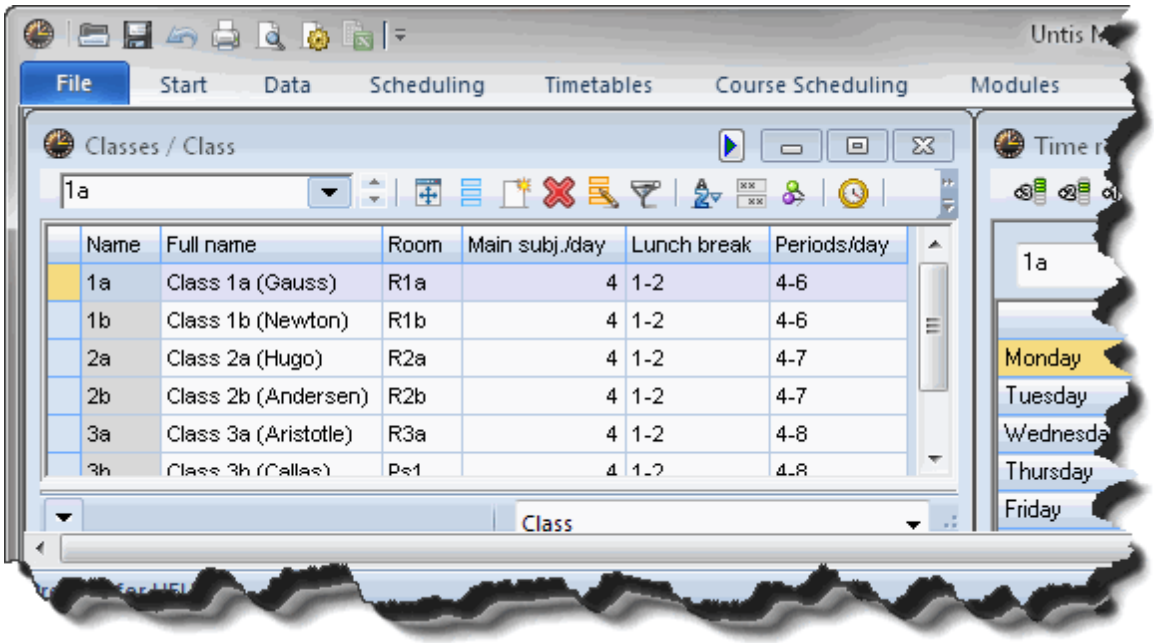
In the Untis standard package all commands are also available under the respective topics, i.e. under *Data* , *Scheduling* and *Timetables* and can be accessed via the respective tabs.

If you use *modulesn* there are even more tabs shown.

Tip:
You can fold the ribbon. Just click on your right mouse button anywhere on the ribbon and choose the respective command.

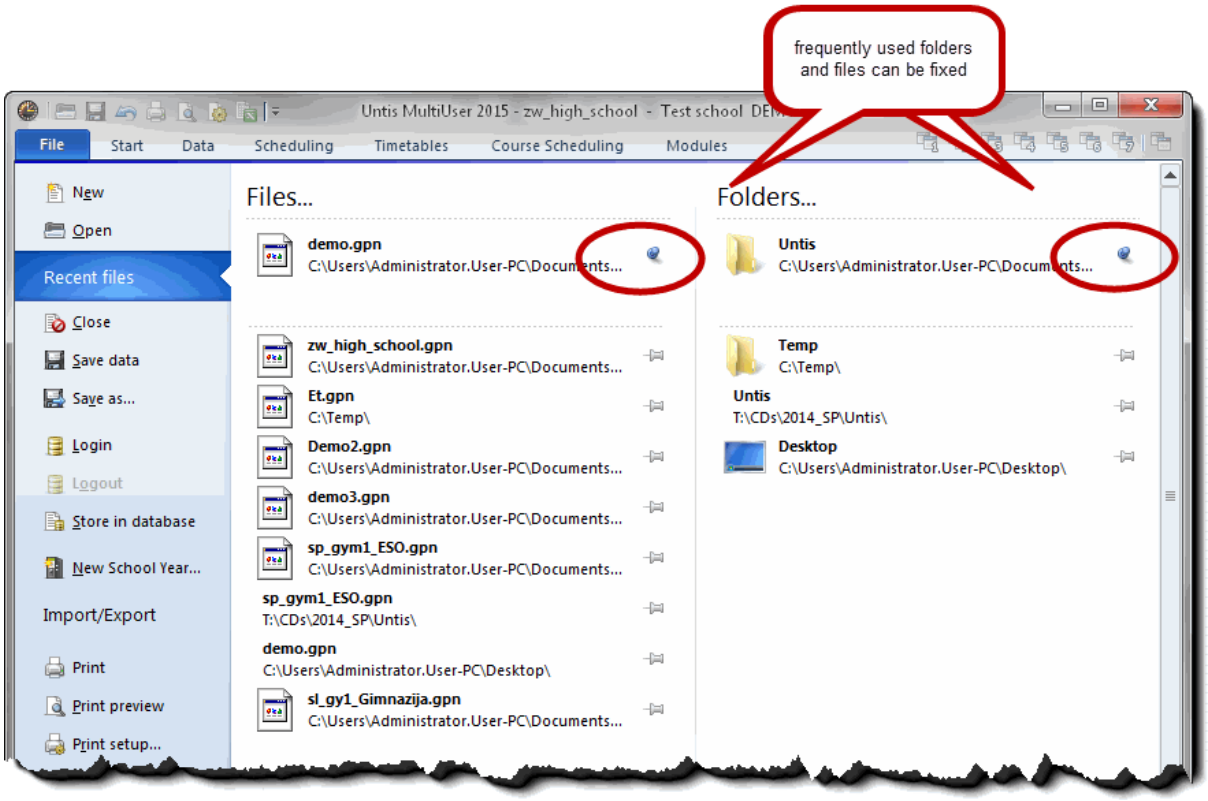


The minimised ribbon looks like a classic menu.



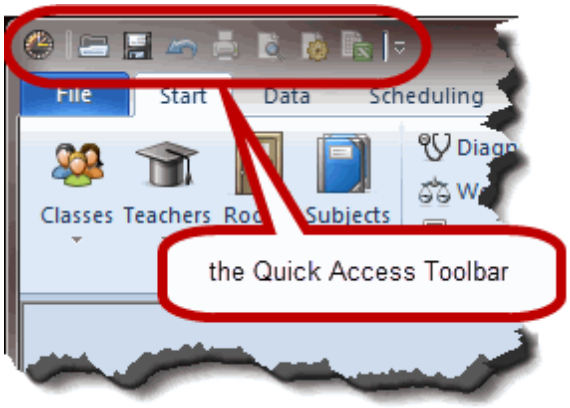
2.2 File tab

In the menu 'Recent files' you will see the files and the respective folders you opened last. Important files and folders can be fixed so that they are permanently shown in the list.

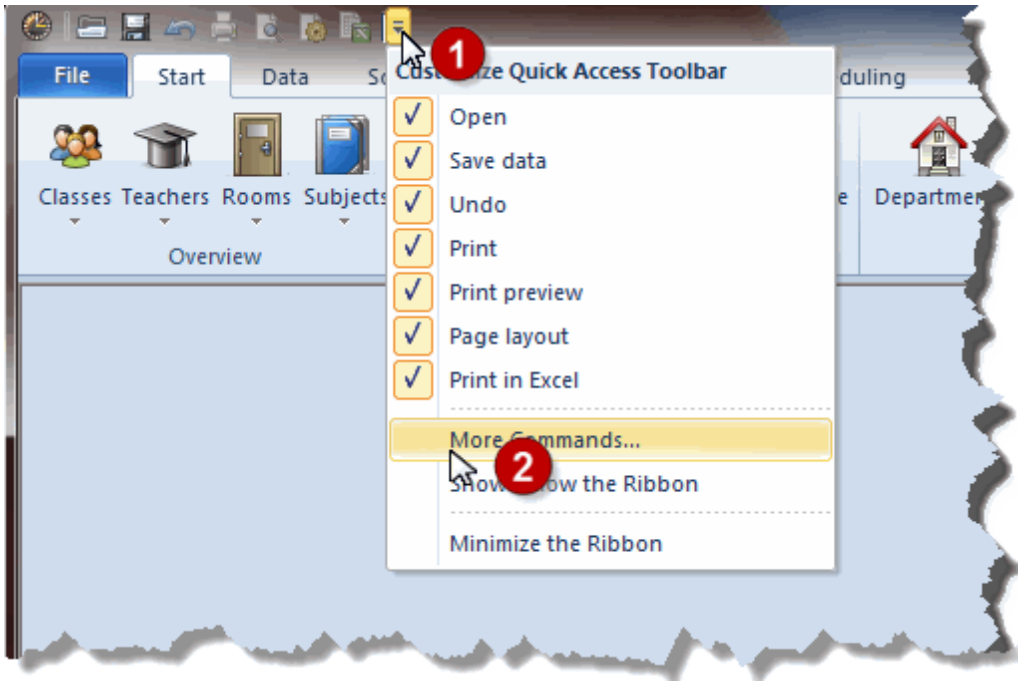


2.3 Quick Access Toolbar

Similar to common Office-applications, Untis also has a *Quick Access Toolbar* , which you can customise according to your needs.

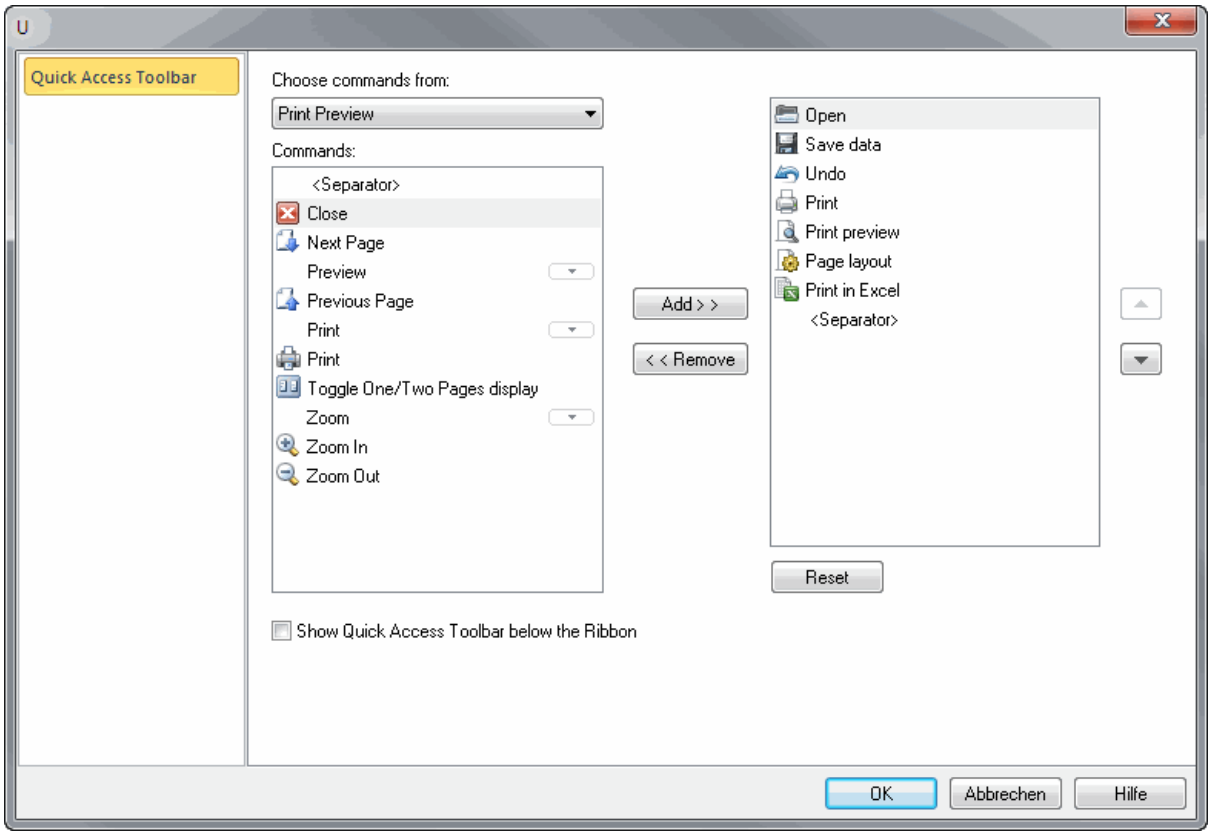


If you want to add or delete symbols click on the black triangle on the right side of the Quick Access Toolbar.



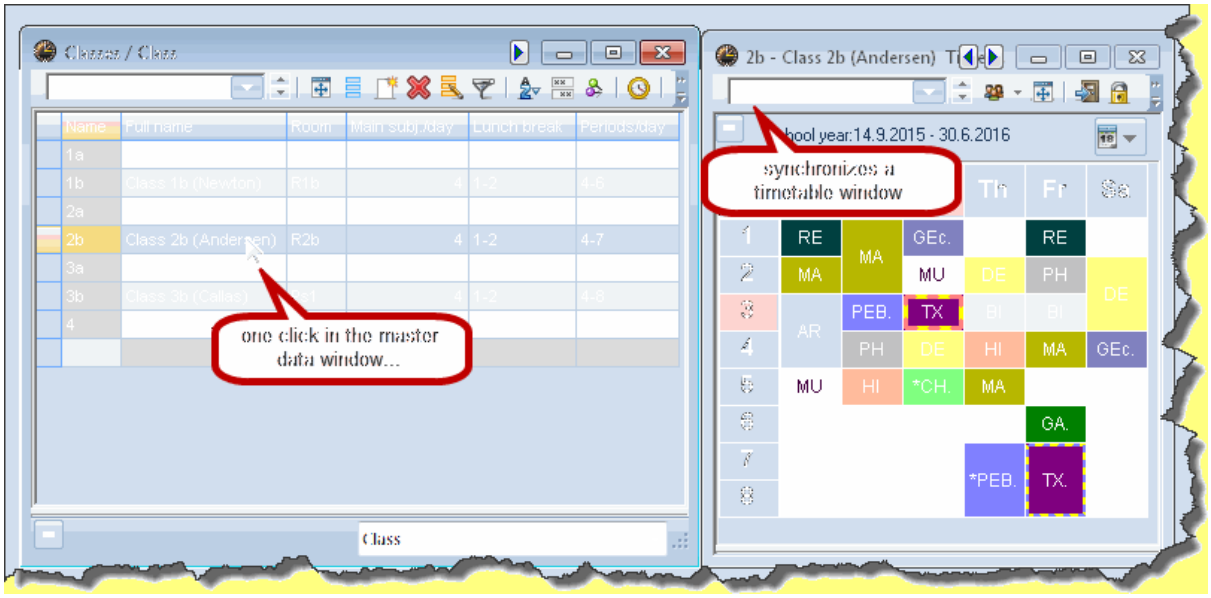
Active symbols of the Quick Access Toolbar can be deactivated directly in the toolbar. If you want to add any functions to the Quick Access Toolbar just click on<More Commands...>.

A window opens - in the order of the tabs - where you can add commands available in the Untis Quick Access Toolbar.



3 Working with several windows

In general the windows open at the Untis desktop *synchronise* automatically. This means that switching to another element in the master data window affects, for example, an open timetable window.

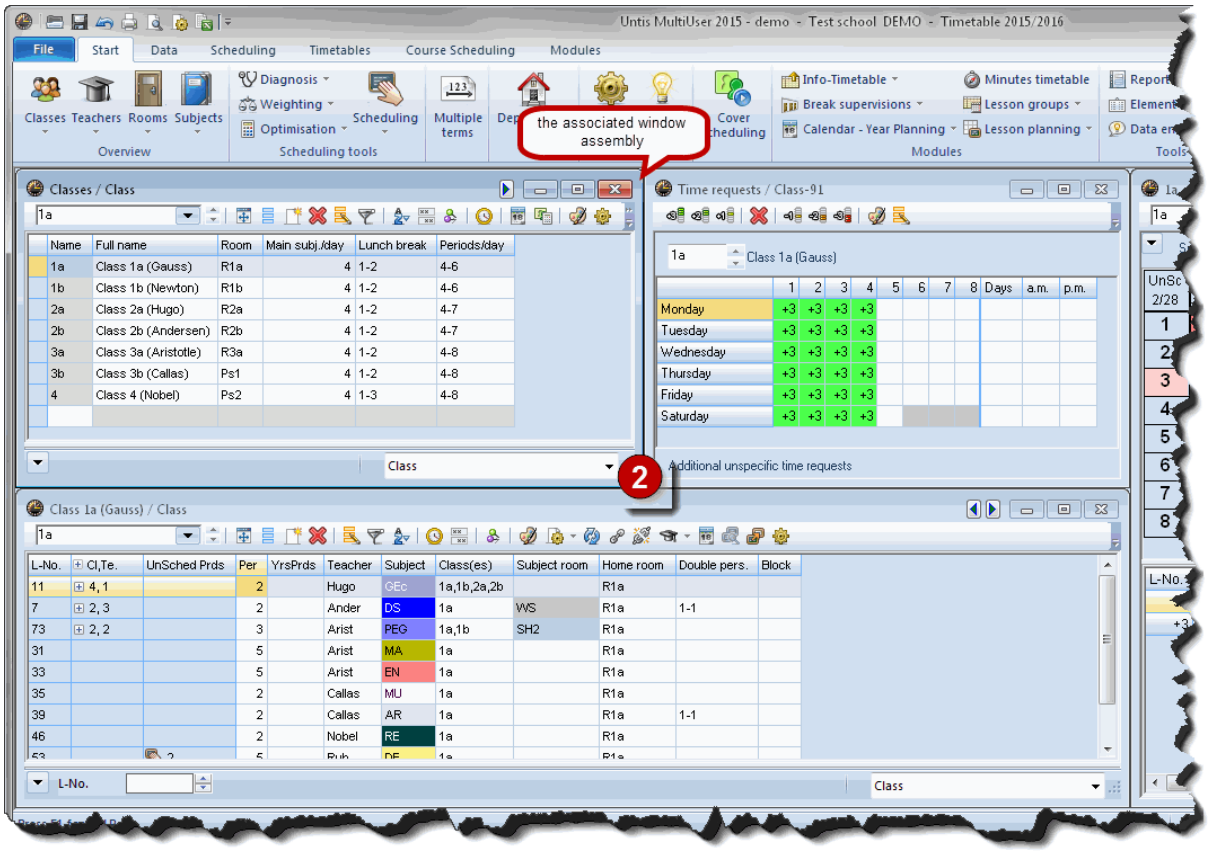


Therefore it is recommendable to have several windows open at the same time. Please note that the different phases of working on the timetable have different requirements concerning *ad hoc* information which the scheduler needs to have: an open scheduling dialogue is simply in the way when you are working, for example on the assignment of subjects, i.e. all lessons at school need to be assigned to all teachers at the school. Equally, the presence of a weighting window is simply inconvenient when all you are trying to do is some last manual fine-tuning of the timetable.

Untis provides you with two possibilities to save frequently used window combinations and to quickly switch between these window arrangements.

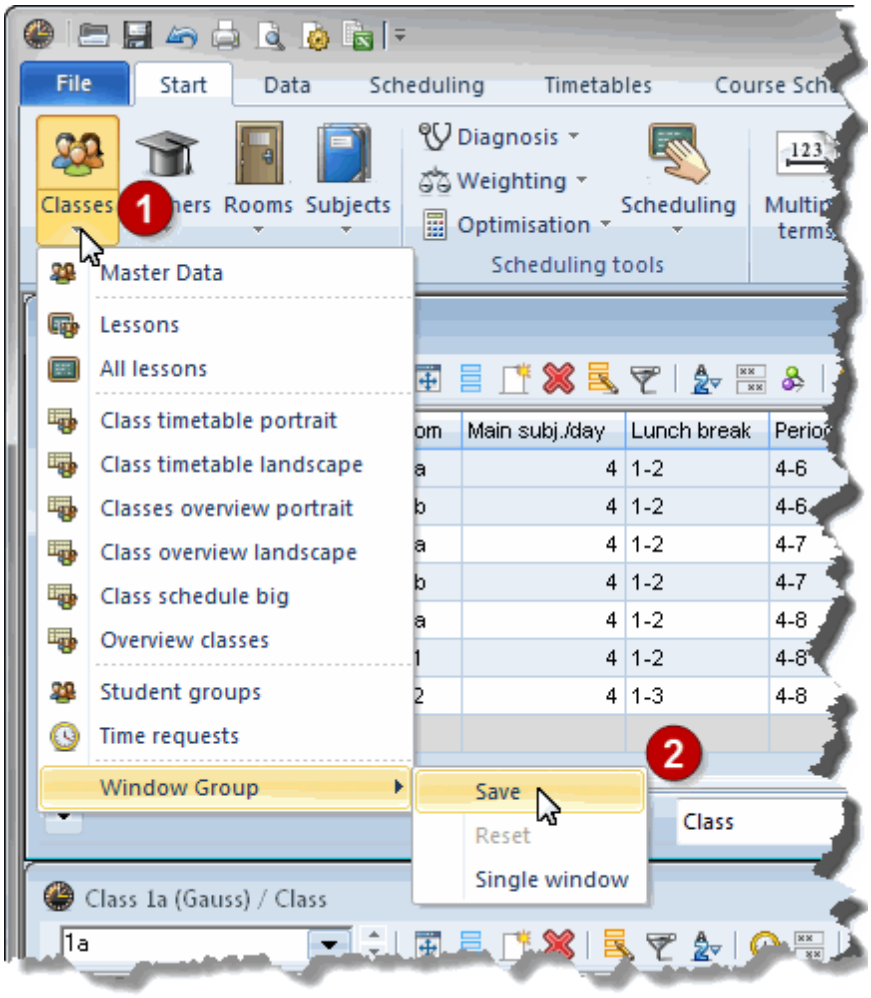
3.1 Window arrangements

The Untis ribbon is designed in such a way that by clicking on a button a pre-defined *window arrangement* is opened.



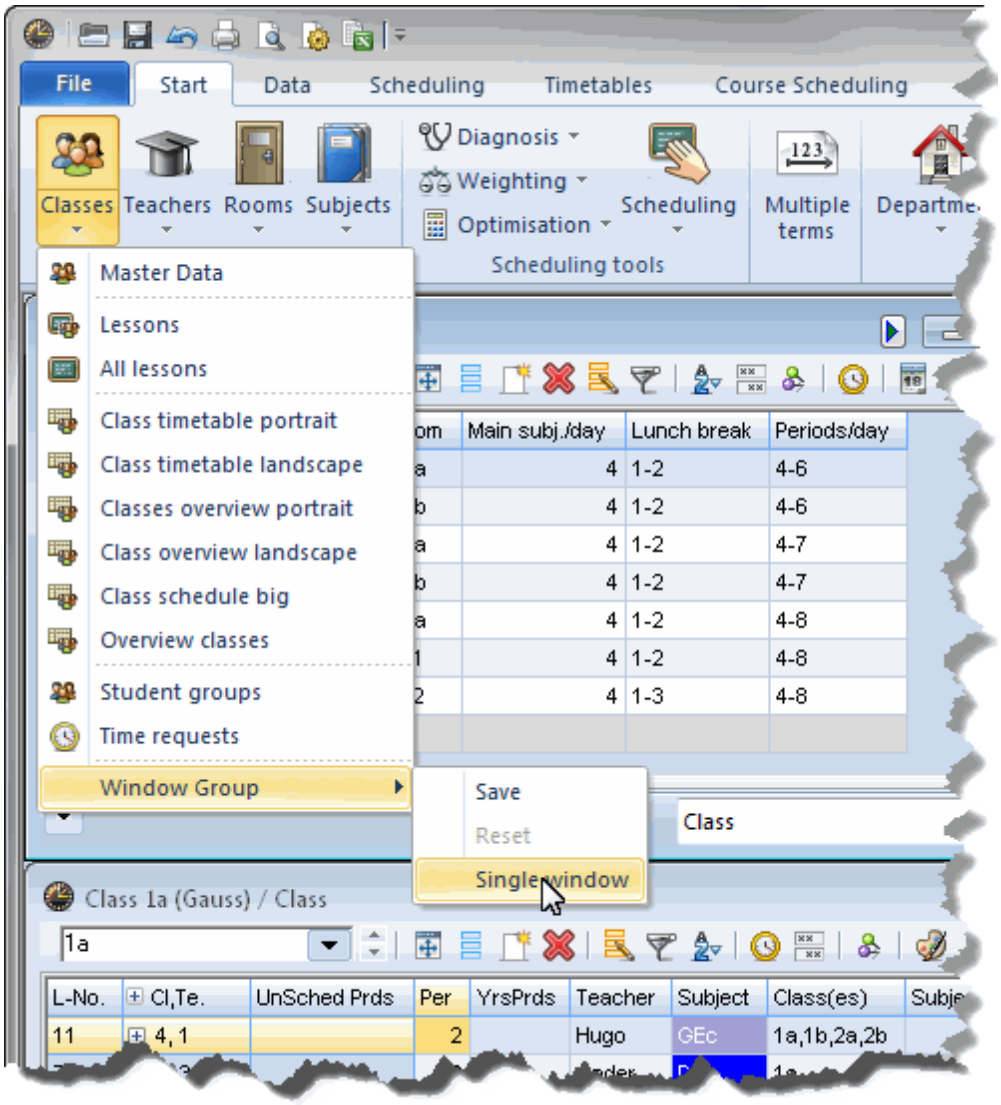
The window arrangements can be customised individually. For changing the pre-defined window arrangements you need to do the following:

1. Arrange your screen (by opening and positioning the relevant windows) the way you want it.
2. In the menu below the respective button there is the sub-menu *Window group* , where you can save the window arrangement.

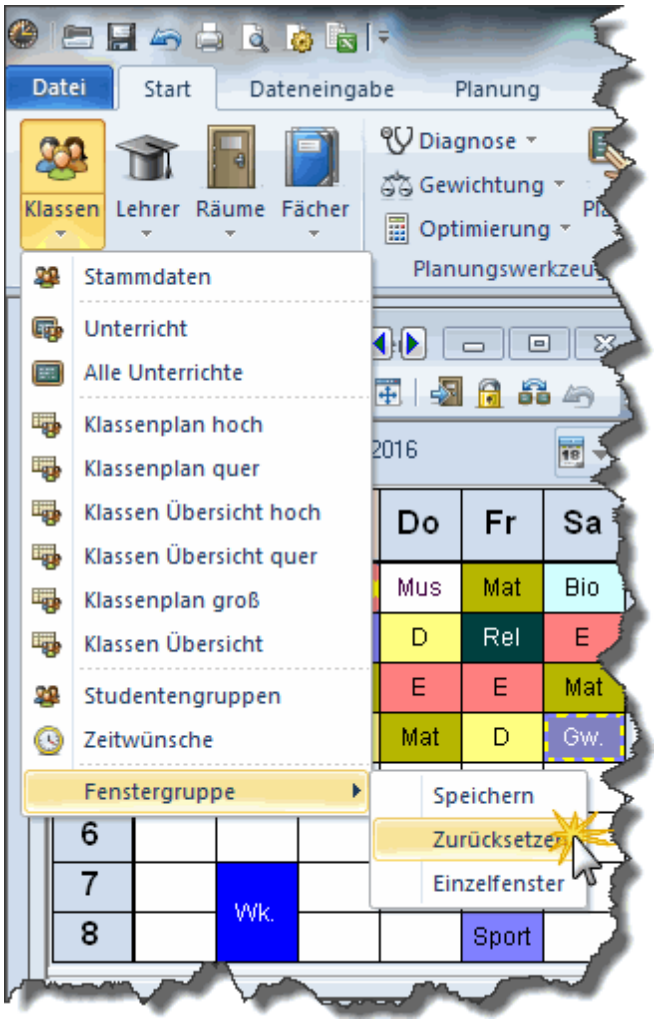


3. Your individual window arrangement is saved now. Next time you click on the respective button your window arrangement will be opened.

Tip:
If you want a single window to open additionally to the windows already open on your screen when clicking on the respective button, then activate the option *Single window*.



Note:
If you want to get back to the originally defined window arrangement, just go to the sub-menu 'Window group' and click on *Reset* .

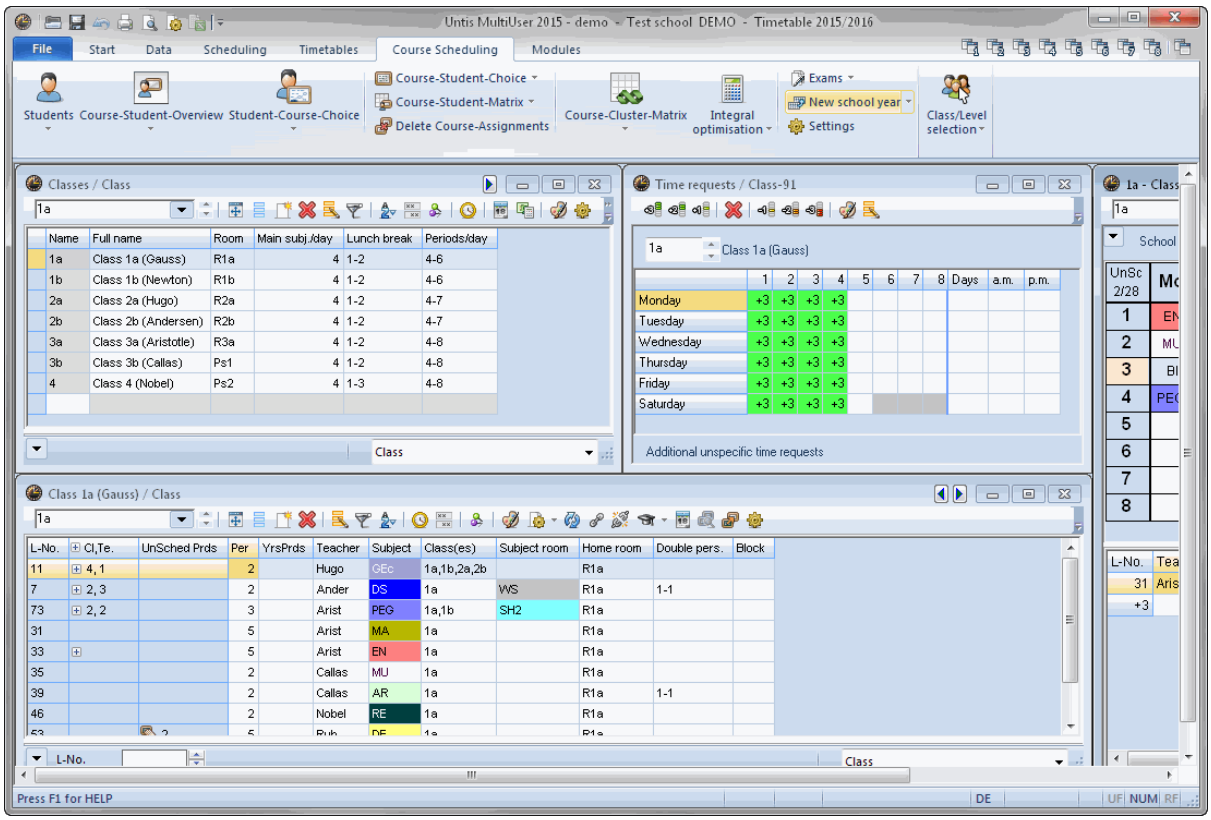


3.2 Window groups

Window groups have used before the ribbon was introduced and can still be used.

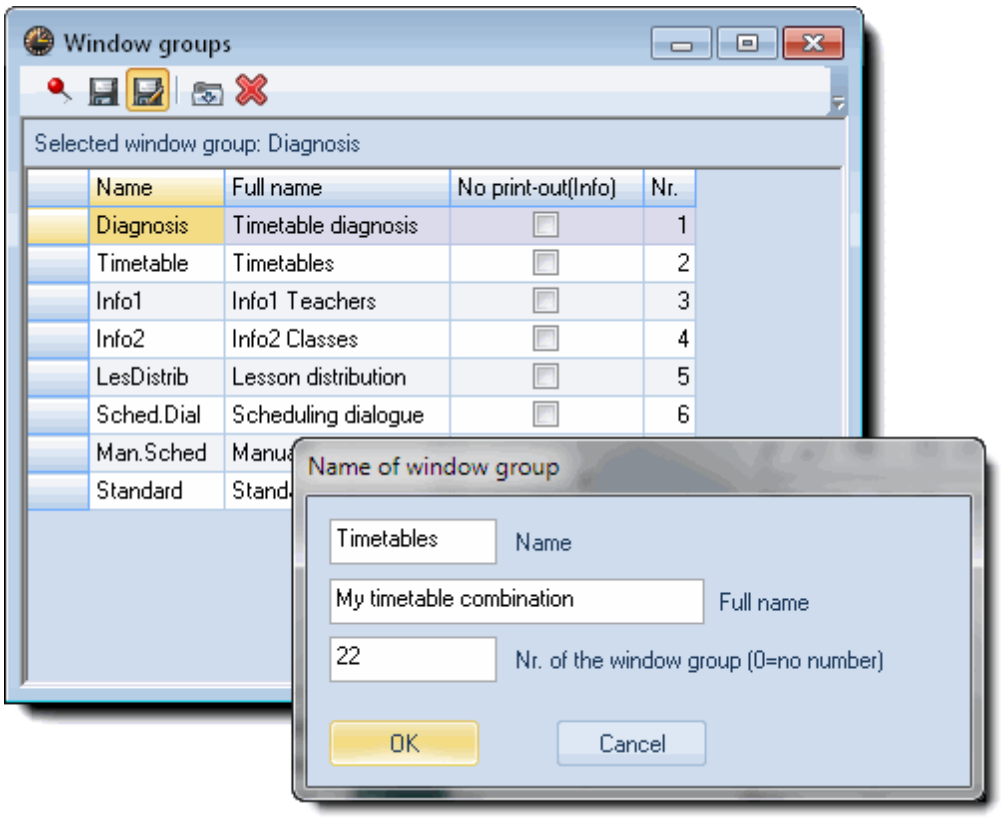
The following example will demonstrate how to create a windows group.

1. Open the demo.gpn file and arrange the windows just as you like, e.g. as shown in the figure



2. Click on the <Windows Group> button on the top right in the main tool bar.

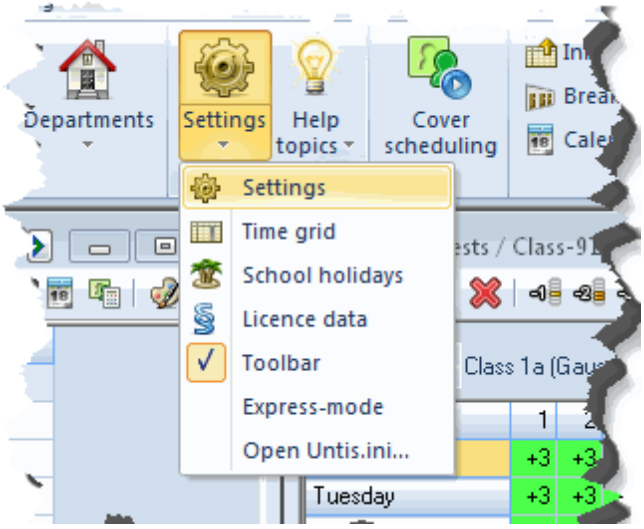
3. The *Window groups* window is opened.
4. Click on the button <Save window group as> and assign meaningful short and long names.

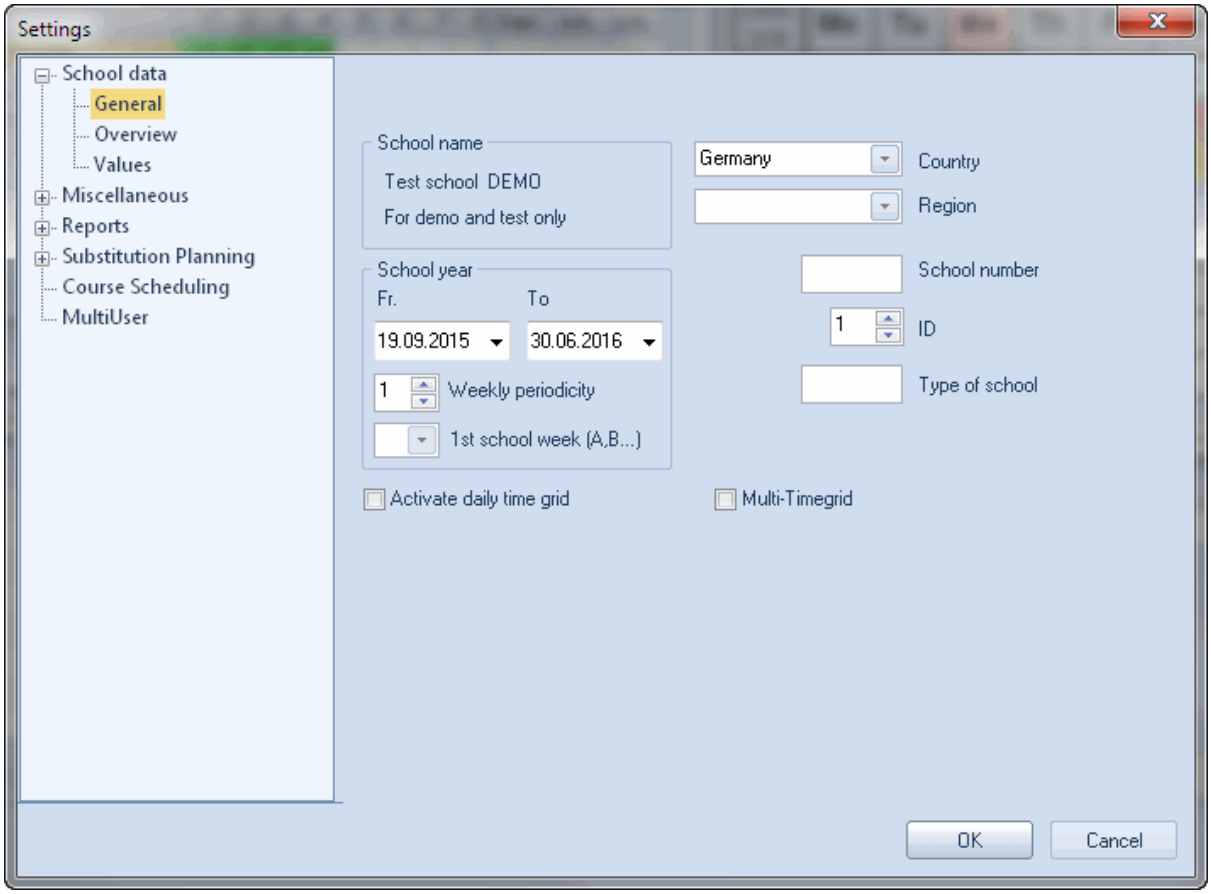


Tip:
You can transfer the window groups from one file to another at any time. To do this, open the file into which you wish to import the settings and select "File | Import/Export | Gruber Petters | Formats/Window groups/Ribbons". On the "Import window groups" tab you can now navigate to the Untis file from which you wish to import the window groups and start the import process. .

4 Settings

On the *Start* button under 'Settings' you can define all relevant settings in one central place. The most important of these will be introduced in the following section.





