

1 Introduction

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1.2 What Does Solstar Do?

The Solstar Student Scheduling System consists of two parts, the Resource Allocation System and the Student Scheduling System. The Resource Allocation System accepts the various resources, tooms, teachers, courses and based upon Student Requests, generates a Master Schedule. The Student Scheduling System prepares the student schedules by matching course requests for each student to the Master Schedule of class offerings. The Scheduling Algorithm is the most efficient and accurate available. Options can be defined so the system will attempt thousands of combinations for each student to generate the optimum schedule for that student. If the system options are defined correctly, the Student Scheduling System will completely schedule over 90 percent of the students requesting classes. The Master Schedule can be generated by the Resource Allocation System, or manually. If the Master Schedule is generated manually, the sections of this manual that refer to the Resource Allocation System may be ignored.

1.3 Solstar Features

Schedules can be adjusted or students can be completely scheduled on-line at any time after the normal scheduling has been completed, even new students at the beginning of the year. Reports that will evaluate the scheduling results, show conflicts and rejects, and maximize utilization of resources can be displayed or printed. The system is designed for the administrator to select from a number of options in many areas to make the software suit the needs of the school. The options are broad enough to include most situations within a school system. Seven semesters can be used as well as eight days and four shifts. Students are allowed to make specific requests for classes, rooms and/or teachers and will be scheduled to these specific requests if the scheduling options are so defined. Data (Courses, Teachers, Classes, Student Profiles, Student Requests) may be entered by scanning, manual key entry, or importing from another database. Classes may be restricted in a number of areas such as ability, grade and sex. Classes may be balanced by sex, ethnic group or total seat count. Classes may be "linked" so students will be scheduled to all or none of those classes requested. The scheduling system supports Alternate, Required, Elective and Optional requests. Blind teaming is supported. Mass change features can be used to initially set up requests for students, modify schedules, replace dummy entries of courses and many other functions.

Any Student Administration System should be regarded as one of the many tools School Administrators have at their disposal to make the running of a school more efficient. The worth of a Student Administration Software pack-

age can be best realized if viewed as an efficient tool instead of a miracle product.

1.4 System Requirements

In order for Solstar to run effectively, there are certain system requirements that must be met. Below are the Minimum and the Recommended requirements:

	Minimum	Recommended
Computer System	586er CPU	Pentium-II CPU
System Memory	16 Mb	32 Mb
Printers	Windows-compatible	
Operating System	Windows 95,98,ME,NT 4.0	
Disk Drive	3.5"	
CD-ROM Drive	any CD-ROM drive	
Hard Drive	40 Mb	80 Mb

NOTE:

If all Solstar systems are used, approximately 20 Mb of disk space will be needed for program storage. Additional space is required for Solstar data. We expect another 20 Mb of disk space for 1,000 pupils (depending on how much data you store).

1.5 Installation

Solstar is supplied on either a CD-ROM or a set of installation disks. If a CD-ROM was included with this version of the program, start Windows, insert the CD-ROM into the device and open the Windows explorer. Display the CD-ROM's contents in Windows explorer. Click with the mouse on the "setup.exe". After you have started the "setup.exe" installation program by clicking twice with the mouse, an installation screen will appear. You will first be asked where you would like to install the program. The default for the standard path is offered: C:\Program Files\Solstar2001. At the end of the installation, the latest addendums to this manual are displayed. Print this information and add the printout to the manual. If your computer does not have a CD-ROM drive, you can copy the installation program on diskettes with the help of another computer. Copy the "setup.exe" program file onto the first disk, "setup.w02" onto the second disk, setup.w03 onto the third and so forth. Install the program, by inserting the first disk into the 3.5" diskdrive and start the program as would be the case for installing the CD-ROM's content. The installation program will on numerous occasions request you to insert the next diskette while the installation is taking place.

Installing on a Network

You can install the Solstar system in a network. No special requirements have to be met by the network and it should be possible to use any ordinary network, which utilizes Windows, without problems. A separate server is not needed, only a computer that permits the network access to the program files (a file server). If the program is installed in a network, you must install it in the same physical directory for each client. Ordinarily it can only be in one computer. The procedure for installing the program has already been described in the previous chapter.

