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Timetable Suite
Introductory Course Notes
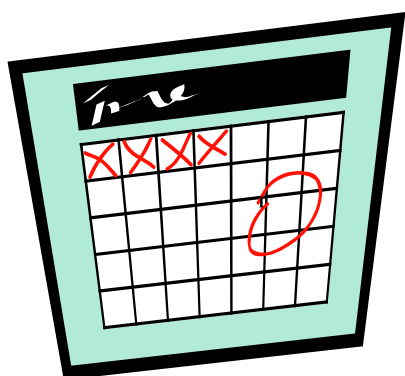
Massey University   t: 0800 600 159   f: 0800 500 159   www.musac.co.nz   **Software for Schools**   *Solutions for People*

An Introduction to School Timetabling

Timetabling Philosophy

- **Student driven -** subject choices should be as wide as possible.
- **Staff input -** staff should be able to express their wishes to the timetablers through their HOD's.
- **Involvement -** Should involve at least 3 people in its production, preferably one new person each time.
- **Scrutiny -** Should be open to scrutiny at all times.
- **Simplicity -** Should be as simple as possible. This allows changes to be more easily implemented.

The Perfect Timetable

- Students get all their options.
- Teachers have classes they desire.
- All teachers have their correct load.
- Teachers have all their classes in their designated room.
- Class sizes are balanced and manageable.
- Rooms are used efficiently.
- The curriculum is delivered.

- There is a mixture of morning and afternoon periods for each class.
- Non-contact time is evenly spread for teachers.
- Part-timers have their classes blocked.
- The timetable is easily understood and easy to modify.

Order of Operations

1 Planning

1.1 General Meetings to discuss structure – includes Management, HoD's, curriculum committee.

1.2 Departmental Meetings to discuss choices and items raised from 1.1.

1.3 Produce a booklet of courses.

1.4 Presentation to students and caregivers to discuss options.

1.5 Settle on a timetable team.

2 Preparation

2.1 Collect option sheets.

2.2 Enter option sheets.

2.3 Check options for suitability. Counsel students if required.

2.4 Decide number of classes and subjects to cull.

2.5 Ask HOD's for their preferred staffing.

2.6 Check on requirements of part-timers.

2.7 Record other restrictions e.g. rooming, timing etc.

3 Building

3.1 Enter teacher restrictions/requirements

3.2 Enter structural restrictions and consider the order of the option lines through the timetable cycle. e.g. Monday P1 is A, Monday P2 is B, etc, as well as which lines the juniors will use throughout the year. e.g. Term 1, Y9, C & D, Term 2 Y9, I & J, etc.

3.3 Decide on acceptable clash number based on schools size, i.e. the bigger the school the smaller the clash percentage.

3.4 Build option lines.

3.5 Test different option combinations for best fit.

3.6 Check class sizes and balance.

3.7 Confirm teacher classes are ok.

3.8 Check critical rooming.

3.9 Decide how to handle student clashes.

4 Completion

4.1 Decide on option placements during the week.

4.2 Insert the 'extras' e.g. PED, Music etc.

4.3 Complete rooming.

4.4 Confirm junior classes.

4.5 Do a full room, class clash check.

4.6 Publish and be damned !!

Building a timetable (the detail)

Order of Operations

5 Order of Tasks

- Enter Student subject choices using the Student Editor.
- Print out the subject numbers (via View) and hand to the person who decides on the number of classes to run.
- These class numbers are then handed to the Department HOD's to decide on their preferred staffing.
- The staffing is entered into the Teacher Editor.
- The basic timetabling structure is confirmed, e.g. 4 half year options at year 9 along with your restrictions
- Enter the Maker (option lie creator) program and enter your restrictions via the masking process and then 'run' (build lines).
- If the lines are unsatisfactory then check your masks and rerun. If the lines appear reasonable then leave the Maker. (There should be NO need to return.)
- Check the Teacher Editor for any problems and if necessary, make corrections.
- Check the Option Editor for class balances and if necessary, make corrections.
- Fine tune using the 'What If?' tool (in conjunction with 'Clash Analysis') for finding alternative places for subjects in your lines. 'Who is free?' in the Option Editor allows you to balance lines while also reducing clashes. 'Who Else?' is excellent for class balancing.
- When you are satisfied with the lines PIN all student subjects, save your results and from the TAS Main Menu, choose 'Transfer' to send your data over to the Timetable Editor.

An Option Structure example

This example for a 5 day 5 period timetable. The 25 periods are filled with 6 options of 4 periods each, with 1 spare period.

	1 (A)	2 (B)	3 (C)	4 (D)	5 (E)	6 (F)	...	9 (I)	10 (J)
Year 9	**option 1st half year**	**option 1st half year**	core	core	core	core		**option 2nd half year**	**option 2nd half year**
Year 10	core	core	**option**	**option**	core	core			
Years 11,12,13..	**option**	**option**	**option**	**option**	**option**	**option**			

All options are assumed to be 4 periods initially. Junior options are often however, only 3 periods.

This means that one period needs to be filled out with something like PE, or a period of core where a core teacher has a free space in this line, or could be set aside for school assembly.

Timetable Screens and Notes

1   Starting TAS

Step 1: Student Selection

Year Levels – Choose which levels from year 7 to 15 you wish to work with. These levels may refer to the student's year level this year or next year. It is recommended you choose all levels and then filter later in the student editor which level(s) you may require.

Returning Probability – You can also filter out students who have less than a specified returning probability. The default is to ignore the returning probability. It is suggested that you only enter subjects for students who have a greater than 50% chance of returning.

Step 2: Load a subject Set

This lists the subject set number 1, 2, 3… for each year level, and the option lines that they are attached to in Student Manager. Each set of subjects may contain up to 25 subjects. These are stored in columns in the SM database.

There are buttons available to

- **Create a new empty set**
- **Duplicate the selected set**
- **Alter the default set**
- **Rename the attached Option Lines**

Step 3: Option Line Selection

Each subject set outlined in step 2 may have an associated set of option lines in SM. The various option lines that exist are stored in the Option_bases table within CM.MDB. The data for each option line is stored in the Option_Lines table in CM.MDB. When you create a new subject set, initially there will be no option lines associated with it.

You have 4 choices:

1. **Load the lines from Student Manager associated with the subject set chosen in step 2**

2

This is the option most commonly chosen.

2. **Load another set of lines from Student Manager**

   This may be chosen when you are perhaps creating some new lines based on a set of lines you have created previously

3. **Load a set of lines held in TAS**

   When you are building a new timetable you may wish to try several different lines before finally settling on a final set to use in Student Manager. These trial lines can be saved in TAS. When you have finally settled on a line structure you like you can then save these to Student Manager as the lines you wish to associate with your currently loaded subject set.