4.1 Time grid

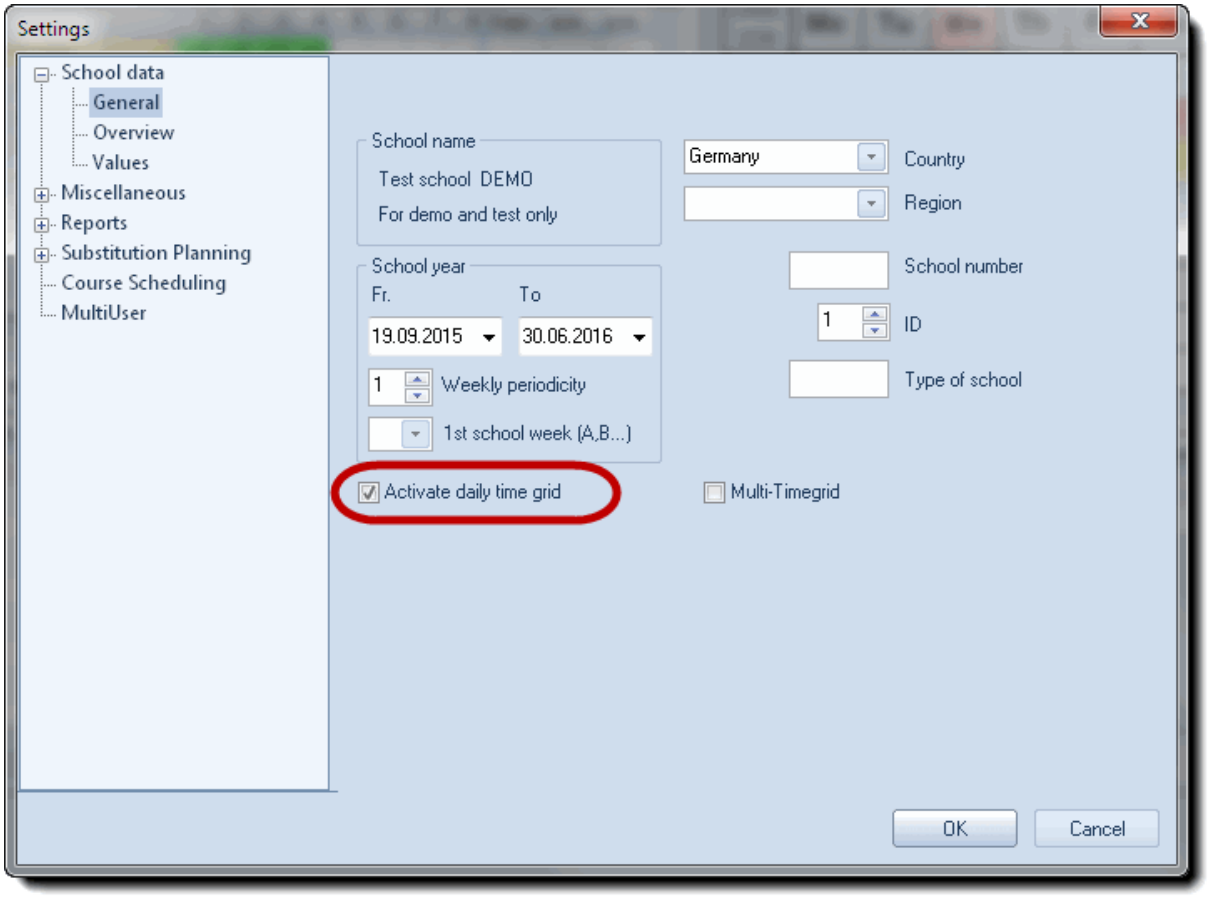
Defining a simple time grid with the same arrangement of periods on every day of the week is described in detail in the brochure "Getting Started".

However, it is also possible to define individual time grids for every day of the week, which is described in the following chapter: *Daily time grid* .

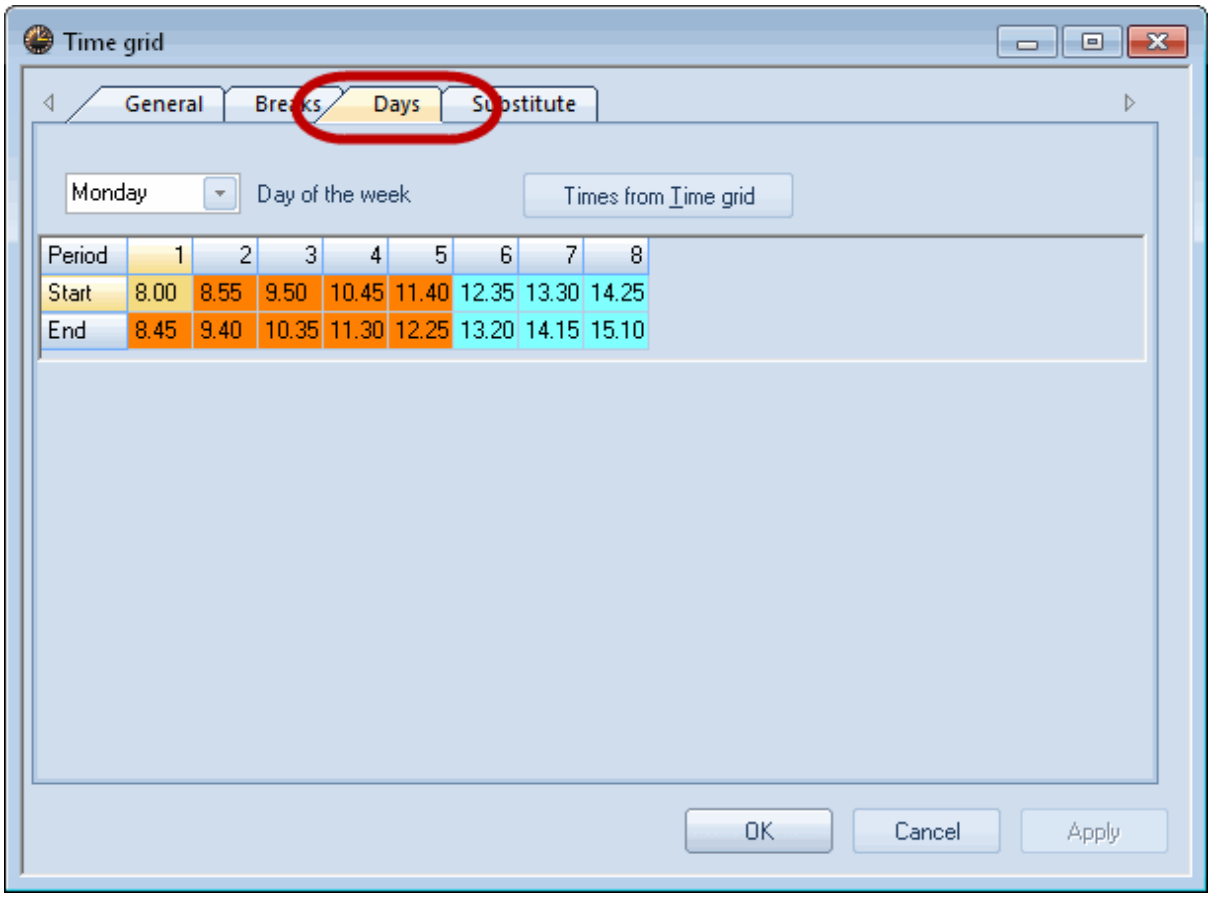
4.1.1 Daily time grid

Untis presumes that every day of the week has the same arrangement of periods.There are, however, schools which have a different time grid every day.

In this case you need to go to the *Start* tab, open the 'Settings', go to the section *School data* and check under *General* the option 'Activate daily time grid'.

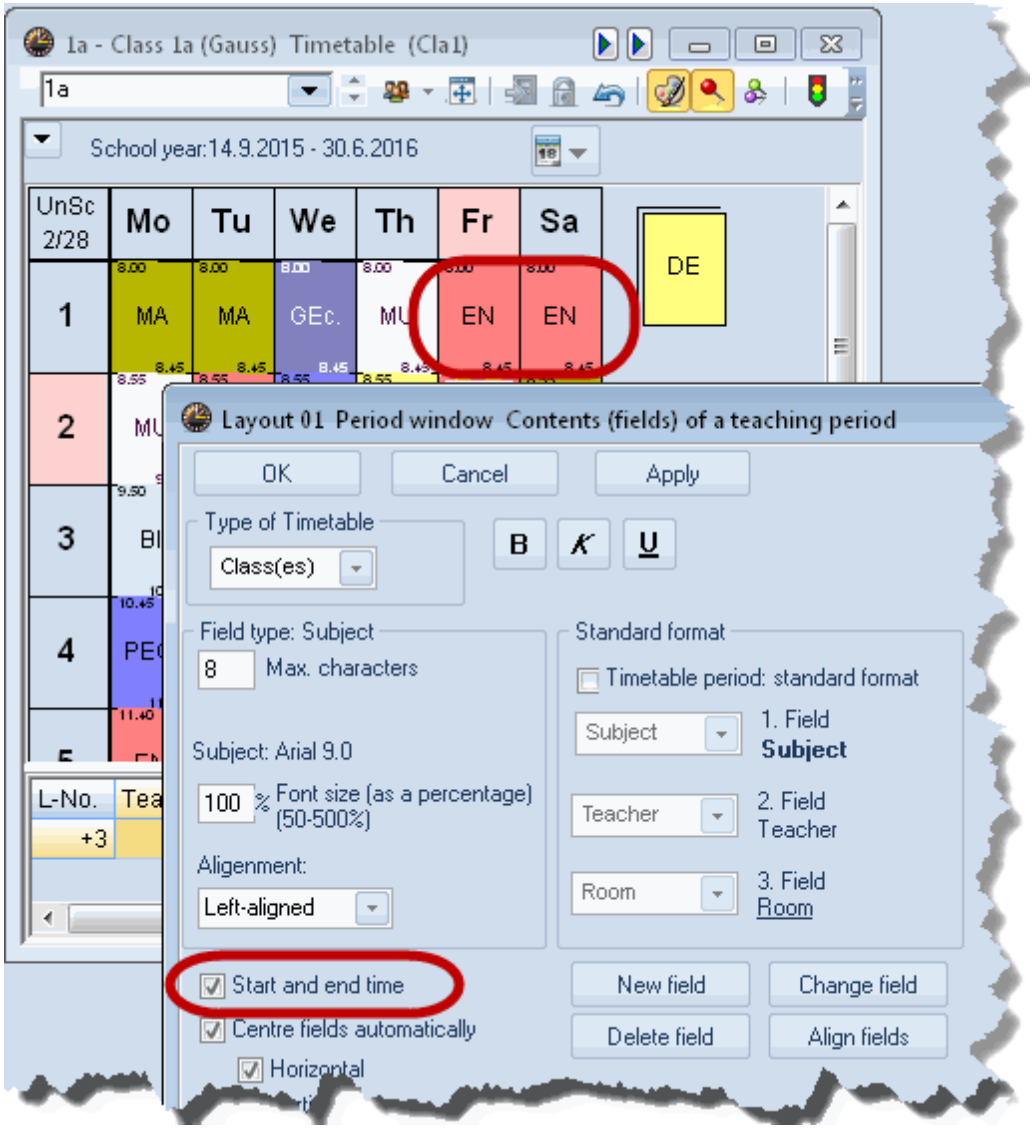


When you have confirmed with <Ok> and closed the window, an additional tab called 'Days' appears in the time grid ('Settings | Time grid').

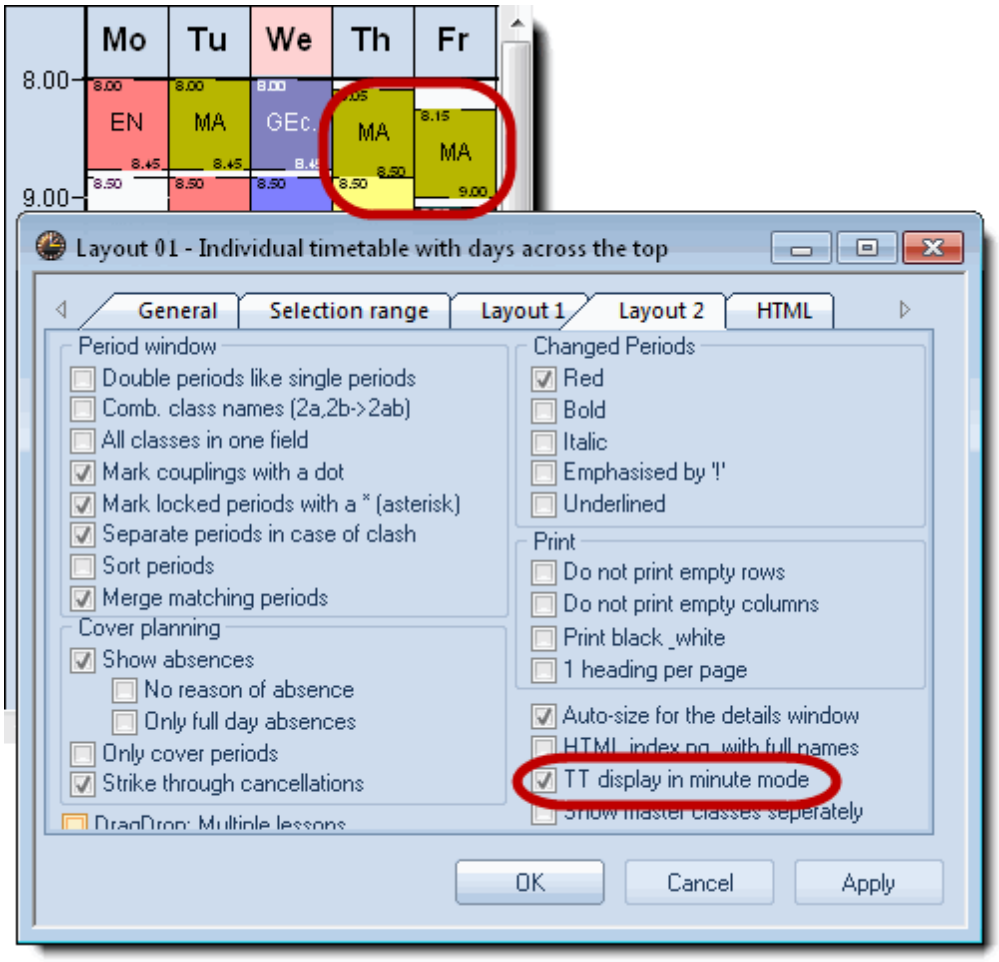


Choose one of the days from the list (in our example: Friday) and change the start and end times of the periods.

The different times are visible, if you activate 'Start and end time' display under <Timetable settings>

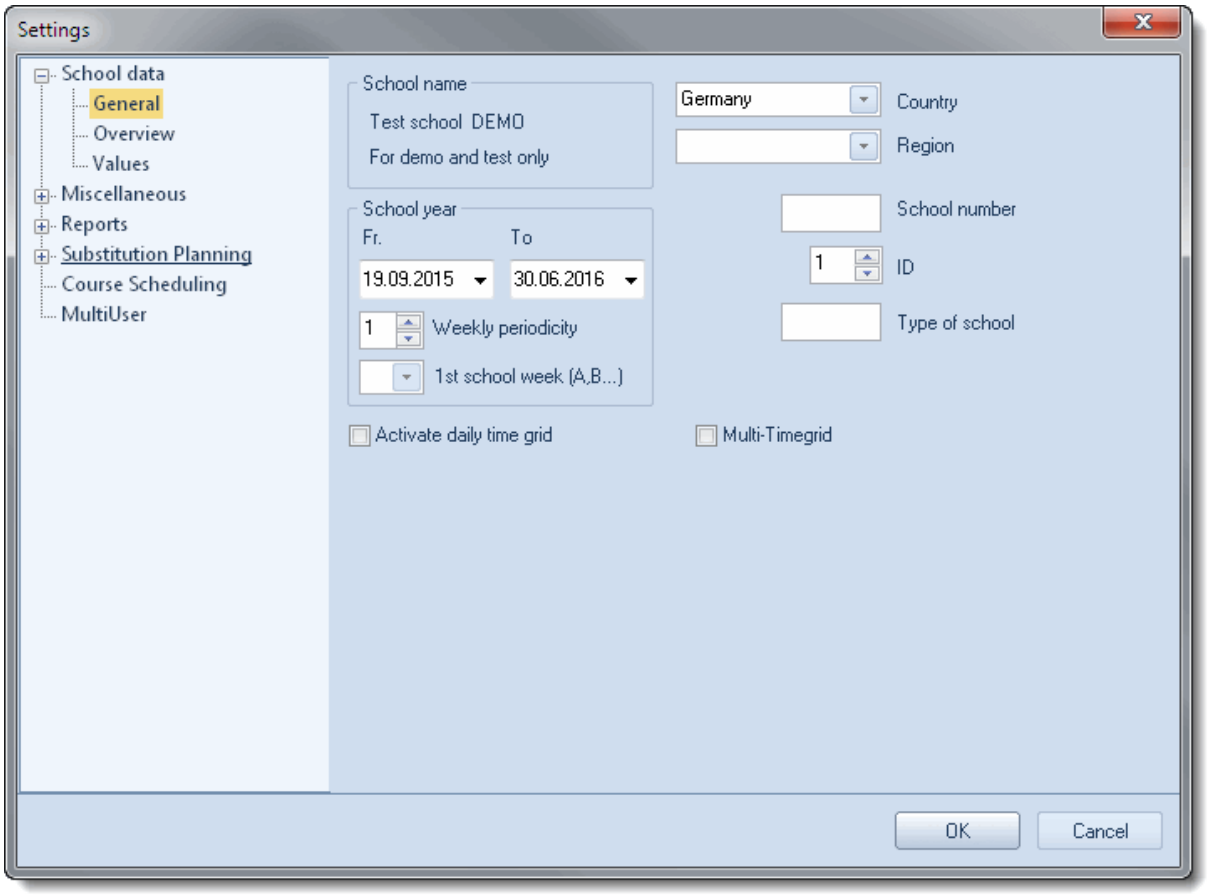


or display the timetable in minute mode ('Layout 2' tab).

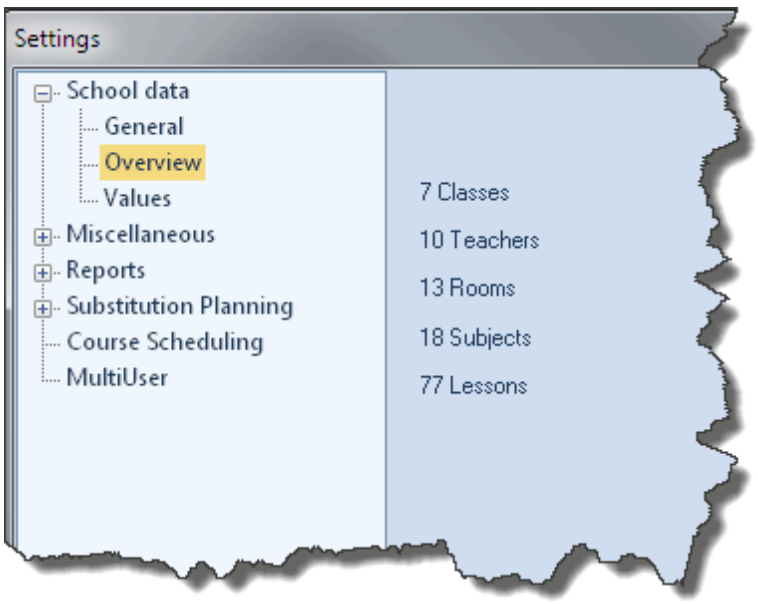


4.2 School data

In the *School Data* section under *General* you can enter details such as the start and end date of the school year, country, region and type of school. The details entered in this window are required for a number of different (statistical) processes and calculation methods.



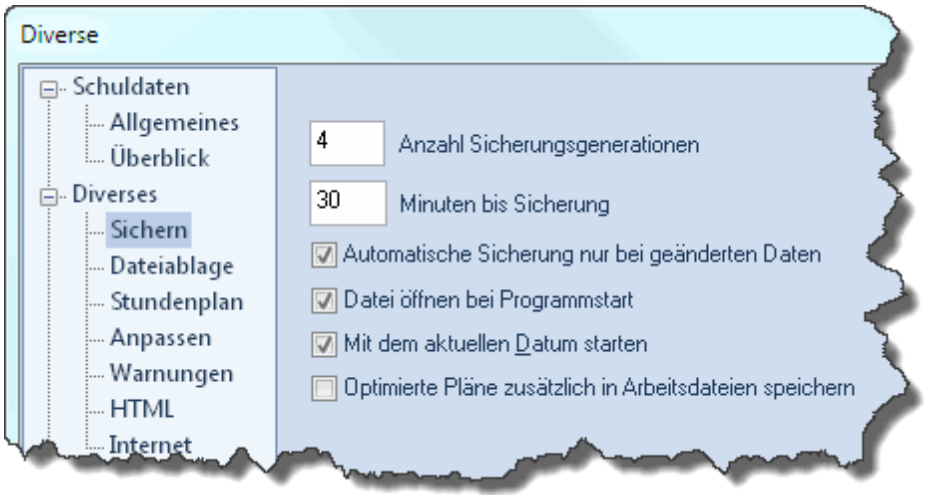
The item *Overview* provides an overview of the number of classes, teachers, rooms and lessons at your school.



4.3 Section Miscellaneous

4.3.1 'Auto-save'

Here you can specify the interval at which Untis should automatically save data and how many backup generations should be archived. The settings in the figure mean, for example, that Untis should save the data every 30 minutes and use four generations of backup. These data are saved in files Save1.gpn, Save2.gpn, Save3.gpn and Save4.gpn. The most current data are always in file save1.gpn and the oldest – in relative terms – in file save4.gpn. In order to avoid identical save files being created we would recommend that you check the option "Save only when the data has been changed".



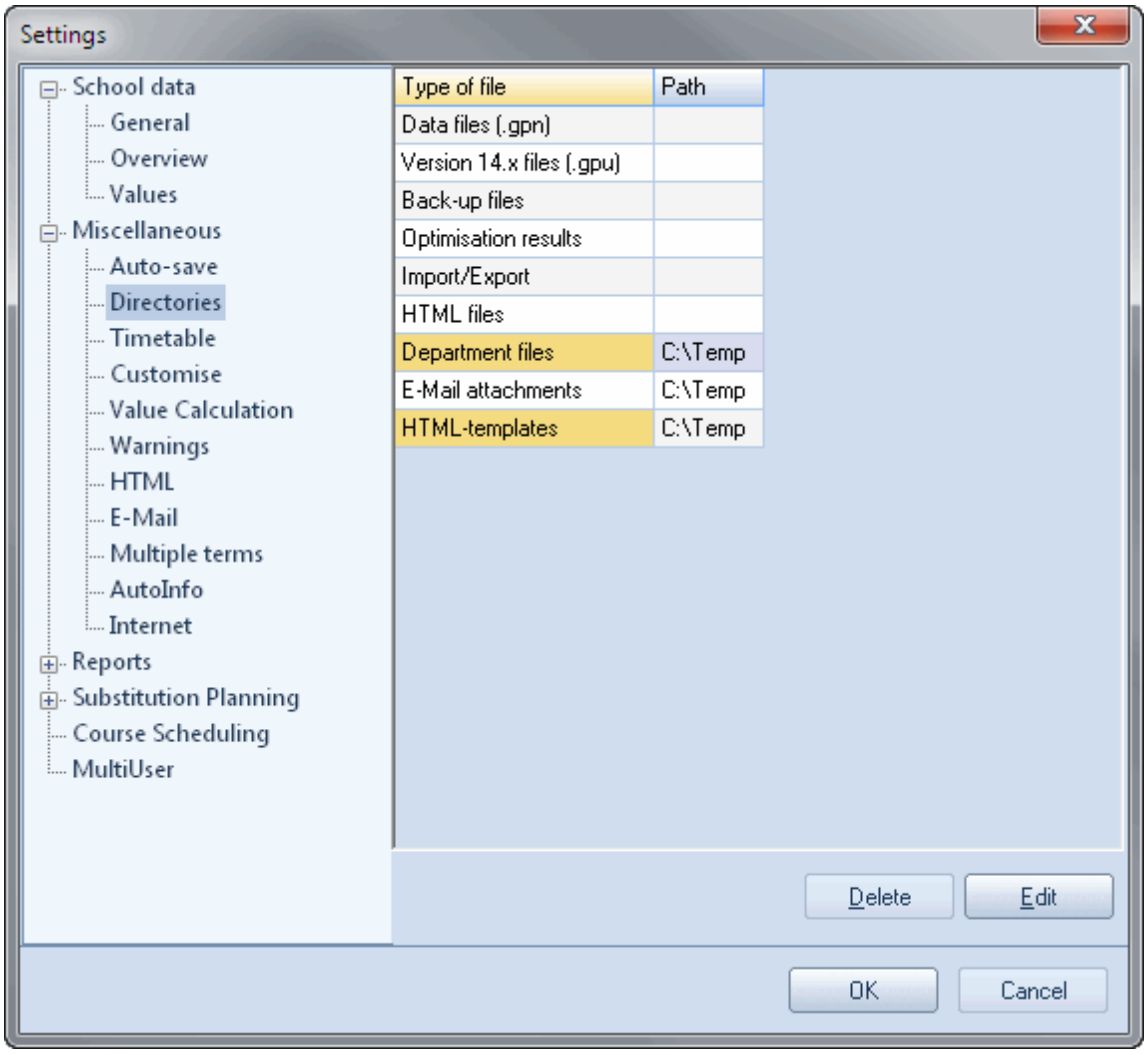
When you check the option "Open with the last file saved", Untis will automatically load the last file to be processed. You can prevent this happening by holding <SHIFT> pressed when launching Untis.

In addition, the option "Start with current date" also allows you to determine whether windows in which it is possible to select the date should be opened with the current date or with the date last saved.

You can view the results of optimisation in the optimisation dialogue immediately after the optimisation run. Check the option "Save results of the optimisation in work files" if you wish to have these timetables available after you exit Untis. This causes the result to be saved in so-called work files.

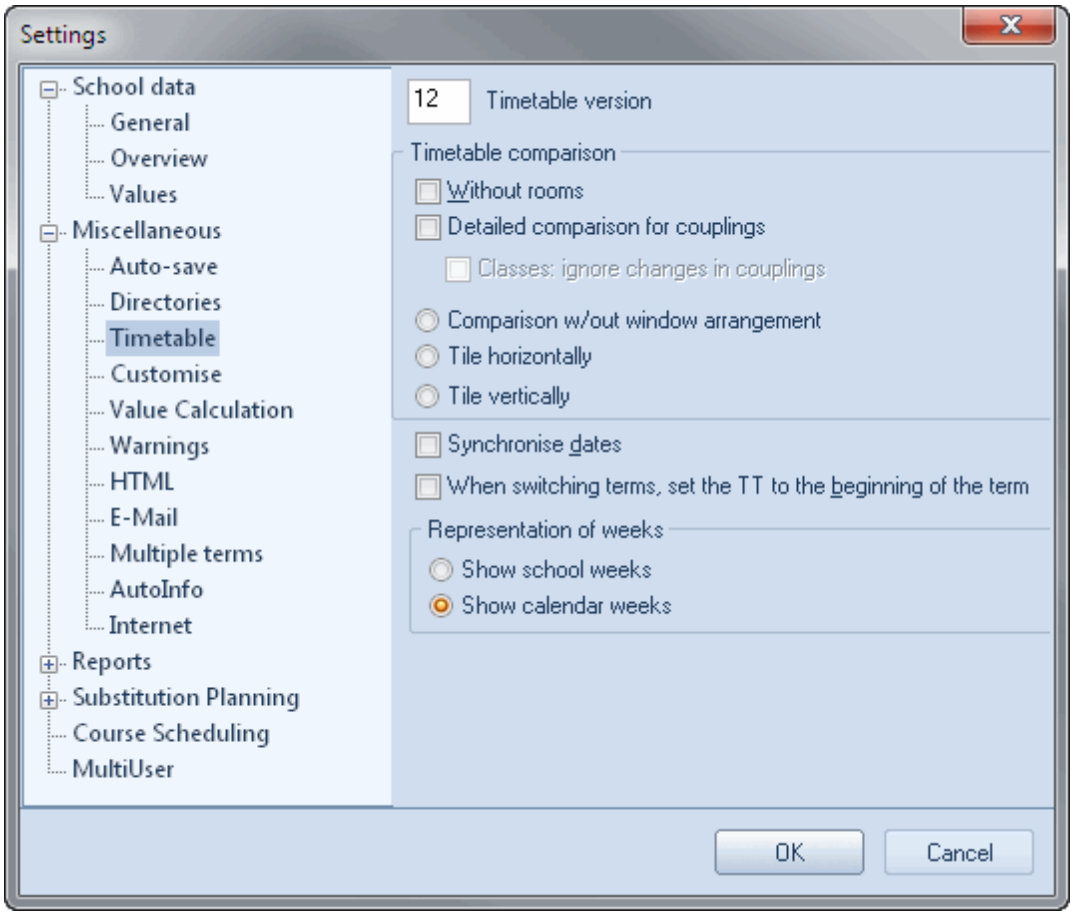
4.3.2 'Directories'

In this section you can specify various standard paths. We would recommend that you create your own directories for your backup and work files (i.e. the files containing the different timetables of your school saved during optimisation) and enter the paths on this tab.



4.3.3 'Timetable'

The settings of this section are relevant for a number of different timetable functions.



For instance, the timetable version number you can assign to each timetable version will be included on all printouts (please refer to chapter *Timetable display*).

The different options for Timetable comparisons are described in the chapter of the same name.

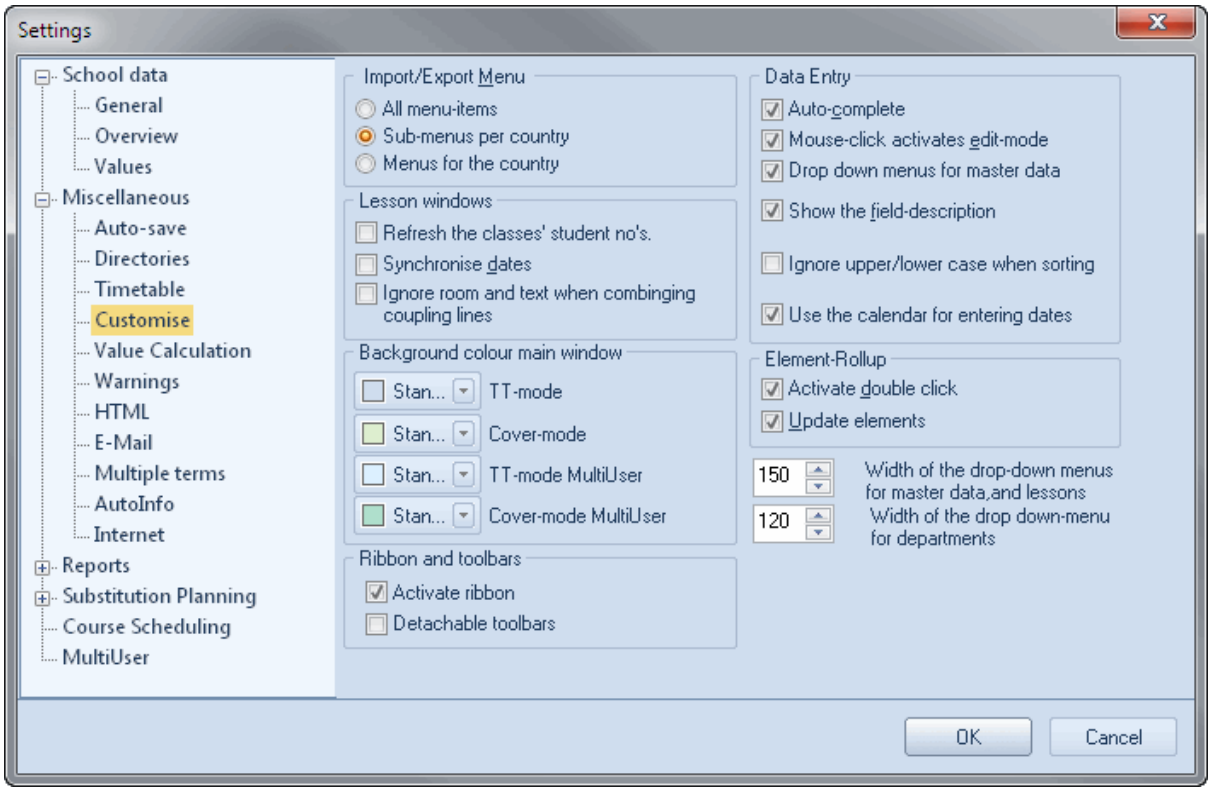
The *Synchronise dates* option allows you to specify, if a date change implemented on one particular timetable should also apply to *all* other timetables open on the screen. This function is particularly important when using the *Multi-Week Timetable* and the *Multiple Term Timetable* modules

The option "When switching terms, set the TT to the beginning of the term" is only active for use with the Multiple Term Timetable module. The last option "Activate Drag&Drop in the timetables" allows you to activate or deactivate the manual timetabling function.

The last option 'Representation of weeks' is only active, if you hold a licence for one of the following modules: 'Multi-Week Timetable', 'Cover scheduling' or 'Calendar-Year Planning'. Here you have the option to define whether you want school weeks or calender weeks to be shown in the timetables.

4.3.4 'Customise'

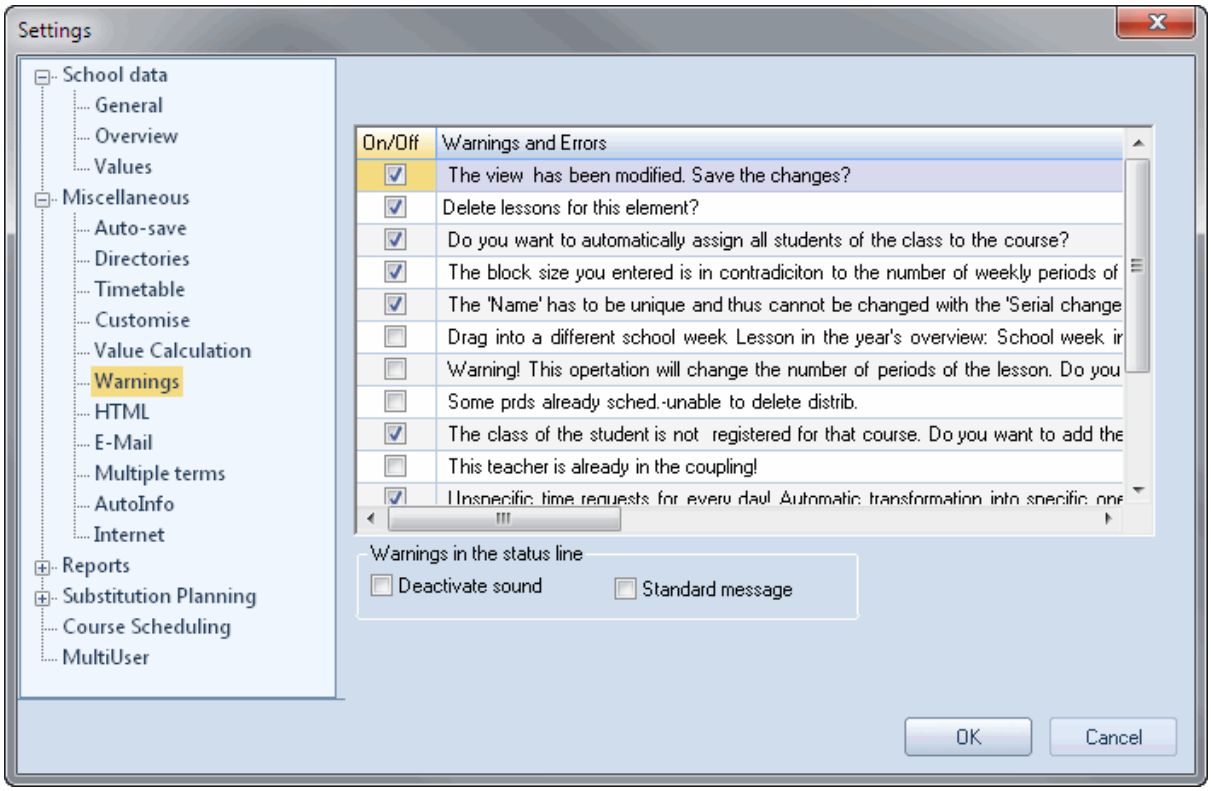
In this chapter you can customise how you want to work with Untis by defining several options according to your needs.



The options for the data entry block are described in the following section 'Input assistance'.

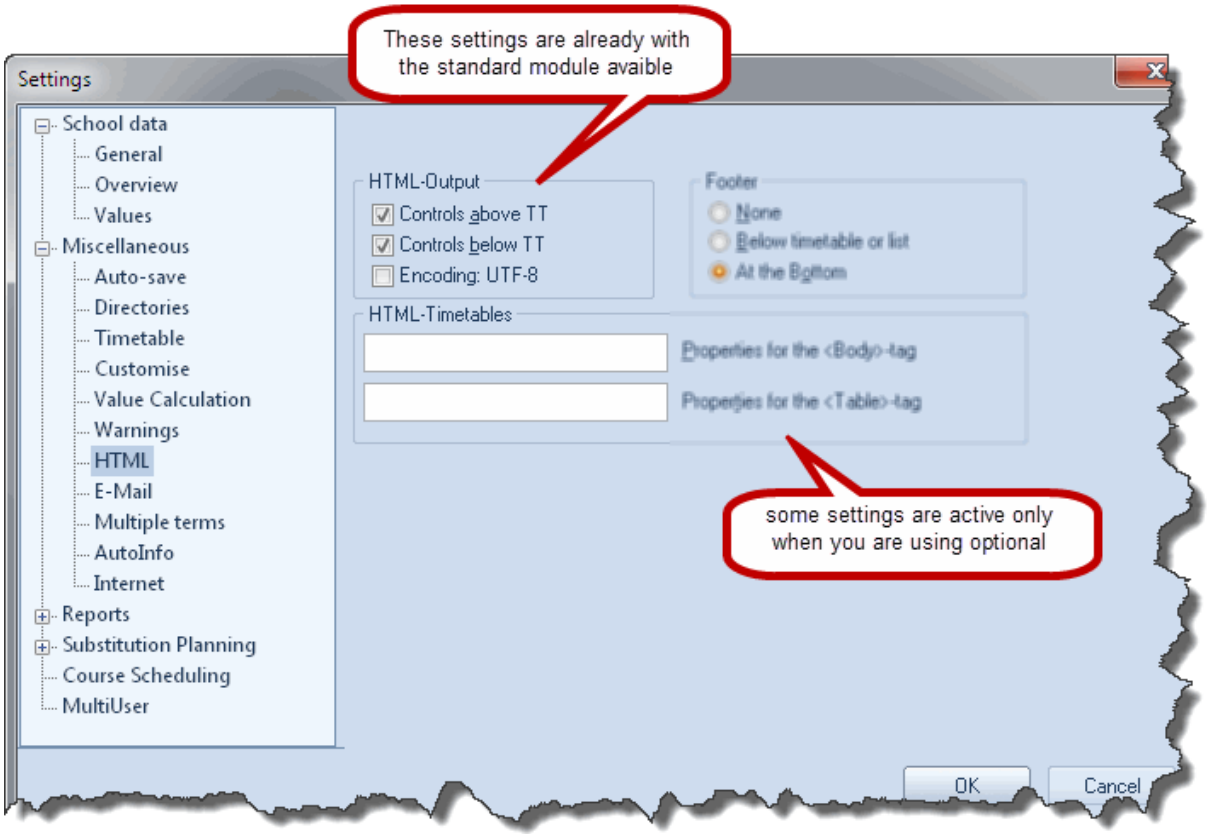
4.3.5 'Warnings'

Several warning messages by Untis can be turned off. Here you can individually activate and deactivate warnings.



