**Timetabler**

**User Manual**

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Introduction

This timetabling program is designed to be used in conjunction with any other timetabling software, in order to create a timetable which includes the distance for members of staff in the timetabling process. It takes information about the layout of the school, lessons taught at the school, and the members of staff teaching at the school, stores the information and produces a timetable from the information. All information stored by the program is only accessible through the program and is protected using a password.

In order for the program to run successfully on your system, it must meet all the following requirements:

* Running a compatible operating system
  + Windows Vista or newer, 32 or 64 bit
  + Linux, 32 or 64 bit
* Have the latest version of the Java Runtime Environment installed
  + At the time of writing this is JRE 1.8

Installation

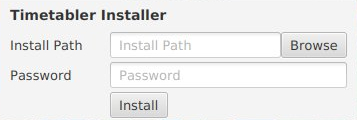
To install the system, follow the following steps:

1. Insert the installation media, this can be a disk to USB stick
2. If the installation media was a USB stick or you are not running Windows, skip this step
   1. Select the recommended option from the ‘*AutoPlay*’ popup
   2. Go to step 4, unless there was no ‘*AutoPlay*’ popup, where you should continue to step 3
3. Navigate to the installation media using ‘*My Computer*’, ‘*Computer*’ or your file explorer
   1. Run ‘*Installer.jar*’, ‘*Installer.bat*’ or ‘*Installer.sh*’
   2. Go to step 4
4. You should now have a window with ‘*Install Path*’ and ‘*Password*’ text fields
5. Specify an install path, either by typing into the text field or using the ‘*Browse*’ button
   1. This can be anywhere on your system, but is recommended to be

‘*C:/Program Files/Timetabler*’ if you are running Windows

* 1. For Linux, it is recommended to be installed to ‘*/opt/timetabler/*’

1. Specify a password for the system, this cannot be changed after the installation
2. Finally, press the ‘*Install*’ button and wait for the program to be installed



Opens a Directory Chooser

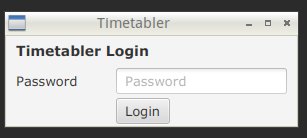
Starts installing the timetabler

Starting

The program should be able ran by clicking on the ‘Timetabler.jar’ file in the installation folder. This method does require Java to be configured as the default program for jar files and have Java’s path variable configured. Both of these requirements are for filled by the Java installer, but if it does not run by clicking on it, ensure Java is installed and run ‘Timetabler.bat’ or ‘Timeabler.sh’ if you are running Windows or Linux respectively.

Login

Upon opening the program, you will be greeted with a login window. The login window, shown below, requires you to enter the password specified when the program was installed. If you cannot provide the correct password, you will not be granted access to the program for data protection.