4. **Load an empty set**

   If you wish to start building lines 'from scratch' you can choose this option. Also if you are building an exam timetable you would choose this option as it removes all teachers from the process and sets by default the number of exams for each subject to one.

Load the current Student Manager setup

This will choose all students except those with a status of leaver or deleted. It will choose the current default subject set in Student Manager as well as its associated option lines.

Load the most recent startup options for this terminal

This will choose all students except those with a status of Leaver or Deleted. It will also choose the subject set that was last chosen and whichever lines were last used. These lines could be from Student Manager or a set saved in TAS.

2   Student Editor
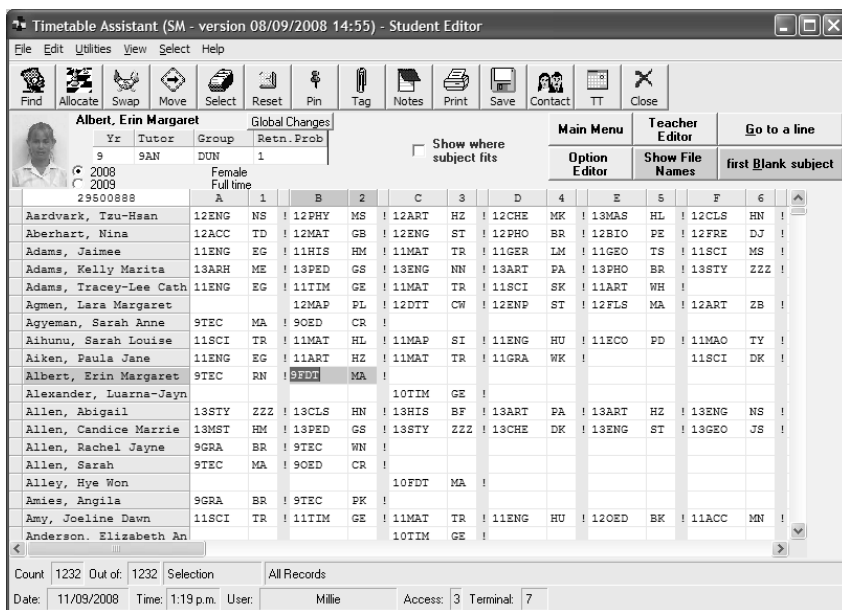
The Student Editor allows you to edit student subjects, year levels, horizontal and vertical forms and their returning probability. Data is read directly from Student Manager and is saved back there as well.

3   *Teacher Editor*
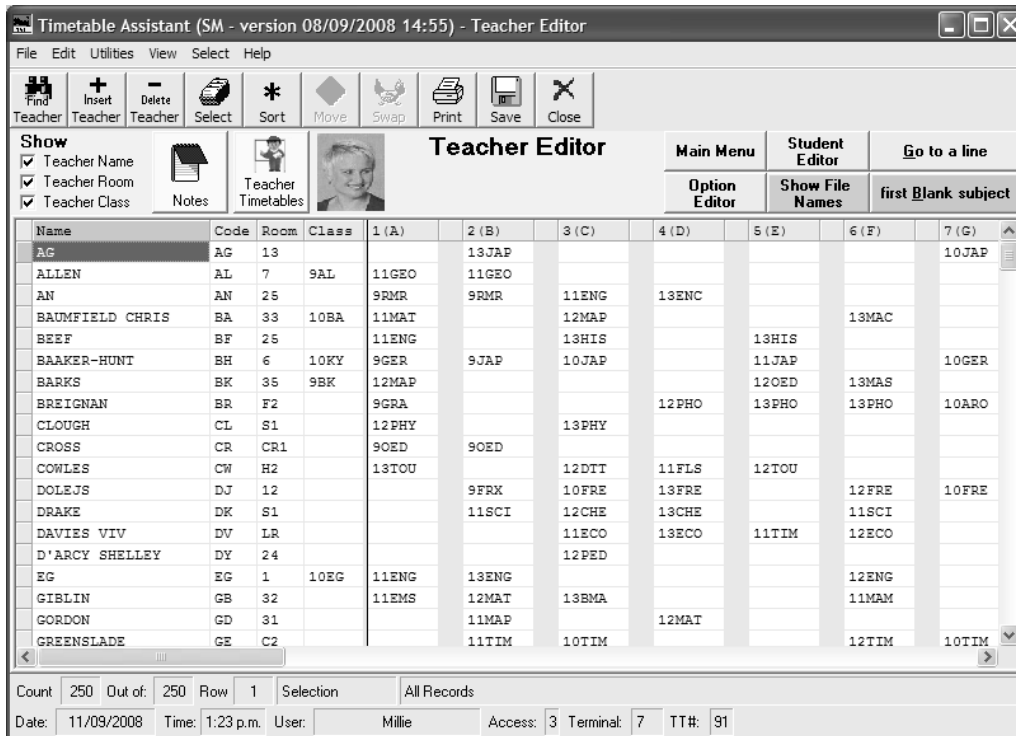
The Teacher Editor allows you to enter data into your Option Lines. In fact it as an alternative way of viewing and editing the data you see in the Option Editor.

The data is in two parts.

Teacher Details

The 4 columns on the left contain the teacher details. Each teacher must have a name and a unique code. It is advisable that you enter a room for each teacher. This is the room in which they teach most of their classes. When your data is finally transferred into the Timetable Editor this is the data that appears at the top of each teacher's timetable. If you forget to enter a room then when the transfer occurs, the teacher's room defaults to be the same as the teacher's code.
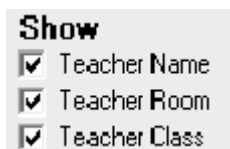
It is useful once this data is entered to hide some of the detail columns in order to expose as many subject columns as possible as this is where most of the work is done. To hide the columns simply uncheck the SHOW boxes.

Subject Details

This contains 25 columns. These columns correspond to the option lines you see in the Option editor. When the cursor is placed on a subject it is highlighted in blue. Any equivalent classes are highlighted in yellow.

Name	Code	Room	Class	1(A)		2(B)		3(C)
AG	AG	13				13JAP		
ALLEN	AL	7	9AL	11GEO		11GEO		
AN	AN	25		9RMR		9RMR		11ENG
BAUMFIELD CHRIS	BA	33	10BA	12MAT	>B	11MAT		12MAP

In the Option Editor it is possible to place a teacher more than once in the same option column. This implies the teacher is taking more than one class at the same time. Because it is not possible to show 2 entries in the same cell in the Teacher Editor a yellow and red coding system is used to indicate this situation. If for instance teacher BA has 11MAT in line 2 and 12MAT inline 2, then one of these (eg. 11MAT) will show correctly in line 2(B) with a red square to its right indicating a 'clash' in this line and the other subject will be placed in the first space column available with a yellow square to its right containing the option letter (B) indicating in fact the line that it is actually placed in.