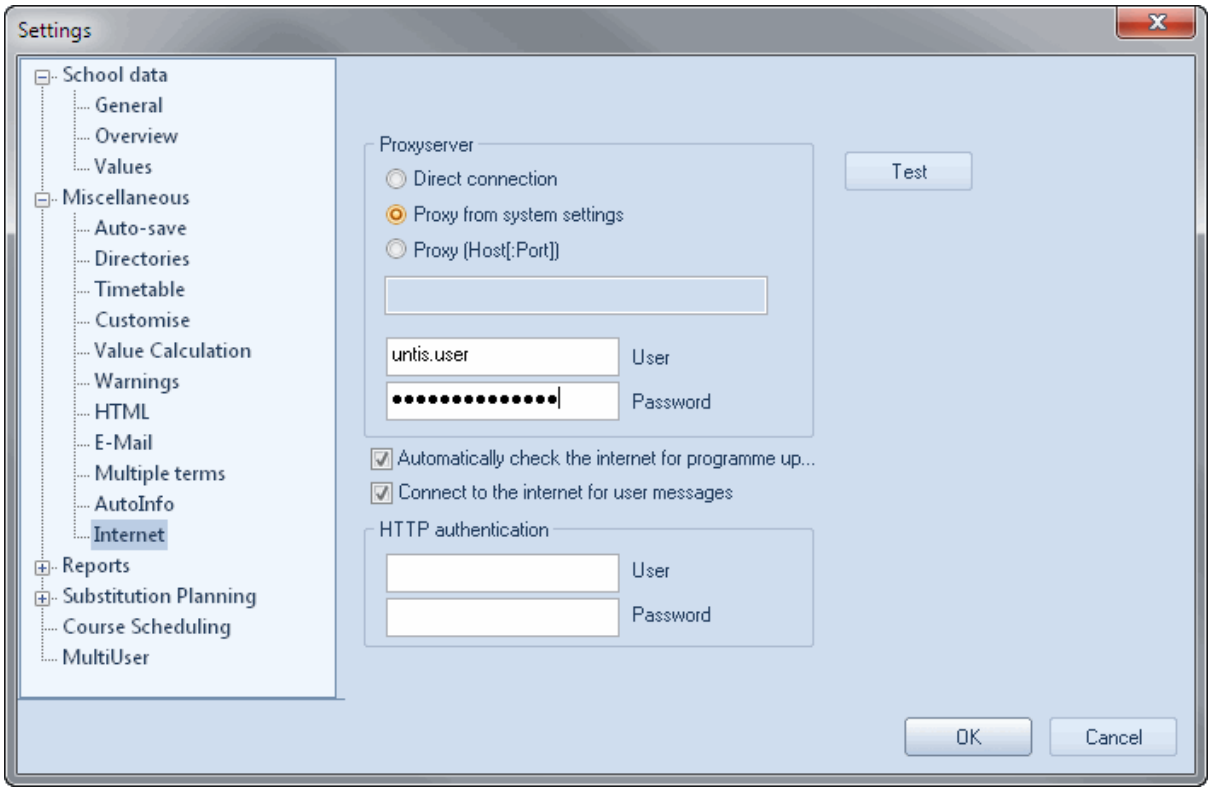
4.3.6 'HTML'

In this section you can define different settings for HTML outputs of timetables.br>



If you use other modules in addition to the standard module, e.g. the Info module, there are also additional settings available for you.

4.3.7 'Internet'



Untis allows you to receive information about version updates. In addition to activating the option "Automatically check the internet for program updates", you must also specify how your computer accesses the Internet - direct or via a proxy server. Please contact your system administrator if you are uncertain about these settings.

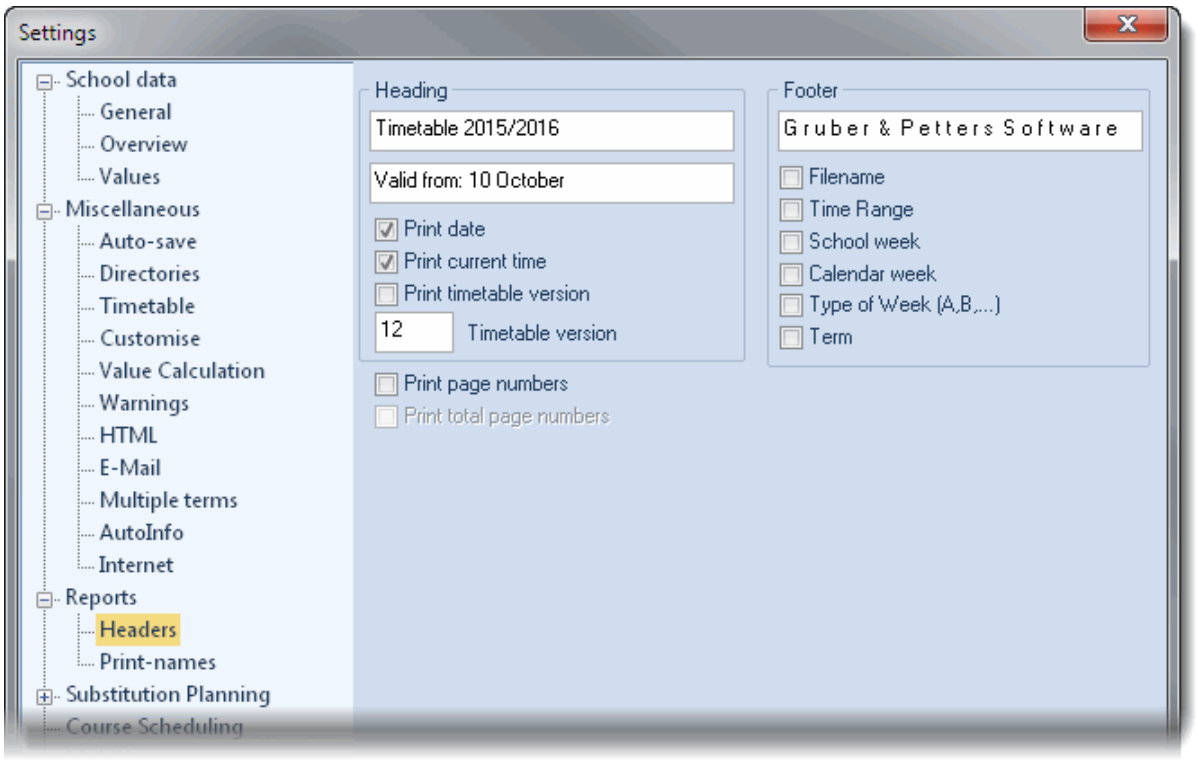
You can use the <Test> button to test whether the settings you have made are correct and whether Untis can reach the Gruber&Petters web server.The following message appears when Untis was successful in connecting with the server.

The option "Connect to the internet for user messages" is used to specify whether you wish to receive messages from your local Gruber&Petters partner and from Gruber&Petters direct.

HTTP authentication is generally not required.

4.4 Section Reports

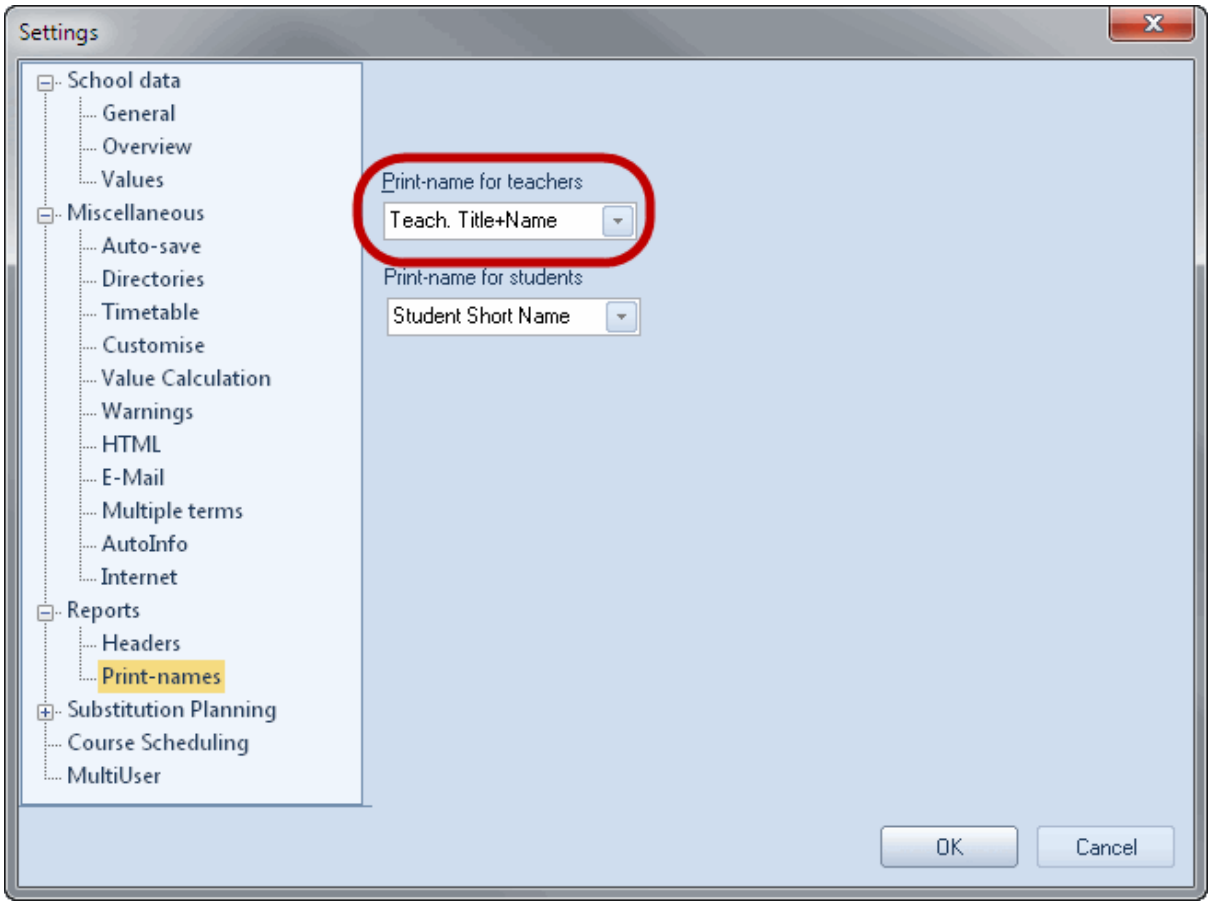
4.4.1 Headers



The options you can define here are mainly for headers (headings) and footers of printouts. For a detailed description please refer to chapter 'Timetable print outs'.

4.4.2 Print-names

With print-names, Untis provides you with the easy-to-use possibility to replace shortnames in reports (and also in timetables) with pre-defined combinations of first and surname. In the example below the combination 'Title Name First Name' was selected for the printout.



Free Periods

Used symbols:
* Blocked period or blocked day
+ NTP (Non Teaching Period)

Here the pressure names are printed instead of the nickname

Period	Number Elements Total	*	+	Other	Names	
Mo-1 8:00 - 8:45	2	1	0	1	Carl Friedrich Gauss	*Hans Christian Andersen
Mo-2 8:55 - 9:40	3	1	1	1	+Marie Curie	Carl Friedrich Gauss
Mo-3 9:50 - 10:35	3	1	1	1	+Marie Curie	Carl Friedrich Gauss
Mo-4 10:45 - 11:30	2	1	0	1	Alfred Nobel	*Hans Christian Andersen
Mo-5 11:40 - 12:25	5	1	0	4	Victor Hugo	Aristotle
Mo-6 12:35 - 13:20	9	1	0	8	Carl Friedrich Gauss	Isaac Newton
Mo-7 13:30 - 14:15	8	2	0	6	Carl Friedrich Gauss	Isaac Newton
Mo-8 14:25 - 15:10	9	2	0	7	Carl Friedrich Gauss	Isaac Newton

4.5 Licence Data

Entering licence data is described in detail in the brochure "Getting Started".

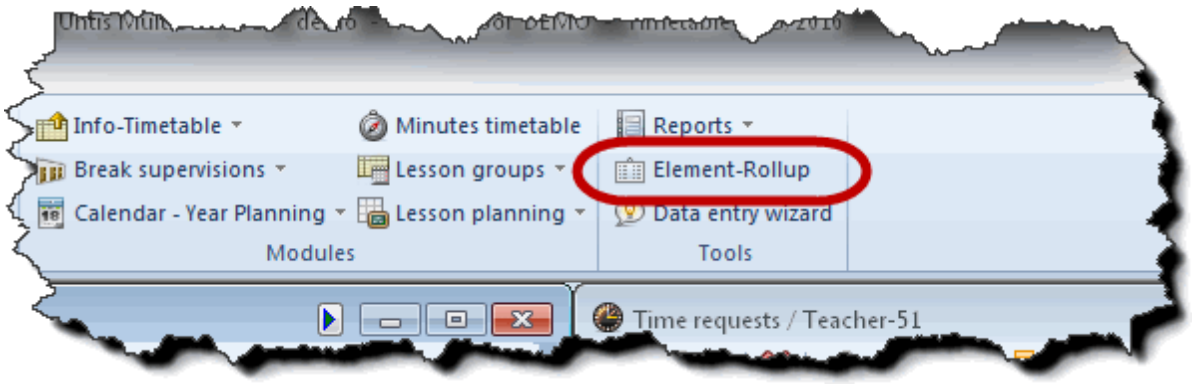
5 Input assistance

5.1 Element-Rollup

You may use the Element-Rollup window in order to make entries in lists viadrag&drop.

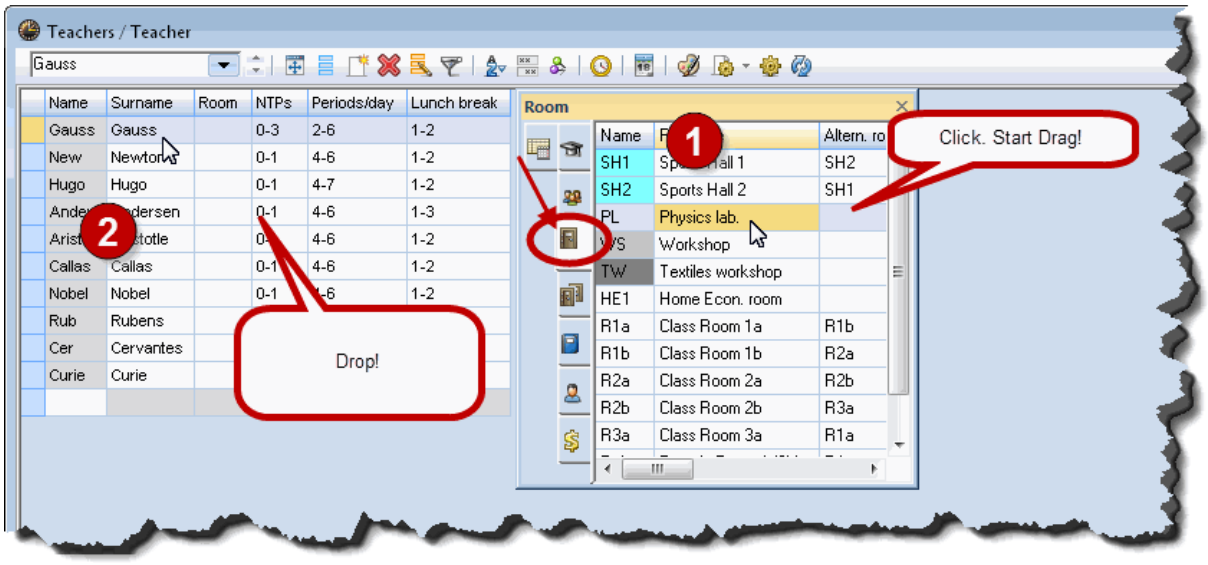
Example:
Allocations of rooms to teachers.

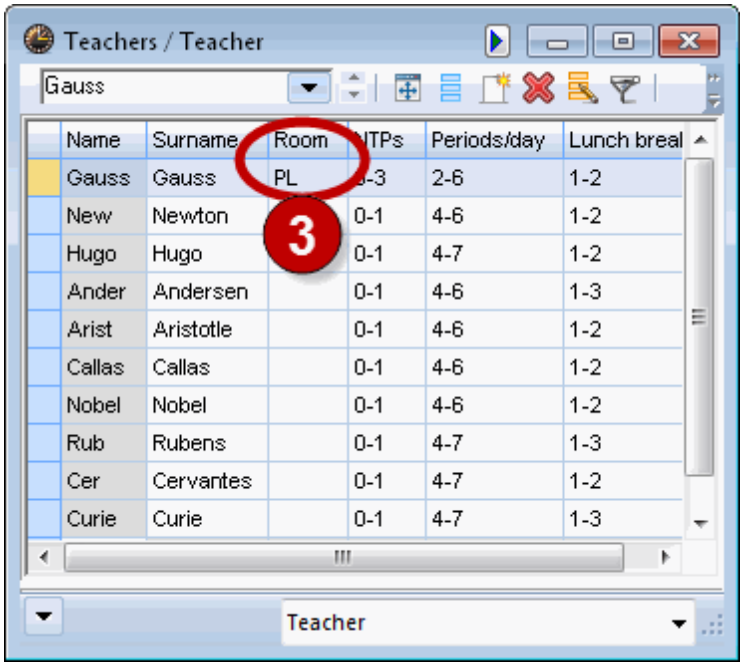
Open the file Demo.gpn
Open the Element-Rollup via the *Start* tab.



Activate in the Element-Rollup the room tab.

Select in the Element-Rollup a room, in the example below it is the pyhsics lab. and *drag* the room to the teacher master data window. Drop it in the field room of teacher Gauss.

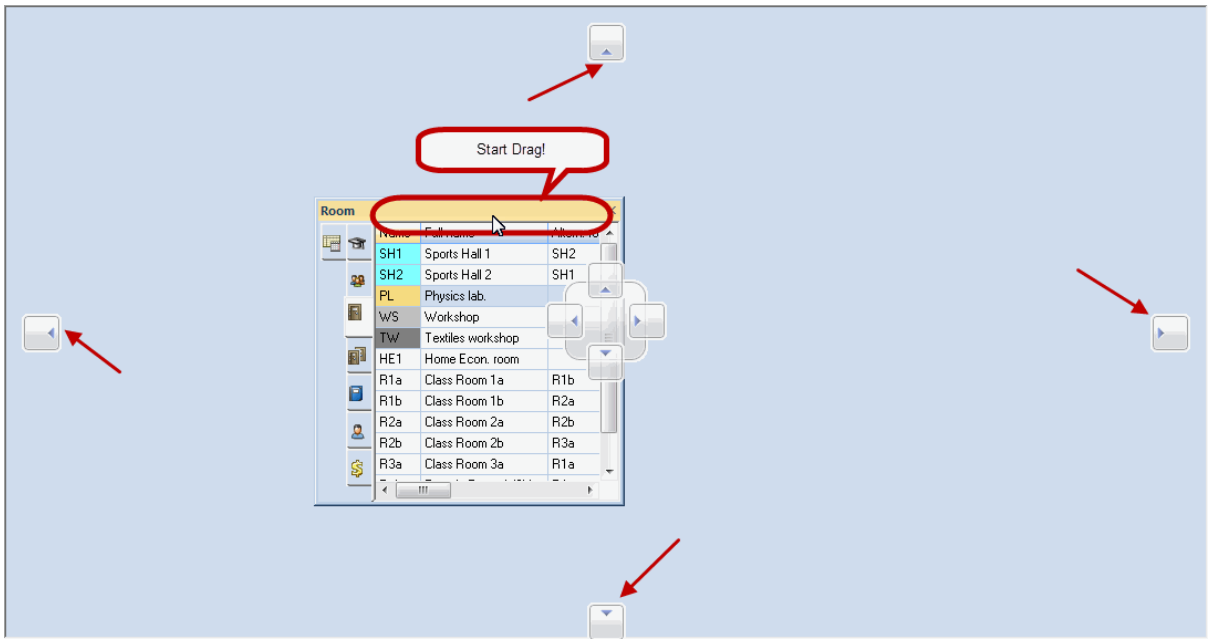




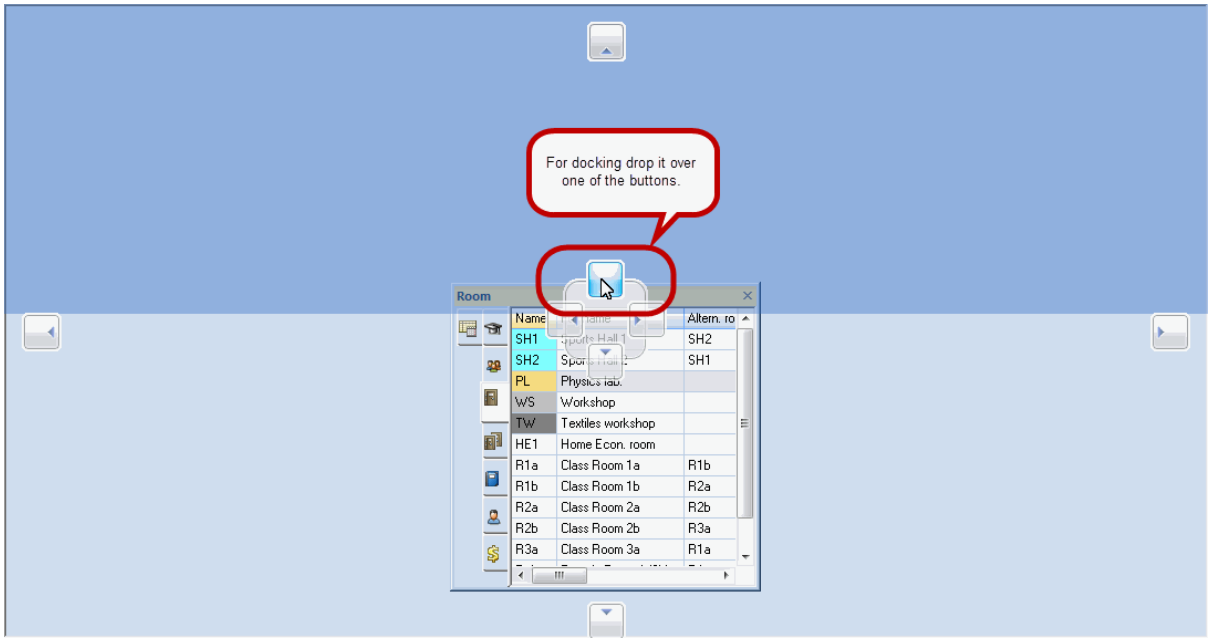
You now have allocated the physics lab. to teacher Gauss via drag&drop.

Note:
Please note that you can dock the Element-Rollup to one of the 4 edges of the Untis main window.

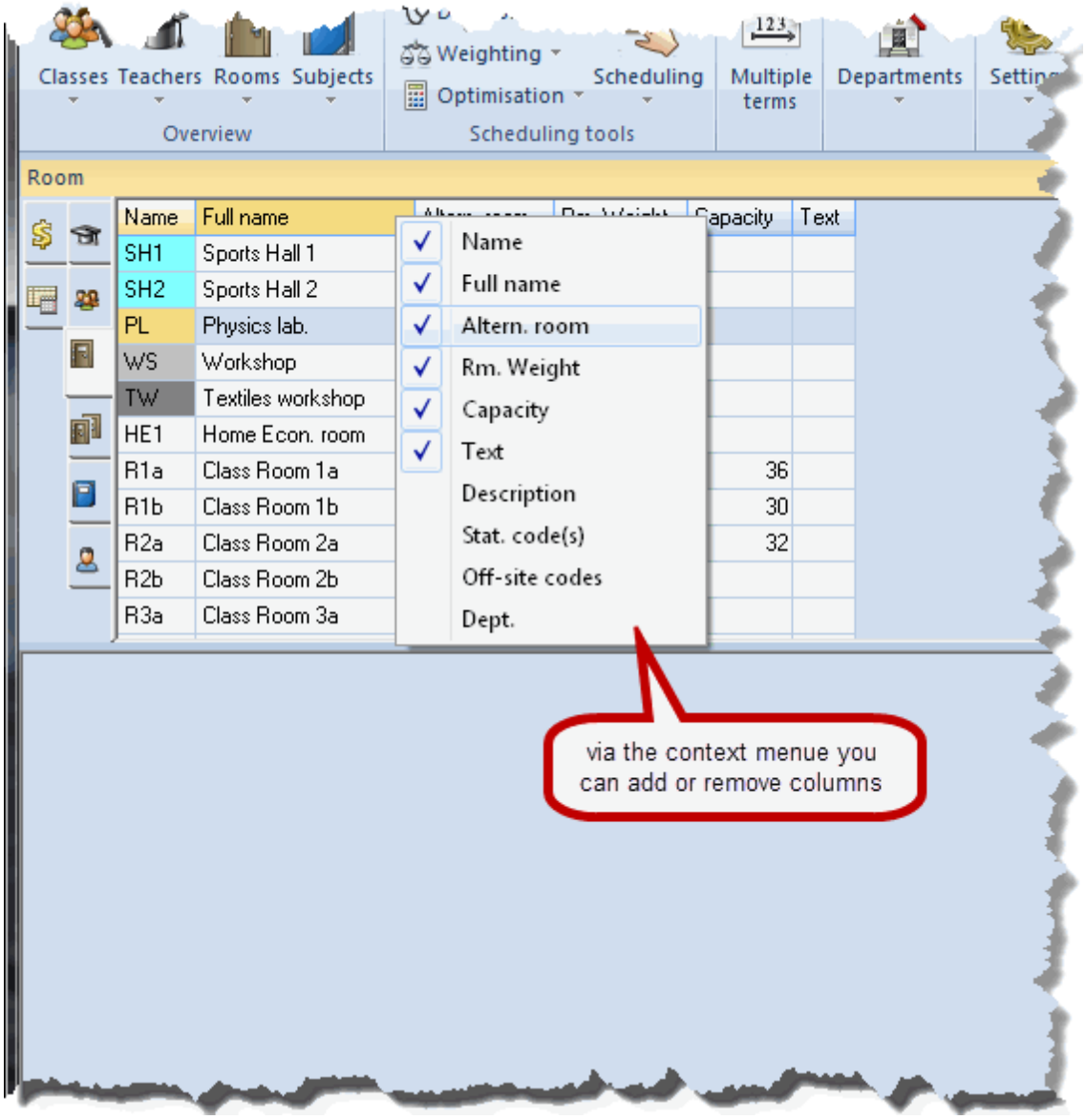
As soon as you move the Element-Rollup on your screen, symbols directing to the 4 edges of the window appear at the edges (and in the centre).



Dropping the Element-Rollup at one of the symbols fixes it to the respective edge.

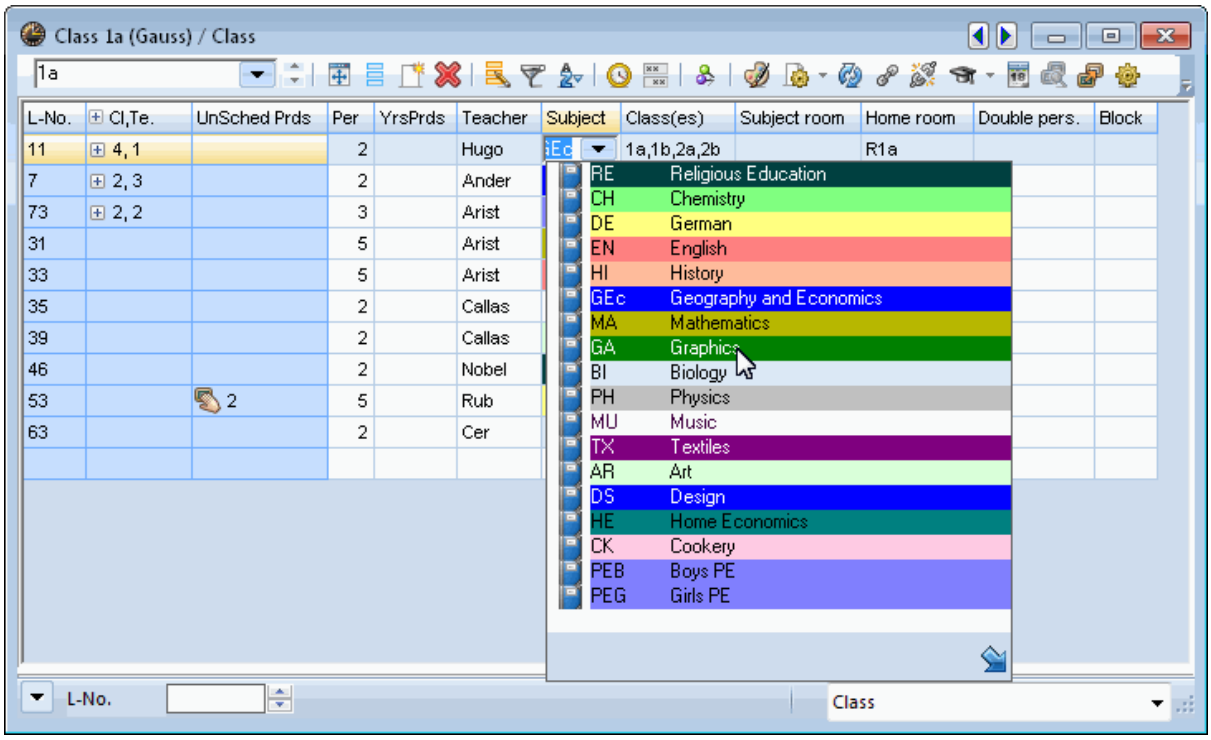


Please note that you can add (or delete) further columns via the context menu of your right mouse button.



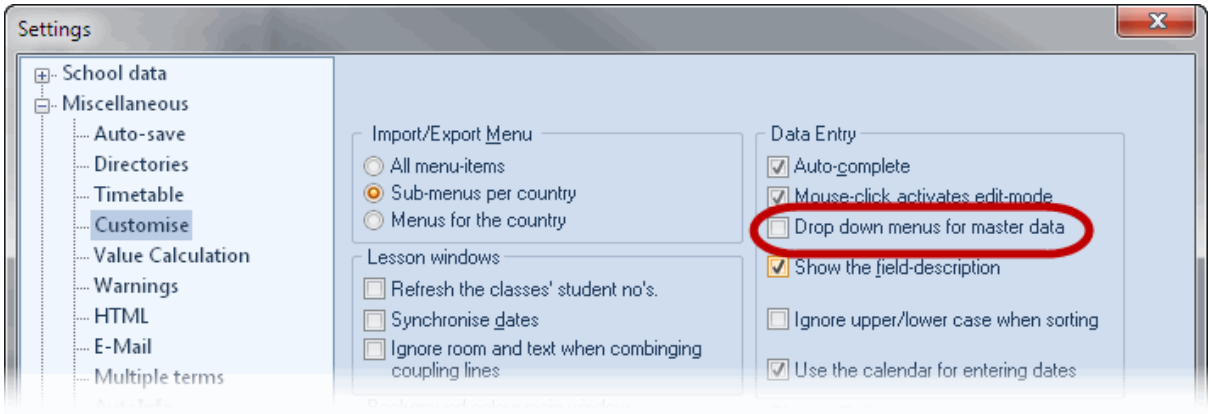
5.2 Selection lists

Selection lists are activated in the master data and lesson lists by default.



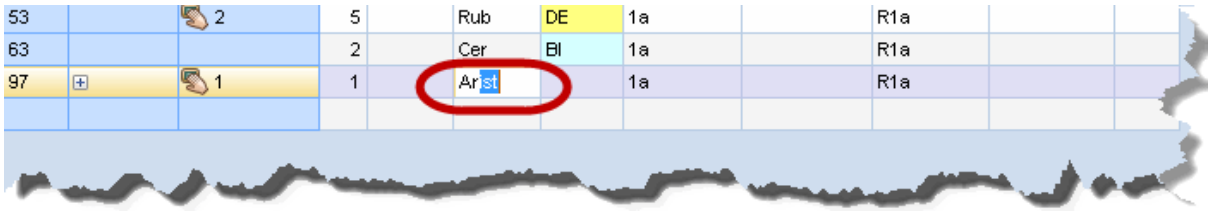
With the help of these selection lists you may choose available elements in, for example, the lessons window when entering data.

If you do not want to use selection lists, just deactivate the respective option in the *Settings* , section *Miscellaneous* , *Customise* :

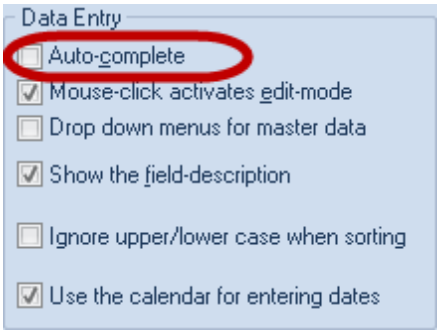


5.3 Auto-complete

If you deactivated the selection lists, Untis tries to complete the master data you are entering in the fields while you are typing them by suggesting suitable elements.



You also can deactivate this behaviour in the *Settings* , section *Miscellanious* , *Customise* .



6 Time Requests

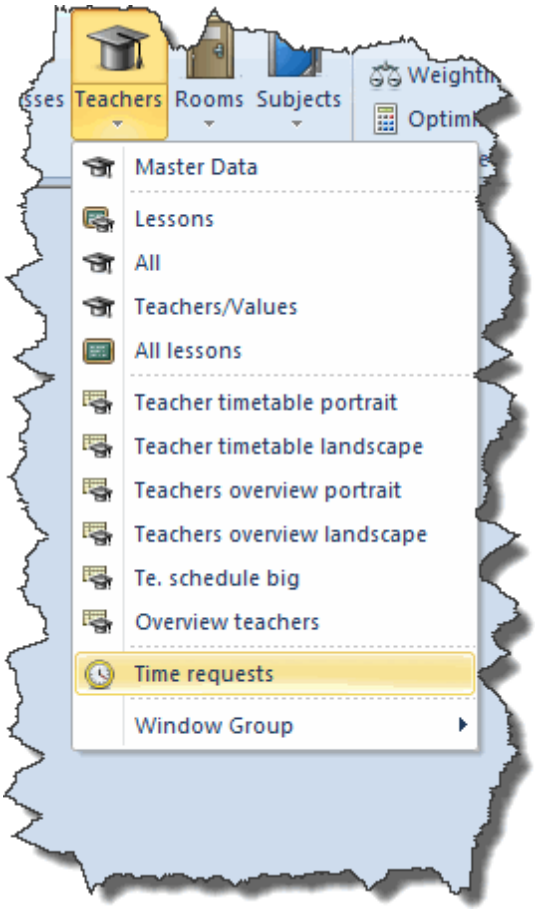
Time requests are an important element of the Untis timetabling software. Time requests can be entered for master data elements and for lessons. The button for this function can be found on the tool bar of the master data or lesson window.

Time requests are graded from "-3" (completely blocked) to "+3" (core time) which corresponds to a very strong desire to for work.

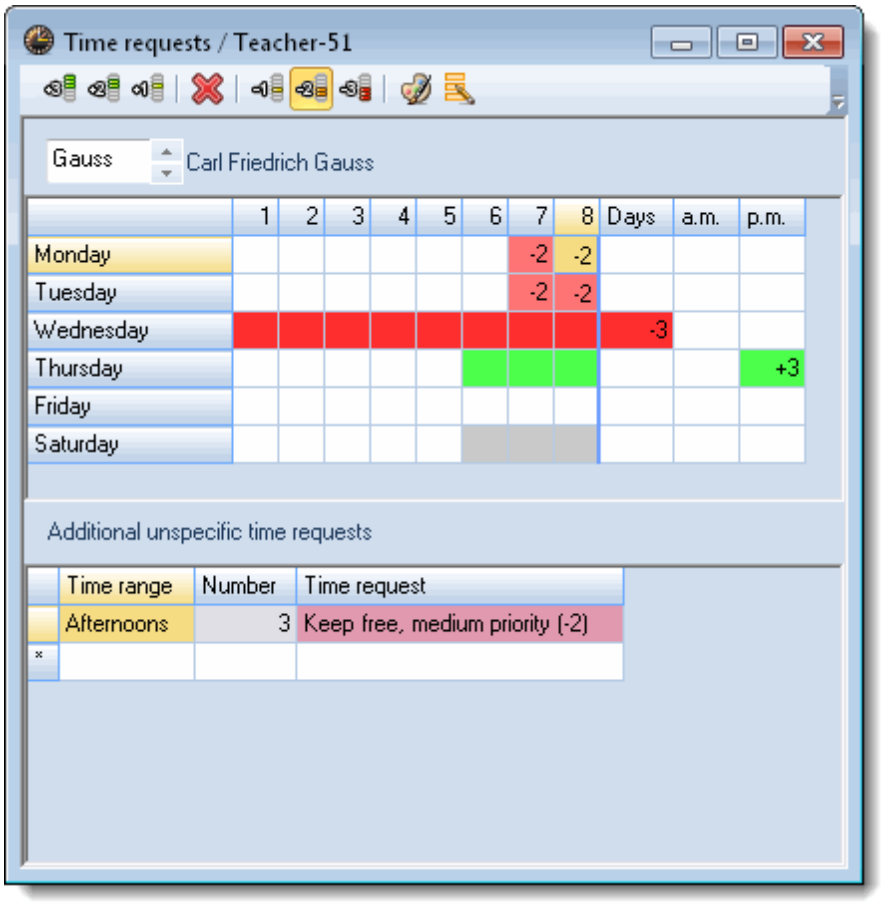
There are two different categories of time requests – *specific time requests* and *unspecified time requests* . Specific time requests refer to specific days and periods. Unspecified time requests, by contrast, are requests where only the duration and the type of request (e.g. 1 day of "-3") are specified and where the selection of the day or period is up to the software program.

6.1 Specified time requests

- Start Untis and load the file demo.gpn
- Open the teacher time requests via the 'Start' tab in the teachers menu ('Teachers | Time requests') .

- 

- Switch to teacher *New* (Newton).



The window on your screen should now resemble the figure. The following time requests are active:

Monday and Tuesday, periods 7 and 8: "-2". If possible, Newton whould *rather not* have lessons scheduled in these periods.

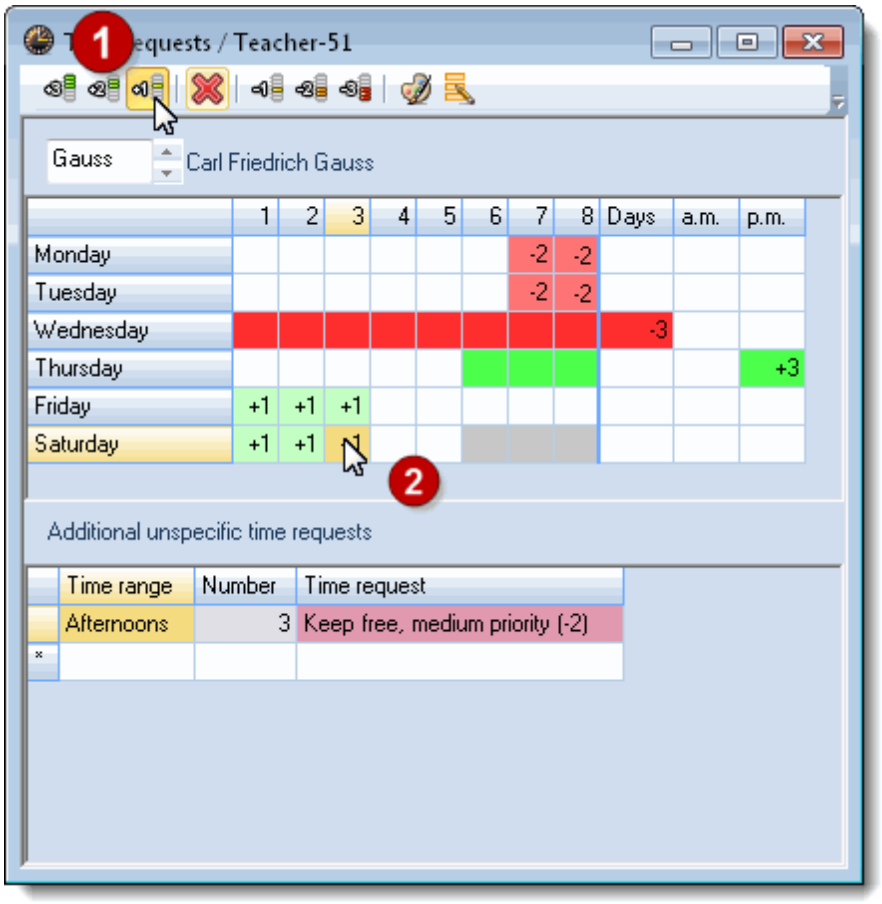
Wednesday, all day: "-3". This means that Wednesday is definitely *blocked* , i.e. teacher Newton is not available to teach on Wednesdays.

Thursday (pm): "+3"; Newton wants to teach periods in the afternoon (periods 6 – 8).

Please note that time requests for entire days and half-days can be entered on the right-hand side of the time grid (bottom part of window). Thisspeciality will be described later in detail.

Example
Assigning the time request "+1" to days Fri - Sat, periods 1-3..

- *Click on "+1" (1)*
- *Highlight the range Friday to Saturday, periods 1-3 (2)*



You have assigned the time request "+1" for Fri - Sat, periods 1-3 for teacher New .