1.6 Loading Initial Data From Another Platform

Student information including Student Profiles, Teacher Profiles, Courses, Classes, Student Requests, Study Hall Requests, Study Hall Classes, the Room File, and the Request Audit file can be downloaded from another platform (Mainframe or other). All of the data is loaded into a single ASCII flat file with fixed positions. This can be an Excel file converted to a text file with space delimiting (.PRN). The identifier in position 1 of the record indicates what kind of data is in the record. Solstar will add this data into the proper Solstar indexed data files.

1.7 Modifications To Your System

Windows 95, Windows 98

You may need to change your CONFIG.SYS file so that the buffers=22,0 and files=55. If you find that you are out of environment space, add the following statement to your config.sys file: Shell=c:\command.com /e:2048 /p (note there is a space after com and after 2048.) Under Windows, use the program "SYSEDIT" to change the files. You will have to restart your computer after the changes have been made in order for them to be effective. A copy of "CONFIG.SYS" is included in the initial load of Solstar and can be found in the Solstar directory. If you decide to use this copy, you need to transfer it to your root directory C:\.

Windows NT

The installation procedure for Windows NT is the same, however the mapping of the drive will have to be done in accordance with the procedures of your facility. You will need to change the file CONFIG.NT located in the directory "WINNT\SYSTEM32" so that the files=55 and the buffers=30. These two

statements are located at the end of the config.nt file. To share this application with other workstations, a share needs to be created. This share must be created from the Root level of the Server unless the Solstar directory is a sub directory 2 levels down. (Example "\\Apps\Solstar2001") then the share can be created off of the "\\Apps" directory. Sharing the \Apps would be an easier way to set up the security. On the NT workstation, the "CONFIG.NT" file must be modified as well. Next map a drive letter on the workstation to the server through the network neighborhood to see the share created for the application. In "My Computer" on the desktop, find the drive letter just mapped and double click. A copy of the modified "Config.NT" is included in the initial loading of Solstar. It is in the Solstar directory and may be transferred to the directory \WINNT\System32.

1.8 Getting Started

The Solstar Student Scheduling System consists of two parts, the Student Scheduling System and the Master Schedule Builder, sometimes referred to as the resource allocator system. Initially, you should decide if you are going to use the resource allocator to generate the master schedule or if you plan to generate the master schedule manually. You need to load certain files regardless of your decision to use the master schedule generator. This manual will indicate if the files that you are loading need to be loaded with data in either case. Certain files are required for both systems and certain files are only needed for the master schedule builder. The files needed for the scheduler are the School option file, the Student profiles, the Course file, the Teacher file, the Room file, the Student request file and if the Master Schedule Builder is not used, the Class file. Additional files are required for the Master Schedule Builder. These files are: Resource Class file, Resource Study Hall file, Resource Room file, Resource Teacher file and Meeting Time files of the option record. Other files are optional.

2 Solstar in 9 Easy Steps

2.1 System Requirements

Solstar-Windows requires:

- An IBM-compatible PC (586 or better)
- Windows 95, 98, 2000, NT or ME
- 16 Mb of RAM
- 40 Mb of hard disk space (depending on the number of students and teachers)

2.2 Installation

The installation works nearly automatically. You just have to specify the directory you want to install Solstar to.

After the setup program has completed the installation you must start the program so that Solstar can create its database.

For additional information (e.g. installation of Solstar-Windows in a network environment) refer to chapter 1.5.

2.3 Starting Solstar-Windows

2.3.1 Running the program

You can start the program by choosing "Solstar-Windows" in the start menu.

2.3.2 User Registration

After the database has been created log in by using:

User name: "hera"

Password: "haneke"

(without the quotes and lowercase)

Then click on "OK" to confirm your entries.

Caution:

If you enter a wrong password three times your user account is locked for 60 minutes.

Now Solstar-Windows loads its main menu.

2.4 Entering data

You should enter the data in this order:

From the options tab:

1. Set current/next processing year.
2. School option record.
3. Clone yearly data files (only the option record needs to be cloned).
4. Student Scheduler options.
5. Study hall scheduler options.