(**RULE:** the red square indicates the clashing line and the yellow square indicates the clashing subject)
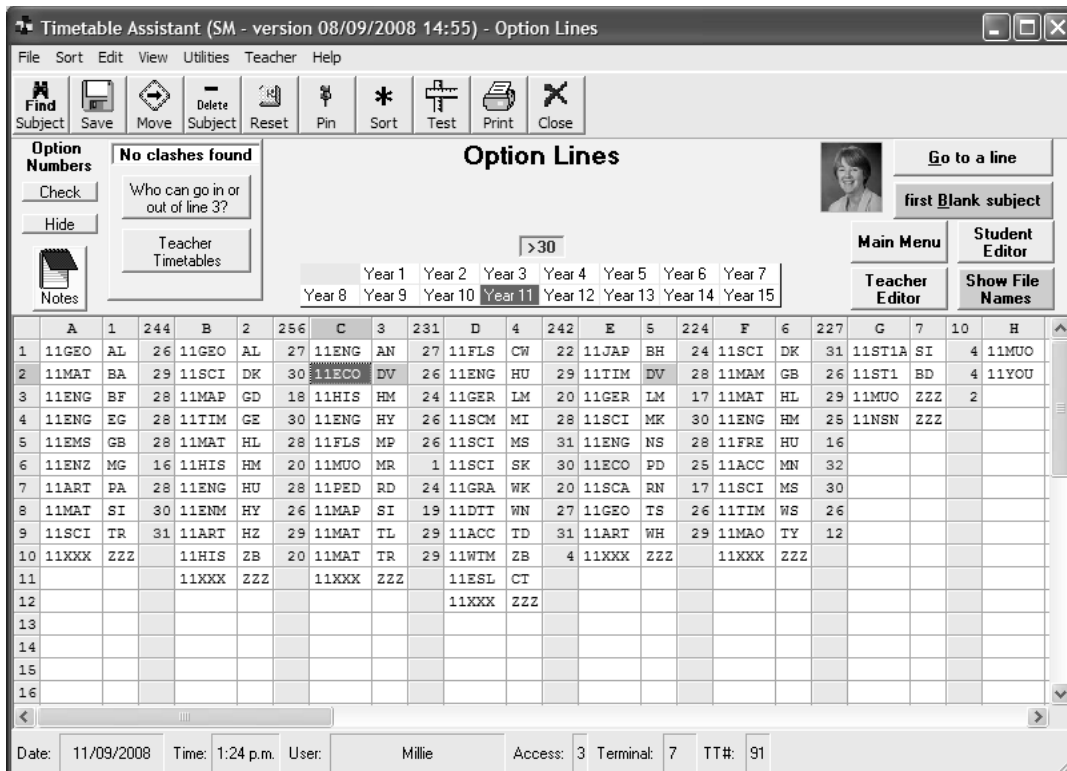
4   Option Editor

Introduction

The Option Editor allows you to enter data into your Option Lines. In fact it as an alternative way of viewing and editing the data you see in the Teacher Editor.

The current subject is highlighted in blue and equivalent classes are highlighted in yellow. If the current teacher is also visible elsewhere on the screen they will be highlighted in pink

The data is arranged in year levels and then in columns showing the subject, teacher and class size (in grey - may not always be visible).

The subjects may be sorted by subject, teacher or class size using the sort menu.

You can also test your data for clashes ie. a teacher appears twice in the same line. Some clashes may be ok, eg. where a teacher has a multilevel class.

It is not possible to enter a subject from one year level into another year level, eg. if you try and enter 9FRE in the year 10 lines a message will say this can't be done. Remember if you use a code that the program cannot recognise the year level for, it will default it to year 15. See the 'Set Subject Levels' utility available via the Main Menu.

Option Numbers

You can see class sizes by clicking the Check/Show option numbers button on the left hand side of the screen. Classes which exceed the 'Desired Maximum Class Size' are indicated in red. This desired maximum can only be set for each year level, not each subject. To set this figure click on the red indicator (>30 in the picture).

Whenever you change your option lines the program needs to reallocate the students to them in order to get accurate class sizes. Therefore if you click the CHECK option numbers button you will be asked 'do you wish to reallocate'. As long as you are NOT working on your current data you can do this quite safely.

 If you are working on current data, please make sure your students are <u>pinned</u>.

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5   The Maker

Introduction
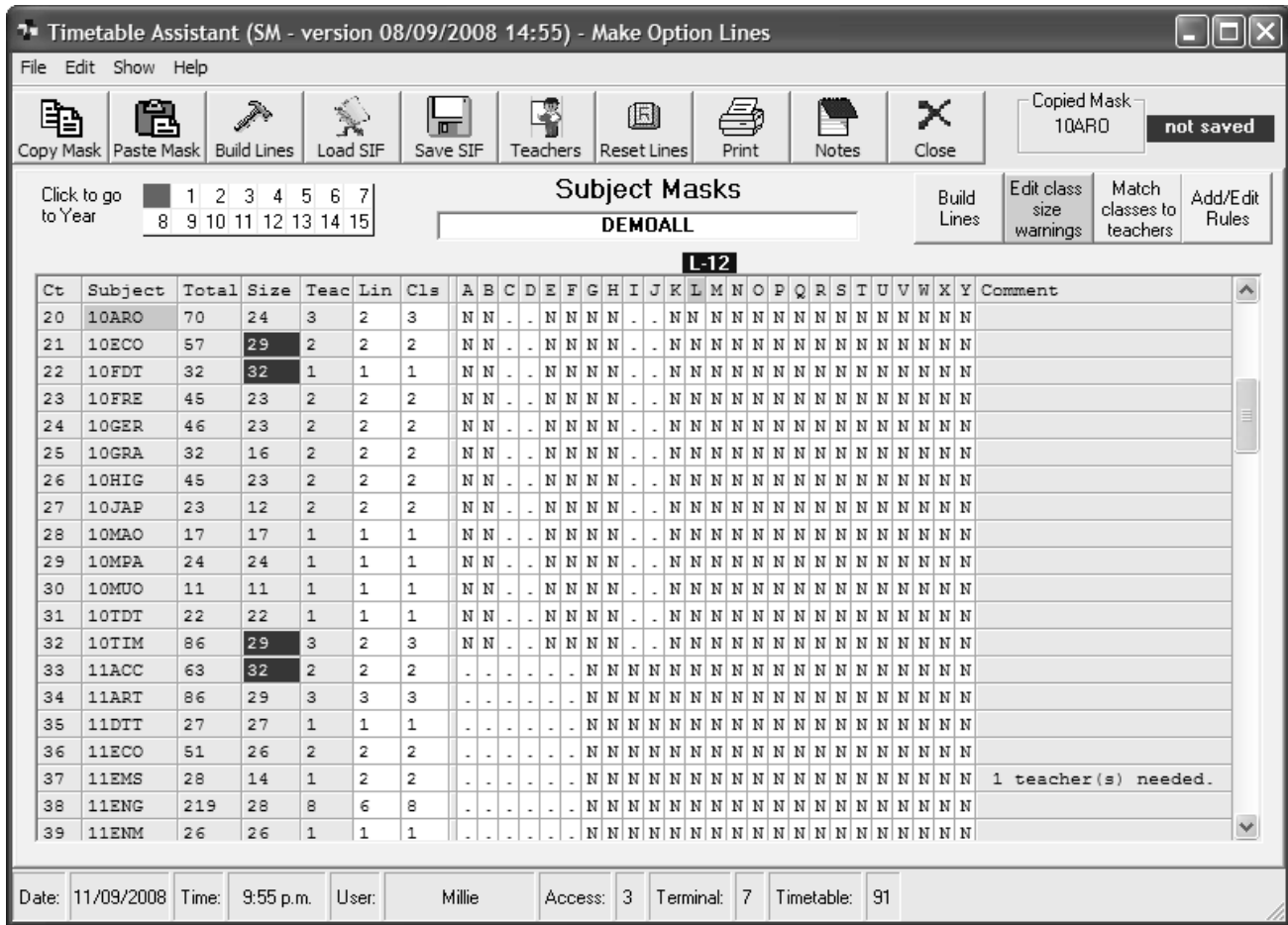
This area (known as 'the Maker') combines together student subject choices form the Student Editor with teacher information from the Teacher Editor to produce option lines. These lines may be for a normal school timetable or an exam timetable.