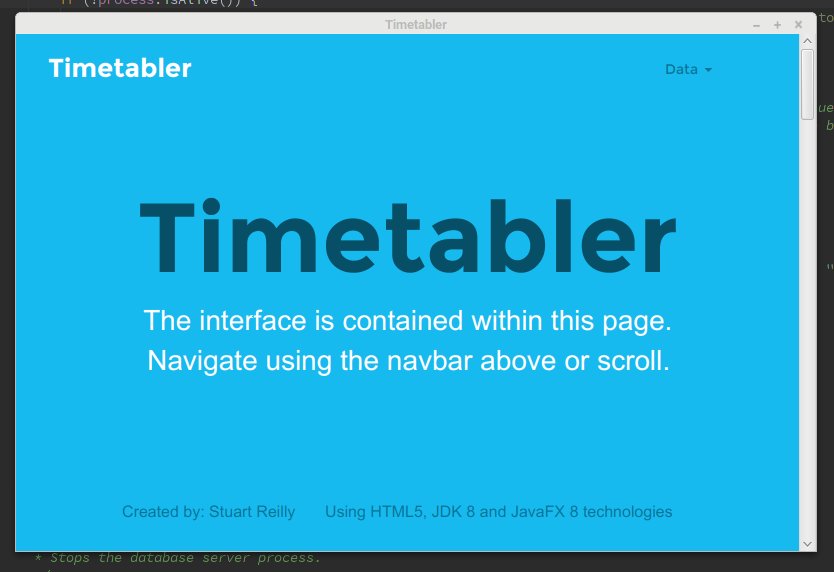


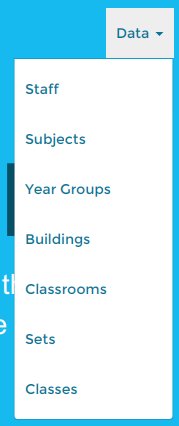
Authenticates password and continues if the password is correct

Enter the password given at installation

Navigation

The system can be navigated in two ways: scrolling or the navigation bar. Since the whole program exists within a single window, one can access any part of the system just by scrolling to it. Also, at the top of the window, as shown, there is a navigation bar. This bar contains shortcuts to each section of the window as shown. By clicking on one of the options, the window will automatically scroll to the correct place.





Clicking on dropdown opens this menu

Data Entry

The system requires data to be entered before any timetabling can begin. This data will be: staff data, subject data, set data, year group data, class data, lesson data and the layout of the school. In the system, lesson is a class with a classroom to be taught in, a member of staff to teach the class and time period for the class to be taught in. The layout data will be entered only through importing map files, but all other data can be entered through the on screen wizard or from files. All the file formats will be defined later in the manual.

Staff Data

Each member of staff stored by the system will be displayed in the table below. Therefore, each member of staff must be defined with a name, subject and maximum hours per week. The table states ‘Subject ID’ rather than Subject, this is because the table shows the unique ID of the subject taught by the member of staff as this allows the system to access and process the staff data faster. Also, the structure of the file used to import staff data will also use ‘Subject ID’ as it allows the system to read the data faster and more accurately. To add a new member of staff, click the ‘+’ icon to open the ‘Add Staff’ wizard. Each row will have an ‘X’ icon, which will remove the member of staff from the system when clicked. The file for bulk import need to be in the CSV format, where each line is a staff member, and each line is: *id*,*name* . Where the name is the name for the staff member and id is the unique id for the staff member.

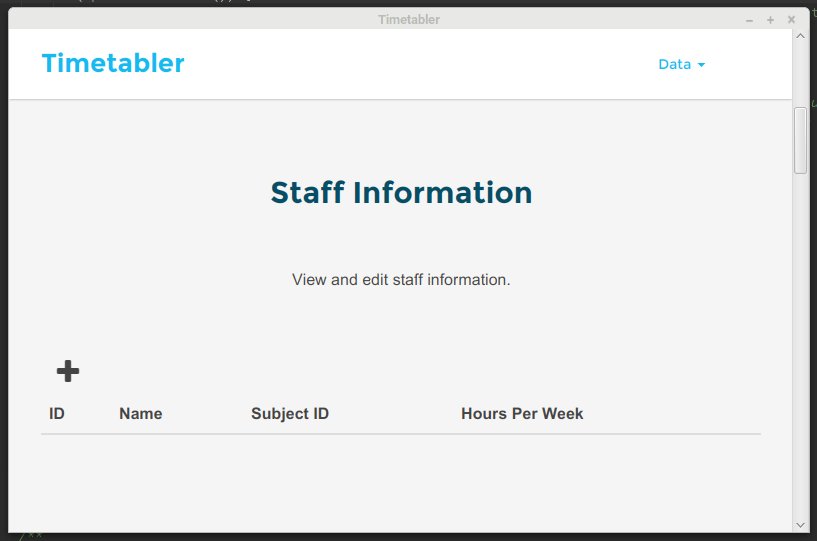
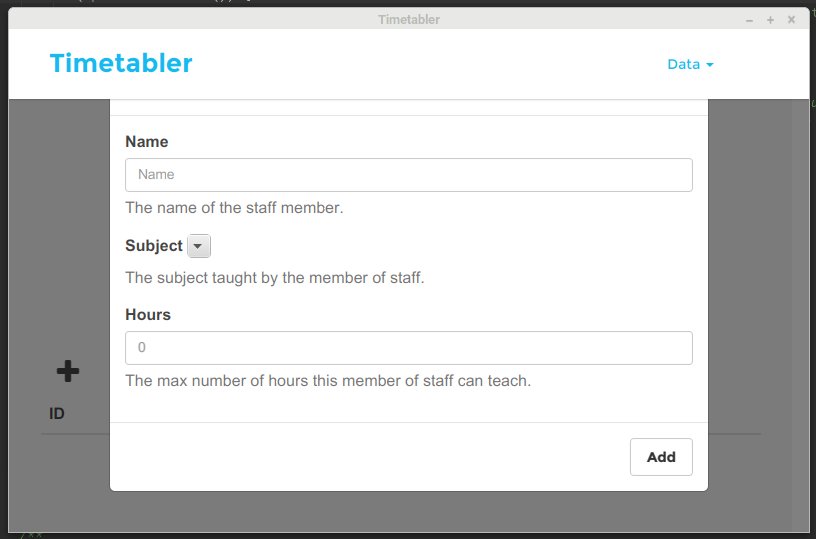