From the Data Files tab:

1. Teacher data
2. Rooms
3. Courses
4. Students
5. Under the student tab, enter the course requests.

If you do not plan to use the Master Schedule Generator, you have to enter the class information for the master schedule including the Study Hall classes. After the class information is done, you can do a scheduling run. If you plan to use the master schedule generator, the following information must be entered:

Under the options tab:

1. Conditional period ranges
2. Allowed day patterns
3. Allowed semester patterns
4. School free time
5. Master Schedule Generator options

Under the data tab:

1. Under the teacher tab, Teachers free time and courses
2. Under the room tab, Room free time and courses
3. Resource class file
4. Resource study hall class file

At this point, you can run the Master Schedule Generator to create the master schedule. After the Master Schedule Generator has created the master schedule, you can proceed to do a student scheduling run to assign students to the classes generated.

Notice: You can leave any input mask by pressing the "Esc" key.

2.5 General data (usually not changing from year to year)

Solstar-Windows can handle this general data:

- School Option records (tab Options)
- School address (tab Options)
- Salutation codes (tab Options)
- Housing codes (tab Options)
- Rooms (tab Datafiles)
- Courses (tab Datafiles)
- Resource Study Halls (tab Datafiles)
- Teachers (tab Datafiles) with changes.

At this point, when entering a new year, you can use the mass change function to advance or graduate students.

2.5.1 School address (tab Options)

Just enter the data as described in the input mask.

2.5.2 Salutation codes / Housing codes (tab Options)

Salutation codes and Housing codes are both within the same input mask. On the left hand of the window you will find the housing codes, on the right hand of the window you will find the Salutation codes. If you want to enter a housing code, then

- click on the column "Code" in the table "Housing codes"
- enter a code, e.g. "A" for apartment
- click on the column "Code Description" or press the TAB key
- enter a description, e.g. "apartment"

After you entered a housing code you can use it in the "Families" input mask (s. chapter 2.6.2).

2.5.3 Rooms (tab Datafiles)

In this input mask you can create the rooms the courses are held in. For the room code you can use numbers and letters. These fields must be filled in:

- Room (you enter the room name here)
- Seats (you enter the number of seats of the room here)

The data for department, subject area, designators and Study Hall use are optional but may be used by the master schedule generator to assign the correct room for the course being taught.

2.5.4 Courses (tab Datafiles)

Here you can enter the data for Course code, Course title, Priority, Course abbreviation, subject area, department, link code, credit and fee. The following data is required:

- Course code
- Course title

Other information may be required, please refer to chapter 4.4.

The abbreviation is created automatically, but you can change it.

How to select the courses of a student

1. Select the tab "Datafiles"
2. Click on "Students"
3. Select the desired student e.g. by using the "Search" function (s. chapter 2.9)
4. Click on "Courses Requests"

Now, you will find the "Course Requests" window. This window offers 2 lists "All Courses" and "Requested Courses". If you double click a course in the list "All Courses" it will be listed in "Requested Courses". To remove a course from "Requested Courses" just double click it in "Requested Courses". You can also edit the requested course by clicking on "Edit selected Request". Now you can choose from the drop down boxes or make entries into the text boxes at the bottom of the window. To confirm your entries just click on "Apply Changes".

2.5.5 Resource Study Halls

Here you enter the course number that represents the study hall. You can allow the generator to select rooms and teachers, or you can enter them.

Required data are:

- Course
- Semester pattern
- Period from/to
- If there are restrictions, either F for fixed or S for selectable.
- Restriction on sex, location or grade
- Maximum seats.

If the periods are set for more than one period, the Study Hall Generator will create that number of Study Halls. If for example the periods 01 to 09 are created, 9 individual Study Halls will be created, one for each period.

2.6 Specific data (data, which might need to be changed)

Solstar-Windows can handle these specific data, i.e.:

- Teachers (tab Datafiles), either changes additions or deletions.
- Students (tab Datafiles)
- Family information (tab Datafiles)
- Students (tab Datafiles)
- Course Requests (under student tab)
- New or changed courses

2.6.1 Entering teacher data (tab Datafiles)

Here you can enter the data for each teacher, e.g.

- ID
- Name
- Title
- Reserved classroom (if the teacher only teaches in this room)
- Homeroom
- Maximum study halls the teacher can be in.
- Maximum periods per day
- Maximum preparations per semester
- Maximum per year contact periods

Note:

If the maximum numbers are left blank, the teacher will not be assigned during the master schedule generation. Refer to the main manual for further explanation of the maximum fields.

2.6.2 Entering Family Data (tab Datafiles)

The data for the families is not required, but useful. If you enter it, you have all required information available such as telephone numbers and addresses. The family ID is required and is referred to in the students section. The ID links the student to the desired family.