The Maker allows you to enter structural restrictions, e.g. if you have 6 11MAT classes, do you wish to run them over 6 lines or 3 lines with 2 classes in each or even 1 line with all 6 classes. These restrictions are saved in what is known as a 'mask' which can later be recalled and edited.

There is also a check to see that you have allocated the correct number of teachers to match the number of classes you wish.

Once your lines have been generated you can save them and also check to see the percentage of students who fit.

For smaller schools (<500) then the MAKER may not give good results. Instead look at using the powerful 'What If?' tool to assist in building their lines.

The steps in building lines using the maker are:

STEP 1: Select the year levels you wish to consider. It is **strongly** suggested when making a school timetable that you choose ALL your year levels. The Maker can then take into account all the restrictions that exist in your timetable when producing its lines. Making lines level by level is

acceptable, BUT merging lines together is very difficult because while students generally take subjects horizontally, i.e. at one year level, teachers don't. If you try working each level individually you are not using the full power of the software.

STEP 2: Entering Mask Information

After you have selected your year levels, the program then finds all the subjects at these levels by searching both the Student Editor and the Teacher Editor. These subjects are then listed with the lowest year levels shown first. This table has 3 parts, the details area (Ct,Subjects,Total .,,,Cls), the masks (the columns labelled A to Y (or 1 to 25)) and the comment area.

The Details Area

The 'Total' column shows the number of students found taking each subject. If a subject has **NO** students but is listed, then the zero will be highlighted in <mark>yellow</mark>. This indicates that the subject was found in the Teacher Editor only. Because 'core subjects' are NOT entered by students then they will be highlighted in this way.

The 'Size' column indicates the size of each class if the program can produce perfectly balanced lines. Note that there are to be 2 10FRE classes for the 45 students. At best this means a class of 22 and one of 23. The 'Size' column shows the highest class size. If a class size is greater than the recommended maximum size (see 'Edit Class Size Warnings') then it will be highlighted in <mark>red</mark> (at best 11ACC would have 2 classes, one of 31 and one of 32, both above the maximum setting of 30).

The 'Teac' area indicates the number of teachers that were found in the Teacher Editor for this subject. These teachers can be viewed by either pressing the 'Teachers' button or right clicking the mask alongside the subject concerned. When viewing the teachers you have an option to add or delete a teacher should you have entered this data incorrectly in the Teacher Editor prior to entering the Maker. The number of teachers **cannot** exceed the number of classes you set in the Cls column. If however it is less, e.g. you have only allocated 3 teachers for 5 classes then the program will indicate in the 'Comment' area that you need 2 more teachers. If you do not add these then the program will create 2 teachers using the dummy teacher code ZZZ. Sometimes you do not allocate teachers to classes. For example a subject may be taken at another school, or by correspondence.

The 'Lin' column shows the number of lines the subject is to run in. By default the program will try and maximise this ie. if there are 3 classes it will default to 3 lines if it can. If however you wish to over-ride this to say run all your classes for a given subject at the same time, enter a 1 in this column. Schools sometimes do this to 'stream' classes or they wish to 'team teach' them. Some schools go somewhere in between eg. they may decide they wish to run 7 11MAT classes in 3 lines.

The 'Cls' column shows the number of classes you wish to run for each subject. It defaults to the number of teachers found. It can never be less than the number of teachers found but may exceed the number of teachers. If you make the number of classes less than the number of lines you have specified in the Lin Column then the number of lines is automatically reduced.

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The SIF Mask

This is where you indicate the lines where a subject can be placed. There are 3 possible entries in a mask.

'N' (No)   This indicates that a subject may **NOT** appear in this line
'Y' (Yes)   This indicates a subject **MUST** run in the line indicated
'.' (Maybe) This indicates a subject **MAY** run in the line indicated.

It is recommended that you maximise the number of dots ('Maybe's') in order to give the software the maximum amount of choice when placing subjects.

If the number of lines you make available (using dots or Y's) is less than the number of lines indicated in the Line column then the number of lines is automatically adjusted down to match.

Generally in New Zealand schools most senior students take 6 subjects. These can appear in any order in 6 lines. Hence a senior mask (years 11, 12 and 13) is normally shown as 6 dots in lines 1 to 6.

In the example shown year 10 students take 4 options - 2 in the first half of the year and 2 in the second half of the year. It has been decided to line the year 10 lines up with senior lines C and D (or 3 and 4). The second half year courses have been masked out into lines 9 and 10 (any 2 lines outside the first 6 would do). The compulsory subjects, eg.10ENG and 10MAT will occur when the year 10 options do NOT occur; hence the options have dots in lines 1 to 6 when the core have N's and vice versa.

It is recommended that subjects which are not staffed (eg. you may have a year 13 Horticulture course which a student does by correspondence) is shown occurring (following the example above) with 6 dots and 6 lines and 6 classes. The comments field will show that 6 teachers are needed. This is not a problem as the dummy teacher will be used. 6 lines are indicated rather than 1 as this is much less restrictive and the student can do this course at any time.