Table containing the staff members

Opens the ‘Add Staff’ wizard

Navigation Bar

The popup below is the ‘Add Staff’ wizard. This allows for a simple way to add a single member of staff to the system. The wizard allows for the selection of subjects by name for the subjects already added to the system. To add the member of staff, click the ‘Add’ button, and to cancel the addition, click off the popup. The subject dropdown is filled as you add more subjects into the system.



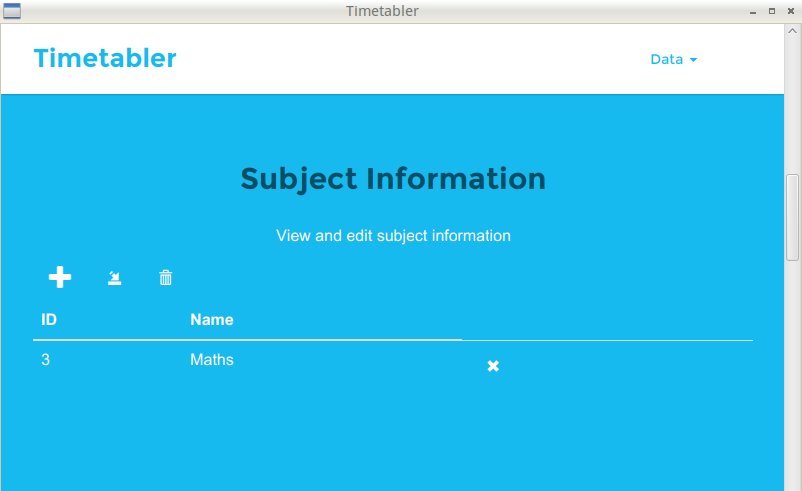
Name of staff member

Subject taught by staff member

Maximum hours per week

Subject Data

Each subject stored in the system will be displayed in the table below. Therefore, the only data required to define a subject is its name, which can be of a maximum length of 20 characters, but cannot be empty. In order to add a new subject, click on the ‘+’ icon to open the ‘Add Subject’ window or the import button for bulk adding. The import button allows for quick bulk adding of new subjects. Each row will have a ‘X’ icon, which will remove the subject from the system when clicked. The file for bulk import need to be in the CSV format, where each line is a subject, and each line is: *id*,*name* . Where the name is the name for the subject and id is the unique id for the subject.