2.6.3 Entering Student data (tab Datafiles)

Here you enter Name and Address of the student, Sex, Birthday, Student ID, Family ID etc. The Family ID is the one you entered in the Families section.

Required fields are:

- Student ID
- Last Name
- First Name
- Sex (must correspond to school option record)
- Grade level (checked against the option record for this year)
- Next grade level (checked against the option record for next year)

2.6.4 Resource Classes (tab Datafiles)

Resource Classes are used for the master schedule generator.

Here you can enter the data:

- course code
- sections to be created from # to #.
- the numbers in the from/to fields determine the number of sections and can be any 4 digit number e.g. from 101 to 104 will create 4 sections.
- max. seats
- priority (default is 5, determines priority in master schedule generation)
- type (only used if there is a restriction..can be F for fixed or S for selectable)
- sex (restriction to one sex and must match school option record)
- location
- grade levels
- abilities (low and high)
- One or more meeting times can be created for this section

Please note, that you should enter the courses first (s. chapter 2.5.4)

2.7 User management (tab User)

You should immediately create a new user account and delete the standard user "hera" because "hera" is an administrator and the password is named in the manual.

2.7.1 Creating a new user account

1. Select the tab "User" and click on "User management".
2. Click on "New"
3. Click in the column "User Name" in the row where you find "<New>"

4. Enter the new user name
5. Select the checkmarks of the sections you want to be enabled for the new user
6. Click on "Password"
7. Enter a password for the new user and click on "OK". Note, that you cannot see the password of other users, even if you are the administrator. The administrator is only able to give a new password.
8. Enter another user or click on "Quit"

2.7.2 Changing a password

Any user

1. Select the tab "User" and click on "Change Password"
2. Enter your old password in the text field "Old password"
3. Enter the new password in the text field "New password"
4. Repeat the new password in the text field "Repetition"
5. Click on "OK"

Administrator user

1. Select the tab "User" and click on "User management"
2. Click on the column "User Name" in the row where you find the name of the user you want to change the password for
3. Click on "Password"
4. Enter the new password and click on "OK"

2.7.3 Deleting a user account

A user account can only be deleted if you are an administrator user. Please note that no administrator user can delete his or her own user account.

1. Select the tab "User" and click on "User management"
2. Click into the column "User name" in the row where you find the user name of the user you want to delete
3. Click on "Delete"
4. Confirm the "Are you sure" request to delete the user.
5. Delete another user or click on "Quit"

For additional informations about the user management please refer to chapter 11

2.8 Scheduling

You find the various schedulers on the tab "Edit schedule".

2.8.1 Student Scheduler

You can schedule either all students or partial students. If you want to schedule all students, then you click on "Start Scheduling Run".

If you want to schedule partial students, you have these options:

- All partial Scheduled Students
- Individual Students (you can select up to 10 students)
- Selected Grade Levels (you can select the checkboxes A thru D) The Grade Levels can be scheduled for partials only or for all students.

After you have made your choice click on "Start Scheduling Run".

2.8.2 Edit Schedule

After you created the schedule, you can make manual changes. You can easily move a course to a different day or lesson.

1. Click on it and keep the left mouse button pressed.
2. Move it to an empty field.
3. Release the left mouse button.

2.8.3 Study Hall Scheduler

The Study Hall Scheduling run is used to actually assign students with un-scheduled periods to specific sections in the Study Hall Master Schedule. The Study Hall Scheduler adheres to any Study Hall Master Schedule class restrictions or student request conditions during the section assignment process. The Study Hall Scheduler can assign study halls for all students in the school, for specific students, or for all students with specified grade levels.

To start the Study Hall Scheduler just click on the icon and confirm the "Are you sure" request.

2.8.4 Master Schedule Generator

The Master Schedule Generator is used to create classes and their meeting times using the data entered into the Resource Classes (s. chapter 2.6.4). To start the Master Schedule Generator just click on the icon and confirm the "Are you sure" request.

2.9 Useful functions

2.9.1 The "Search" function

The "Search" function is present in various input masks. If you click on the desired icon, a window containing a list and a text box will appear. If you start entering a last name of a student in the "Students" section, the list will become shorter and shorter the more you type. This makes it easier to locate the student, but you can also scroll the list. Double click the name and the data for the student will be shown in the window behind. The search window will remain open so you can easily choose another student or choose the correct one if you double clicked the wrong line.