Edit Class Size Warnings

This allows you to indicate the desired class sizes at each year level. Classes exceeding this will show in red in the 'Size' column of the mask.

6   Simple 'What If?'

'What If?' is a powerful utility that shows the effect of moving a subject (or subjects) into different option lines. It produces a table showing the number of clashes when the subjects are placed in each line displayed. The entries with the **smallest numbers** are the most desirable.

Step 1
Choose the subject to test.

Step 2

Subject occurs only once in the option lines

You will be asked if you wish to cross reference your subject with another. This allows you to test 2 subjects simultaneously. It is recommended that only experienced users choose this option.

Subject appears more than once in the option lines

In this case you can choose 1 or 2 entries (classes) to test simultaneously.

13ENG

Entry	Teacher	No of Pupils	Line	Test
1	NN	27	2(B)	☐
2	EG	25	3(C)	☐
3	MG	17	4(D)	☐
4	ST	25	5(E)	☐
5	NS	19	6(F)	☐

You may select no more than 2 entries to test at any one time.

Step 3

You also need to choose the lines you wish to test. In most New Zealand schools this would be from lines 1 to 6.

Step 4

Select the new position you wish by consulting the table and clicking on the new position. The current situation is highlighted in blue. If there is a better position it will be highlighted in red.

The best position is that which has the smallest clash number AND the teacher or teachers are both OK (available) to take the class.

Timetable Assistant (What If?)

File

Print   Students   Close

This table shows the number of CLASHES. The best position is the one with the smallest clash number and where the teachers are available (ok).

current position
a better position

Testing 48 students.	13ENG ST(D)	10ENG	12ENG	12ENP	ok	9ENA	ok
13ENG EG(A)		A 1	B 2	C 3	D 4	E 5	F 6
ok	A 1	5	5	5	3	3	5
10ENG	B 2	5	8	8	3	4	8
11ENG	C 3	5	8	8	3	4	8
12ENG	D 4	3	3	3	3	3	3
9ENG	E 5	3	4	4	3	4	4
ok	F 6	5	8	8	3	4	8

SHIFT 13ENG   EG   from line 1 to   1

SHIFT 13ENG   ST   from line 4 to   4

Keep the Old Position

Date: 11/09/2008   Time: 1:30 p.m.   User: Millie   Access: 3   Terminal: 7   TT#: 91

In the example table the smallest number is 3 which occurs in several squares. There are only 2 places however where the number 3 occurs and BOTH teachers are OK – the current position ST in 4 and EG in 1 OR ST in 4 and EG in 6. There are two other feasible positions with 5 clashes (ST in 6 and EG in 1) and 8 clashes (ST in 6 and EG in 6).

Finally click the 'Keep the Old Position' or 'Accept New Position' (if you have made a change). You can also print this table. In the example above the old position is as good as any.

7   Who Else?

This is a class balancing utility. The idea is to find who else can move into (generally) the smallest class when you have more than one class in a subject. 'Who Else?' will automatically find all students who can move into the class selected while still fitting into classes for all their other subjects.

Step 1

Choose the subject to test eg.12ENG

Step 2

The 12ENG classes will then be listed in a table. The smallest class is ticked by default as the one you wish to find students to move into. In the example 12ENG with teacher EG in line D has 24 students. The table is indicating that when perfectly balanced all classes would have exactly 26 students. This

means the class selected needs 2 students whereas the class in entry 3 needs to lose 2 (see the 'balance' column).

Step 3

This will then list all students who can move, and the line that they will come out for 12ENG in order to move into line 4. To help you decide which specific students are best to move, as you scroll through them you will see a table for the current student showing their before and after position. While some students may move to assist your balance in one subject they may equally cause an imbalance in another.

At the top of the screen you are also reminded how many students you need to move from each line in order to achieve a perfect balance.
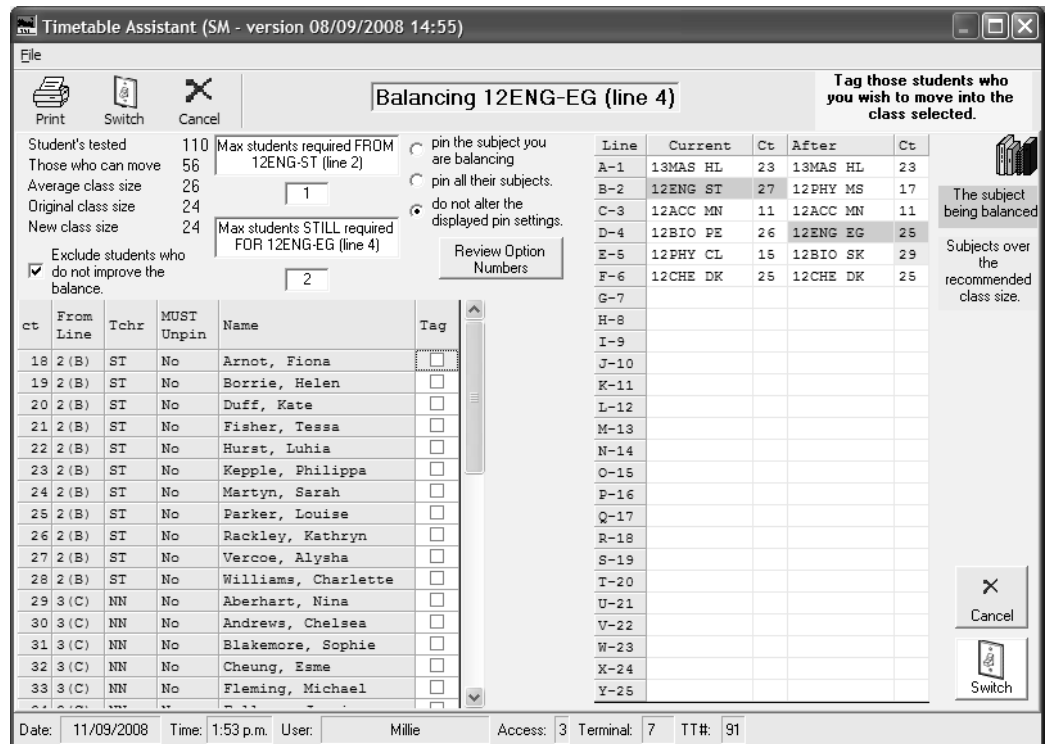

Pinning

Some students may only be moved if some of their subjects are unpinned. You will be prompted if this is the case. You have an option to pin the students after you have moved them. You can just pin the subject you are balancing or all the subjects of the students concerned. Pinning is a good idea to avoid upsetting your balances later while adjusting other subjects.