Buttons to:

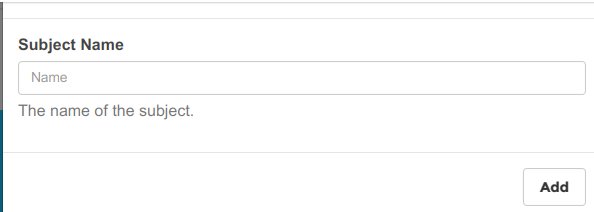
- Open ‘Add Subject’ wizard

- Import from file

- Clear table

A table of the currently added subjects

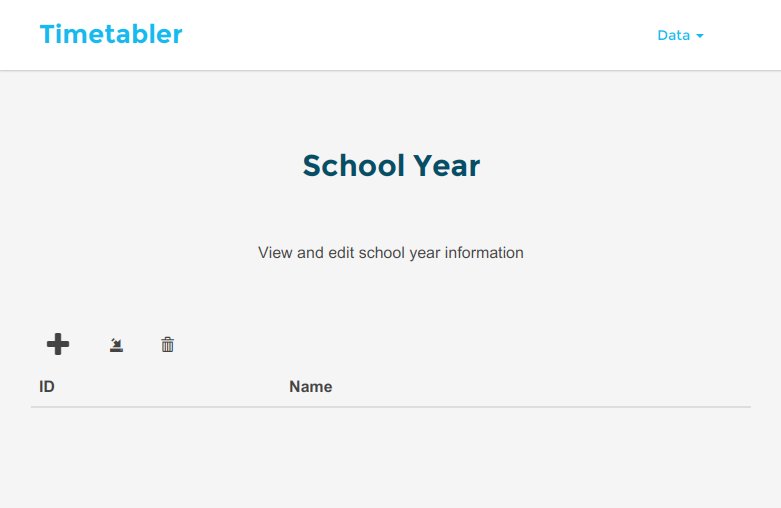
The popup below is the ‘Add Subject’ wizard. This allows for a simple way to add a single subject to the timetabler. Since subject data is simple, so is the wizard. If the name given to the timetabler system is longer than 20 characters, it will ignore anything after the 20th character, storing only the first 20 characters. To add the subject, click the ‘Add’ button. To cancel, click off the popup.



Name of the subject, with a 20 character limit

School Year

Each year group stored by the timetabler is stored in the table below. Therefore, the only data required to create a new year group is its name, which has an 8 character limit. In order to add new year groups, either click the ‘+’ button to open the ‘Add Year’ wizard or click the import button. The ‘Add Wizard’ allows for a simple way to add a single year group, whereas the import button allows for bulk adding. Each row will have a ‘X’ button, which removes the row and the year it represents from the timetabler. The file for bulk import need to be in the CSV format, where each line is a year group, and each line is: *id*,*name* . Where the name is the name for the year group and id is the unique id for the year group.



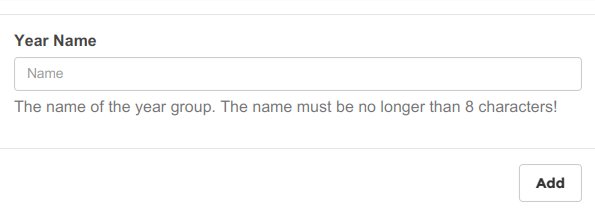
Buttons to:

- Open ‘Add Year’ wizard

- Import from file

- Clear table

A table of the currently added year groups

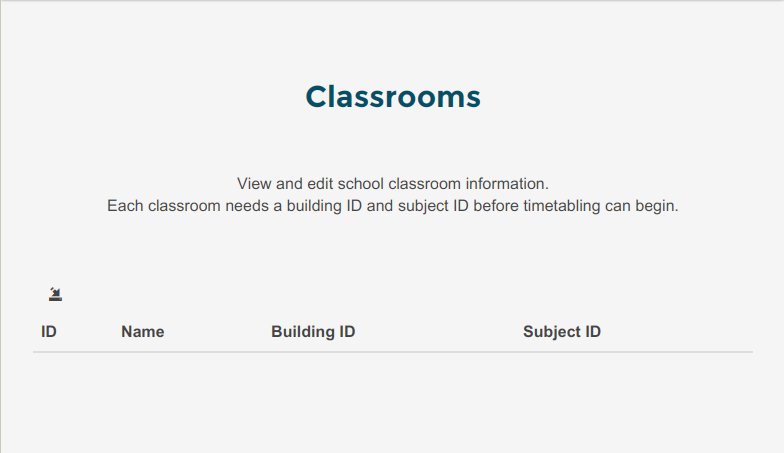
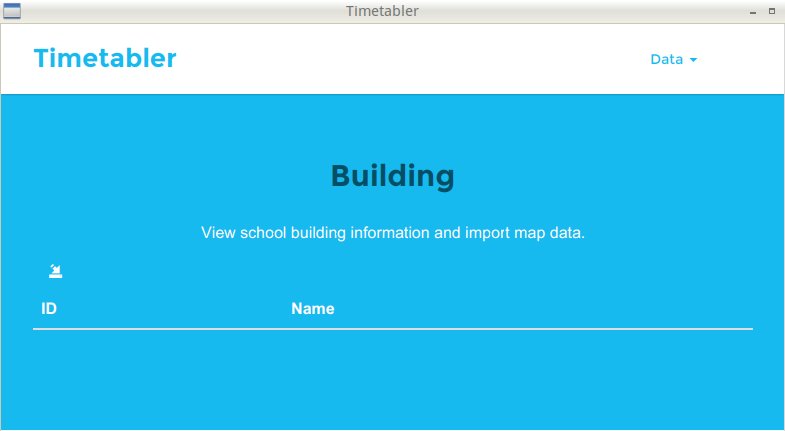
The popup below is the ‘Add Year’ wizard. This allows for a simple way to add a single year group to the timetabler. Since year group data is simple, so is the wizard. If the name given to the timetabler system is longer than 8 characters, it will ignore anything after the 8th character, storing only the first 8 characters. To add the year group, click the ‘Add’ button. To cancel, click off the popup.

Name of the year group, with a 8 character limit

Building and Classroom Data

Opens the map selector

Below are the tables for the building and classroom data. Unlike the other data types, they cannot be directly added by you. They are generated by clicking on either import button (They are the same).



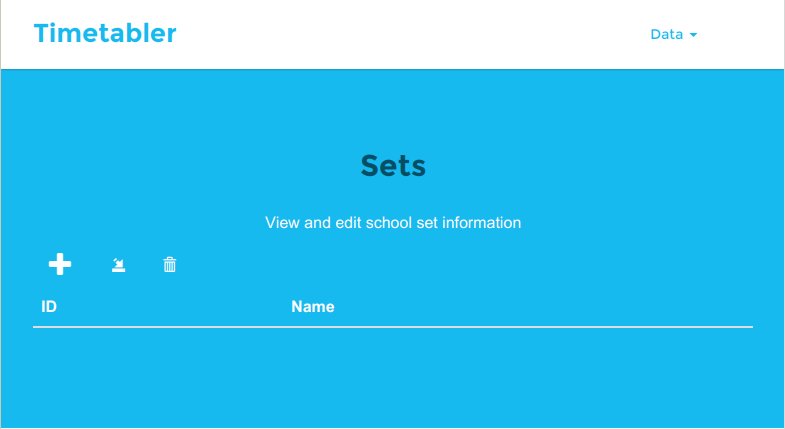
A table containing all known buildings

A table containing all known classrooms

By clicking the import button, a window will open asking for the location of the highest map file, followed by a window asking for the folder with the rest of the maps. This folder can contain the highest map. Then a monitoring window will open, giving you information on what the loader is currently doing, or what errors it has come across. The map will contain information about the classrooms, which means all subjects named in the maps must already be added to the timetabler before the maps can be loaded. Each map represents either a building or the highest level (school), containing classrooms and buildings. The maps must be in the CSV file format, examples are located in *installFolder*/assets/maps, where a path is marked as a ‘0’ zero, buildings are marked by name, untraversable areas as blank cells and classrooms as ‘C-*name*-*subjectName*’, where subjectName is the name of the subject taught in the classroom, which must already be added to the timetabler.