Please note that the button for time request "+1" remains active until you deactivate the function by clicking on it. This means that you can enter further "+1" time requests at this time by clicking on the relevant periods in the time grid.

Delete time requests for certain periods or blocks of periods by highlighting the cells and clicking on <Delete>.

6.2 Unspecified time requests

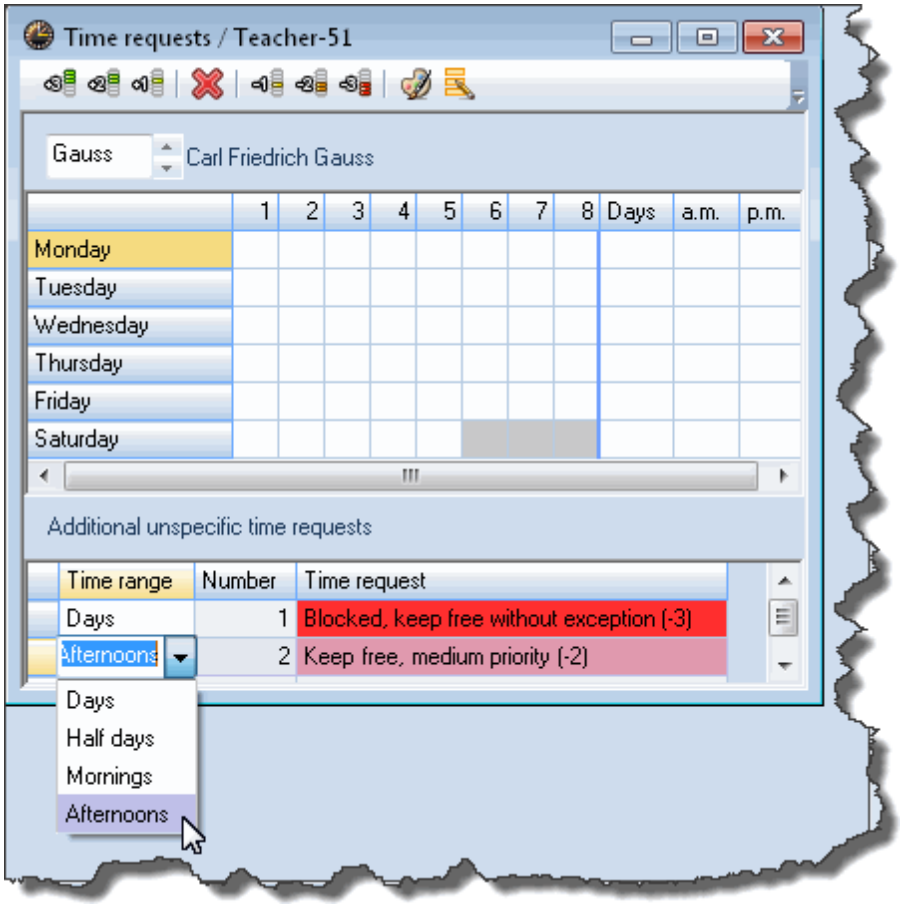
- Switch to teacher *Rub* (Rubens) using the previous time request example.

Example:
Teacher Rubens is a part-time teacher and therefore entitled to a free day per week. If possible, the

teacher would also like two *additional* free afternoons.

Enter the following data under 'unspecified time requests':

- Select in the first row in the column 'Time range' category 'Days'. Go to the next column (Number) and select '1' plus 'Blockese, keep free without exception' (-3). This instructs the optimisation tool to schedule one free day for teacher Rub.
- Now go to the next row in the colum 'time range' and select category 'afternoon', enter '2' in the number column and select 'Keep free, medium priority (-2).



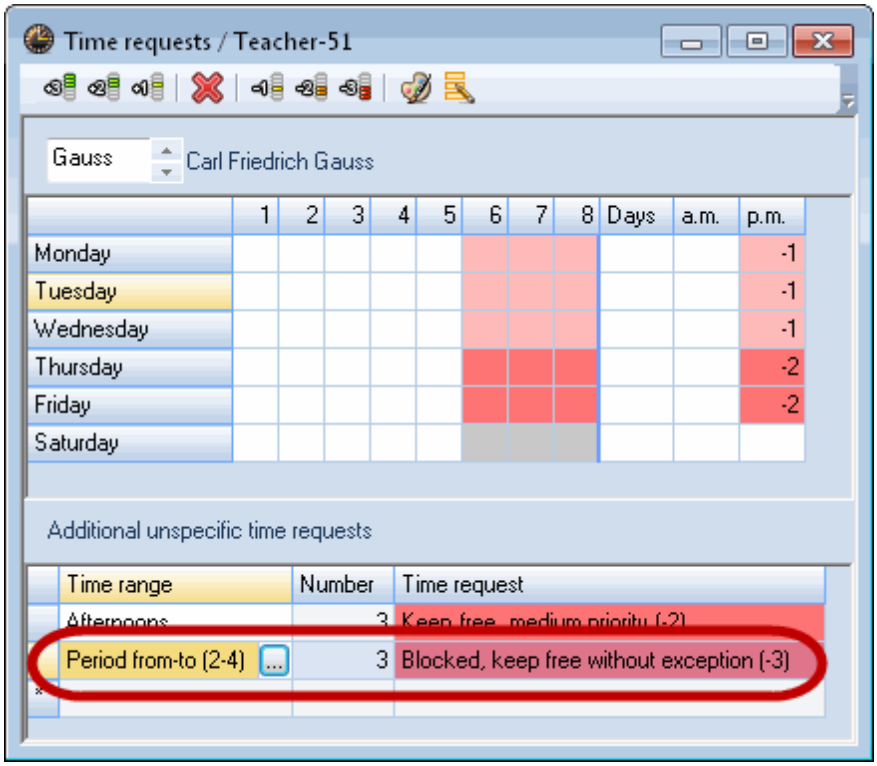
iof you enter time requests for half-days in the column 'time range', the optimisation tool will decide whether to schedule the half-day in the morning or the afternoon.

Note:
Use unspecified time requests whenever possible to allow the optimisation tool as much flexibility as possible. /hint>

Warning:
Specific and unspecified time requests are cumulative. If Tuesday, for example, is blocked with a time specified time request and an unspecified time request is entered with a priority of "-3" to keep a full day free, two complete days will be without periods – Tuesday plus an additional day.

In addition to the above, you can enter *unspecified blocked periods* for each element. The example shows a time request for teacher Gauss. He would like to have periods 2 - 4 off on three days of the week.

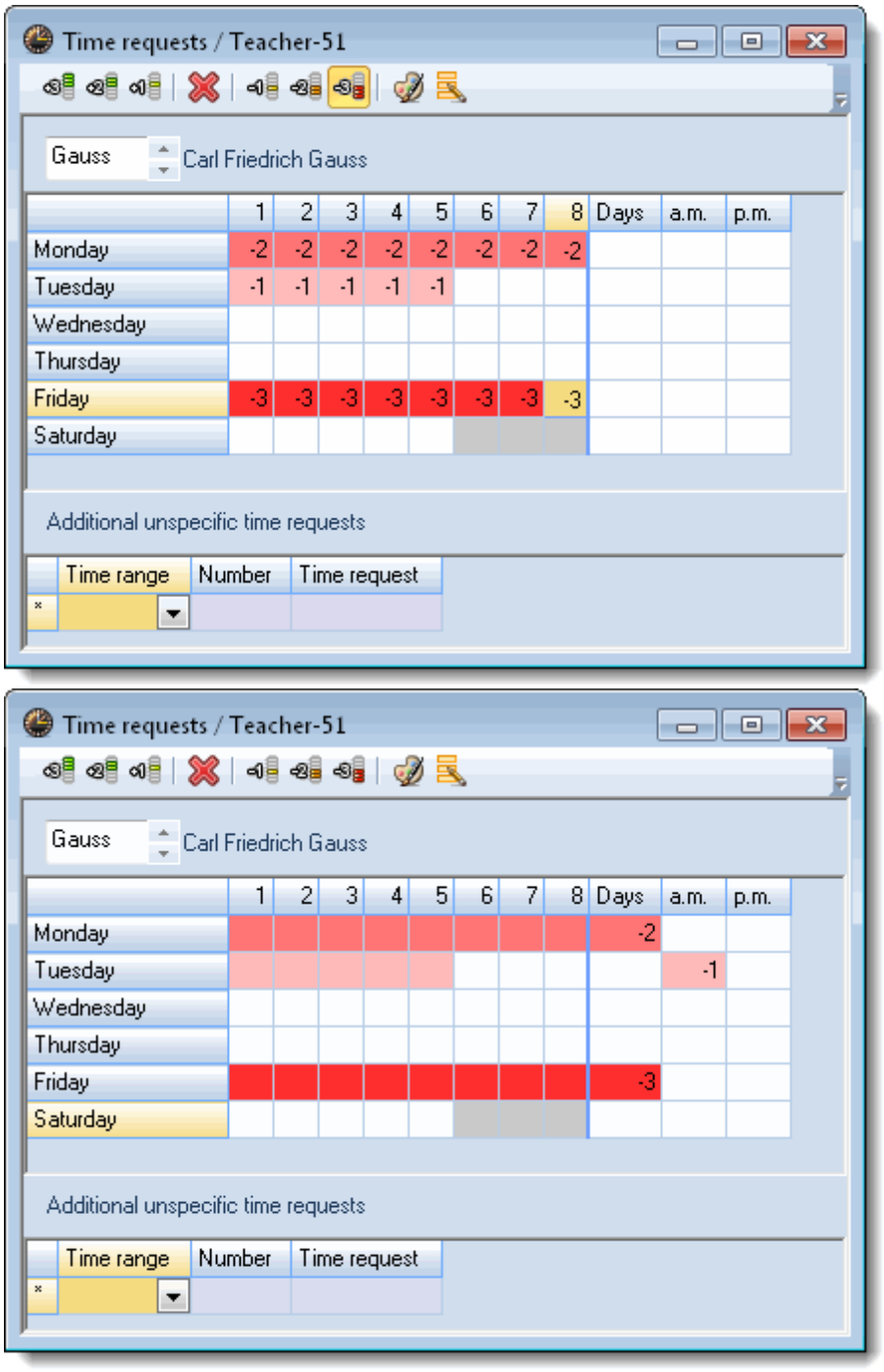
Tip:
Time requests can be entered directly in the scheduling dialogue (see chapter Scheduling dialogue *) for more details.*



6.3 Period and (Half) day requests

In the chapter ' Specific time requests ' it has already been mentioned that you can highlight (half) days in the right part of the time request window, instead of selecting several hours on the left side of the grid.

The two input methods are not totally equivalent to each other.



Please not the time requests of the two teachers AE - Einstein and Ander- Hans Christian Andersen in the example.

With AE all requests are entered in the left part of the grid as period requests, Ander's time requests were entered as (half-) day requests.

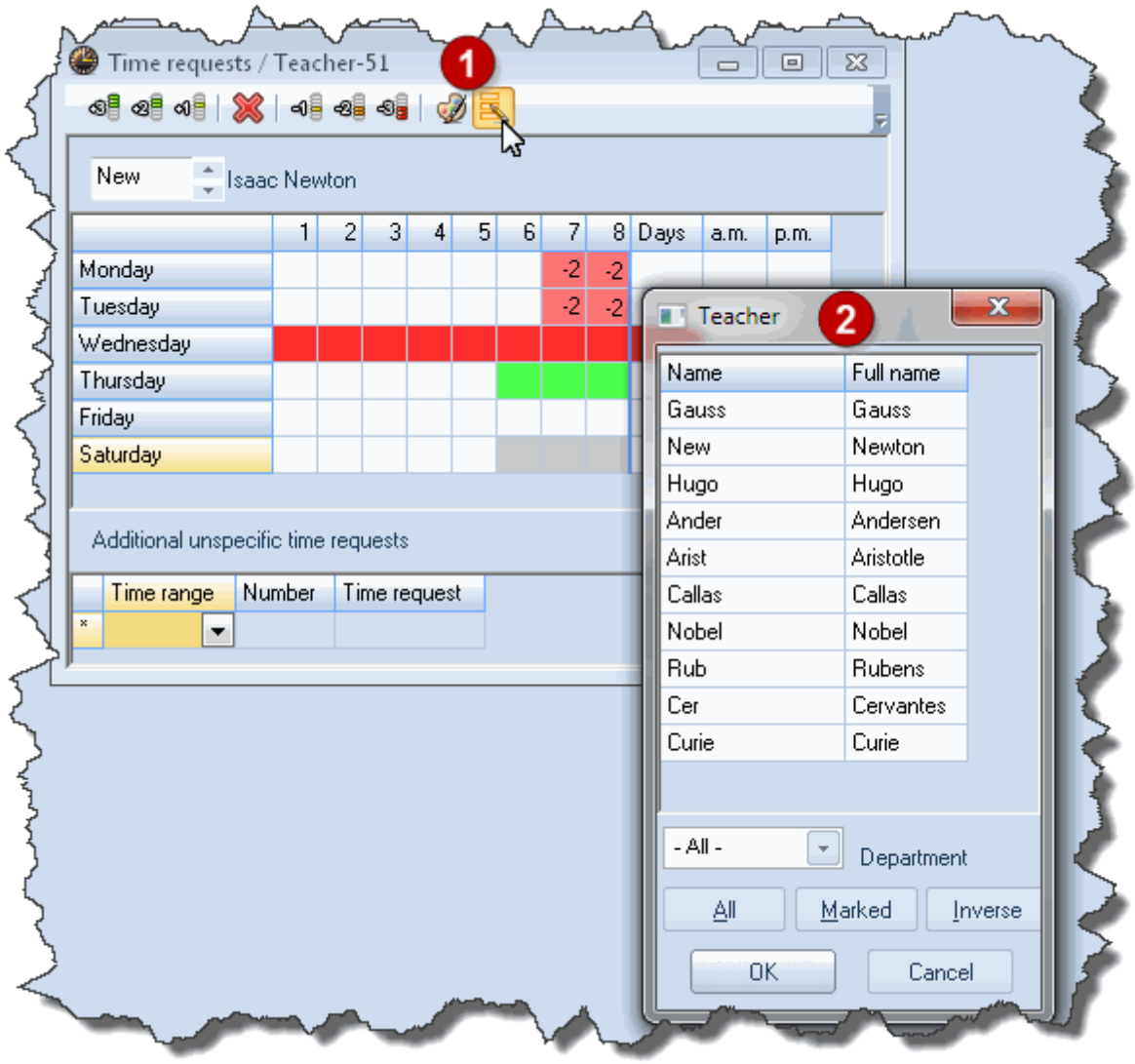
The *-3* -blockings on Friday are equivalent to each other for optimisation - Friday will not be scheduled. Optimisation tries to alternatively keep a half day free for the weaker entries, *-2* and *-1* of Ander, if it will

not be possible to Monday or Tuesday morning unscheduled. With Einstein, optimisation only takes care that Monday all day with significance of *-2* and Tuesday morning with a significance of *-1* are kept free.

Note:
Optomisation will probably shift (Half-) day requests with -2 or -1 to another day.

6.4 Copying time requests

You can *copy* the time requests of an element to the clipboard and *paste* them in different elements. It is also possible to copy all the time requests of an element to any other in the time request window using the <Serial Change> option

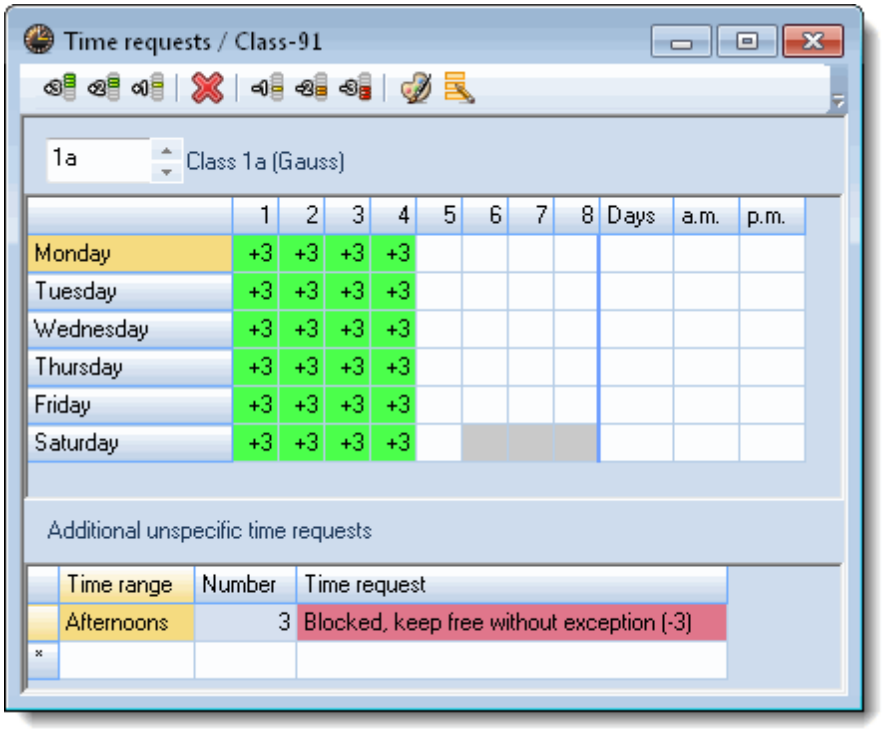


6.5 Deleting time requests

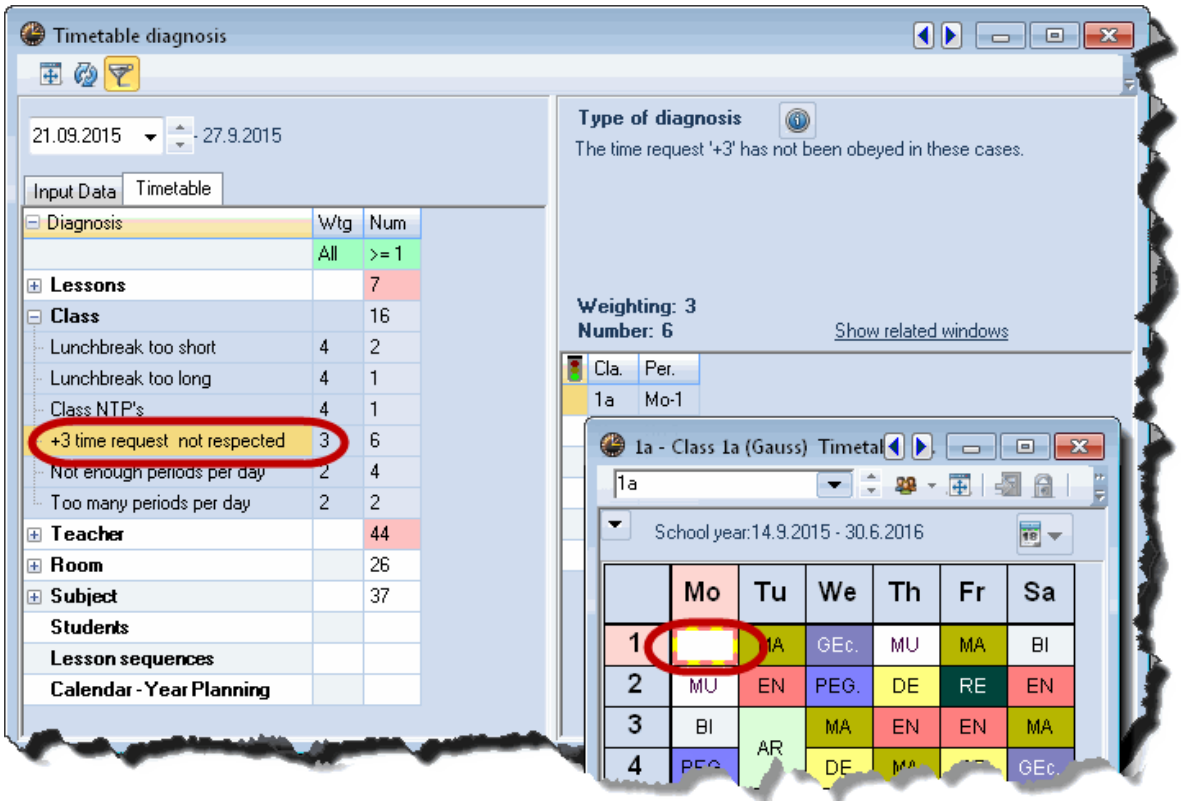
You can also use the <Serial Change> option to delete all time requests. Remove all time requests from one element and then copy and paste these settings to all other elements where you wish to delete time requests.

6.6 Core time

If you would like Untis to schedule morning lessons first, enter a time request of "+3" for some of the morning periods (usually the first 4 or 5) under classes. Use the <Change> function described above.

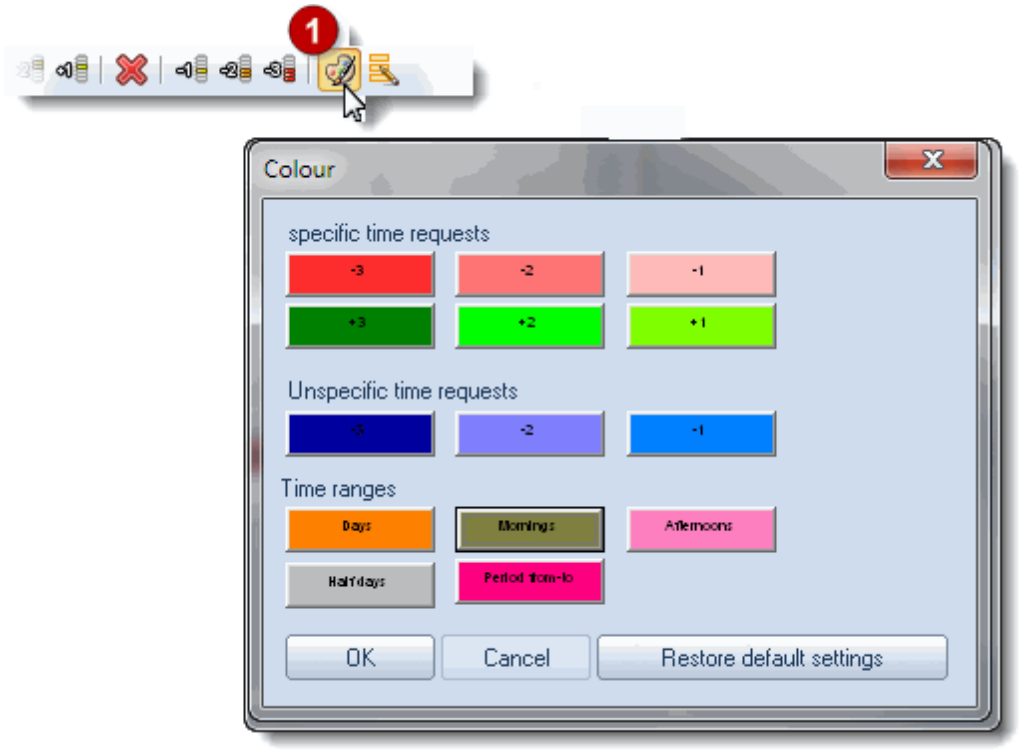


The time request "+3" defines the so-called *core time* . The optimisation tool *must* try to schedule these ranges in the grid of the elements, which have entered time request "+3". The Untis optimisation algorithm regards a core time violation as a serious offence which is displayed in the optimisation window, as well as a separate diagnosis item. Please make sure that the range of core times entered for an element is smaller than (or equal to) the number of periods defined for the element.

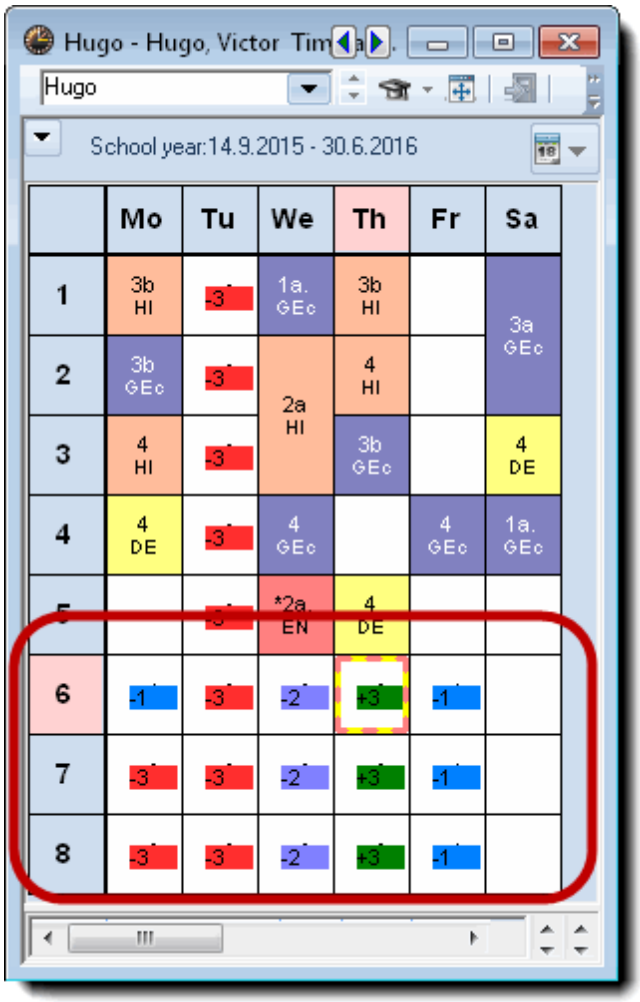


6.7 Colour codes

Use this function to customise the colour codes used to highlight the different time requests on the timetable or in the scheduling dialogue.



This is very useful for persons who suffer from *dyschromatopsy* (red green colour blindness),and you can differentiate specific from unspecified time requests.



7 Lunch breaks

You can specify the exact times of a lunch break between morning and afternoon lessons for classes and teachers using the *time grid*

You have the following lunch break options:

- Specify a uniform lunch break for the entire school (e.g. 12:00 - 13:00)

In the time grid, enter 12:00 as the time when the last morning lesson should end and 13:00 as the time the first afternoon lesson should start. The software will treat the time between 12:00 and 13:00 as a lunch break (not as a period).

- Specify element-specific lunch break blocks (time request "- 3").

- Include the lunch break in timetable creation.

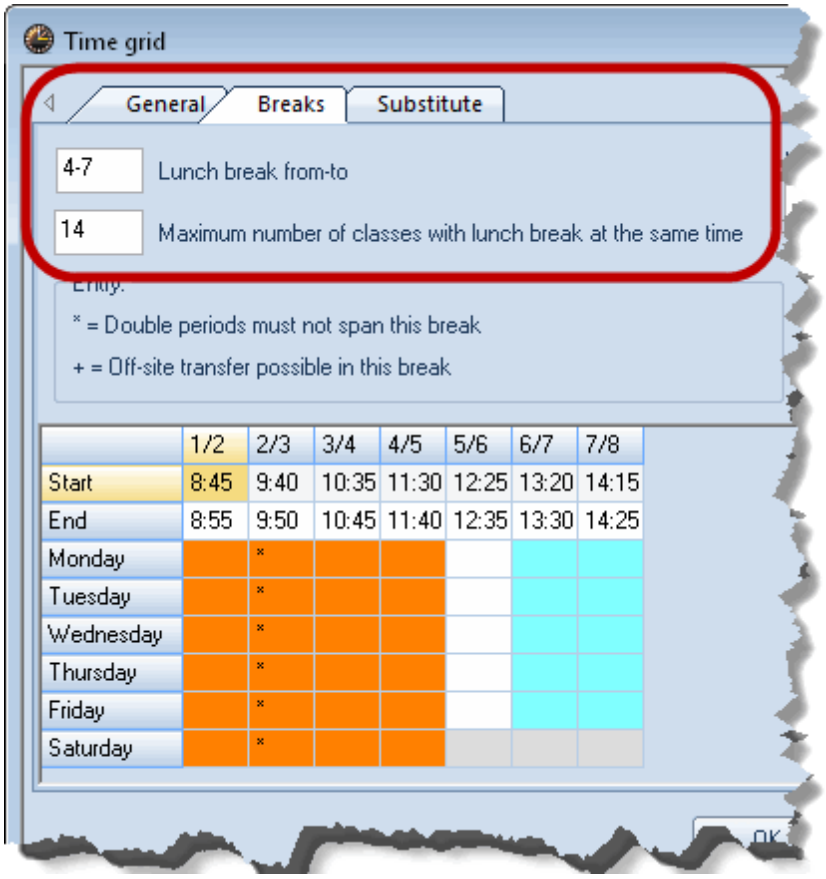
This last lunch break scheduling option allows for a better use of subject rooms. The option enables you to specify different lunch break durations for individual teachers and classes. Enter "1-2" in the box *Lunch break min, max* to instruct the software to schedule either 1 or 2 lunch break periods for the

selected element

Based on the weighting, the lunch break will be scheduled during the last morning periods and/or the first afternoon periods.

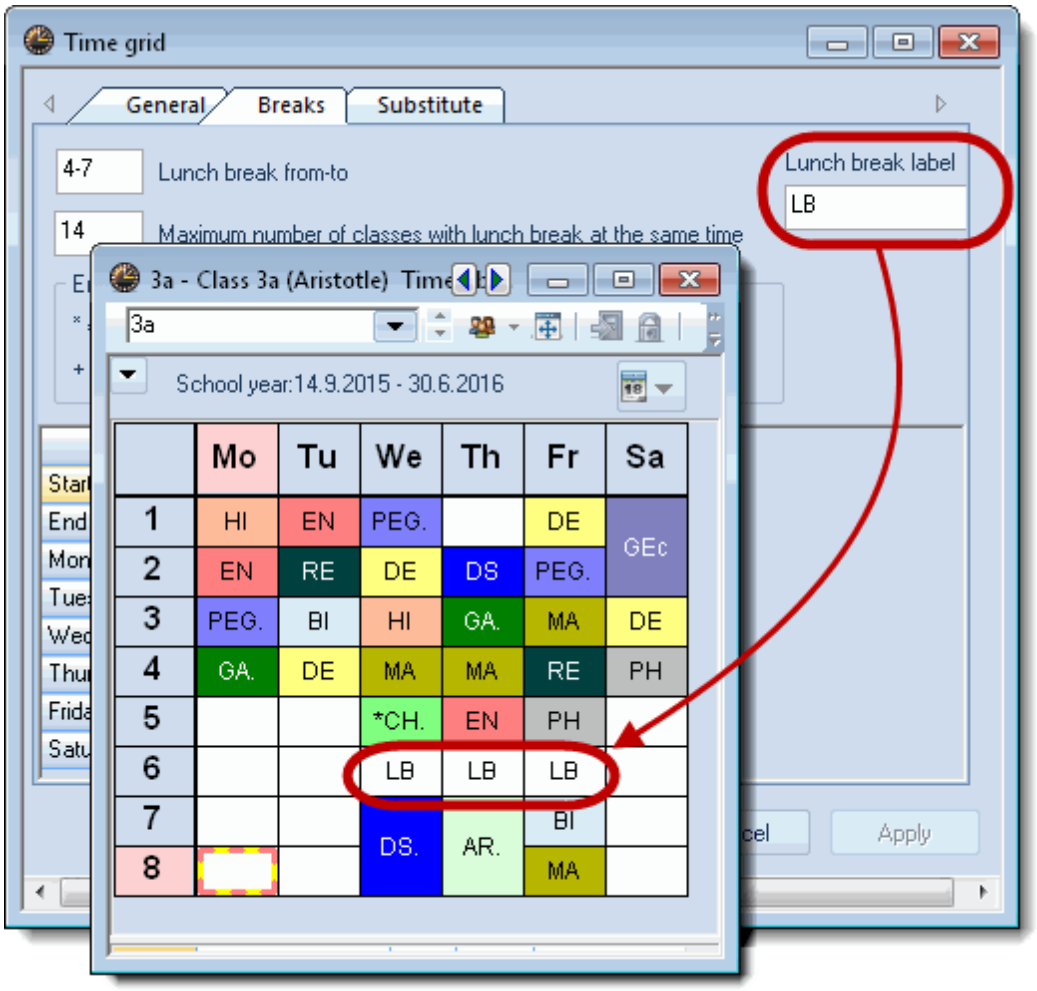
On a timetable with
5 morning periods and 4 afternoon periods, a two-period lunch break will be scheduled either for
periods 4 and 5,
periods 5 and 6, or
periods 6 and 7.

Vary the time during which a lunch break can be scheduled by specifying the first and the last period when a lunch break may be scheduled (on the 'Breaks' tab in the *time grid*). The boundary between morning and afternoon lessons must lie within the specified time interval (see figure below).



If your school cafeteria has a limited capacity, use the same tab to enter the maximum number of classes that can have a lunch break at the same time (figure above).

Violations against specified lunch break times are displayed in the diagnosis window .
Please note that you can also enter a *Lunch break label* on the 'Breaks' tab. This label is then also printed on the respective timetables.



8 Couplings

The composition of *couplings* has a major effect on the quality of a timetable. Unfavourable couplings can prevent the construction of a high-quality timetable. The following criteria are important for the creation of couplings.

8.1 Teacher teams

In the easiest case a teacher team is made of two teachers teaching each one group of students at the same time. Teacher teams are required, for instance, in PE lessons where students of a class are divided into a male and a female group. Each group requires its own teacher, and both teachers must always be scheduled at the same time. Both teachers must always be scheduled together for the lesson concerned.

As a general rule, it is desirable to keep the number of teacher teams as small as possible and to ensure that each teacher is only part of a teacher team if absolutely necessary (see the example at the end of this chapter).

To help you organise your teacher teams, Untis provides a "Teacher team" list where you can view all teacher teams at a glance.

Access the list via one of the two following options:

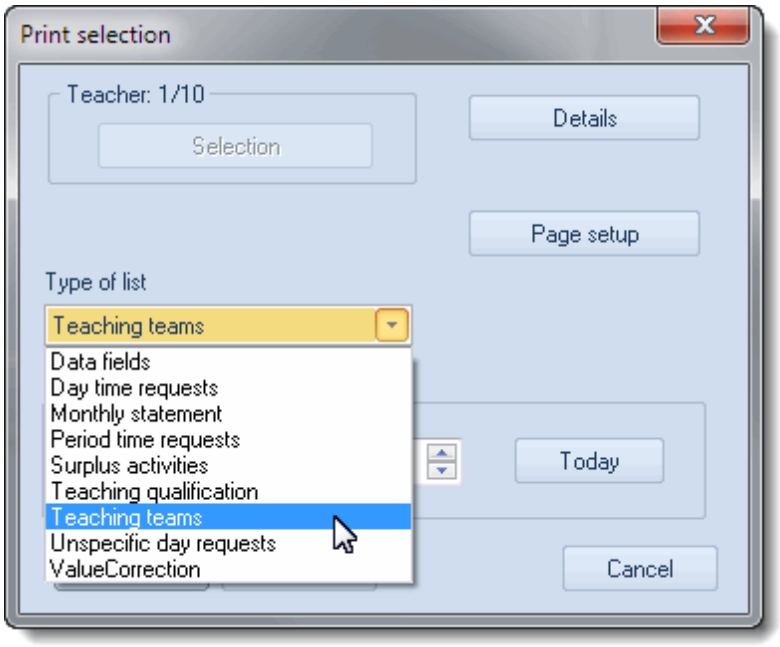
1. Click on <Print> or <Print Preview> in the "CCC Analysis" window

2. Select the relevant print list from the "Print selection" dialogue under "Master Data | Teachers" (only available with the "Lesson Planning" module)

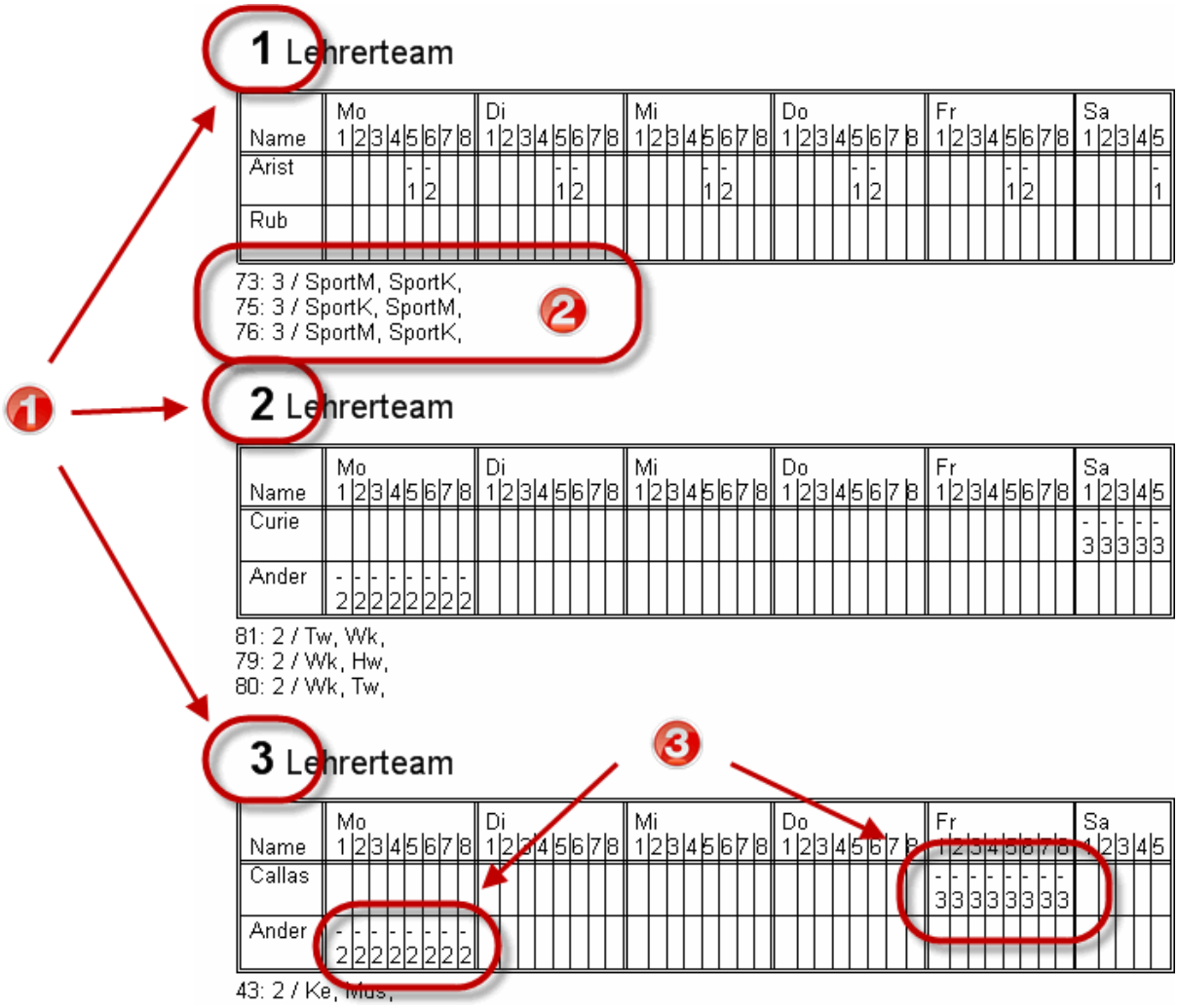
Method 1 provides direct access to the list of all teacher teams.

Using method 2, you first need to open the "Print selection" dialogue by clicking on <Print> or <Print Preview> in an active master data window for teachers. You can then change other settings in this window.

Click on the selection window "Type of list" to obtain a list of all print lists available in connection with teacher master data. Select the list "Teacher teams" (the <Selection> button normally used to select individual teachers is irrelevant for the "Type of list" function and is therefore greyed out).



Die folgende Abbildung zeigt Ihnen, wie eine solche Liste aussehen könnte.



The printout shows:

1 The total number of different teams. The general rule is: the fewer, the better.

2 The lessons (including details) in which a team is involved. The general rule is: the more, the better.

3 The time requests entered for the individual teachers in the team. If a number of different time requests need to be taken into consideration, the timetable quality will deteriorate as a result since a teacher team can only be scheduled when all the teachers of the team are available.

In the example above, the PE teachers *Rub* ("Rubens") and *Arist* ("Aristotle") form teacher team no. 1.