8 Who can go in or out of a line?

Who Can Move						
Who can move INTO Line 6						
Teacher	Subject	Count	Line	What If?	Move to Line 6	Print / Cancel
GE	11TIM	29	1	-1	☐	
TR	11SCI	28	3	-1	☐	
TR	11SCI	27	4	-1	☐	
MK	11SCI	24	5	-1	☐	**Select the Class you wish to MOVE.**
WH	11ART	29	1	0	☐	
EG	11ENG	28	3	0	☐	The numbers in the 'What If?' column indicate the INCREASE in clashes if you move the subject indicated. A negative number indicates an IMPROVEMENT in the overall clash count.
HU	11ENG	27	4	0	☐	
AN	11ENG	25	5	0	☐	
HU	11ENG	25	5	0	☐	
TR	11MAT	26	5	0	☐	
RD	11PED	25	5	+2	☐	
HU	11FRE	19	2	+3	☐	
WS	11TIM	27	5	+5	☐	
GB	11MAM	28	1	+7	☐	Click on the column headings to sort.
HZ	11ART	28	5	+7	☐	You may tick only ONE subject at a time to move.

This is very useful when in the Option Editor to see who can move into a line that may be short of subjects. If you right click in say line 6 at year 11 and chose 'Who can move into 6' you will get a table similar to that illustrated. The subjects that can move from other lines are listed and the 'What If?' column illustrates the effect on the clash count of moving them - The smaller the number the better. A negative 'What If?' number would mean that your overall clash count would reduce by the number indicated. **The best alternatives are listed at the top.**

9   Timetable Editor – Individual Timetables
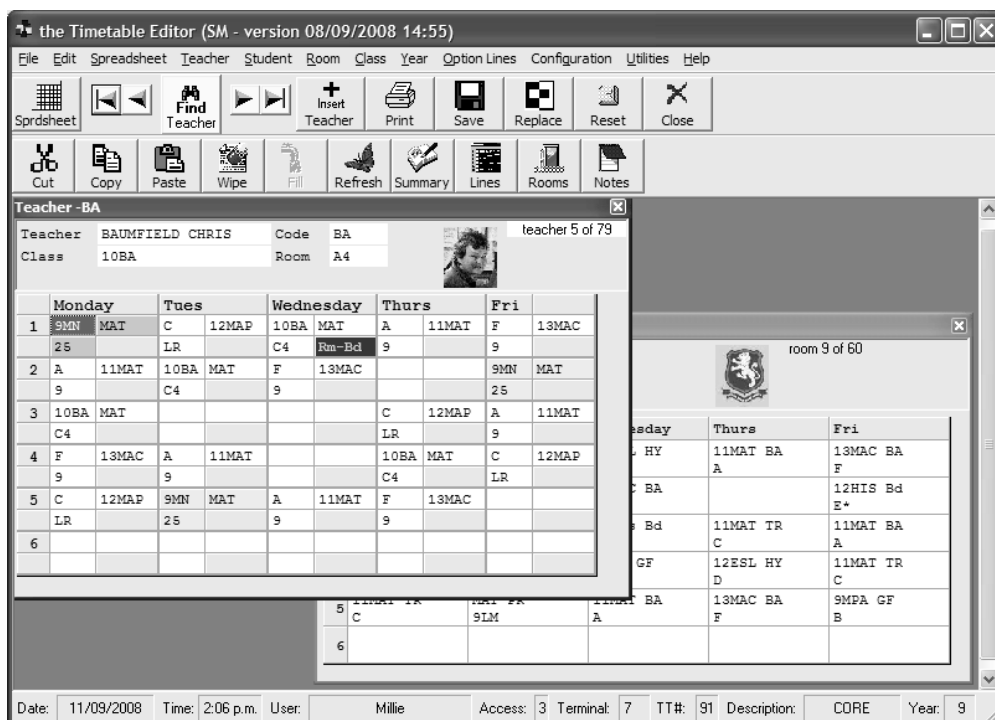
You can display Student, Teacher, Room, Class and Year timetables. You can only edit Teacher Timetables however. The other timetables are generated from the teacher information.

Student Timetables

These display the classes a student takes during the week. It also shows the student's photo. You can also change the current subject set, show the student's subjects and also display their caregiver contact details.

Teacher Timetables

The Individual Teacher Editor is the most common way to enter timetable data. Data is entered in the 3 parts that make up each cell. Data can then be copied and pasted into other cells in the current timetable or into any other displayed teacher timetable.

Whenever you click on a cell it is highlighted in blue, and all equivalent cells are highlighted in yellow.

Pink cells indicate an option which does not exist in your current option lines.

Timetable problems are indicated in red in the bottom right hand corner.

You can have more than one teacher timetable open at a time. This can be done by typing Ctrl-T or clicking the teacher menu and choosing 'Show a teacher Timetable'. If you click the 'Find Teacher' button this normally replaces the current teacher with the new teacher you select. If however you click the check box ("Open a new timetable") at the bottom right corner of the 'Find' screen, this will also open an extra timetable.

Details Area

The 4 fields displayed in the details area can be edited unless the entry is a subsequent teacher. A teacher must have data in the 'Name' and 'Code' field. The code field must be unique. If the 'Room' field happens to be the same as the 'Code' field (e.g. both are BA) , then when you fill in the correct room for the teacher any instances of the teacher code in the timetable will also be converted to the correct room. This can happen when you transfer data from TAS and forget to predefine the teacher's room in the TAS Teacher Editor.