3 Scheduling

3.1 Add-On Scheduling

The add-on scheduling run is usually used to schedule students who are not fully scheduled or those who enroll in school after the normal sectioning is completed. Add-on scheduling allows you to schedule all students in your school who are not fully scheduled, students in specific grade levels who are not fully scheduled, students in specific grade levels regardless of schedule status, or specific students regardless of schedule status.

Students who are to be scheduled are selected according to a set of parameters specified when you activate scheduling in the add-on mode. Students with conditions matching the parameters are selected for scheduling and are prioritized in the same order as in normal mode.

Master schedule seats are recalculated to reflect the actual seats assigned for all students who are to be rescheduled. The section numbers and master schedule seats counts of students selected for rescheduling are cleared.

Scheduling of selected students continues as though you were in normal mode except only selected students will be scheduled.

Lock Course Request

Locking course requests is used to freeze student schedules, thus retaining current section numbers assigned if the student should be rescheduled. Locking is performed late in the scheduling process to ensure retention of satisfactory schedules. If a student with locked course requests is rescheduled, the Scheduler will reassign the currently assigned sections of the course requests. To enter the function press the Lock/Unlock button in the Mass Change menu.

Scheduling Run

Solstar is designed to be a fast and highly efficient Student Scheduling system. The speed and efficiency of Solstar can vary widely from school to school and computer to computer. Many variables affect the speed and results such as:

- Schedule complexity

- Number of classes
- Number of students
- Type and number of Requests
- Scheduler Options
- Type of computer
- Speed/ MHz of computer
- Available memory

Every attempt has been to assure that Solstar runs at the maximum speed and generates the optimal results for any combination of conditions.

A report is generated at the end of each scheduling run reflecting the scheduling statistics. The statistics show the scheduling parameters used by the number of fully and partially scheduled students for each grade level.

3.2 Course Balancing

Sex

Select "YES" if you want the Sectioner to attempt to balance by sex the number of students assigned to all sections of a course. Select "NO" if you don't want balancing by sex.

Ethnic

Select "YES" if you want the Sectioner to attempt to balance by minority ethnic code the number of students assigned to all sections of a course. Select "NO" if you don't want ethnic balancing.

Seating Balancing

Select "HI" if you want the Scheduler to select sections for scheduling based on most remaining seats. This option instructs the sectioning algorithm to consider seat balancing as most important criterion for selecting a section to assign to a student. This option will equally schedule students to all sections of a course. You should use this option if you consider seat balancing important. However, if you choose to use this option, the run time for the Scheduler may be greater and the percent of fully scheduled students will be lower. This is because the Scheduler may not schedule the best section to fully schedule a student in order to achieve good balancing. When this happens, the student must enter additional logic for resolving period conflicts. This additional logic can be time consuming, but may be acceptable for you to achieve good balancing. Select "LOW" if seat balancing is not of primary concern and you want the Scheduler to run as quickly as possible. The sectioning algorithm will

choose sections for a student using look-ahead and look-back logic in order to anticipate the best section that should be scheduled for the student. Seat balancing logic is used, but it is not as important in the section process as it is with "HI" intensity.

3.3 Lift Restrictions

Sex

Select "YES" if classes restricted to a particular sex, grade, ability, location or link can have the selectable restriction lifted during the scheduling process. Select "NO" if the restriction cannot be lifted.

If you click on "Selected Grade Levels" the checkboxes with the grades are being activated, so you can easily select the grades by clicking on the checkboxes.

3.4 Study Hall Sectioning

There may be situations where students are not scheduled for all periods of the school day. Study Halls may be provided to control the activities of the students during these unscheduled times.

Study halls are not requested by students, but are automatically assigned for students by the Study Hall Scheduler. The Scheduler scans the student's schedule, determines which periods are unscheduled, and attempts to schedule the student into an available study hall. As many study halls as necessary may be assigned in order to complete the student's schedule.

The school administration must provide enough study halls to meet the needs of the unassigned students. Study hall sections should be provided for all periods that students are unassigned, if the school administration wants to account for all unassigned periods. A Study Hall Class File Maintenance screen is provided for on-line entry of the Study Hall Master Schedule.