Let us assume that you have another teacher team (e.g. team no. 4 comprising teachers Rubens and Hugo) scheduled to teach Design. Each time, team 4 is scheduled, team 1 would be blocked since teacher Rubens belongs to both of them.

In this case you need to decide if teacher team 4 is necessary at all (since there already is a teacher team for Design, i.e. team 2). You could also find out if Ruben's team colleague Arist is qualified to teach Design, as well. If so, the Design lesson could also be taught by team 1. In any case, one teacher team would be eliminated, lending a greater flexibility to the optimisation tool.

As mentioned earlier, the CCC analysis is a perfect tool for identifying such problematic compositions (see the chapter " CCC analysis ").

Time requests and teacher teams

Time requests are another problematic issue when dealing with teacher teams. In an ideal case, the individual time requests and especially the *blocked periods* for teachers in a teacher team should overlap as much as possible.

The following figure shows a single teacher team. Please note the blocked periods (time requests "-3").

1 Teacher team

Name	Mo 1	2	3	4	5	6	7	8	Tu 1	2	3	4	5	6	7	8	We 1	2	3	4	5	6	7	8	Th 1	2	3	4	5	6	7	8	Fr 1	2	3	4	5	6	7	8	Sa 1	2	3	4	5
Callas																																	-3	-3	-3	-3	-3	-3	-3	-3					
Gauss	-2	-2	-2	-2	-2	-2	-2	-2	-1	-1	-1	-1	-1																				-3	-3	-3	-3	-3	-3	-3	-3					
Ander	-2	-2	-2	-2	-2	-2	-2	-2																																					
Rub																																													
Hugo						-1	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3					-2	-2	-2						+3	+3	+3						-1	-1	-1					
Nobel																	+2	+2	+2	+2	+2	+2	+2	+2						-3	-3	-3	+2	+2	+2	+2	+2	+2	+2	+2	-2	-2	-2	-2	-2
?-1																																													

6: 1 / CH, MA, EN, DE,

As a result of various time requests, team teachers are blocked on Monday, Tuesday, Wednesday and Saturday. Let us assume that this teacher team is scheduled for a lesson with three single periods per week. Two of the three periods could be scheduled on Thursday and Friday, but the third period could only be scheduled by violating the *blocked period* (time request "-3") of a teacher (something Untis will never do) or by violating the condition that the subject should take place no more than once a day (depending on your *weighting settings* , Untis may violate this rule; please see the chapter " Weighting").

8.2 Class couplings

The above rule for teacher teams also applies to class couplings, i.e. lesson couplings across classes should, if possible, always involve the same classes.

In the example above, class 1a in a two-class coupling should only be coupled with class 1b; in a four-class coupling only with classes 1b, 1c and 1d.

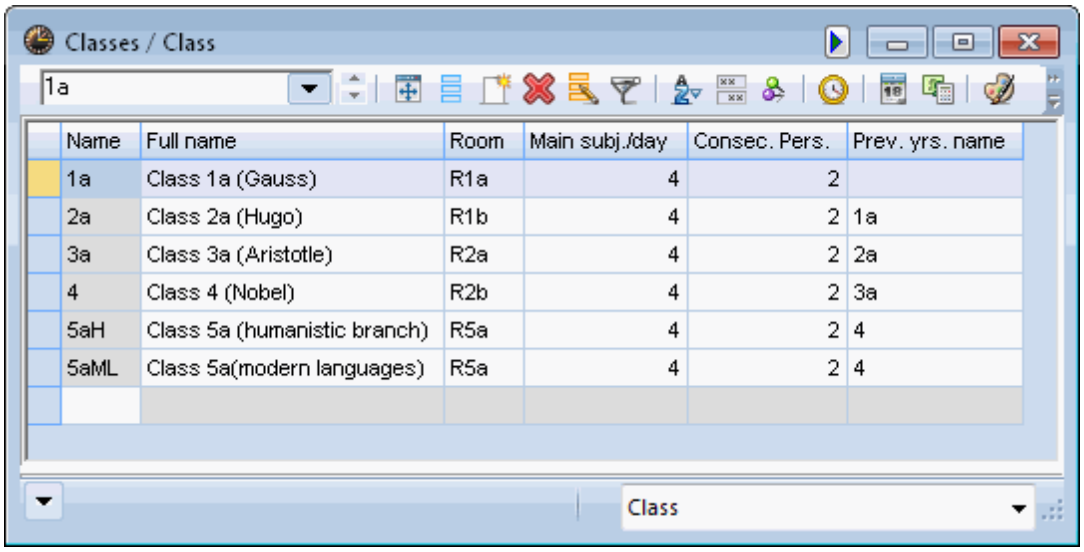
9 Type-separated class components

For organisational reasons, one class sometimes consists of two type-separated class components.

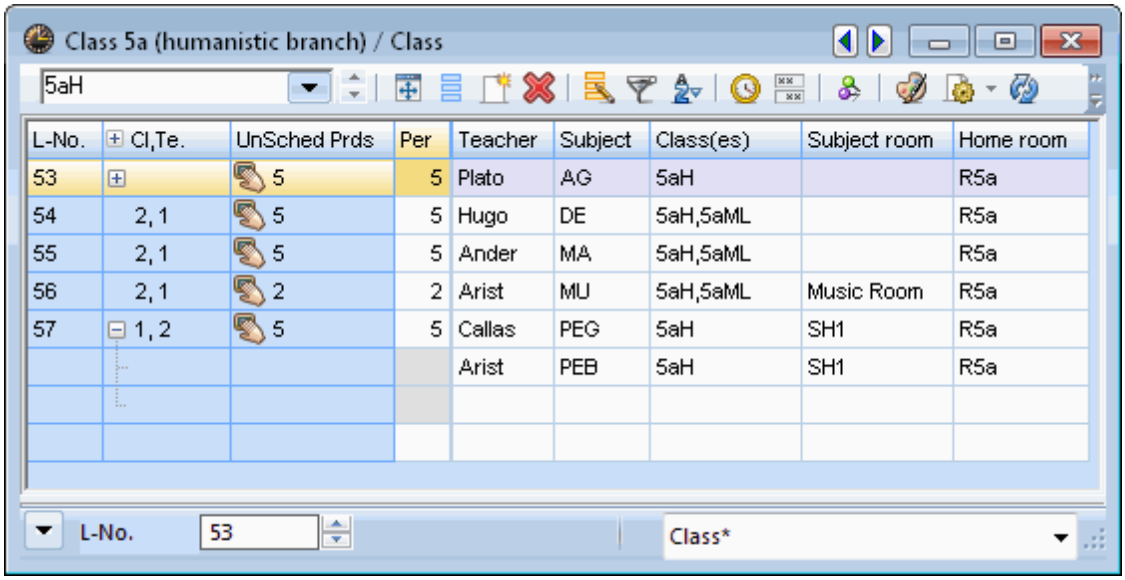
For example, class *5a* could consist of a Modern Languages and a Classics component. While the

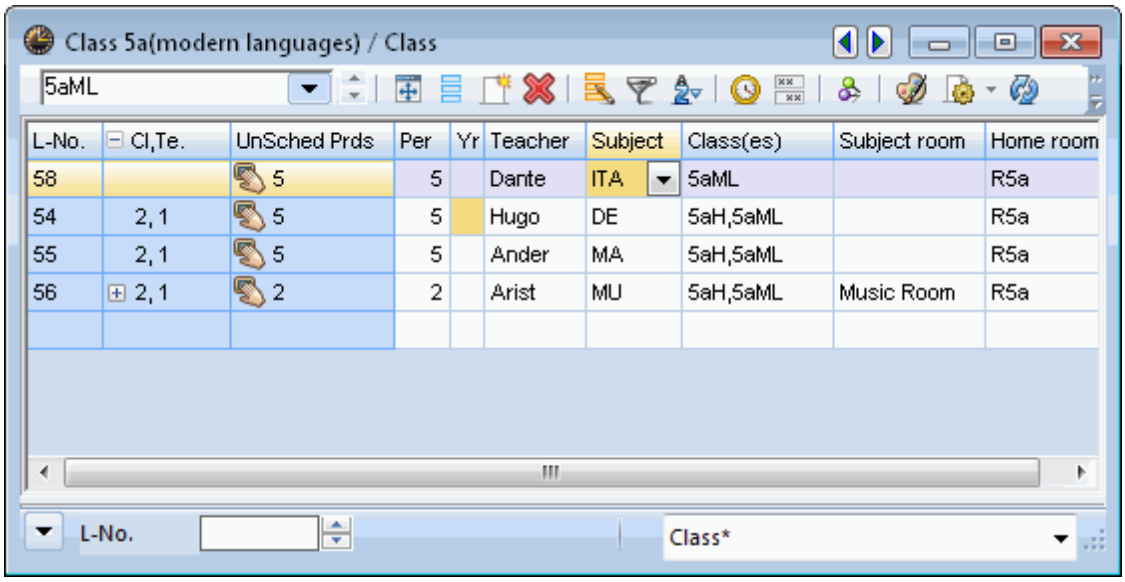
former component has an Italian lesson scheduled, the latter component could have a Greek lesson. Proceed as follows in this case:

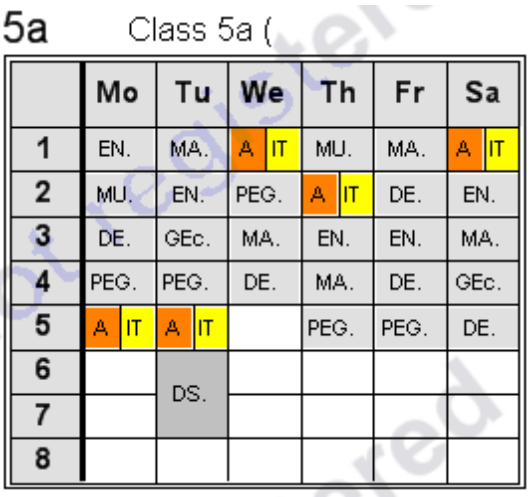
- Define two classes - 5aC for the Classics component and 5aM for the Modern Languages component.



- Enter the name '5a' in the *Master class* field under master data of both classes
- Couple the two class components for all lessons attended by the students of both groups.







- The timetable of both class components can then be combined in a single view.

Note:
You can deactivate this behaviour for individual timetable formats by checking the box "Display main classes separately" on the "Layout 2" tab under <Timetable settings>.

10 Class groups

By default, the Untis standard software package optimises school timetables for schools based on class structure, i.e. where each student is assigned to one particular class and the lessons scheduled for the student are determined completely by his or her class.

The other extreme is a system in which students can *choose their courses freely* by setting up their own

individual timetable (within certain legal frameworks) and classes do not exist anymore.This type of school system allows students to choose his or her own courses, which means it is no longer the class that is the focal point of the timetabling efforts, but the student. This scheduling situation is addressed by the Untis *Course Scheduling* module.

Some school systems, such as some German Realschulen, Austrian colleges of higher education and British secondary schools, use a combination of the two extremes described above. In these schools, some lessons are attended by the entire class (*core lessons, main subjects*) while others represent so-called differentiation subjects (*intensive lessons, minor subjects, options*) that are attended by a fixed group of students from different classes. Each student's lessons are therefore determined by the student's choice of main and minor subjects. The following section describes how to deal with this timetabling situation using class groups.

The following example demonstrates the general principles of class groups.

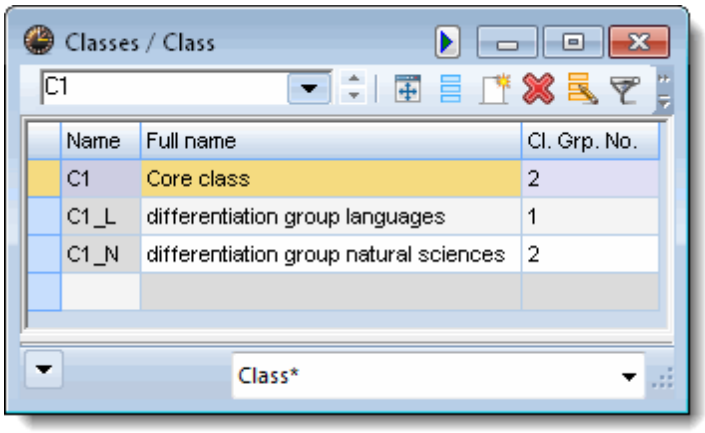
Class C1 consists of 20 students subdivided into two groups of 10 students each One group consists of students with an interest in modern languages, the other of the students with an interest in science. All 20 students attend the *same* lessons for English, PE, History and Geography. However, while one group attends German, French and Italian lessons, the other group has Physics, Chemistry and Maths, instead.

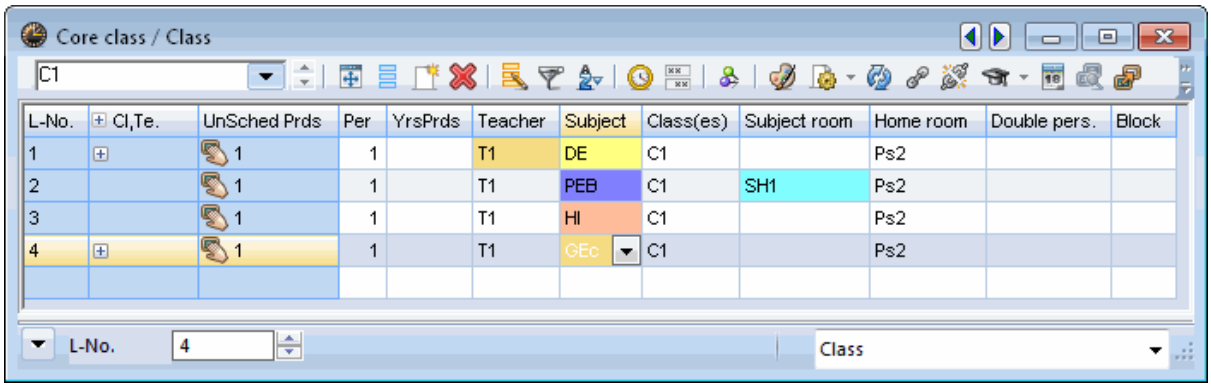
This means that German can be scheduled at the same time as Chemistry or Maths since Modern Languages students do not attend Science classes. On the other hand, German, Chemistry and Maths must not be scheduled at the same time as English or PE since these are core subjects attended by *all* the students of the class.

You can use Untis to solve this problem as follows:

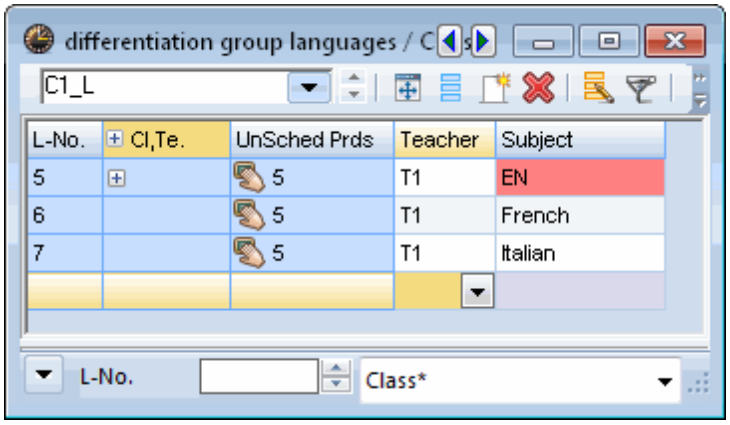
10.1 Defining core lessons and options

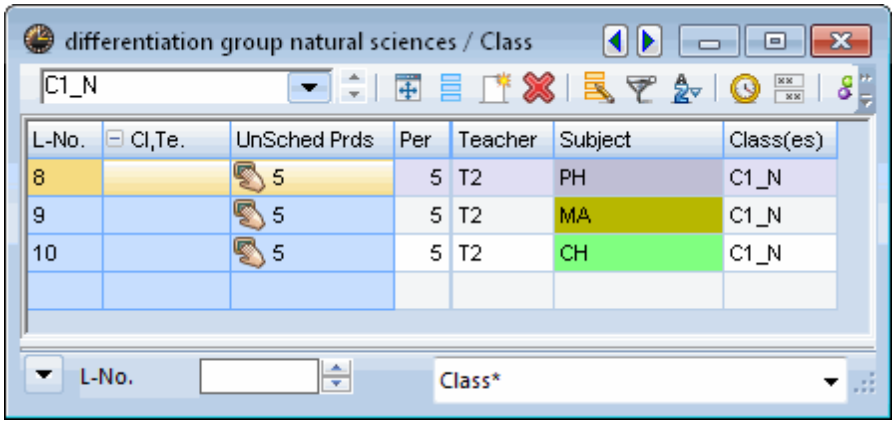
Under "Master Data | Classes", define a core class *C1* and two differentiation groups *C1_M* (Modern Languages) and *C1_S* (Sciences).



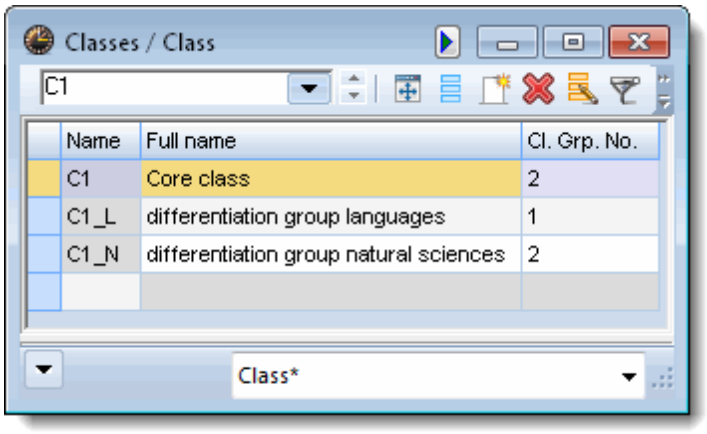


Lessons of core class C1 involves **all of the students** of the class while lessons of differentiation groups involve only the students belonging to the particular group.





Under "Master Data | Classes", enter the information that the class groups C1_M and C1_S consist of students from core class C1 using the *Class group code* (CG code): "1" meaning that the class is a core class, numbers greater than 1 (2 - 9) refer to the different class groups.

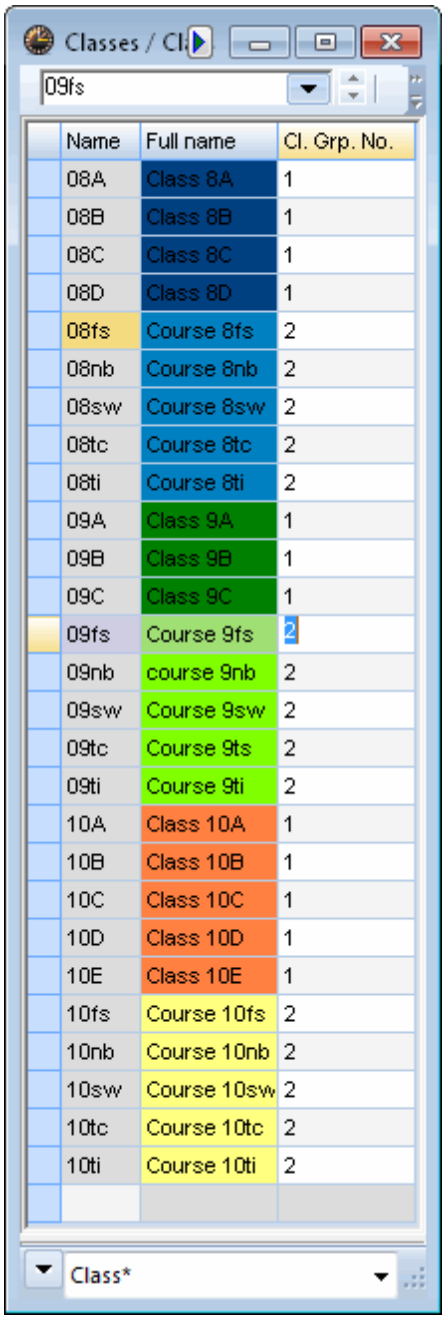


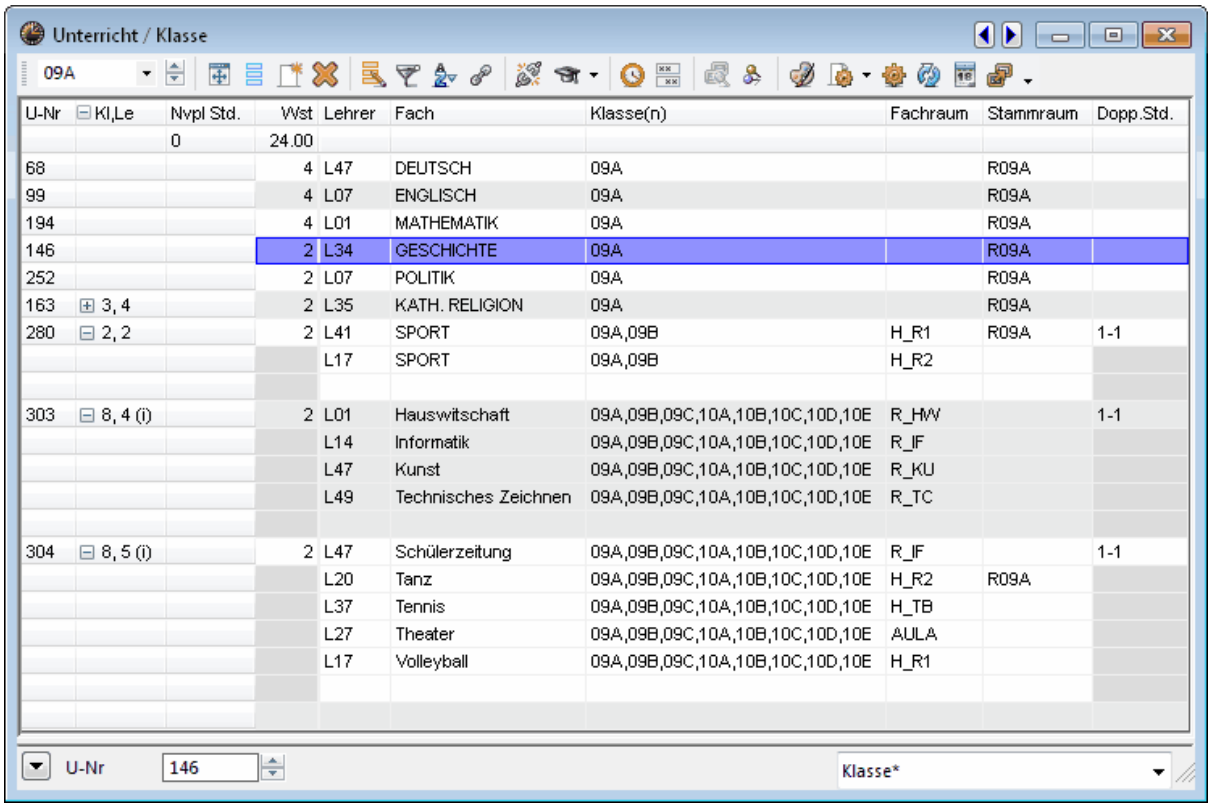
Please note that the same class group code must be entered for both class groups C1_M and C1_S. Use higher code numbers only when the students in your school can choose more than one elective course group.

Entering the correct codes instructs Untis to schedule lessons for class groups C1_M and C1_S only when class C1 (i.e. the core class) is not scheduled to have lessons. The same also applies to class C1_S.

10.2 Illustrating the principle

The examples on the left and below and the following explanations demonstrate the situation in a German Realschule (in North Rhine-Westphalia):


Classes / Cl
09fs
Name
Full name
Cl. Grp. No.
08A Class 8A 1
08B Class 8B 1
08C Class 8C 1
08D Class 8D 1
08fs Course 8fs 2
08nb Course 8nb 2
08sw Course 8sw 2
08tc Course 8tc 2
08ti Course 8ti 2
09A Class 9A 1
09B Class 9B 1
09C Class 9C 1
09fs Course 9fs 2
09nb course 9nb 2
09sw Course 9sw 2
09tc Course 9ts 2
09ti Course 9ti 2
10A Class 10A 1
10B Class 10B 1
10C Class 10C 1
10D Class 10D 1
10E Class 10E 1
10fs Course 10fs 2
10nb Course 10nb 2
10sw Course 10sw 2
10tc Course 10tc 2
10ti Course 10ti 2
Class*

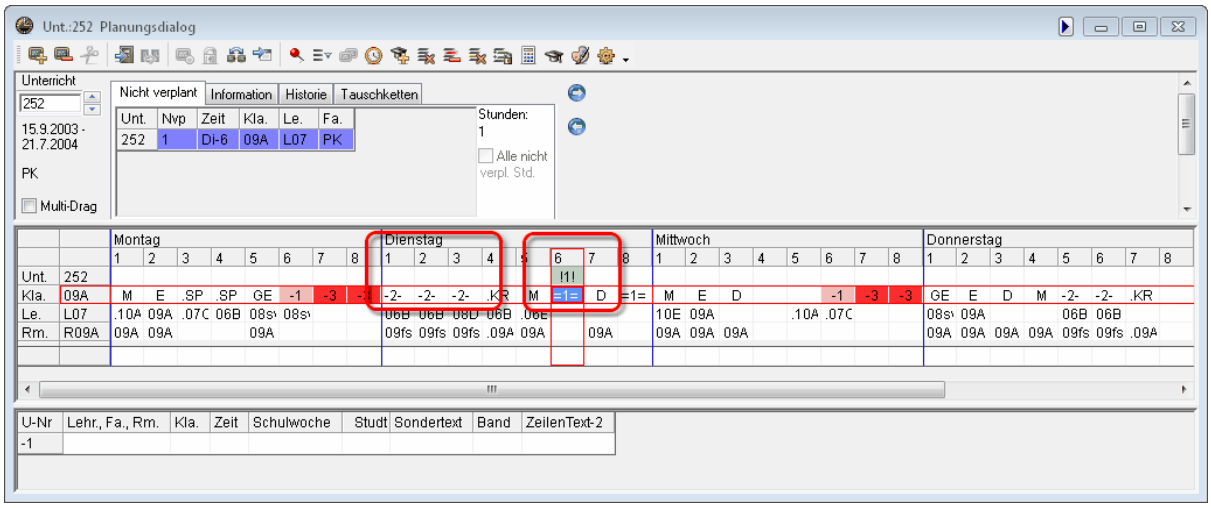


Take a look at year 9. Each student of this year is assigned to one of the core classes 09A, 09B or 09C and attends undifferentiated core class lessons. Each class is therefore marked with the class group code "1".

The classes 09fs – 09ti highlighted in light green (full name "Course" in the above figure) are the differentiation groups (fs: French, ti: IT). Each student of core classes 09A - 09C can choose one of the elective subject groups 09fs – 09ti. Each class group is marked with the class group code "2".

Please note when using class groups that the order in which classes are listed under "Master Data | Classes" is **not arbitrary** . Core and differentiation classes of any one year must be listed in sequence, i.e. one below the other. A class group coded with a class group code **smaller** than that of the class listed immediately above denotes the beginning of a new, totally separate class sequence with completely different details (see the example above, e.g. between 08ti and 09A, or between 09ti and 10A

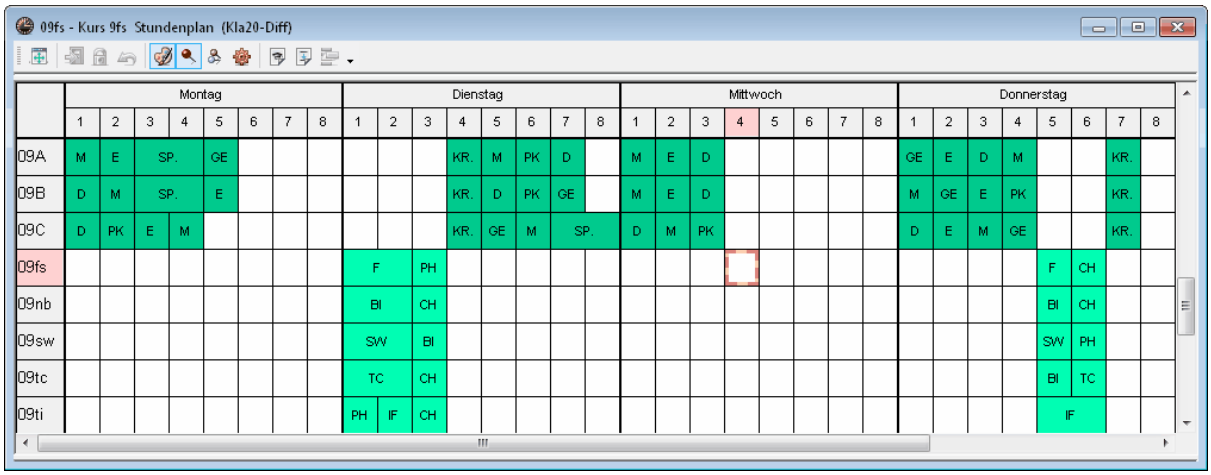
Lessons of classes coded with a class group code are marked as such in the scheduling dialogue.



The symbol '=1=' on Tuesday, period 6, in the row of class 09A means that a class with the same class group code '1'' is scheduled at the same time. (For this reason, a lesson should be scheduled for class 09A in this period, if possible.)

Tuesday, period 1, contains the symbol '-2-'. This means that a lesson has already been scheduled for a class with the class group code '2' and that it is **not possible** to schedule a lesson for class 09A at this time without creating a **clash** .

Please also note that the additional class row for 09ti, which has a different class group code from that of class 09A, shows the complementary entries to class 09A: Mon-1 to Mon-6 are coded '-1-' for 09ti (scheduling not possible due to code '1'). Tue-1 to Tue-3, scheduled for 09ti, are coded '-2-' for 09A (scheduling not possible due to code '2').

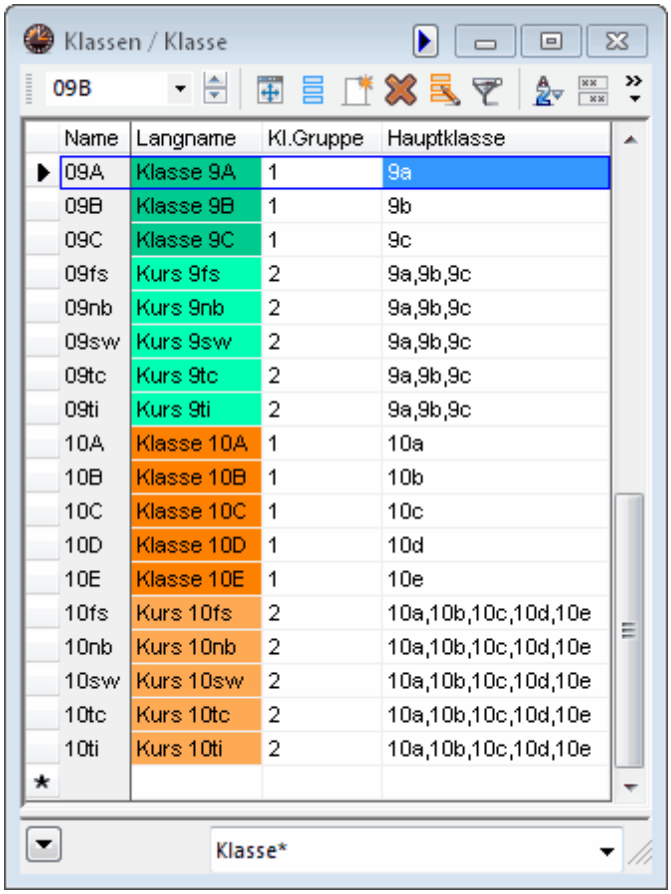


10.3 Display and printing

The timetables of core and differentiation classes can be displayed neatly and clearly using Untis overview timetables (tab *Timetables* , group *Overview timetables* , menu *landscape* .

Print the core and differentiation lessons of a class on a single timetable by accessing the master data field *Master class* .

Please note that Untis allows you to assign several different master classes to a class. The following example demonstrates the advantages of that option.



Name	Langname	Kl.Gruppe	Hauptklasse
09A	Klasse 9A	1	9a
09B	Klasse 9B	1	9b
09C	Klasse 9C	1	9c
09fs	Kurs 9fs	2	9a,9b,9c
09nb	Kurs 9nb	2	9a,9b,9c
09sw	Kurs 9sw	2	9a,9b,9c
09tc	Kurs 9tc	2	9a,9b,9c
09ti	Kurs 9ti	2	9a,9b,9c
10A	Klasse 10A	1	10a
10B	Klasse 10B	1	10b
10C	Klasse 10C	1	10c
10D	Klasse 10D	1	10d
10E	Klasse 10E	1	10e
10fs	Kurs 10fs	2	10a,10b,10c,10d,10e
10nb	Kurs 10nb	2	10a,10b,10c,10d,10e
10sw	Kurs 10sw	2	10a,10b,10c,10d,10e
10tc	Kurs 10tc	2	10a,10b,10c,10d,10e
10ti	Kurs 10ti	2	10a,10b,10c,10d,10e

The differentiation lessons of class groups 09fs, 09nb, 09sw, 09tc and 09ti are elective lessons for all students of core classes 09A, 09B and 09C. The three master class designations allow you to print complete timetables of all core classes including differentiation groups quickly and easily.

Klasse 9A

	Mo	Di	Mi	Do	Fr
1	09A M L01 R09A	09fs F L44 R09A 09n BI L13 R_BI 09s SW L08 R09B 09tc TC L49 R_TC 09ti PH L14 R_PH	09A M L01 R09A	09A GE L34 R09A	09fs BI L19 R_BI 09n BI L13 R_BI 09s SW L08 R09B 09tc PH L49 R_PH 09ti IF L14 R_IF
2	09A E L07 R09A	09fs F L44 R09A 09n BI L13 R_BI 09s SW L08 R09B 09tc TC L49 R_TC 09ti IF L14 R_IF	09A E L07 R09A	09A E L07 R09A	09fs F L44 R09A 09n PH L06 R_PH 09s CH L22 R_C 09tc TC L49 R_TC 09ti BI L18 R_BI
3	09A SP L41 H_R1	09fs PH L06 R09A 09n CH L38 R C 09s BI L01 R_BI 09tc CH L40 R09E 09ti CH L02 R08B	09A D L47 R09A	09A D L47 R09A	09A D L47 R09A
4	09A SP L17 H_R2	09A. KR L35 R09A 09A ER L25 R09E		09A M L01 R09A	09A PK L07 R09A
5	09A GE L34 R09A	09A M L01 R09A		09fs F L44 R09A 09n BI L13 R_BI 09s SW L08 R09B 09tc BI L01 R_BI 09ti IF L14 R_IF	09A E L07 R09A
6		09A PK L07 R09A		09fs CH L11 R09A 09n CH L38 09s PH L06 R_PH 09tc TC L49 R TC 09ti IF L14 R_IF	

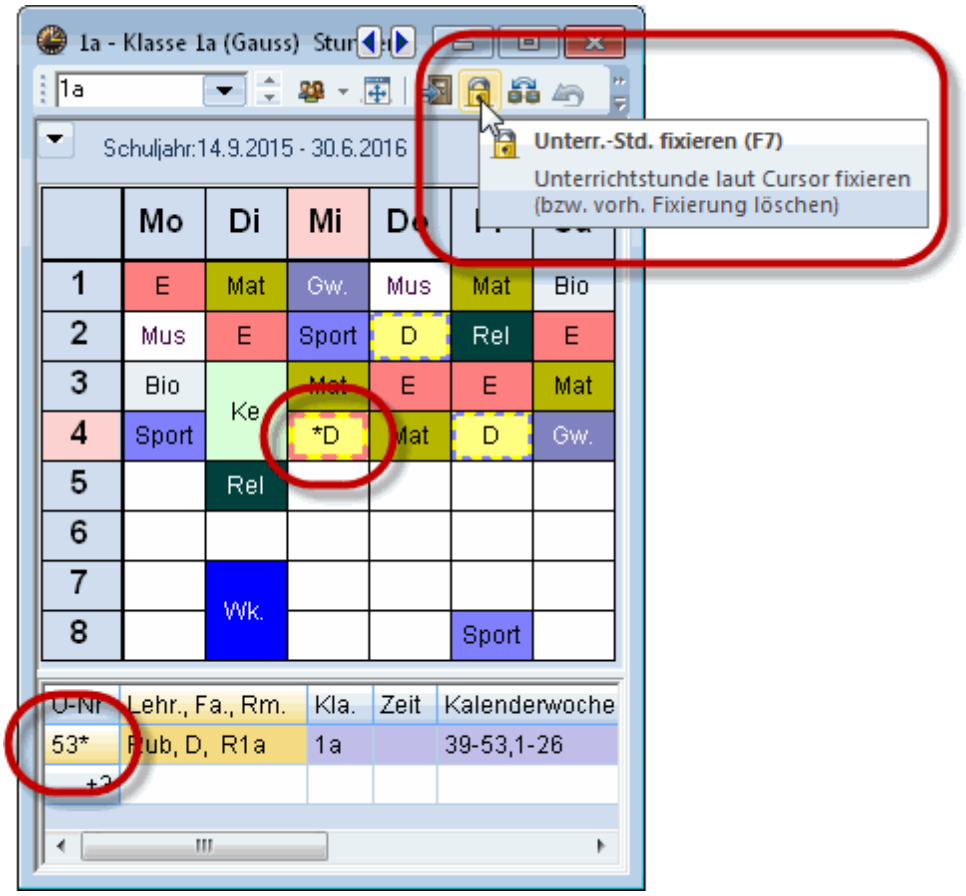
11 Locking

Before timetable optimisation can run it is often necessary to *lock* certain periods, lessons or even entire master data elements such as teachers, classes or rooms in order to prevent Untis from making changes at the places in question.

11.1 Locking periods

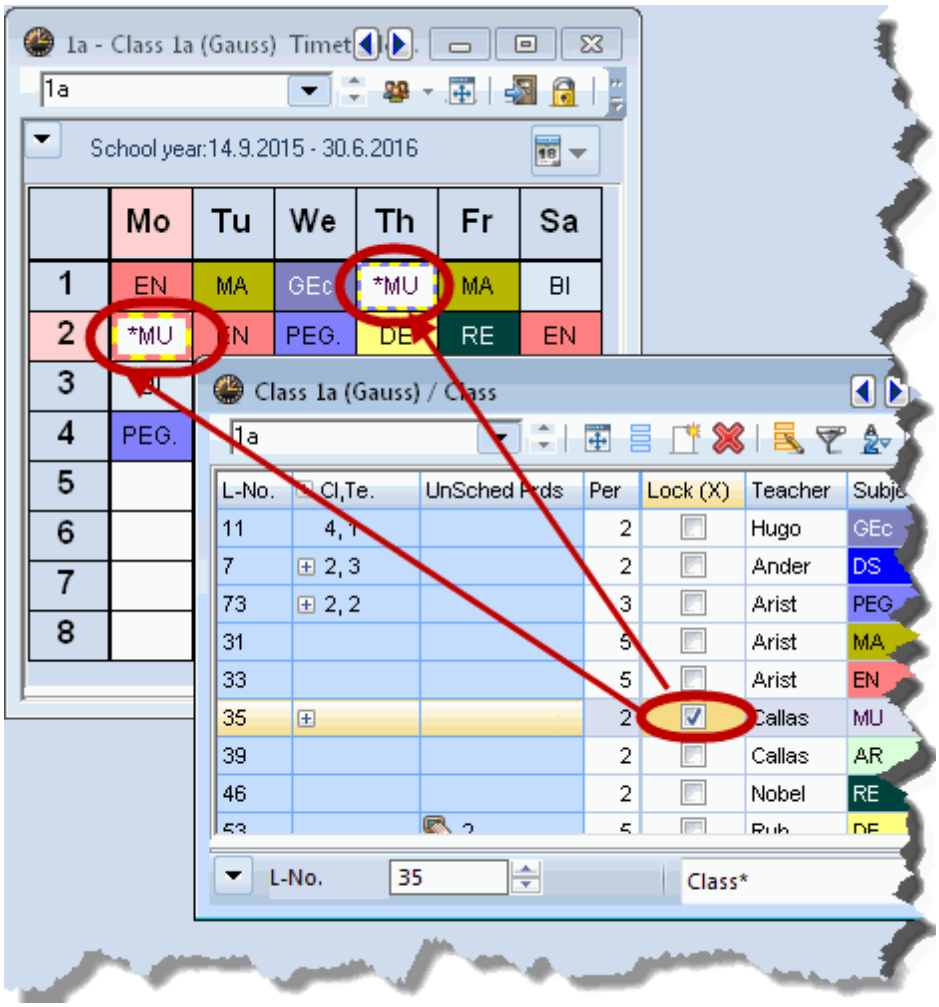
When one or more periods have been manually set for a lesson they can be individually locked in the timetable by clicking on <Lock period>. This ensures that these periods will not be moved during optimisation. Locked periods are marked with an asterisk (*) in the timetable period window and in the period details window (see figure).