Room Timetables

These display the classes taking place in each room for each period. Faults in room timetables (such as room clashes) are indicated by a start in the bottom right hand corner. If you click on a faulty period then the description of the fault will appear in red at the top right of the timetable. These can be fixed by loading the appropriate teacher timetables.
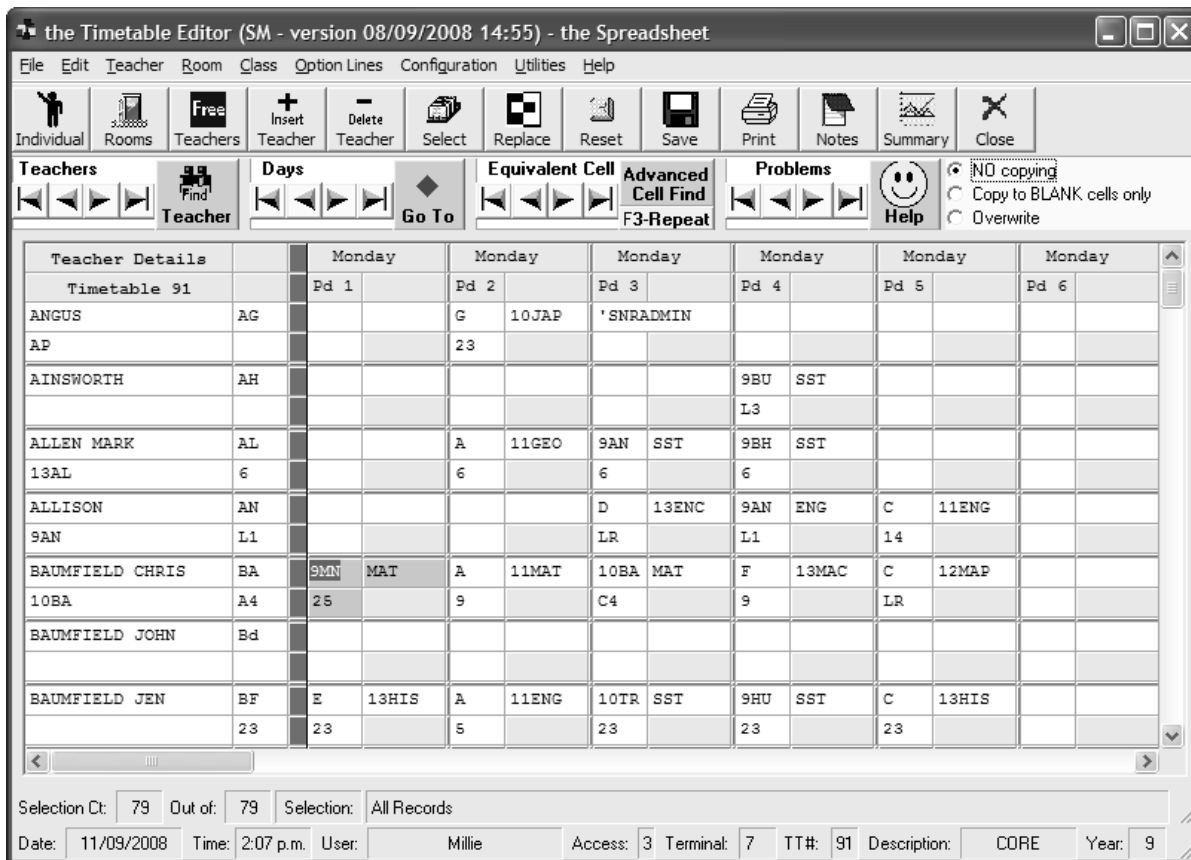
Class Timetables

Class timetables show the classes taken by the selected form grouping during the week. They display faults in a similar way to the Room Timetables.

Year Timetables

Year Timetables display the option letters for each period for the selected year level.

10   The Spreadsheet

This is an alternative way of viewing student timetables.

On the left of the spreadsheet you enter the details for each teacher. There are 4 boxes.

On the top line enter the teacher's name (up to 15 characters). You then enter the teacher's code. This must be a unique 2 or 3 letter code. On the second line you have 13 characters available in which you can enter the class the teacher is responsible for, or you may enter a note, eg. Yr 10 Dean. The last cell is shows the room that the teacher is responsible for.

The remaining cells show the teachers timetable for each period in the week.

Some Extras

How do I build an Exam Timetable?

Example: Let us assume you are running exams all week for years 11 and 13

Make sure you have the latest version of TTSM (check the MUSAC website www.musac.co.nz).

1. Enter TTSM and choose Timetable Assistant
2. Choose 1) Step through…
3. Select the Year Levels you wish – click Next
4. SUBJECT SET SELECTION: If this is the first time you are setting up your exams then highlight the default set then (VERY IMPORTANT) click "Duplicate the selected set"

At the yellow screen in the Option Lines box choose the 2nd option 'Attach to a new BLANK set of Option Lines'

Give your set a name eg. Exams 2009

Click OK - this could take a bit of time to set up, so be patient

Choose the new set you have created - NOT THE DEFAULT SET (in red) by mistake.

5. LOAD OPTION LINES: Choose the top button Load ...... from Student Manager
6. Enter the Student Editor and unpin all subjects if they are pinned at present using the Pin button. (If the grey line to the right of student's subjects has an exclamation mark then their subjects are pinned.)
7. Choose Utility - delete subjects, to remove any subjects that you do not wish to examine.
8. If there are subjects you wish to keep apart e.g. 11ENG, 12ENG and 13ENG then you can also use the Teacher Editor to create a teacher called e.g. MATHS code MT and give them these subjects. This will ensure 'the MAKER' places these in different lines. It is suggested you try generating lines without doing this first as it may not be necessary.
9. At the MAIN MENU go to MAKE OPTION LINES ('the MAKER')
10. Choose the numbers corresponding to years 11 and 13 (probably 5 and 7) and press ENTER
11. Choose Make Option Lines.
12. Consider lines 1 to 10 to coincide with your 10 half-days from Monday morning to Friday afternoon. In the mask each exam subject should have a dot in lines 1 to 10 and they must have one class indicated (i.e. the exam runs once).

If you find you have some non-exam subjects listed (they may have been missed in step 7 above), in order that they don't cause problems let them have the same mask but let them run 10 classes in 10 lines. This will place them in every line and hence they will be no constraint. You can then simply ignore them.

13. Choose BUILD to then generate your timetable (ie. exam lines) and indicate which students won't fit.

14. Use the normal tools (eg.What If?) and the Editors to tune your timetable lines.
15. EXIT TAS saving any changes.

How do I enter multilevel classes?

Assume teacher SA takes 12FRE and 13FRE at the same time in room 12 in the E line. In the timetable editor create teacher SA and then for the periods s/he takes this class enter E 12FRE in room E. Now go to the spreadsheet (if you are not there already) and find teacher SA, click the 'Insert Teacher' button and choose 'subsequent copy'. This effectively creates a second copy (clone) of teacher SA. Now choose 'Copy to blank cells only' in the yellow box at the top right of the screen and then type E 13FRE in room E in the first period it occurs for the clone teacher. After entering the room you should find that tis entry has been copied to all the other periods line E occurs in. If the copy does not occur then you can manually enter it in each period. In this case you should also check 'arrange the timetable structure' in configuration to see where you have line E entered.

How do I enter shared classes?

Assume a student has 13STY in line F and it is taken by SM, BY, TK and DL for the 4 periods. Give the student 13STY with ANY teacher code in their line F in Student Manager (eg 13STY ZZ). For each teacher, in the period they take this class, enter on their timetable F* 13STY followed by the room. The '*' (star) indicates they teach ANY student who has 13STY in line F as opposed to ONLY those students who have 13STY-SM (or 13STY-BY etc).

If there are 2 or more studies occurring in this line, use coding such as 13STYA and 13STYB to indicate which group the teacher is taking.

Moving data from the server to a laptop and back again?

This is something that timetablers often wish to do so they can work on their timetable at home.