Set Data

Each set stored by the timetabler is stored in the table below. Therefore, the only data required to create a new set is its name, which has an 10 character limit. In order to add new sets, either click the ‘+’ button to open the ‘Add Set’ wizard or click the import button. The ‘Add Set’ wizard allows for a simple way to add a single set, whereas the import button allows for bulk adding. Each row will have a ‘X’ button, which removes the row and the set it represents from the timetabler. The file for bulk import need to be in the CSV format, where each line is a set, and each line is: *id*,*name* . Where the name is the name for the set and id is the unique id for the set.



Buttons to:

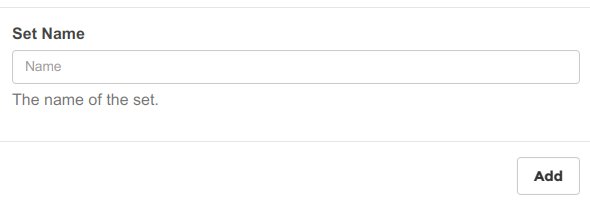
- Open ‘Add Set’ wizard

- Import from file

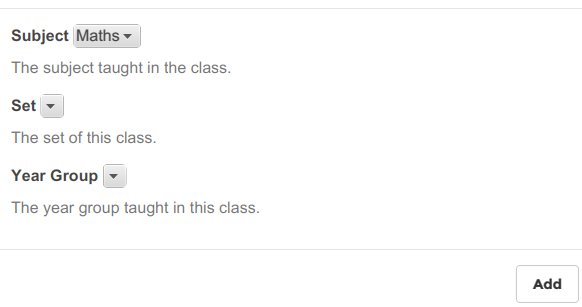
- Clear table

A table of the currently added sets

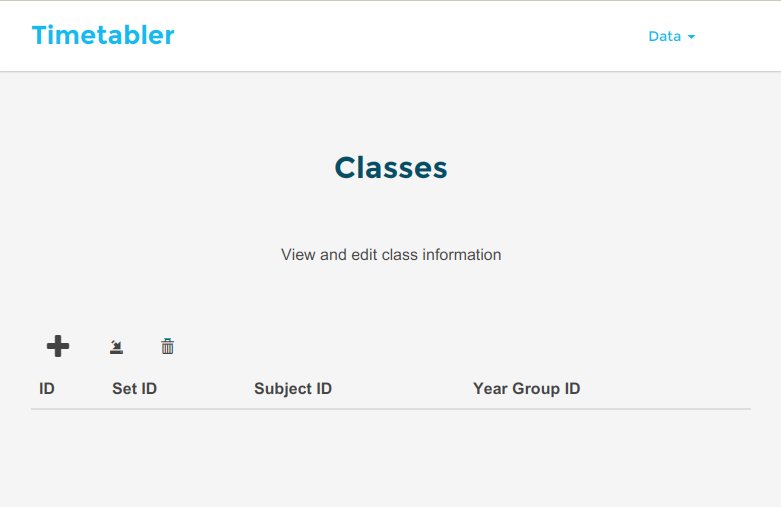
The popup below is the ‘Add Set’ wizard. This allows for a simple way to add a single set to the timetabler. Since set data is simple, so is the wizard. If the name given to the timetabler system is longer than 10 characters, it will ignore anything after the 10th character, storing only the first 10 characters. To add the set, click the ‘Add’ button. To cancel, click off the popup.



Name of the year group, with a 8 character limit

Class data

Each class stored by the timetabler is stored in the table below. Therefore, the data required to create a new class is subject, set and year group. In order to add new class, either click the ‘+’ button to open the ‘Add Class’ wizard or click the import button. The ‘Add Class’ wizard allows for a simple way to add a single class, whereas the import button allows for bulk adding. Each row will have a ‘X’ button, which removes the row and the class it represents from the timetabler. The file for bulk import need to be in the CSV format, where each line is a class, and each line is: *id*,*subjectId,setId,yearId* . Where the subjectId is the id of the subject taught in the class, setId is the id of the set taught in the class, yearId is the year group taught in the class and id is the unique id for the class.