Deactivate the marking in the timetable period window by unchecking the option "Label locked periods with a * mark" on the "Layout 2" tab under <Timetable Settings>.



11.2 Locking lessons

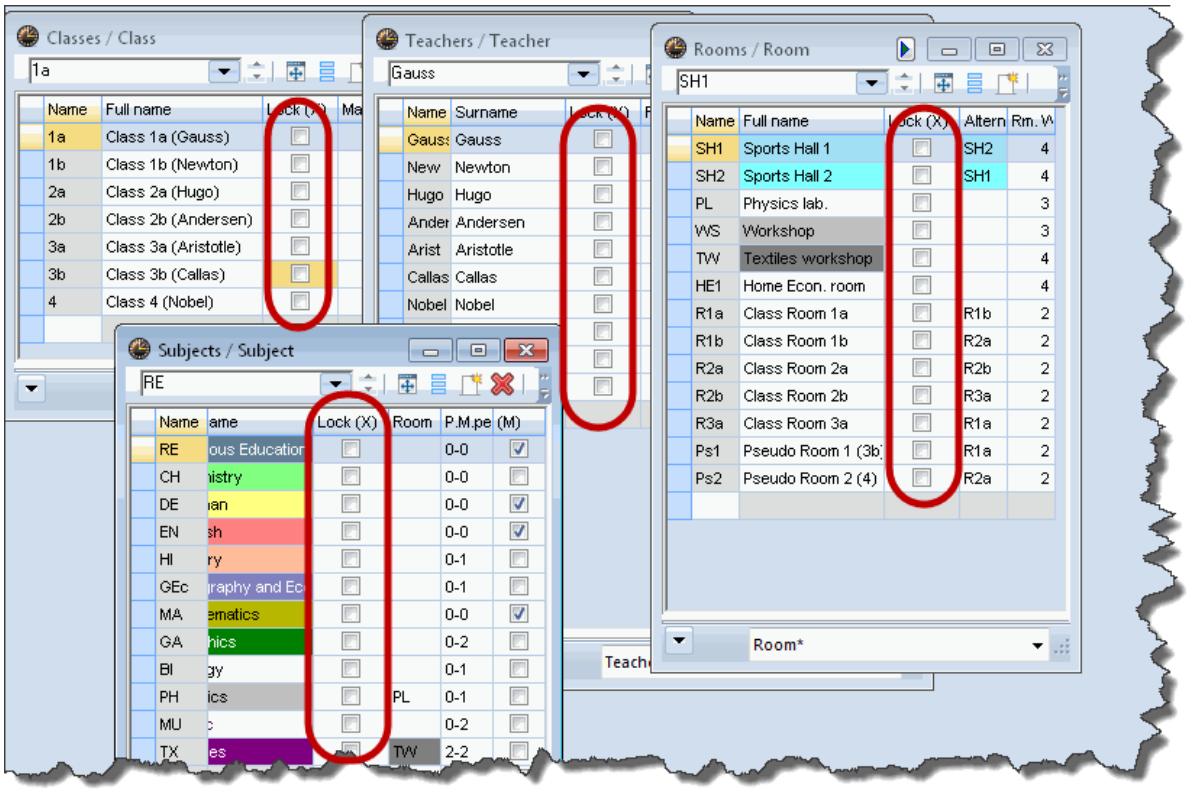
If all elements of a lesson are to be locked, activate "Lock (X)" for the lesson in question. A locked lesson will also be marked with an asterisk (*) in the timetable. Please note that you cannot remove this lock by clicking on the <Lock period> button.



Warning:
If you lock a lesson for which all periods have not yet been scheduled, the missing periods will be set at the beginning of optimisation, but then they cannot be moved (switched) in the course of the algorithm. This results in significantly worse optimisation. For this reason, please only use this code for lessons that have been fully scheduled.

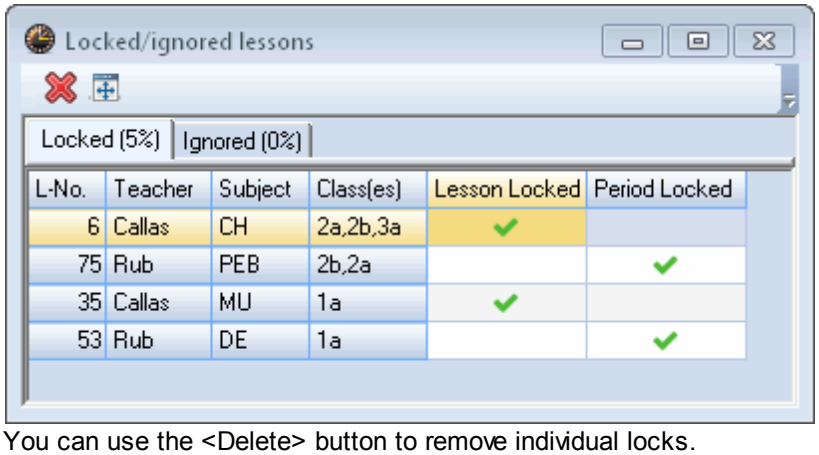
11.3 Locking master data

You can also lock certain master data elements if, for example, the limited number of periods of a part-time teacher are to be entered and locked manually. In this case, use the "Lock (X)" field that is available in all master data views. Again, it is not possible to remove the lock from periods locked in this way using the <Lock period> button.

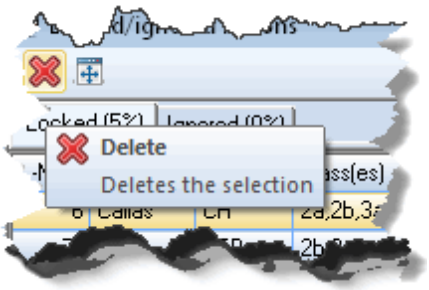


11.4 Locked lessons window

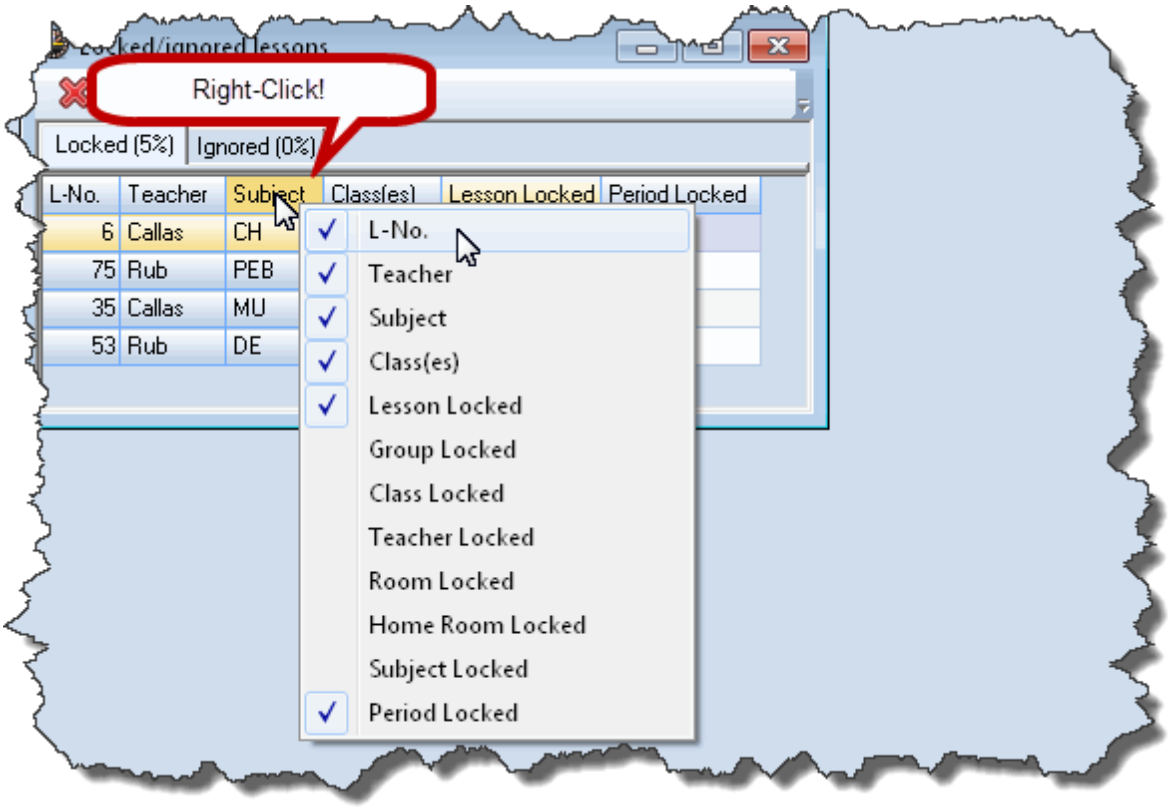
As explained in the preceding chapters, locks can be entered in different ways in Untis. You can obtain a summary of all lessons locked in the school data by opening the 'Locked/ignored lessons' window via the 'Scheduling' button. The list of rows contains all the lessons which are currently locked from being moved, which Untis (timetable optimisation) is not allowed to move. The columns indicate the level or the master data element causing the lock.



You can use the <Delete> button to remove individual locks.



Please not that you can show or hide certain columns via the context menu of the right mouse button. The columns which at least have one entry are shown by default.



12 Room logic

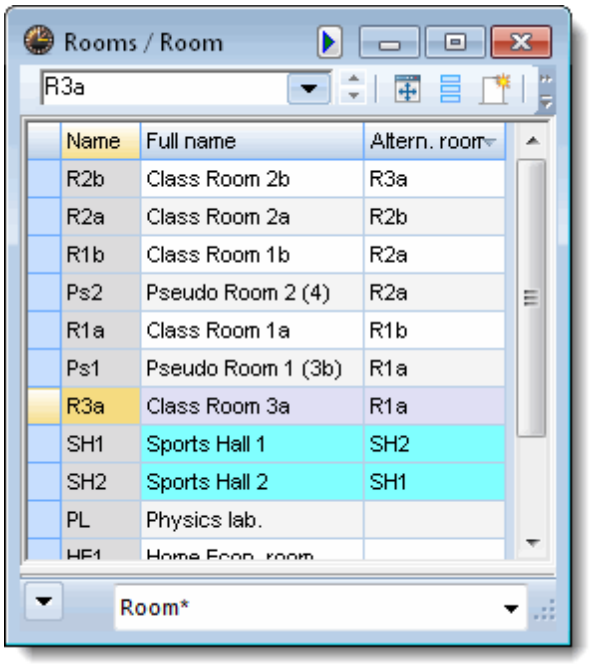
The following chapter is devoted to the treatment of rooms. Special attention will be placed on the difference between (subject) rooms and home rooms and how and why Untis assigns a particular room to a lesson during optimisation.

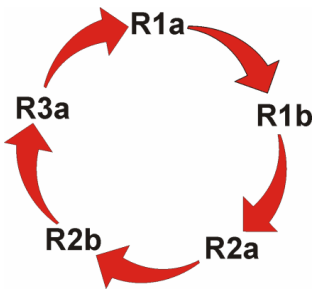
12.1 Alternative rooms

Since rooms are usually a scarce resource when it comes to timetable construction, Untis provides the additional option of assigning an alternative room.

12.1.1 Alternative room ring

Since each alternative room can have its own alternative room, you can create entire alternative room rings by entering the original home room as the alternative room of the last alternative room in the chain. The example below shows such an alternative room ring.





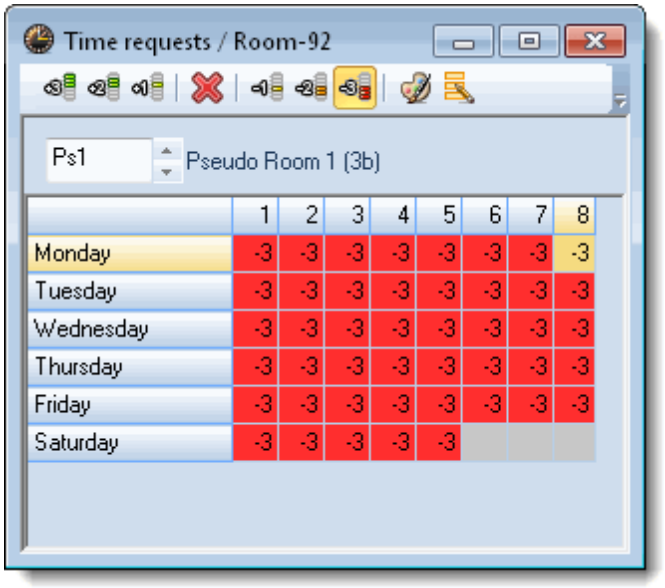
Untis can allocate either one of the five rooms, depending on which would improve the optimisation results most. Both the optimisation and the room optimisation tools take into consideration the order in which the rooms are entered – an important criteria in the following two scenarios.

You can either recreate "geographic" aspects of your school by ensuring that the alternative room order reflects the relative locations of the rooms in the school. This would save teachers and students from wasting precious time when moving from room to room. In an alternative room ring, neighbouring rooms should therefore be listed in sequence.

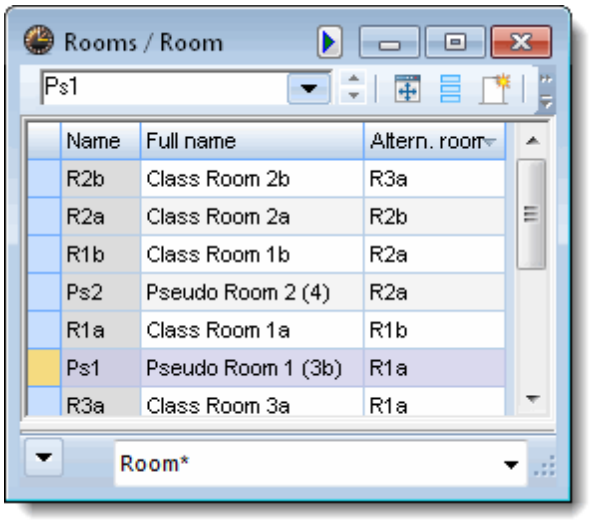
Another option is to use alternative room rings and chains to place the function of the rooms in context. When a room capacity has been defined for individual rooms under master data, you can list alternative rooms with approximately the same capacity in sequence (in an alternative room ring). Another aspect that could influence the order of rooms in alternative room rings is the equipment provided in the individual rooms.

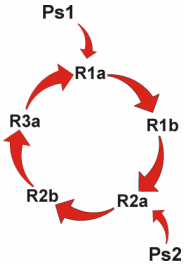
Classes without a designated room

If your school has classes *without designated rooms* you can use *pseudo rooms* by assigning a fictitious room to a class. You can do this by simply assigning a fictitious room, a pseudo room, to the class in question and blocking this room for every period of the week (using time request "-3").br>



Enter a room from the classroom ring as an alternative room for your pseudo room. Untis will now select a suitable classroom for the class (see example).

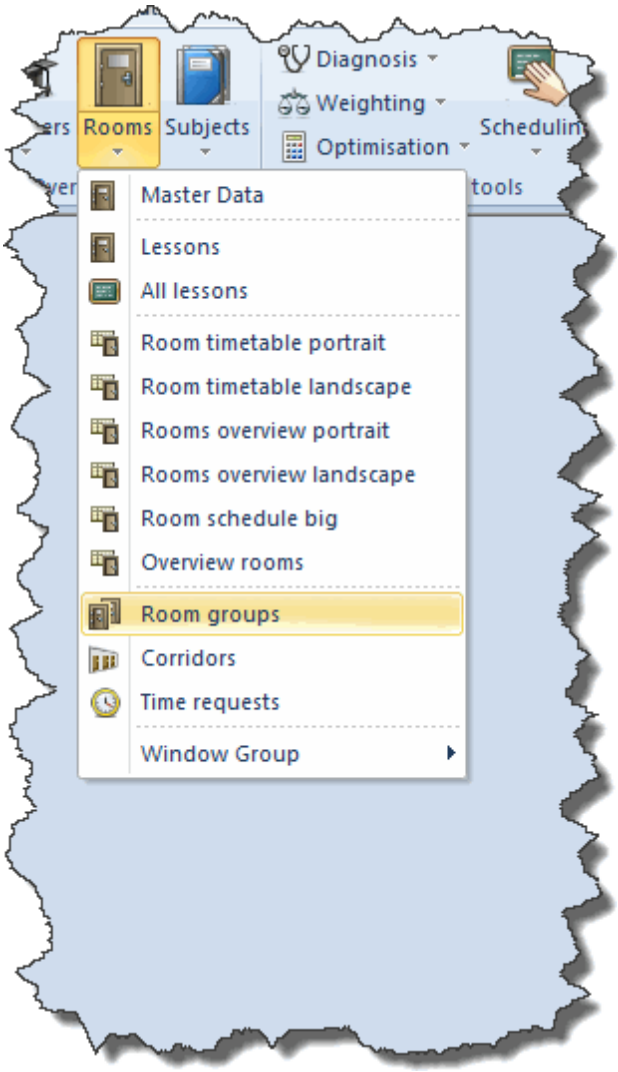




Including pseudo rooms in an alternative room ring.

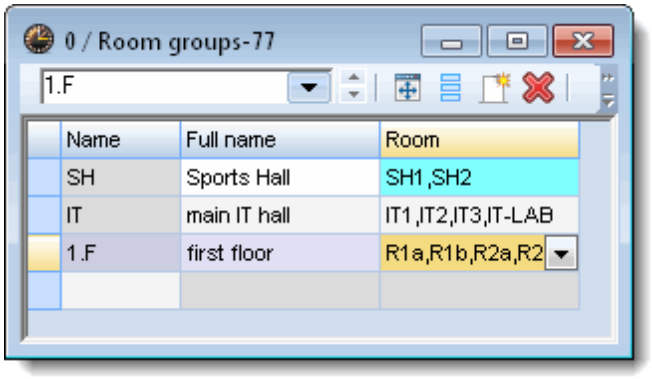
12.1.2 Room groups

In addtion to the alternative room logic described in the chapter before, Untis provides you with the possibility to create room groups.

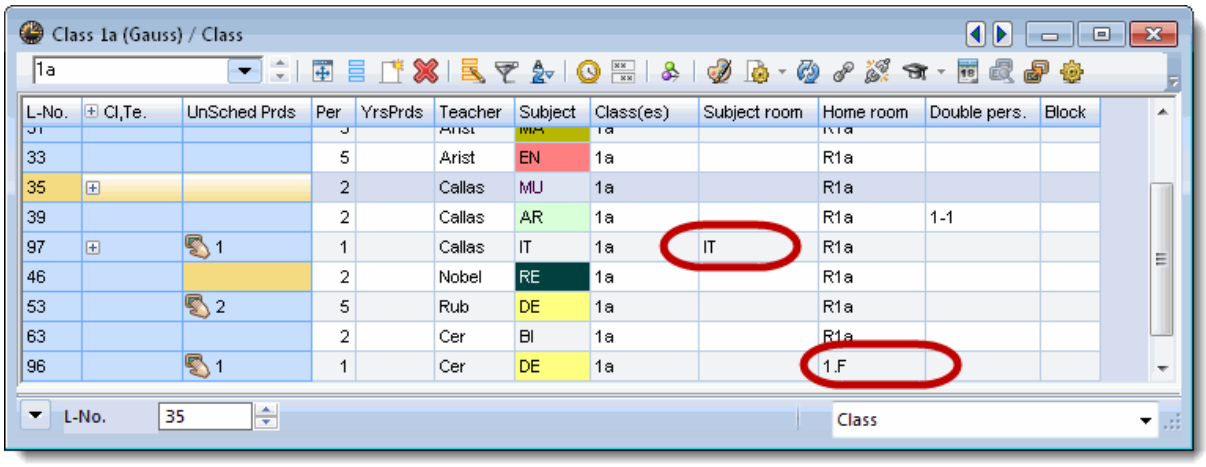


The entry of room groups is similar to entering usual master data: every room group has its own

individual and unique short name plus a descriptive long name. In the column 'Room' you enter all rooms which should belong to the respective room group.



You now can use the room groups in the lessons windows in the columns 'Subject room' and 'Home room' just like rooms.



The example shows that optimisation will allocate one of the rooms of the EDP room group to the lesson for text processing. The German lesson with divided student groups will be scheduled to one of the rooms of group 1S.

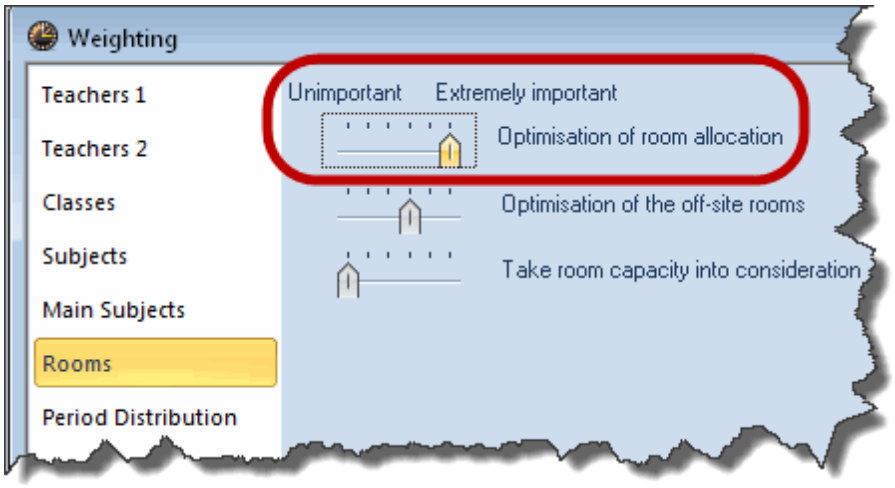
12.2 Room allocation

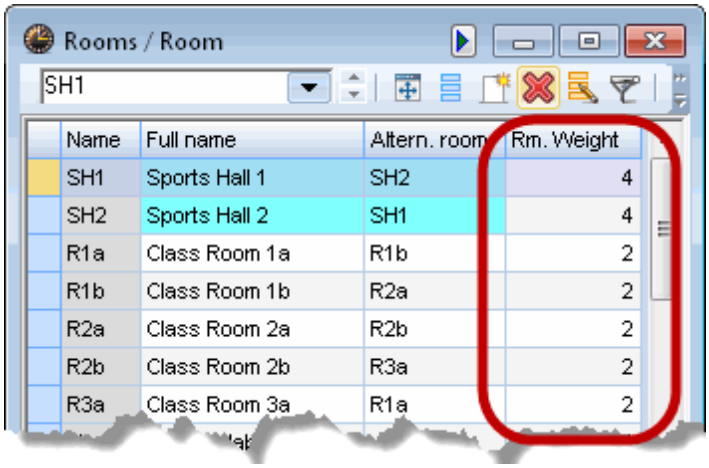
Untis provides three different methods of allocating rooms:

1. *Manual room* allocation in the scheduling dialogue, on the scheduling timetable or on the timetable (see chapter " Manual timetabling ")
2. *Automated room* allocation during optimisation
3. *Optimised* room allocation during room optimisation

The automated room allocation function during optimisation attempts to optimise timetables not just from the class or teacher perspective, but also from the room perspective.

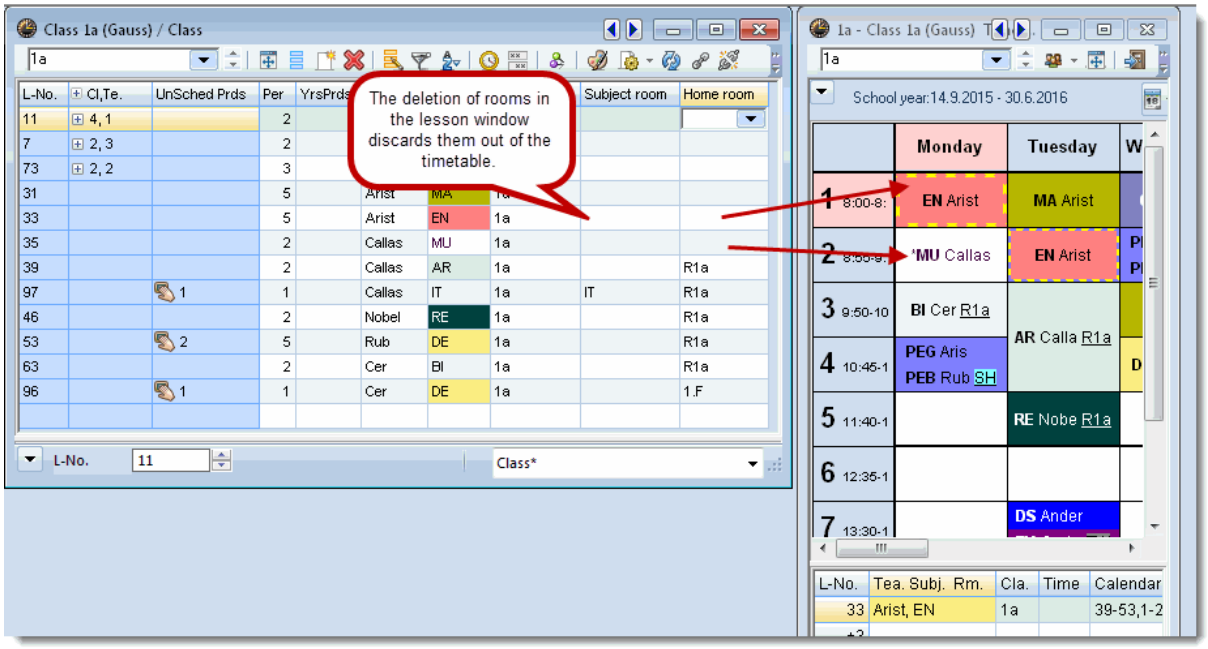
Untis may even schedule a lesson for a period where a suitable room is unavailable. The lesson is then displayed in the diagnosis window under "Subject room missing". To suppress this behaviour, set the room weighting of the specialist subject room to "4" (under master data) and the slider for "Optimisation of room allocation" in the weighting dialogue ("Scheduling | Weighting") on the "Rooms" tab to position 4 or 5 ("very important" or "extremely important"). Periods for which the optimisation tool is unable to find a suitable room will then remain unscheduled.

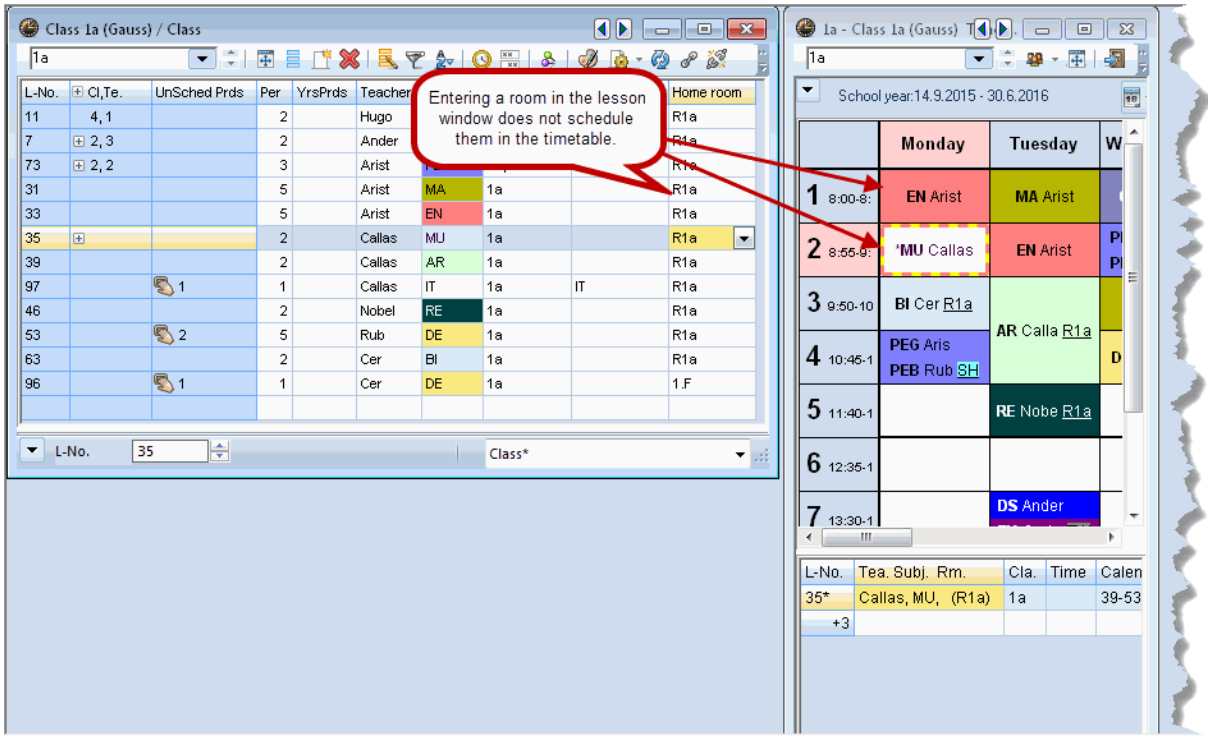




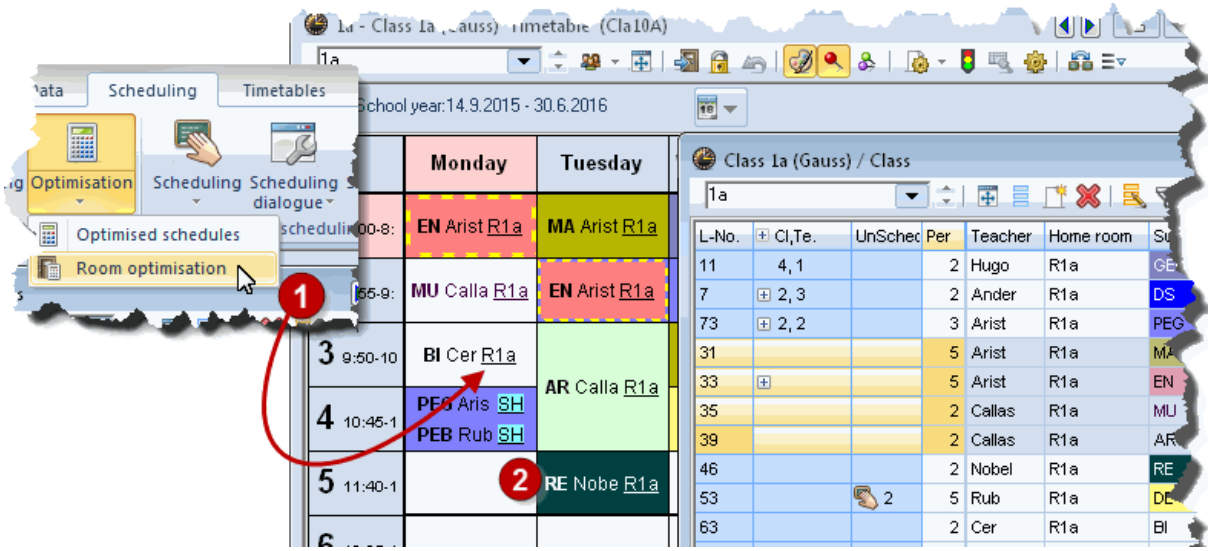
The room situation can be re-optimised without altering the class or teacher timetables (see section after next). This is useful when manual changes have been made to the scheduling of rooms and these changes are to be taken into account in other areas.

Note:
Please note that deleting the home or subject room in the lessons window will consequently delete this room in the timetable. Immediately after deleting the room you need to enter a subject or home room for this lesson again, otherwise the room will automatically be scheduled.





One of the three above described processes need to be started, e.g. room optimisation, in order to schedule the entered rooms, as well.



12.3 Room capacity

When room sizes and/or class sizes at your school differ widely, set the optimisation and the room optimisation tools to consider the capacity of individual rooms in order to prevent situations where a small class occupies a room suitable for twice the number of students or a large class is crammed into a small room designed for a much smaller number of students.

To ensure that the room capacity function works correctly, enter the following details (see also chapters "Master Data" and "Lesson"):

Under "Master Data | Rooms"

- Capacity

Under "Master Data | Classes"

- Students (male, female)

For couplings under "Lessons"

- Students (male, female)

12.3.1 Alternative room chain

If you would like the room optimisation tool to consider the room capacity of alternative rooms, the alternative room ring must remain open, i.e. you need to create an alternative room chain, instead. The example below illustrates this.

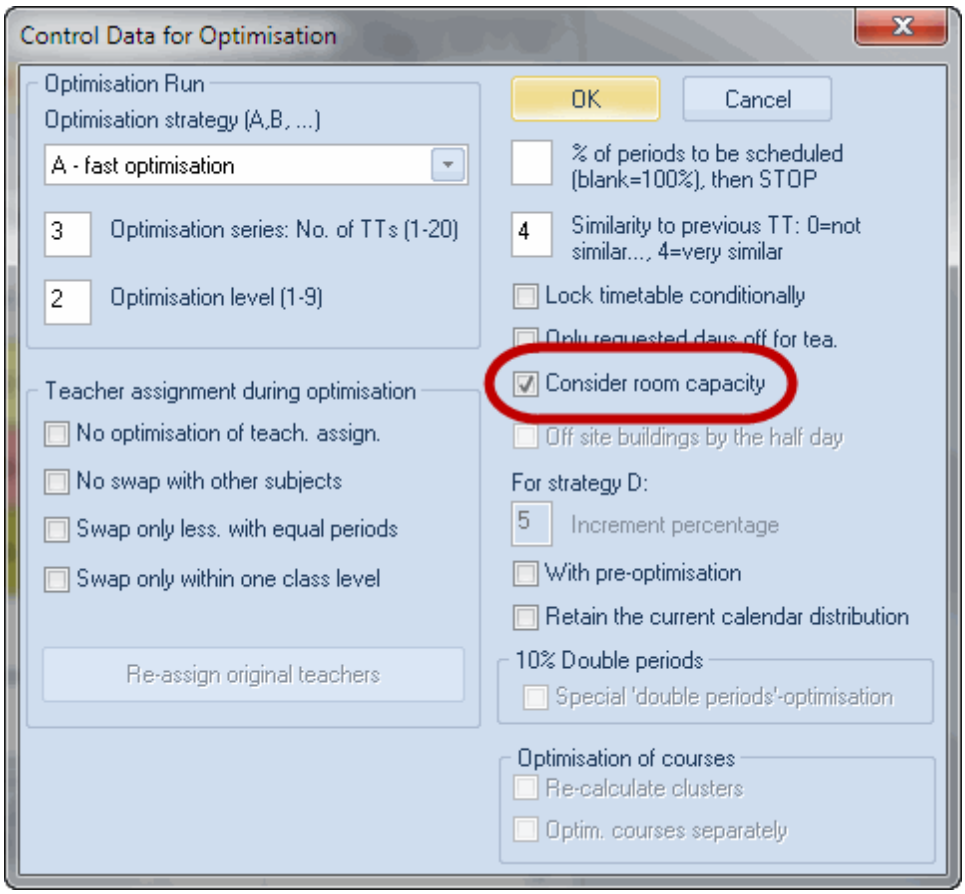
The example shows that room R3a has a capacity for 22 persons. When this room is unavailable, the next suitable room for this lesson is the slightly larger room R2a. The next room in the chain is the even larger room R2b etc. The alternative room for R1a is R1b, and the chain ends here because R3a with its

lower capacity is unsuitable as an alternative room for R1b.

Room capacity and optimisation

If you wish the room capacity to be taken into consideration, check the relevant box in the optimisation or room optimisation dialogue before starting an optimisation or room optimisation run.

Specify the level of importance of the room capacity function by adjusting the weighting option "Take room capacity into consideration" in the weighting dialogue ('Scheduling' tab | 'Manual scheduling' group | 'Weighting' button) in the 'Rooms'section.



12.4 Room optimisation

The room optimisation tool attempts to optimize the already optimised timetable by finding the most suitable room available for each lesson. The software obeys the following rules:

- Lesson periods will **not** be moved.
- Double periods (or period blocks) take place in the same room wherever possible.
- When the software is unable to schedule all of the periods of a subject in the designated subject room, Untis tries to ensure that all classes have the name number of lessons scheduled in the subject room (e.g. if the school has 34 classes and only one Physics lab, Untis tries to ensure that each class has at least one period in the specialist subject room).
- When the optimisation tool is unable to schedule a lesson in a designated alternative room, the room optimisation function ensures that the lesson takes place in the designated home room,

instead.

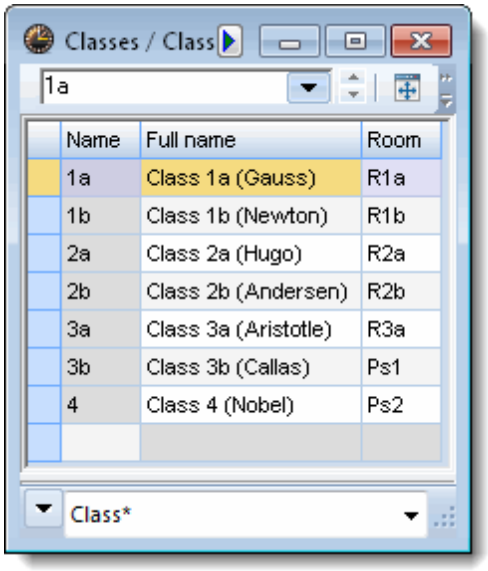
- The software attempts to allocate the same room to a class (or teacher) for the duration of an entire half-day. This is of particular importance for classes without a designated room. These should be allocated with the aid of pseudo rooms.
- Preference is given to alternative rooms listed close to the designated room in the alternative room chain.
- The rooms specified in"Lessons" window take precedence over alternative rooms. This is of particular importance for classes without a designated room. A class without a designated room must never displace another class from its designated home room and can only be scheduled for a home room that is readily available.
- When a lesson is marked "r" All periods in the same room" (on the "Codes" tab under "Lessons | Teachers" or "Lessons | Classes"), the room optimisation tool attempts to schedule all the periods of the lesson in the same room while at the same time taking the room capacity into account. Rooms that are not designated home rooms are allocated first, and preferentially to double periods and period blocks.

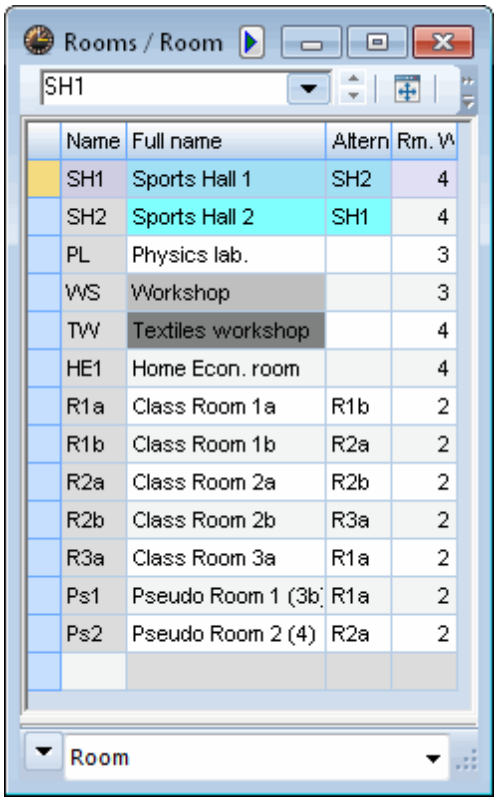
The following example demonstrates the function of the room optimisation tool:

12.4.1 Example: step 1

Please open the file "demo1.gpn".