Copying Data to a laptop
1.   Make a MUSAC folder on your laptop, eg. C:\MUSAC
2.   Copy \TTSM from your server into this folder.
3.   Make a \CM folder on your laptop. Copy CM.MDB, SM.MDB and STAFF.MDB from \CM on your server into this folder.

This will allow you to run all the features in TTSM, but not Student Manager on your laptop. That should be all you need.

System Files: To run either version of the Timetable Suite you **MUST** have the latest MUSAC System 32 files on your laptop. These can be loaded from MUSAC CDs distributed after October 2008 or from the MUSAC website.

The biggest hassle when copying files from a server to a standalone is sorting out all the paths issues. The following steps should overcome this by creating a matching server MUSAC drive on your standalone:

1.   Open up NOTEPAD and type SUBST M: C:\MUSAC where M: is the name of the drive on your server containing your MUSAC data. Save this file as MAKEM.BAT to your desktop, (or to a folder and make a shortcut to it for your desktop).
2.   Run MAKEM.BAT by clicking it and you should now have an M: drive on your laptop. **You will need to do this one step each time you wish to use the files** when disconnected from the network. (There are ways to automate this but this is beyond the scope of these instructions.)

At this stage you should be able to run the Timetable Suite. Don't forget the need to run MAKEM.BAT each time before starting, or the software will indicate it is having PATH problems.

Restoring Data to the server

This process must be done carefully. MUSAC cannot accept responsibility for any problems that may eventuate from users restoring data incorrectly.

The Timetable

The timetable data is generally stored in the \TTSM\TT folder.

The most important thing is to remember your timetable number. If it is a number from 1 to 9 then the files you are looking for are files ending in .5A<timetable number> eg. timetable 7 files end in .5A7. Timetables numbered from 10 to 99 end in .5<timetable number> eg. timetable 71 end in .571 These files are generally quite small and can easily fit on a pen drive.

The files for timetable 71 (for example) are:

ACTOPTS.571 - the option structure
CLASSES.571 - the core class names
ROOMS.571 - the rooms
STATS.571 - the number of days and periods
TEACHERS.571 - the main timetable file
TEACHOLD.571 - an automatic backup - this file is not essential.

A Manual Copy of the Timetable

Copy the files indicated to a pen drive and then transfer them to the equivalent folder on your server.

Using Backup/Restore

In the Timetable Editor, plug in a pen drive, click File > Backup Data > choose your timetable number > OK. On your server use File > Restore data.

Option Lines

1   On your laptop Enter Timetable Assistant.
2   Make sure you load your correct option lines.
3   Go into the Option Editor on your laptop and choose SAVE – Save as a TAS OPTION FILE. Choose a sensible name e.g. FINAL LINES 2010. Record the path where you saved these to or save to a floppy disk/pen drive. The file will be saved as FINAL LINES 2010.OPT into whatever path you chose.

The Default TAS Option Line path is \TTSM\TAS\OPT folder

4   Either copy this file into the equivalent path on your server or insert your pen drive
5   This file can then be loaded on your server when you choose to LOAD OPTION LINES in TAS (as long as you choose the correct path).
6   You can then enter the Option Editor on your server and save these directly to Student Manager as your default lines.

Student Information

If your student subjects data was originally copied in from your server AND the subjects on your laptop are still the same, ie. a student still has History, Geography, French etc (**even though they may not be now sorted into classes** on your laptop) then you may decide NOT to restore these. Many timetablers take the safe option of merely restoring the option lines from their laptop and reallocating the kids when back at school. They can then manually match up the laptop with the server. The Import/Export process however is a simple and effective process.

Import/Export process from TAS

In the Student Editor in TAS there is the ability to export student subject.

Process

Export: Go into the Student Editor > Utilities > Export Data. Here choose to export all the student's subject data to a pen drive (or some other file).

Import: On your server go into TAS loading the appropriate subject set - enter the Student Editor > Utilities > Import Data. Decide how to cope with students who already have data. Normally you would choose 'Overwrite' all TAS subjects, but if you are nervous about this there is a choice to only overwrite if the student has no data on the server or the subjects match (even though the actual classes, ie. teachers may vary).

Restoring Other Stuff

Timetable Assistant (TAS) *(Useful but not essential)*

The TAS folder is always \TTSM\TAS

The files in Timetable Assistant are effectively planning files - .ie. a 'means to an end' to create your timetable. Once the timetable is completed they are not required again. They are, however, useful when it comes to build the timetable for the following year. With this in mind you can copy the whole TAS folder between machines quite happily updating with the newest files. To save time, you can copy the most recent files in \SIF **sub folder** (the masks) and \OPT **sub folder** (practice option lines), and the teacher file SCHOOL.TCH.

QuickFind *(This is rarely required)*

The only QuickFind files you may wish to copy are the customised timetable entries. This would **ONLY** be required if you have gone to the trouble of also doing all the customising for your new timetable at home. Most schools do this on site.

Copy TT.MDB in the \TTSM folder.

Notes *(Generally not necessary)*

These are not essential and can be in several places depending on the type of note you may have made.

Check the \TTSM\TT\NOTES folder.

Summary

Please be careful transferring data back to your server. It can be done quite safely but (as always) please make sure your backup systems are secure. If you are in any doubt, please contact your MUSAC agent before proceeding.

Checklist - What You Need as a Timetabler

- A dedicated room which can be locked if necessary.
- A filter person to remove unnecessary information/requests before they reach you.
- Fast computer connected to the network with a large/multiple monitor/s.
- A dedicated area in the staff room where you can pin notices about the timetable.
- White board/pin board/to hold notes and ideas?
- Access to a Local Printer.
- Some power to make decisions - rapid access to critical decision makers.
- Time allowance - 2 to 3 hours per week over a year.
- Release time to attend training courses.
- Buddy system with another school.
- A toll line available by your computer.
- Fast Internet access with sufficient network rights.
- An apprentice.
- A method to file incoming documentation and requests - as a check list and for your protection against disputes.
- A senior admin person to share the responsibility with you if problems occur – you don't carry the can.
- Ability for others to check your work.
- Recognition for your efforts when the timetable is presented.
- Recognition that the timetable is not static and requires ongoing maintenance.
- Demand all requests in writing' - a TT request form would be useful.
- Access to policies which prioritise the constraints and clearly spell out any relevant school philosophies. These should cover issues like
    - Criteria for accepting/rejecting classes
    - Dealing with under/overloaded teachers
    - Rooming issues
    - Staff who are in more than one department
- All constraints are public unless approved by the senior management. A policy is required re room ownership. Teachers must be prepared to move and that they no not 'own' a room.
- Produce a timetable calendar - showing key events for the productions and maintenance of your timetable.