Buttons to:

- Open ‘Add Class’ wizard

- Import from file

- Clear table

A table of the currently added classes

The popup below is the ‘Add Class’ wizard. This allows for a simple way to add a single class to the timetabler. The dropdown menus are of the data from the tables of the corresponding types and are automatically updated. Since, you can only select from dropdown menus, the only requirements are the tables the menus collect their data from must have entries in them. To add the class, click the ‘Add’ button. To cancel, click off the popup.

The subject taught in the class

The year group taught in the class

The set taught in the class

Lesson Data

Each lesson stored by the timetabler is stored in the table below. Therefore, the data required to create a new lesson is class and period. The staff and classroom fields are generated by the timetabler In order to add new lesson, either click the ‘+’ button to open the ‘Add Lesson’ wizard or click the import button. The ‘Add Lesson’ wizard allows for a simple way to add a single lesson, whereas the import button allows for bulk adding. Each row will have a ‘X’ button, which removes the row and the lesson it represents from the timetabler. The file for bulk import need to be in the CSV format, where each line is a lesson, and each line is: *id*,*NULL,NULL,periodId*,*classId* . Where the periodId is the id of the period the lesson is taught in, classId is the id of the class taught in the lesson and id is the unique id for the lesson. The two ‘*NULL*’ values can be replaced by staffId and classroomId it lesson has been fulled timetabled.



Buttons to:

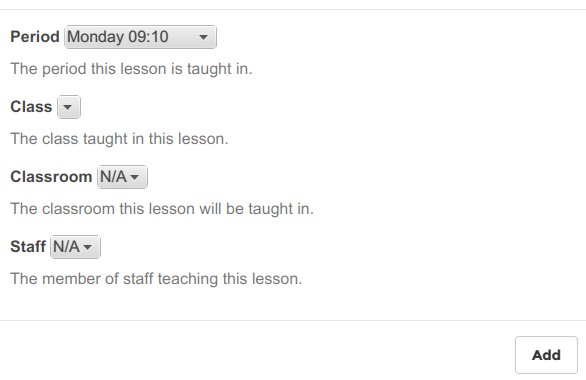
- Open ‘Add Lesson’ wizard

-Clear table

- Import from file

A table of the currently added lessons

The popup below is the ‘Add Lesson’ wizard. This allows for a simple way to add a single lesson to the timetabler. The dropdown menus are of the data from the tables of the corresponding types and are automatically updated. Since, you can only select from dropdown menus, the only requirements are the tables the menus collect their data from must have entries in them. To add the lesson, click the ‘Add’ button. To cancel, click off the popup.



The period the lesson is taught in

The class taught in the lesson

The classroom the lesson is taught in, normally left N/A

The staff member teaching the lesson, normally left N/A

Errors

Generally, the timetabler will only have an error if it given invalid data, missing data (map loader not having subjects) or something really bad happened.

DataConnectionException

This only occurs if the timetabler cannot connect to its data store, which should happen rarely. But, if it does, the timetabler will close itself once you close the window, then just reopen the timetabler. If the same error happens, contact your system administrator and give them the contents of the log folder located at *installFolder*/log.

DataUpdateException or DataAccessException

This occurs if the timetabler is unable to either access or update the data. Each time they occur, they have a different reason, but read the info given in the error window. If it seems useful, act on, for example, a DataUpdateException can occur if the file being imported contain invalid data. Otherwise, try again, and if it keeps occuring, contact your system administrator and give them the contents of the log folder located at *installFolder*/log.

IOException

This occurs if the timetabler cannot work with a file, such as, it cannot read the configuration file, or cannot read the file it has been tasked to import. The error window will contain useful information for this type of information, such as, this user need read permissions. If it occurs when you try to import files, generally the system administrator does not need contacting as the error is to do with the file you chose. Otherwise, if it about a more important file such as the configuration file, contact your system administrator and given them the contents of the log folder located at *installFolder*/log.