Seven classes are listed under "Classes | Master Data". The column "Room" in the grid view shows that a pseudo room has been assigned to the last two classes ("3b" and "4") This means that these two classes do not have a designated room of their own. You can view the alternative rooms under "Master Data | Rooms". They form the same *alternative room ring* that was displayed in the respective section. The alternative rooms allocated to the two pseudo rooms are the rooms for 1a and 2a ("R1a" and" R2a").





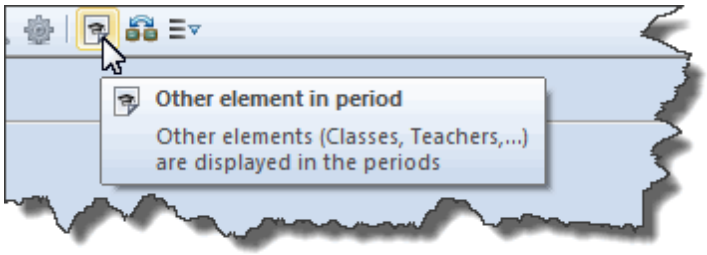
12.4.2 Example: step 2

When you have opened the file a class timetable should already be open. Go to the 'Start' tab and open another timetable window via "Rooms | Room timetable portrait".

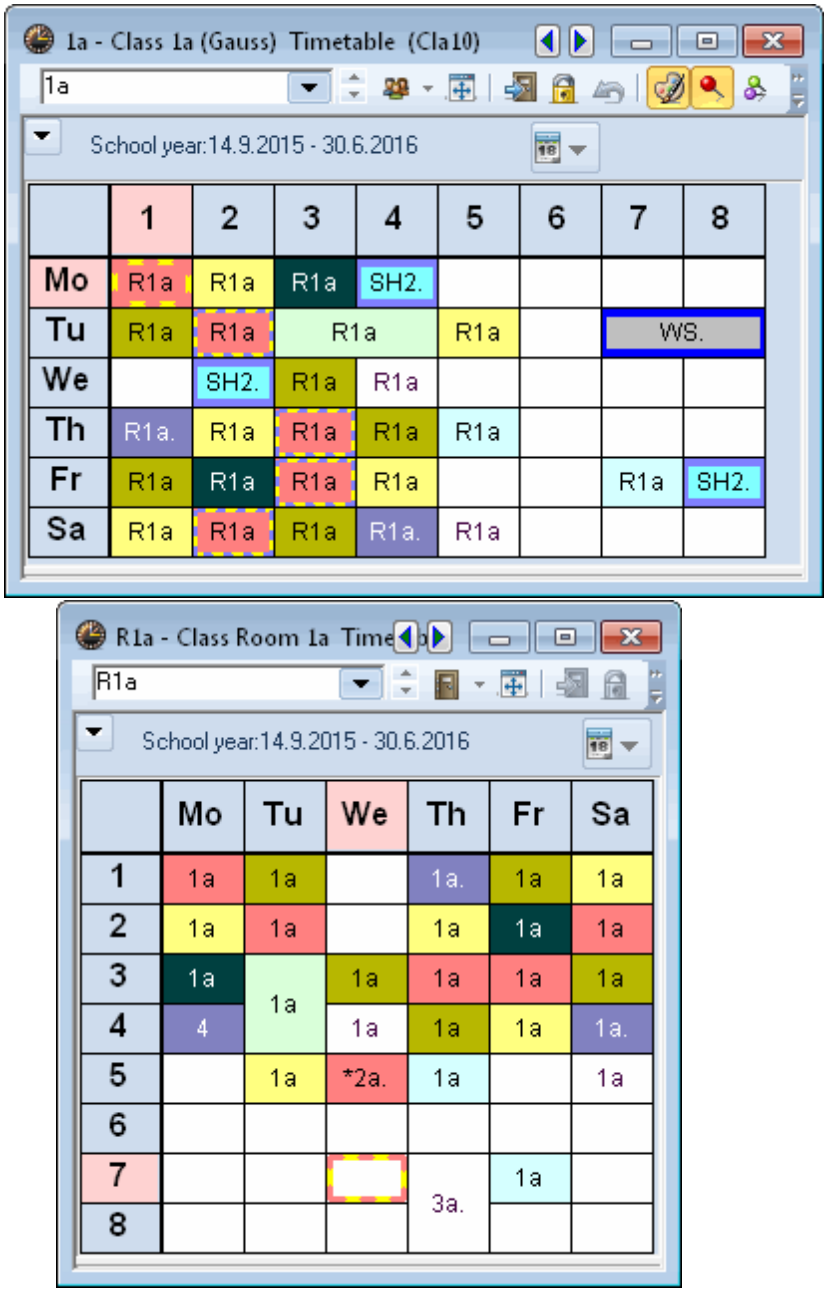
A number of columns in the class timetable may be marked "Before school starts". Select the next week in the date selection box of the timetable window to display the timetable for the days you wish to view.

12.4.3 Example: step 3

On the class timetable, click several times on <Other element in period> until the room details are displayed (or you open the timetable *class schedule big* which already displays the rooms).



Repeat the same process for the room timetable until each period displays the class scheduled to have lessons in the room (or you open the timetable *Room schedule big* .



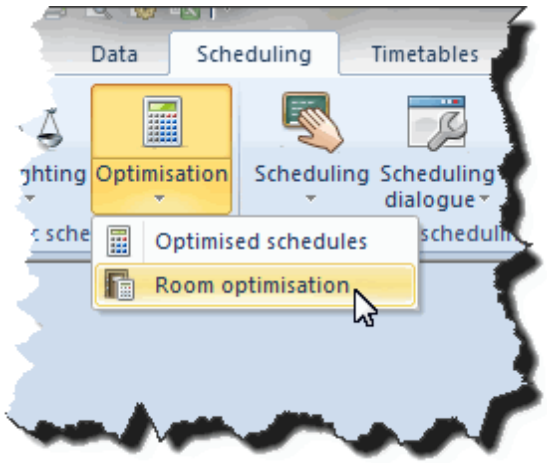
	1	2	3	4	5	6	7	8
Mo	R1a	R1a	R1a	SH2.				
Tu	R1a	R1a	R1a		R1a		WS.	
We		SH2.	R1a	R1a				
Th	R1a.	R1a	R1a	R1a	R1a			
Fr	R1a	R1a	R1a	R1a			R1a	SH2.
Sa	R1a	R1a	R1a	R1a.	R1a			

	Mo	Tu	We	Th	Fr	Sa
1	1a	1a		1a.	1a	1a
2	1a	1a		1a	1a	1a
3	1a	1a	1a	1a	1a	1a
4	4		1a	1a	1a	1a.
5		1a	*2a.	1a		1a
6						
7				3a.	1a	
8						

Inspect the timetable of a class and of its home room. The examples above show class 1a and its home room R1a. As you can see, the class is not always scheduled to have lessons in its home room, because the room is occasionally occupied by other classes

12.4.4 Example: step 4

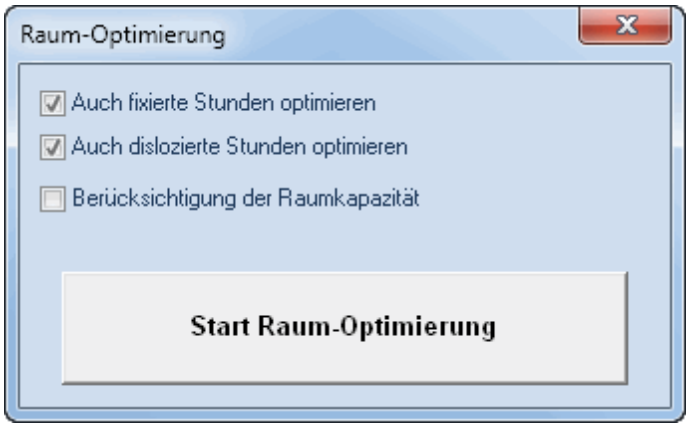
Select on the 'Scheduling' tab in the group 'Automatic scheduling' the function *Room optimisation* from the 'Optimisation' menu. .



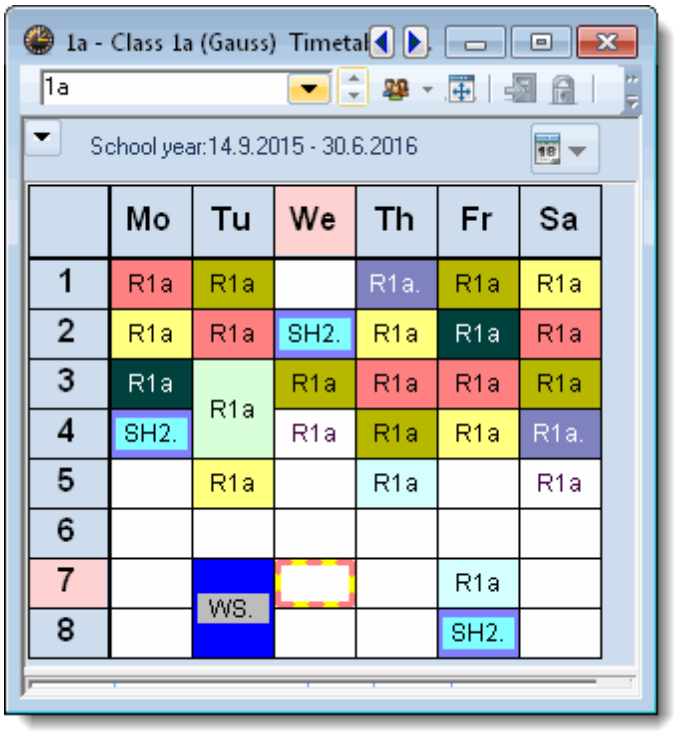
The room optimisation dialogue opens, where you can specify if you wish to optimise locked and/or off-site rooms and if the room capacity should be taken into consideration.

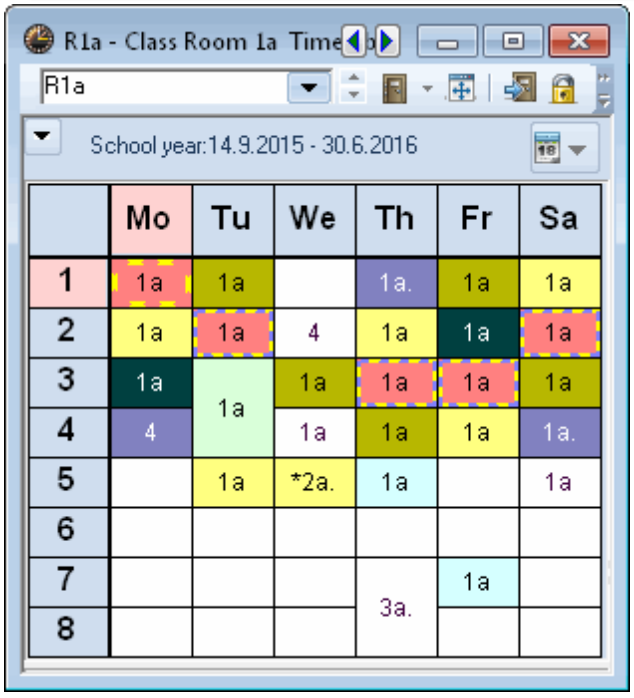
12.4.5 Example: step 5

Click on <Start Room Optimisation>. Click on the button again when the room optimisation run finishes.



As you can see, the room optimisation tool has allocated the home room (R1a) for most of the lessons of class 1a and the designated subject room (PE and Design) for some of the lessons.





Please note the situation for classes without a designated room. Before room optimisation, class 3b was scheduled to have lessons in room R1a on Tuesday, periods 4 and 5. Class 4 was scheduled for room R1a on Saturday, period 4. The room optimisation tool moved both classes to another room since the placement violated the rule that a class must not be displaced from its home room.

After the room optimisation run, the situation is very different. Class 1a is back in its home room on Tuesday, period 4 and 5, and on Saturday, period 4. Instead, class 3b occupies room R1a on Monday, period 4, when class 1a is scheduled to have a PE lesson in the sports hall. Class 4 is scheduled in

R1a on Saturday, period 5, because again, the room is not required by class 1a .

Any periods not yet allocated to a suitable room (as is often the case for classes without a designated room) can be assigned manually using the scheduling dialogue.

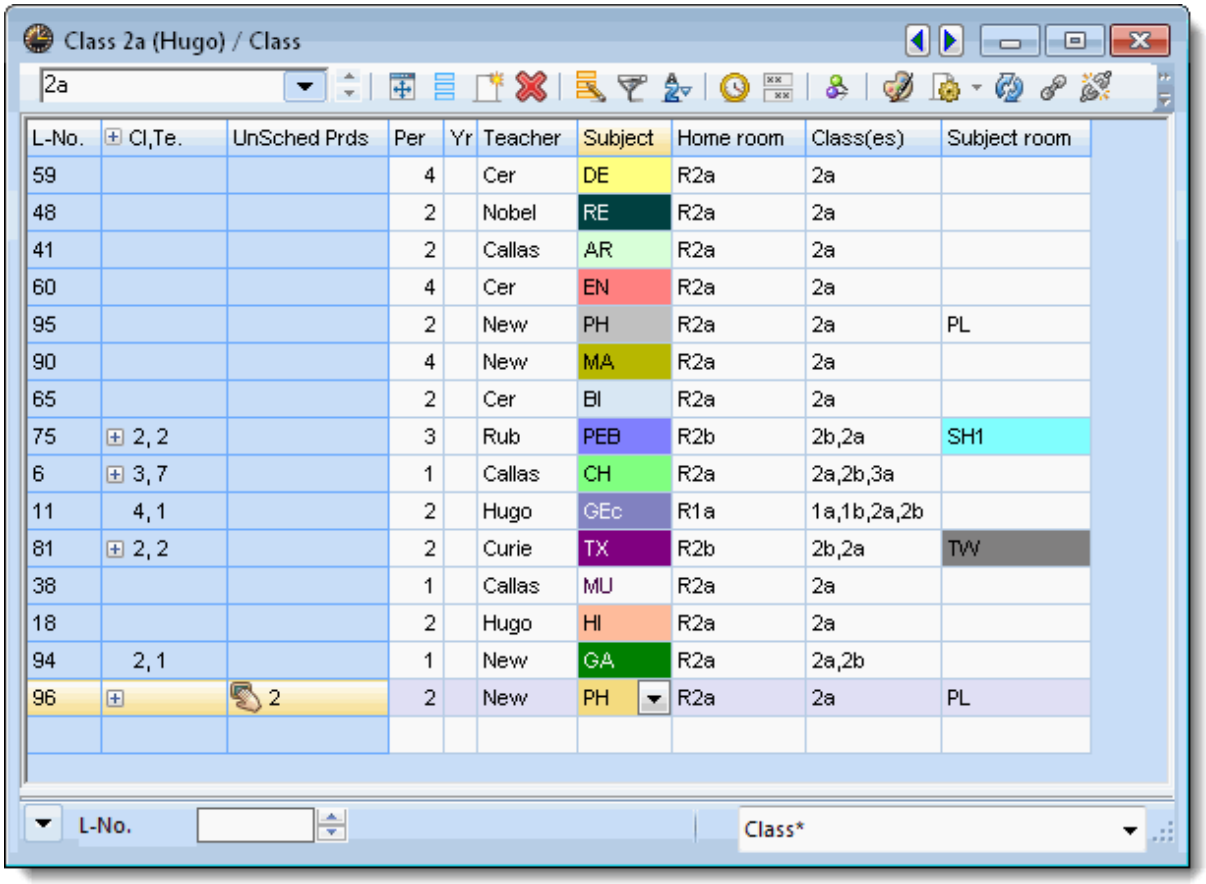
12.5 The role of subject rooms and home rooms

The entries for the specialist subject rooms are pivotal for room scheduling.

Let us assume in the following example that rooms have been entered in the subject room and home room fields.

Room optimisation would now attempt to schedule all periods for physics lesson number 95 in the specialist subject room physics laboratory.

Note:
This example does not refer to the file *Demo1.gpn* - like in the example before - but to the file *Demo.gpn* .



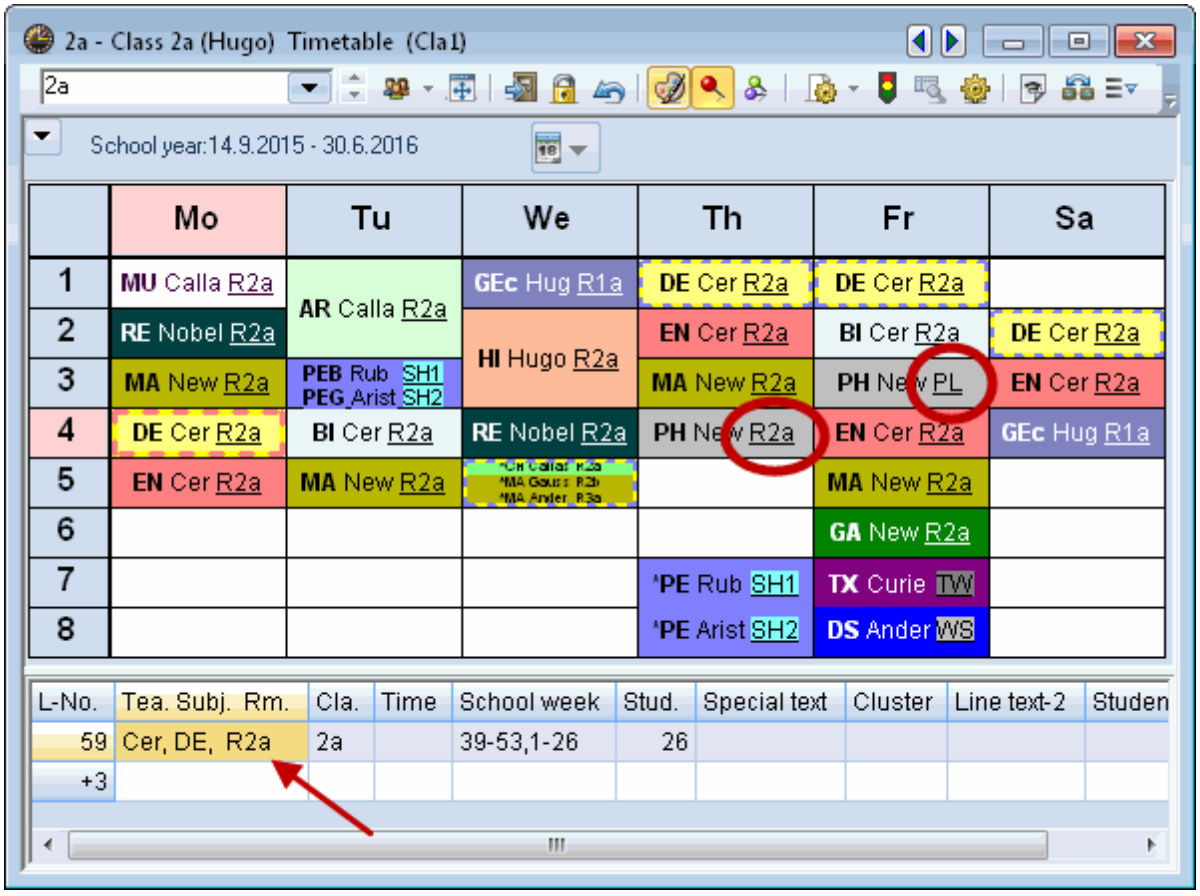
If this condition cannot be met, optimisation will attempt, as in the example, to share the physics laboratory equitably among all classes with a claim on it.

Let us assume that the physics laboratory is not free for one of the two periods in which optimisation attempts to schedule physics lessons. In this case, room optimisation would schedule these periods in the home room - R2a in our example.

The timetable periods detail window will then indicate that room *R2a* has been allocated instead of the desired *Phys* (in parentheses).

As a general rule, if the desired subject room is not free, room optimisation will ensure that the period in question is held in the home room

Please note that you could specify a (different) room to relocate lessons *for each individual lesson* if the desired subject room is not available.

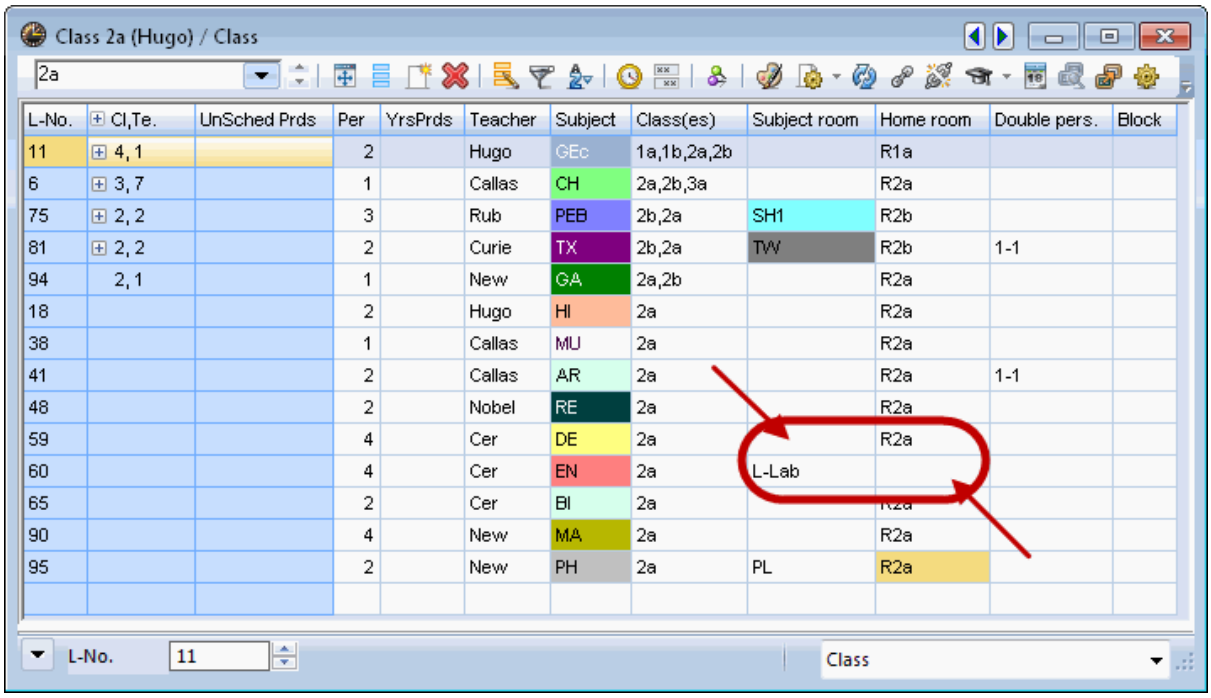


Tip:
If 3 periods of a 5-period lesson have to be held in a subject room (i.e. not in the home room), enter a 3 in the field "Periods in room".

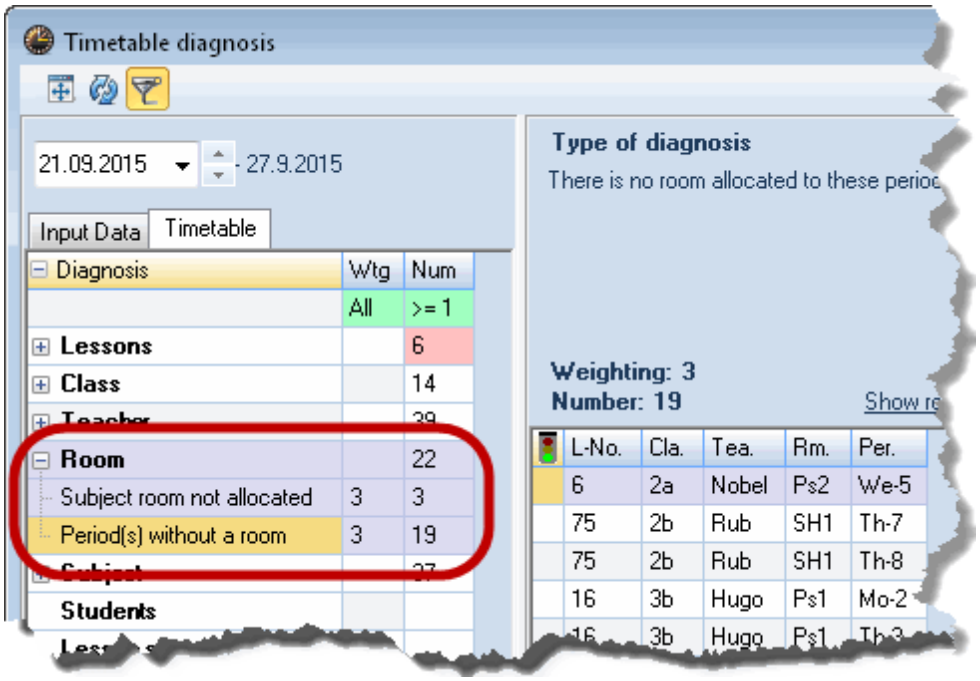
You must do the following, if it is absolutely necessary for lessons to be held in a specific (subject) room:

1. Set the room weighting for the room in question to 4, and
2. Weight the parameter "Optimisation of room allocation" on the "Rooms" tab under "Scheduling | Weighting" with 4 or 5.

Alternatively, you can delete the entry in the home room field for the respective lesson.



If you have only made an entry in either the *subject room* or in the *home room* fields (as in the above example for lessons 59 and 60), processing will as a rule be identical:
room optimisation first tries to allocate the desired room (or one of its alternative rooms) to the all periods of the lesson in question.



If this process is not successful the weighting settings (on the 'Scheduling' tab, under 'Weighting' in the 'Rooms' section) are decisive for what is going to happen next: the lesson periods remain either unscheduled or *no* room is allocated.

Periods without a room will always be displayed in the diagnosis.

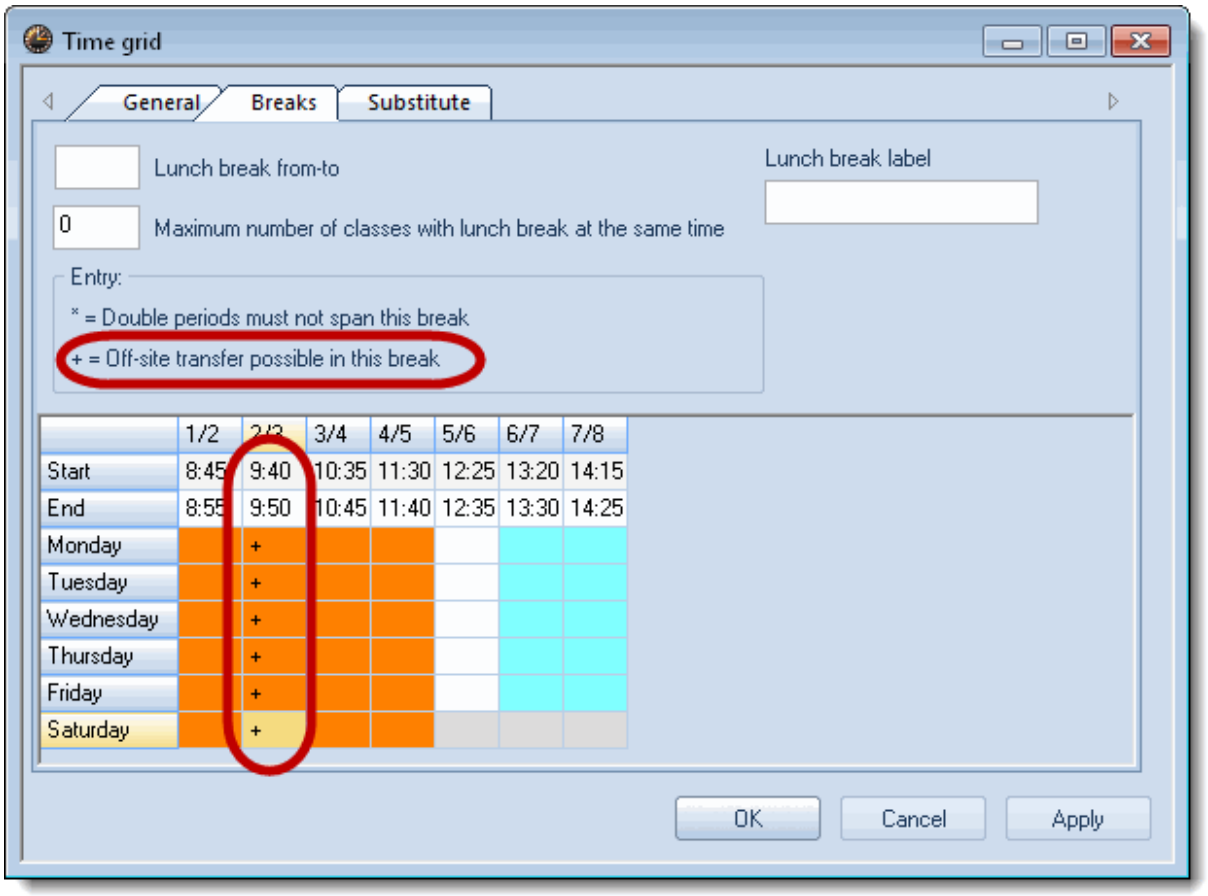
12.6 Off-site rooms

Off-site rooms are specialist subject rooms and classrooms located at such a distance from the main school building that a whole period needs to be set aside to allow teachers and students to reach the *off-site* rooms. The automated *optimisation* function takes the length of the walking time into account when optimising the timetable.

A PE teacher is scheduled to teach periods 1 and 5 in the main building and period 3 at the (off-site) sports track. The timetabling tool will ensure that periods 2 and 4 remain unscheduled for the teacher to allow him or her sufficient time to reach the sports track.

Breaks of different lengths

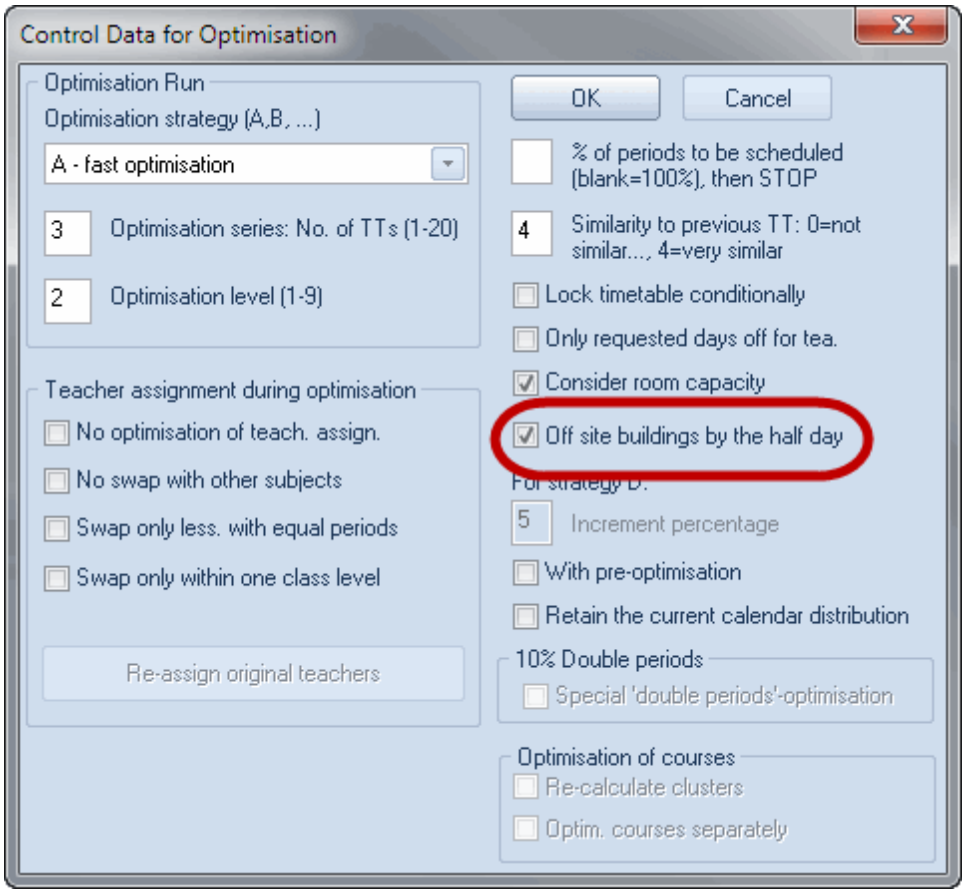
Many schools use timetables where some breaks are longer than others and where it is therefore possible to reach an off-site location during one of the longer breaks. Breaks of sufficient length to reach an off-site location can be marked "+" in the *time grid* under "Breaks".



The figure above shows that the break between periods 2 and 3 is sufficiently long enough to reach the off-site location. The PE teacher in the example above would therefore be able to teach period 2 in the main building and still manage to reach the sports track in time for period 3.

Half-day external site

With the "Half-day external site" option it is possible to specify that teachers and students may not switch buildings for half a day, thus minimising the number of times they need to switch buildings.



12.6.1 Start time graduation

Instead of wasting an entire period to reach an off-site location, the start time of certain lessons can be adjusted slightly to suit the situation.

Beginnzeiten - Hauptgebäude		Beginnzeiten - Außenstelle
	Wegzeit: 15 Minuten	
1. Stunde: **8:00**		1. Stunde: **8:15**
2. Stunde: **9:00**		2. Stunde: **9:15**
3. Stunde: **10:00**		3. Stunde: **10:15**
usw.		usw.

Using this method, the PE teacher from the previous example can be scheduled to teach periods 1, 2 and 5 in the main building and period 3 at the off-site sports track. The software schedules a 4. free period for period 4 to allow the teacher sufficient time to return to the main building after period 3.

12.6.2 Off-site codes

Off-site rooms are marked with an *off-site code* entered under master data.

Off-site rooms with graduated lesson starts
Enter the same (numerical) off-site code for all the rooms at an off-site location where you operate a system of *start time graduation* . Permitted values are between 1 and 9.

		Hauptgebäude	Weg zeit	Außenstelle 1	Weg zeit	Außenstelle 2
			15 Minuten		10 Minuten	
Disloz.-kennz.		keines		1		2
Beginnzeit	1. Std	08:00		08:15		08:25
	2. Std	09:00		09:15		09:25
	3. Std	10:00		10:15		10:25
	4. Std	11:00		11:15		11:25

Your school has two off-sitelocations. The first is a 15-minute walk away from the main building, the second a 10-minute walk away from the first off-site location. Enter a value for each off-site room as described above to enable Untis to schedule the teacher as follows:

Period 1 *main building* - Period 2 *off-site location1* - Period 3 *off-site location 2* .

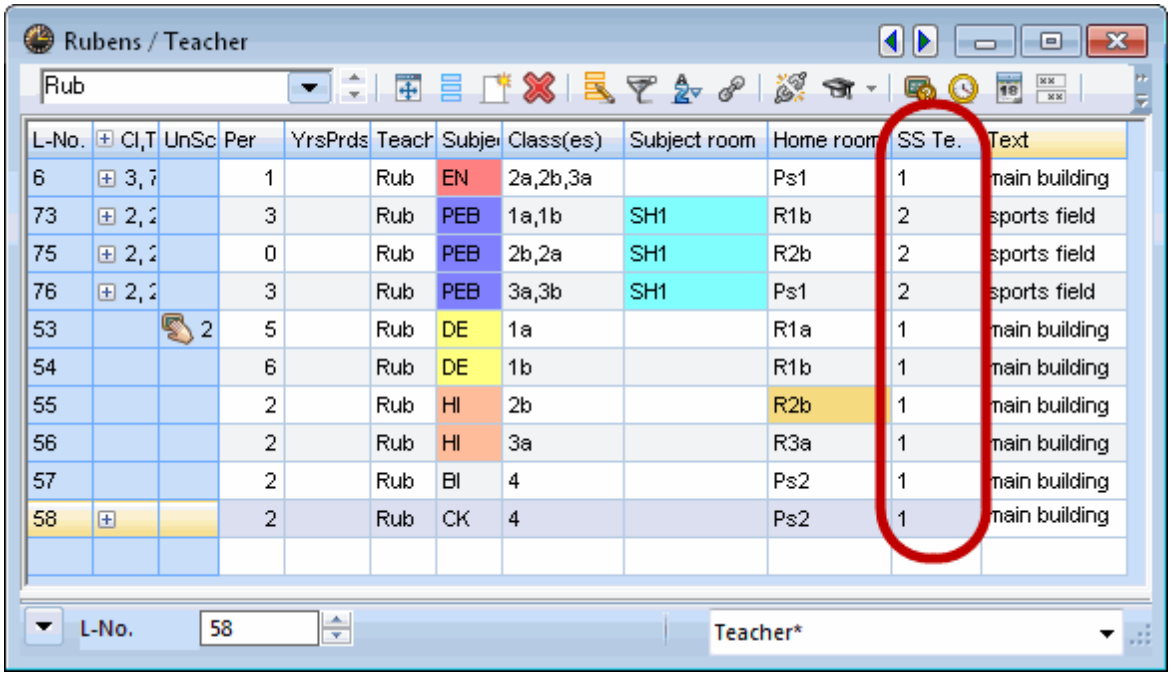
Untis allocates one free period for the return from one of the off-site buildings to the main building or from off-site location 2 to off-site location 1.

Untis takes into account:

- The walking times for teachers and students to off-site subject rooms and classrooms
- The walking times for teachers and students from off-site subject rooms and classrooms back to the main building

It is advisable to reduce the number of times teachers and students are obliged to move between main and off-site buildings to an absolute minimum. The following example shows how to do this:

For teachers who teach both in the main building and at off-site locations, enter the number "1" under *Subject sequence - Teachers* for lessons that take place in the main building, and the number "2" for lessons that take place in the off-site building.



Untis will then attempt to schedule as many periods as possible in the same building for the teacher

Off-site rooms without graduated lesson starts

If you are unable to graduate lesson starts as described in the previous section, you need to schedule one free period each for the walk to and from the off-site location for teachers and students.

To achieve this use the off-site codes A – E for the relevant off-site rooms at your external locations.

To ensure the correct treatment of off-site rooms during optimisation, enter the following details:

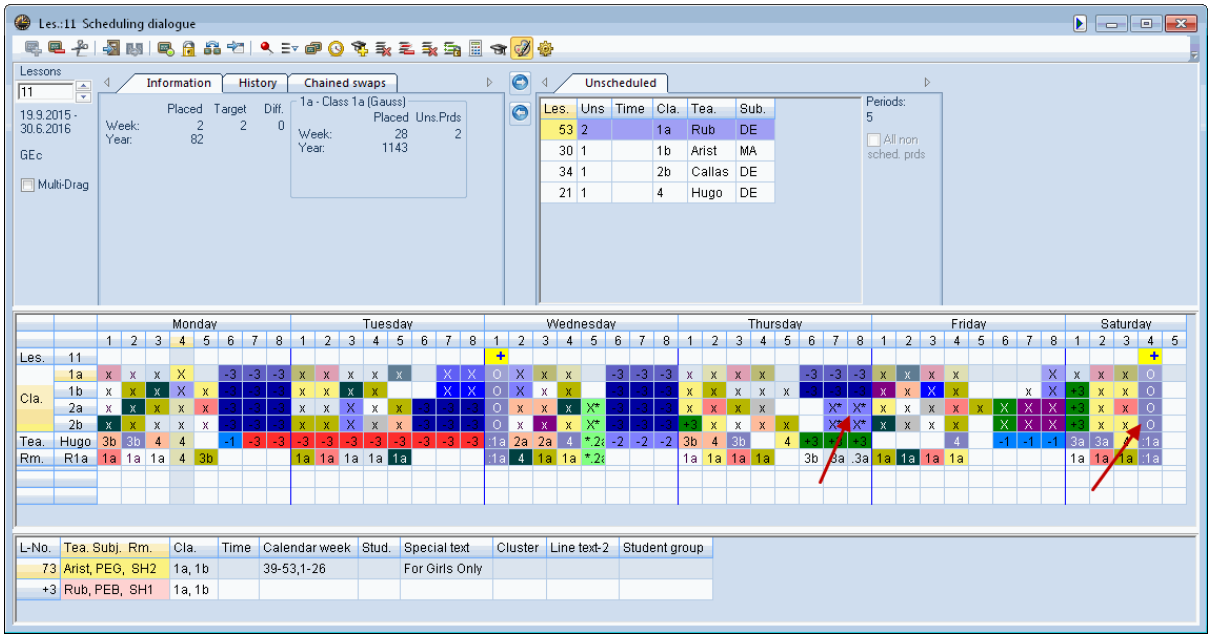
Under "Master Data | Rooms"

- Off-site code
- Room weighting

Under "Scheduling | Weighting | Rooms"

- Optimisation of room allocation
- Optimisation of the off-site rooms

Periods scheduled for rooms with off-site code '1' are marked y and Y in the scheduling dialogue. Periods scheduled for rooms with other off-site codes are marked z and Z (upper case letters denote couplings).

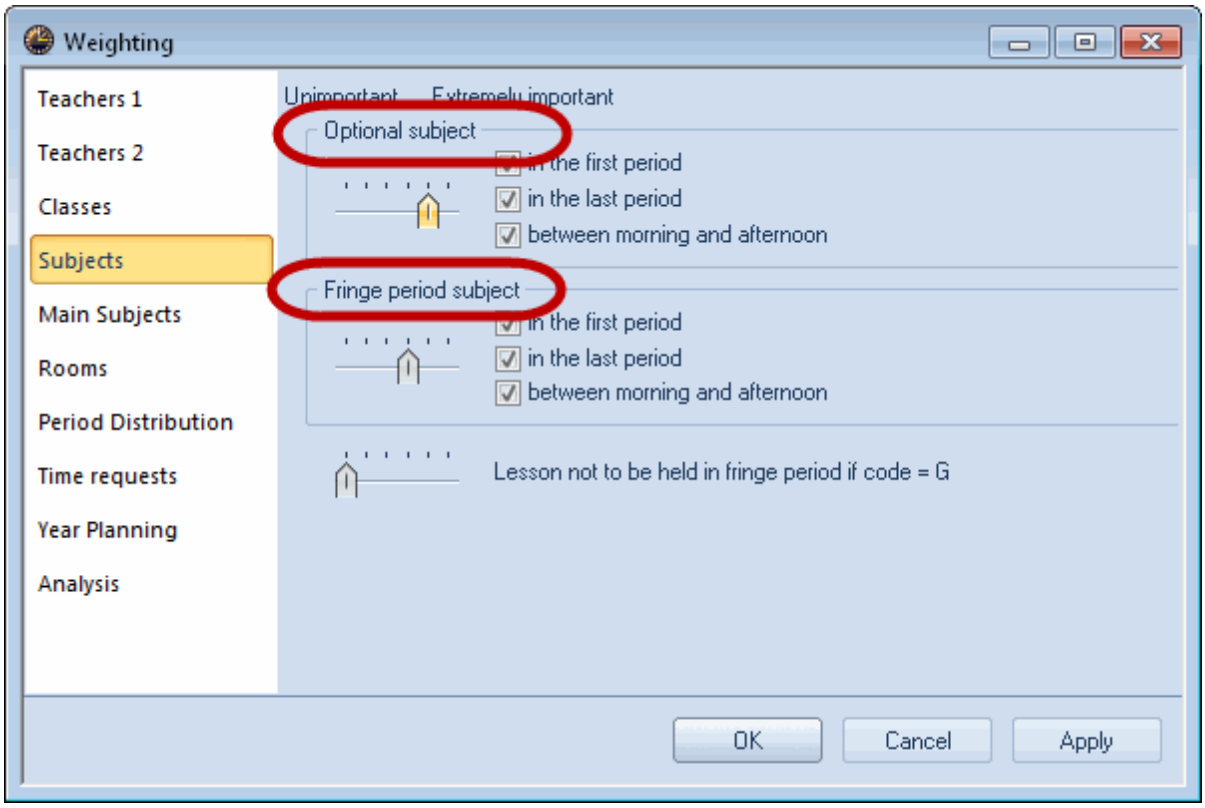


13 Optional subjects and fringe periods

Not every subject is attended by every student of a class. When this is the case, it may be desirable to schedule such subjects at the beginning or the end of a half-day (in the so-called *fringe periods,*) to enable students who do not take part in the subject either to come to school later, to leave school early or to have a longer lunch break

To enable the software to schedule subjects in fringe periods, mark the subject with the code *Optional subject* or *Fringe period* (under "Master Data | Subjects"). In principle, the two codes influence optimisation in the same way but real differences can be made by setting different weighting factors.

The following weighting settings instruct the software to schedule optional subjects preferentially in the *last* periods of a half-day, i.e. either in the last period of the morning or afternoon, while fringe period subjects should be scheduled either in the first or the last periods of the *day* .



Code G has the opposite effect. Subjects marked " *(G) Not a fringe period* " are scheduled *outside* fringe periods.

14 Main subjects

Subjects that are considered particularly strenuous or important for students can be marked with the *main subject* code. This allows the optimisation tool to observe the following restrictions:

- Maximum number of main subjects that may be scheduled for a class per day
- Maximum number of main subjects that may be scheduled in sequence for a class
- Maximum number of main subjects that may be scheduled to take place after a defined boundary period.

To ensure the correct treatment of main subjects during optimisation, enter the following details:

Under "Weighting | Main subjects"

- Respect max. number of main subjects per day for classes
- Respect max. number of consecutive main subjects for classes
- Boundary period
- Main subjects max. once after boundary period
- Main subject at least once up to boundary period

Please see a detailed description of the boundary period function under " Optimisation - Weighting parameters ".

Under "Master Data | Subjects"

- Code (M) Main subject

Under "Master Data | Classes"

- Max. main subjects per day
- Max. consecutive main subjects per day

15 Subject sequences

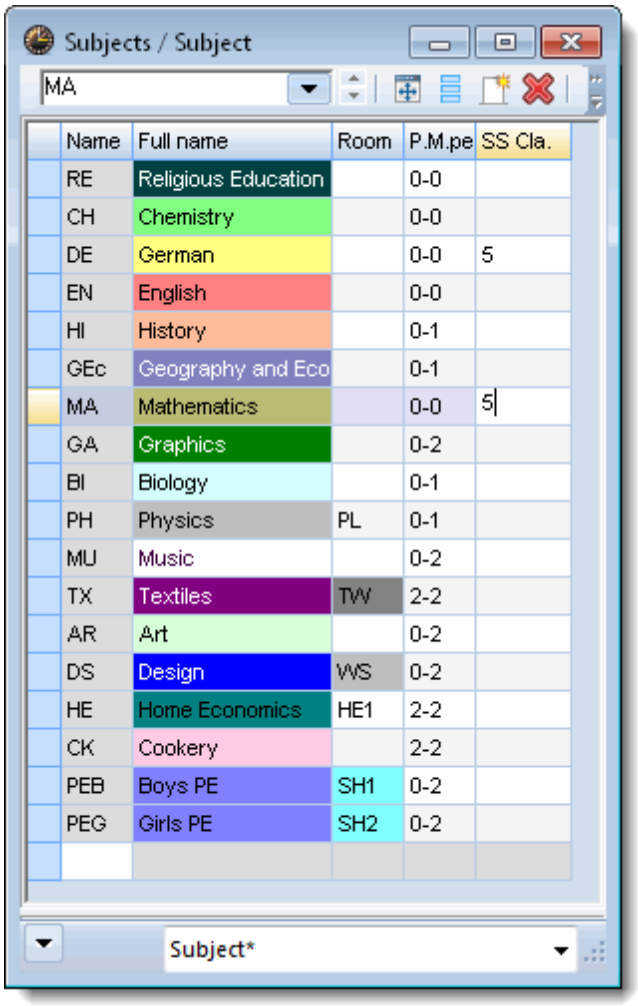
Subject sequence codes can be entered for subjects and lessons. Subject sequence codes entered for subjects apply to the entire school; codes entered for lessons only apply to the classes (teachers) involved in the lesson.

Note:
Subject sequences are 'soft' conditions for the algorithm, i.e. they may be ignored in extreme cases. A weighting slide control can be used to control the importance attached to these fields. Use fixed subject sequences if the subject sequence must be respected (see chapter ")Subject sequences)")

15.1 Positive subject sequence

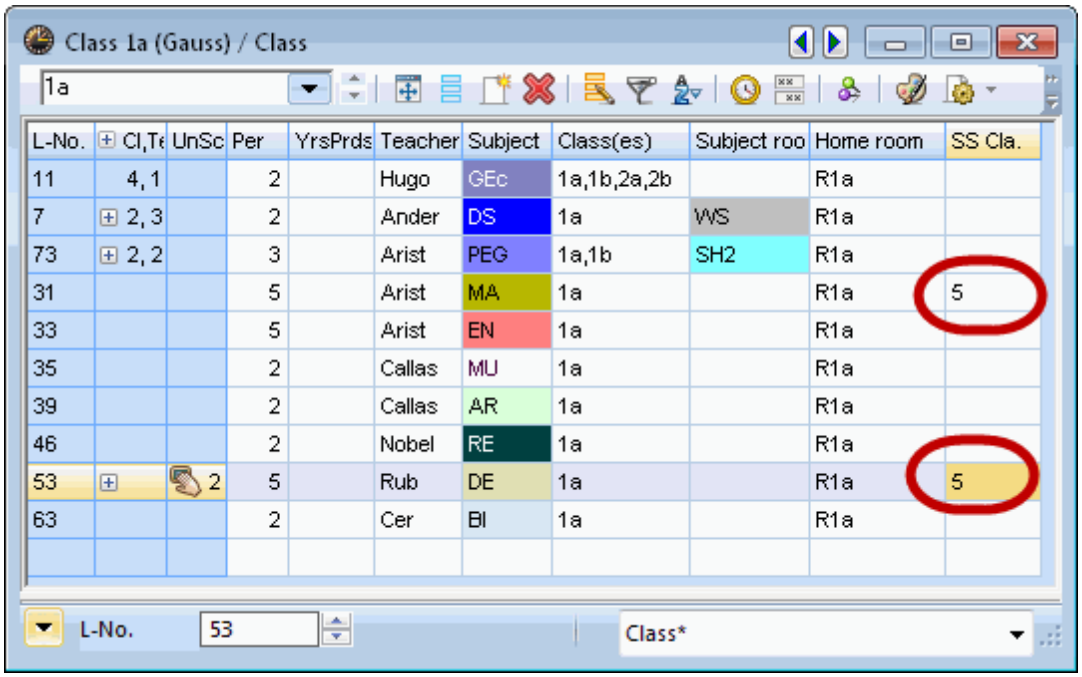
Classes

It may be desirable for pedagogical or organisational reasons to schedule certain subjects in sequence.



For example, to allow time for a two-period written exam, you want to schedule the subjects German (DE) and Math (MA) in sequence. It is irrelevant in this case if the sequence is DE-MA or MA-DE.

Version 1
Applies to the entire school
Enter the same numerical subject sequence code (under "Master Data | Subjects") for both subjects, e.g. "5" (see example below).



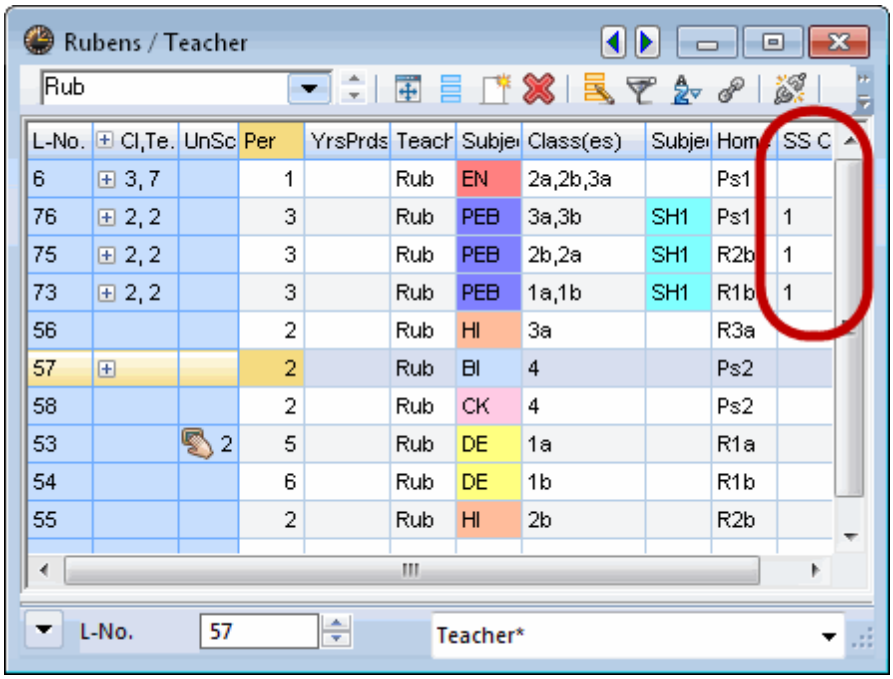
Version 2
Applies to a particular class (e.g. class "4")
Enter a numerical subject sequence code (under "Lessons | Classes") in the relevant lesson rows for class 4, e.g. "5".

Teachers

You can also enter subject sequence requests for teachers. This is a useful function for subjects that require elaborate experiments to be set up. For example, a teacher who teaches Physics to three different classes of the same year may request to have these lessons scheduled in sequence to allow him to show the same experiment several times in a row.

Another example involves teachers who teach PE plus another subject. The PE lessons should, if possible, be scheduled in sequence so that the teacher is not obliged to change into PE clothes several times a day.

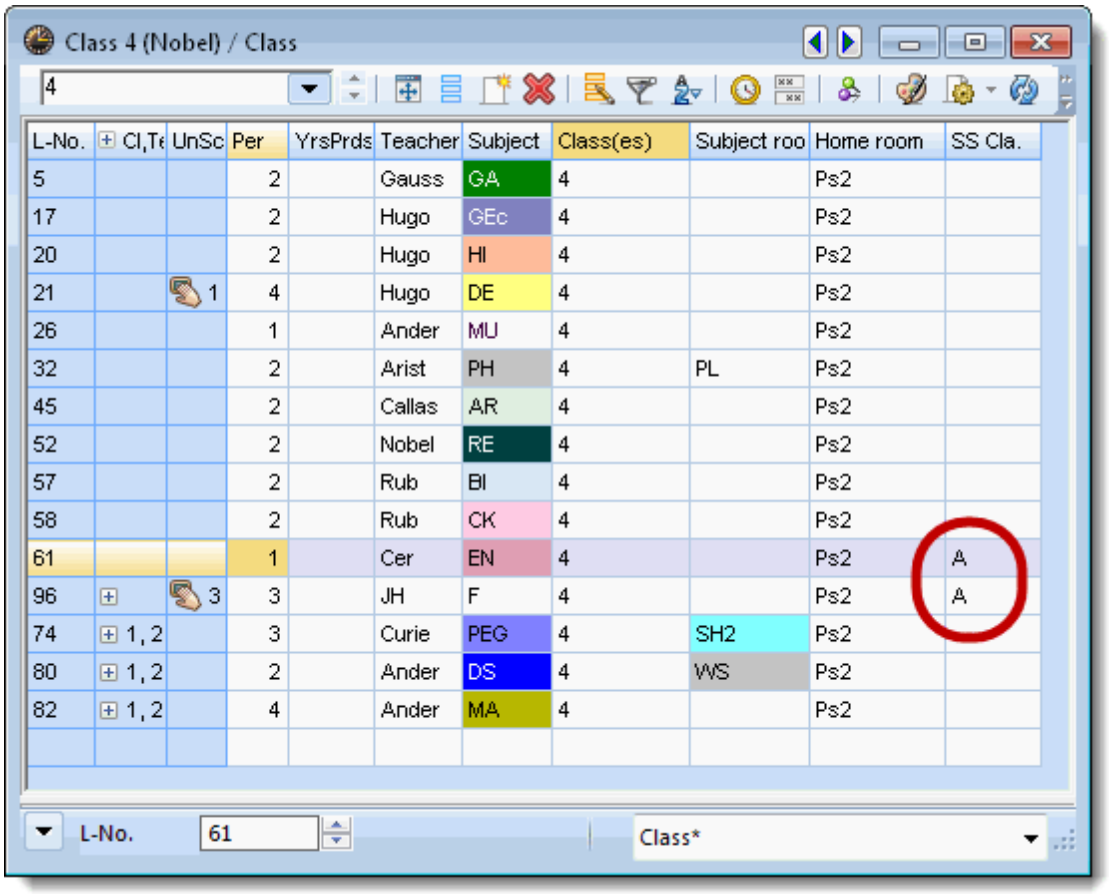
In both cases, enter the same numerical subject sequence code for the lessons you want to schedule in sequence (under *Subject sequence - Teachers*).



15.2 Negative subject sequence

On the other hand, it may be desirable to prevent specific subject sequences. If this is the case, simply enter an alphabetic subject sequence code (letter from A to F). The optimisation tool will take into account that lessons with the same alphabetic subject sequence code should not be scheduled in sequence.

For pedagogical reasons, the Modern Languages subjects English (E) and French (F) should not be scheduled in sequence for class 3a. Enter the letter "A" in the column "Subject sequence – Classes" (see example).



The following details are required to ensure the correct treatment of subject sequences during optimisation:

Under "Scheduling | Weighting | Teachers"

- Respect the subject sequence for teachers

and/or
under "Scheduling | Weighting | Classes"

- Respect the class sequence for classes

Under "Master Data | Subjects"

- Subject sequence (classes or teachers)

or
under "Lesson"

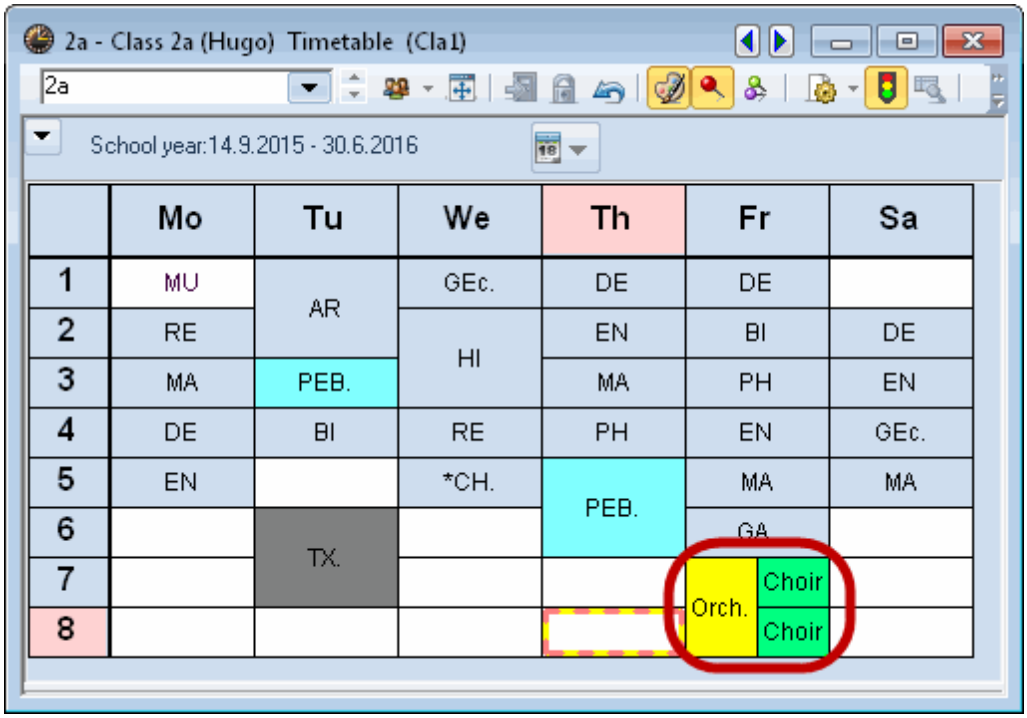
- Subject sequence (classes or teachers)

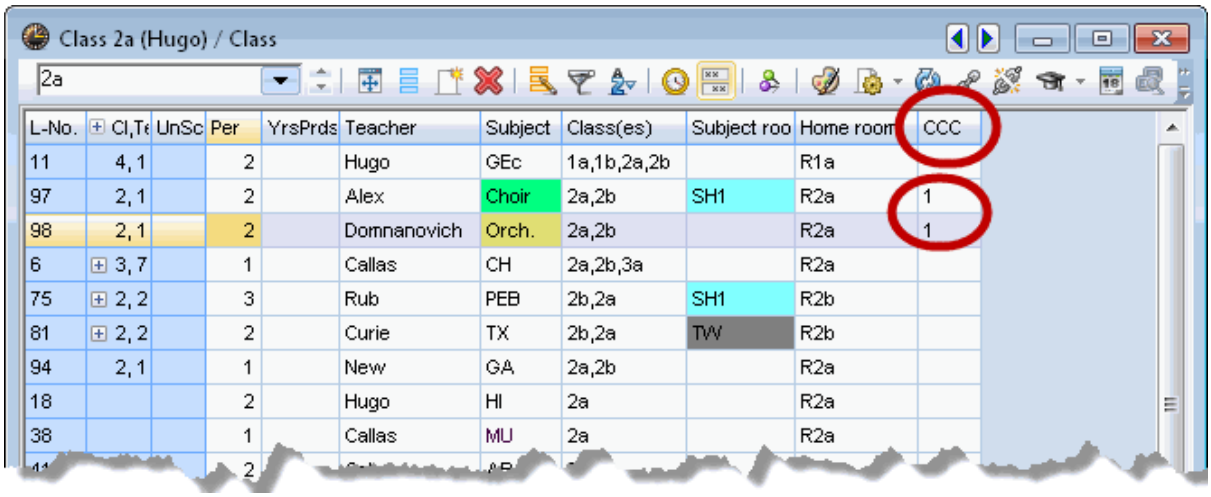
16 Class Clash Code (CCC)

Teachers, classes and rooms may never be double booked by the Untis optimisation algorithm. However, exceptions may make sense when it is certain that lessons of the class in question are attended by different students.

The students of class 2a attend *either* Choir *or* Orchestra, but none of the students attend both. Enter

the same *numerical* CCC for both lessons (permitted values 1 - 9), e.g. "5" to instruct the Untis optimisation algorithm that the lessons Choir and Orchestra may be scheduled at the same time, but that this is not compulsory (see example).





Let us assume that there are three subject groups. Each student chooses one of the groups and attends all the lessons offered within this group. Conflicts between the individual groups are therefore permissible. Assign *the same* CCC *letter* to all lessons that must not be in conflict with other lessons. Assign a different CCC letter to all lessons where conflicts are permissible..

	CCC	group 1
French	A	group

and Italian		2
Chemistry and Physics	B	group 3
Literature and Drama	C	

Please note that entering a CCC *permits* , but does not *enforce* the creation of a conflict between lessons. Consequently, the diagnosis tool will not display an **NTP** (non-teaching period) for classes when the lessons marked with the CCC A, B and C are **not scheduled at the same time** .

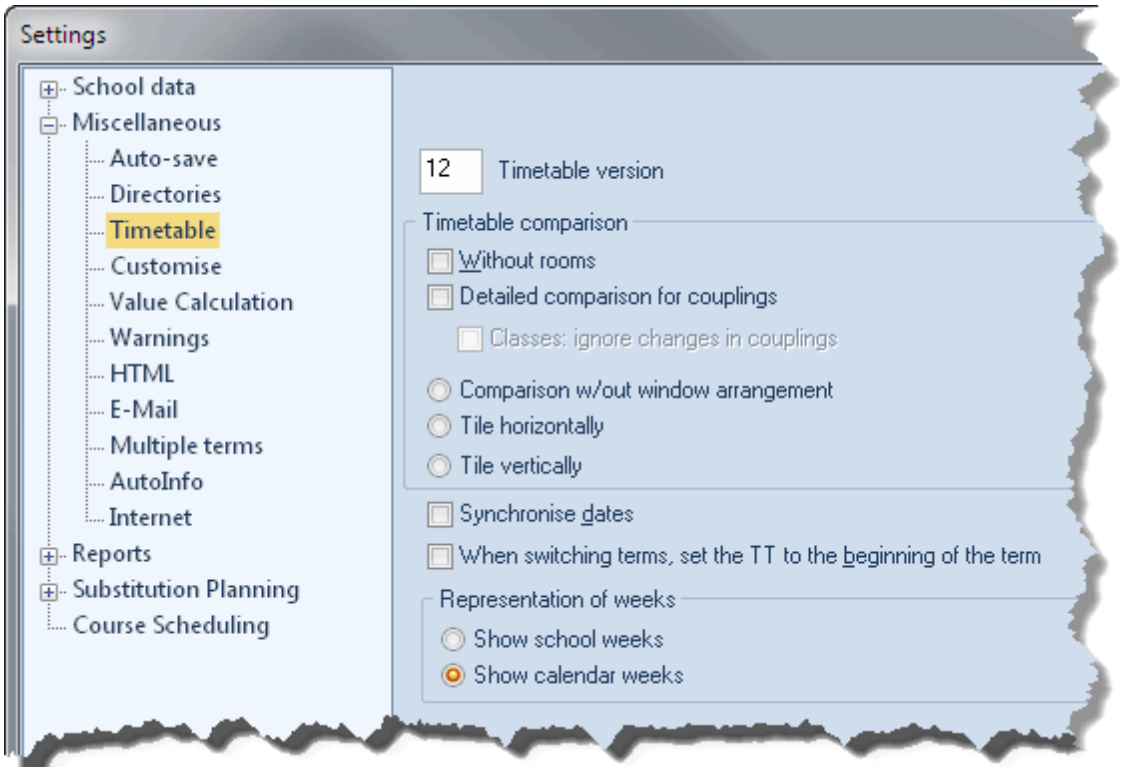
17 Timetable comparison

It is often useful and necessary to compare timetables with each other, for instance when you implement manual changes or when you want to compare different versions of your timetable after the completion of several optimisation runs. For this purpose, Untis provides the function "Timetable comparison" described in this chapter.

First, the chapter will introduce a number of settings options relevant for timetable comparisons.

17.1 'Timetable' tab

Go to *Settings* on the *Start* tab and select under *Miscellaneous* the item *Timetable* . Here you can enter different settings for comparing timetables.



The following options are available:

Without rooms
Check this box if you want the software to ignore individual rooms during the timetable comparison.

Detailed comparison for couplings
Activate this option if you only want to see the timetable differences for the elements of the selected coupling row, but not for all the elements of the selected lesson.

Classes: ignore changes in couplings
This option is only available when the previous option is active. If the timetable changes involve classes only, the changes are only displayed on the class timetables of the classes affected by the changes.

During a timetable comparison, a second instance of Untis is started. The next three settings concern the arrangement of the two windows.

Comparison without window arrangement
Select this option if you want to arrange the two windows manually.

Tile horizontally
Select this option if you want Untis to arrange the original timetable at the top and the modified version at the bottom.

Tile vertically
Select this option if you want Untis to arrange the original timetable on the left and the modified version on the right.

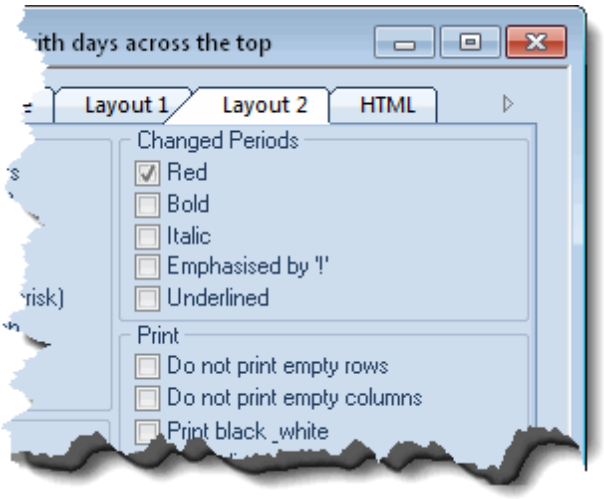
The selected window arrangement is not fixed and you can manually change the arrangement at any

time. As soon as you close the second window, the original Untis timetable reverts to its former state (e.g. full screen).

If you have two monitors connected to your computer, you can display the two versions on two separate screens.

17.2 'Layout 2' tab

Another settings option allows you to specify how the differences between the two versions should be displayed. Open a timetable (e.g. "Timetable | Classes"), click on <Timetable Settings> and open the "Layout 2" tab to view and select different display options.

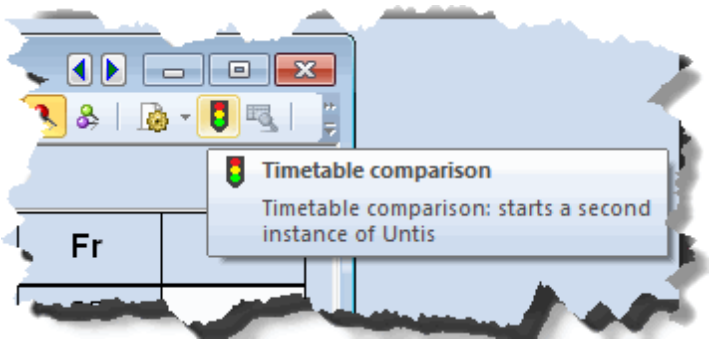


Note:
The <Timetable Settings> button can only be activated when no timetable comparison is active.

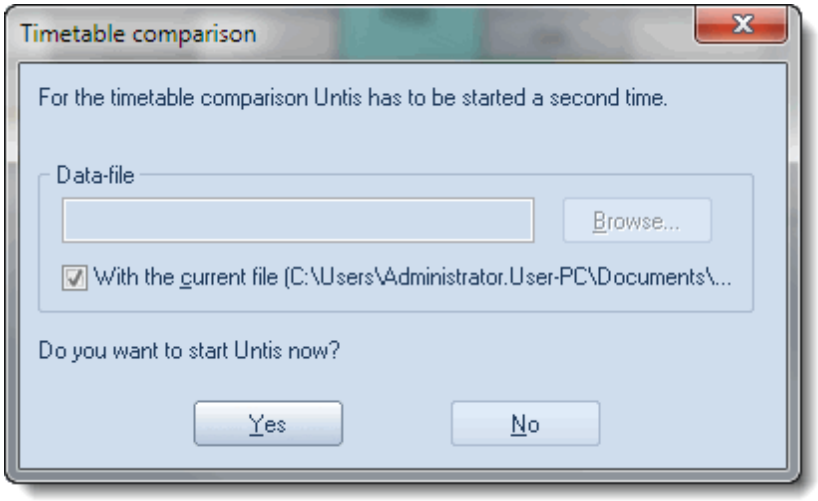
17.3 Starting timetable comparison

Start a timetable comparison as follows:

Open a timetable (e.g. "Timetable | Classes") and click on "Timetable comparison" in the tool bar.



The timetable comparison dialogue window appeara and instructa you to start Untis a second time. Specify if you wish to open the current file a second time or if you want to open a different file.



The following list summarises the different items you can compare:

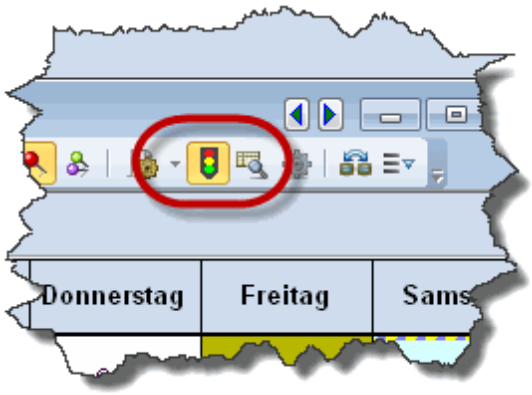
- Different files, i.e. timetables saved under different names
- Different school weeks (of the same file). Open the same file in both Untis versions and select two different weeks from the timetable display
- Different terms of the same file (for use with the Multiple Term Timetable module)
- Changes to the current work file since the file was last saved

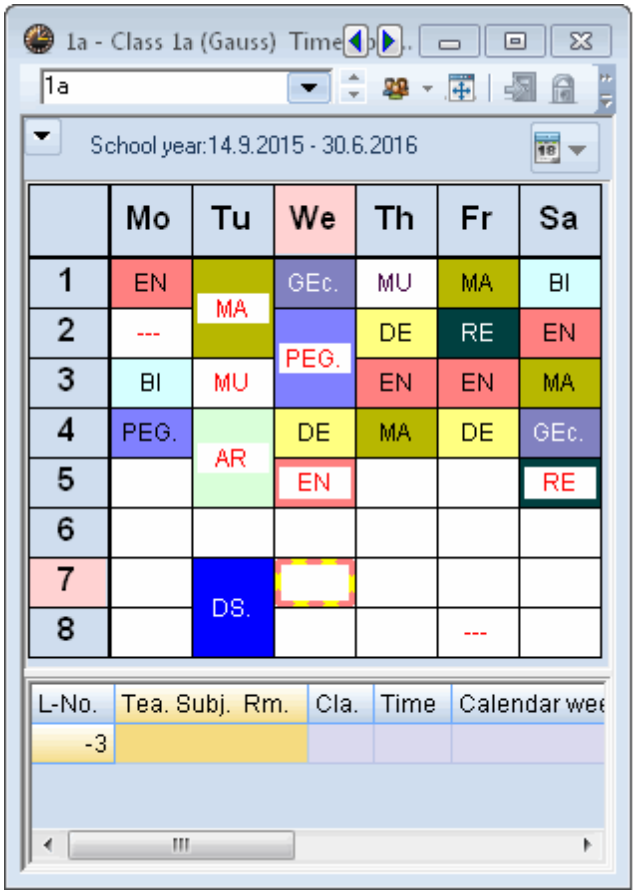
Note:
The second timetable must have the same format and the same number of columns and rows as the first (an important factor when comparing timetables from different files).

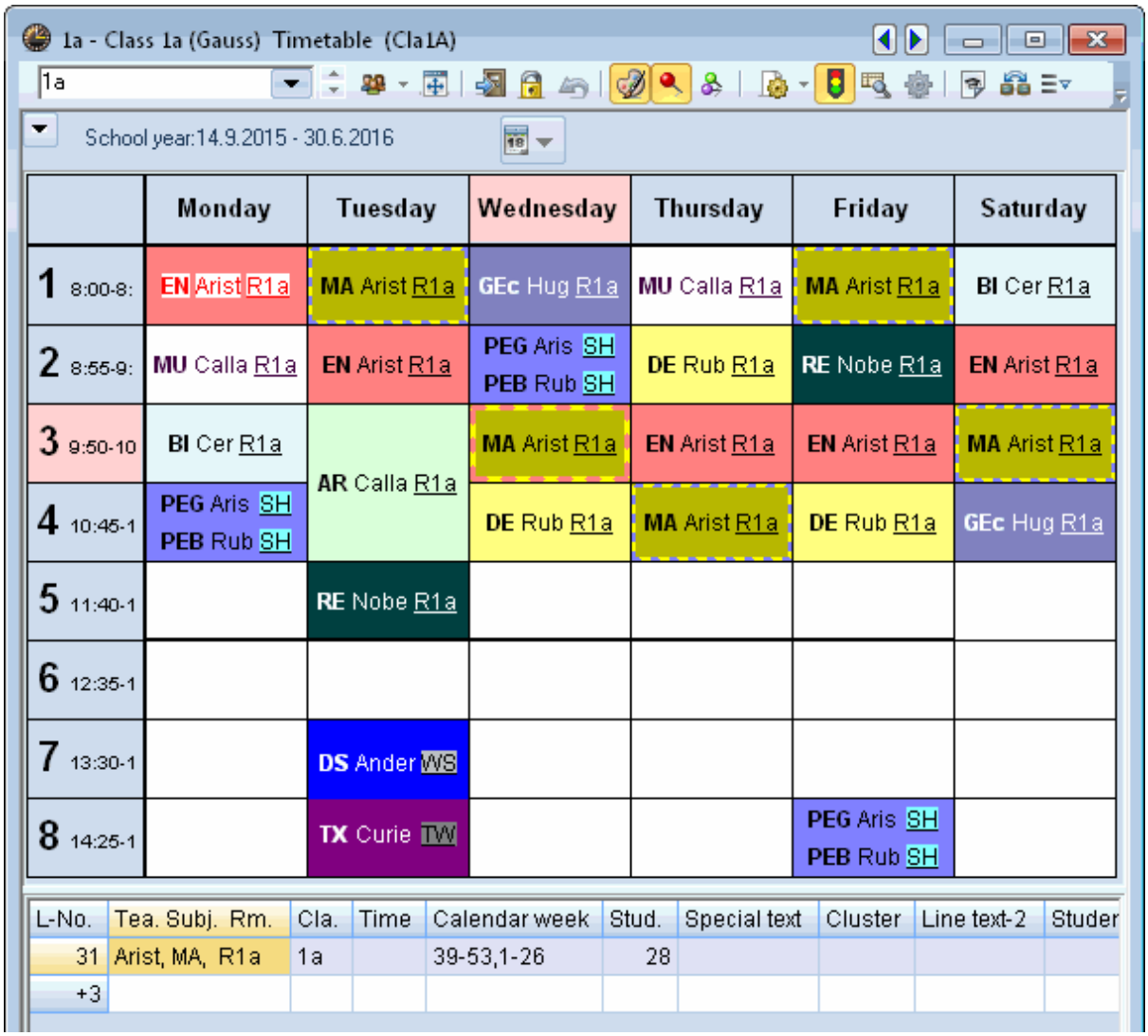
Select the desired option and click on <Yes> to start Untis a second time. The two versions will be arranged as specified. You may have to move the navigation bar to the bottom or the right window edges to be able to view the entire timetable. The second version also displays a timetable.

17.4 The process of timetable comparison

The two Untis timetable versions communicate with each other and exchange information. During this process, the traffic light situated next to the timetable comparison combo box is green.

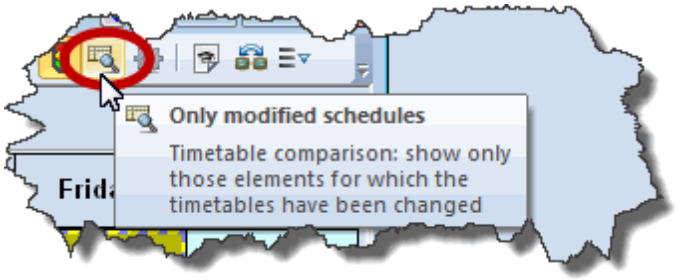

Donnerstag
Freitag
Sams


1a - Class 1a (Gauss) Time
1a
School year:14.9.2015 - 30.6.2016
Mo Tu We Th Fr Sa
1 EN MA GEc. MU MA BI
2 --- PEG. DE RE EN
3 BI MU EN EN MA
4 PEG. AR DE MA DE GEc.
5 EN RE
6
7 DS.
8 ---
L-No. Tea. Subj. Rm. Cla. Time Calendar wee
-3



When the timetable comparison function is active, the two timetables are synchronised. This means that you can scroll from class to class in one of the two timetables, and the other timetable automatically scrolls to the same class. Move the cursor from period to period and the second timetable will always display the same period.

The example shows an active timetable comparison. The RE lesson is highlighted because it is missing in the timetable on the right.



All three periods of German are also highlighted, because in the timetable on the right no room has been allocated, however in the timetable on the left there a room has been allocated. The same is true for the MU lesson of Callas Monday, second period: the room has been changed. These differences would not be displayed, if the setting "Without rooms" had been activated.

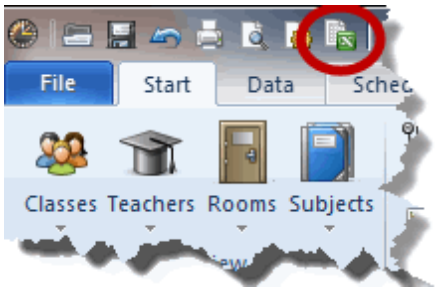
Next to the button „Timetable comparison“,there is the button "Only modified timetables". This function can only be activated when a timetable comparison is active. Checking this box automatically activates the function in both timetables. Untis proceeds to compare all the timetables of the selected element and displays a message box showing the number of timetables in both versions that contain differences. Close the message box by clicking on <OK>. When this function is active, you can only scroll through timetables that contain changes. Timetables with identical contents are no longer displayed.

The function *Timetable comparison* allows you to compare the following timetable formats:

- Single timetables, i.e. two timetables in landscape or portrait format, are usually displayed side by side.

18 Export to Microsoft Excel

Untis allows you to export most reports and the content of many maste data and lesson fields to MS Excel. The respective button is active on the Quick Access Toolbar whenever it is possible to export data from a window to Excel .



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