The Study Hall Scheduler attempts to find a study hall section that will accommodate the largest block of a student's unassigned time. A study hall request record will be generated to reflect the scheduled section. The maximum seats for the study hall will not be reflected on the student's schedule or on the class list.

The student must be unassigned on the same days for all semesters and periods in order to be assigned to the study hall section. However, the student may be assigned for less days than the study hall section meets. When this occurs, it will be reflected on the student's schedule and on the class list.

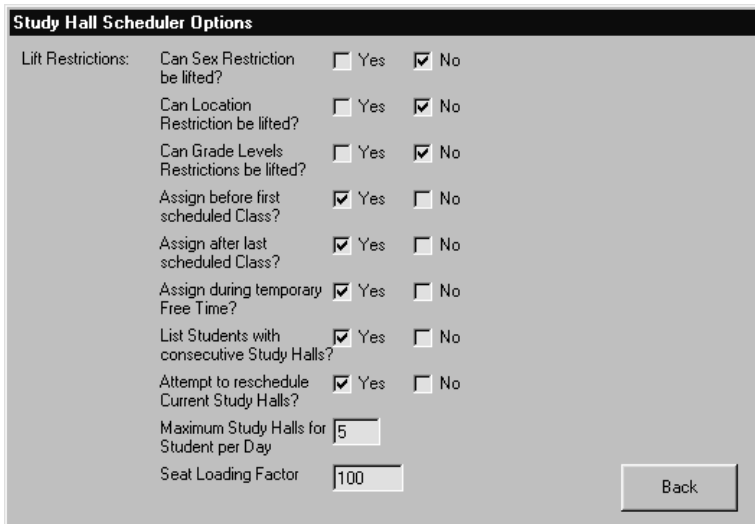
The administration may request that the Study Hall Scheduler not schedule any study hall sections before the first assigned period of a student's day or after the last assigned period of a student's day. At the administration's discretion, selectable free time restrictions for a student may also be overridden.

Study Hall Scheduling Run

The Study Hall Scheduling run is used to actually assign students with unscheduled periods to specific sections the Study Hall Master Schedule. The Study Hall Scheduler adheres to any Study Hall Master Schedule class restrictions or student request conditions during the section assignment process. The Study Hall Scheduler can assign study halls for all students in the school, for specific students, or for all students with specified grade levels.

Normal Sectioning

Normal Sectioning is usually used for scheduling all students with unscheduled periods to available study hall sections. The Study Hall Master Schedule seat counts are cleared at the beginning of Normal Sectioning. "ADD-ON SECTIONING" is used to reschedule students to study halls, and is for newly enrolled students, or for students who need study halls assigned. The Study Hall Master Schedule seat counts are not cleared.



The image shows a dialog box titled "Study Hall Scheduler Options". It contains several options with checkboxes and input fields. The options are:

- Lift Restrictions:
 - Can Sex Restriction be lifted? Yes No
 - Can Location Restriction be lifted? Yes No
 - Can Grade Levels Restrictions be lifted? Yes No
- Assign before first scheduled Class? Yes No
- Assign after last scheduled Class? Yes No
- Assign during temporary Free Time? Yes No
- List Students with consecutive Study Halls? Yes No
- Attempt to reschedule Current Study Halls? Yes No
- Maximum Study Halls for Student per Day:
- Seat Loading Factor:

A "Back" button is located at the bottom right of the dialog box.

Figure 3.1: The Study Hall Scheduler options

3.5 Lift Restrictions

- **Sex?**
Select "YES" if classes restricted to a particular sex can have the selectable restriction lifted during the scheduling process. Select "NO" if the sex restriction cannot be lifted.
- **Location?**
Select "YES" if classes restricted with a particular location code can have the selectable restriction lifted during the scheduling process. Select "NO" if the location restriction can't be lifted.
- **Grade Level?**
Select "YES" if classes restricted with a particular grade level can have the selectable restriction lifted during the scheduling process. Select "NO" if the grade level restriction can't be lifted.
- **Assign Before First Scheduled Class?**
Select "YES" if you wish study halls to be scheduled for a student during the periods before that student's first scheduled class. Select "NO" if you do not want study halls scheduled for a student before that student's first scheduled class.
- **Assigned After Last Scheduled Class?**
Select "YES" if you wish study halls to be scheduled for a student during the periods after that student's last scheduled class. Select "NO" if you do not want study halls scheduled in for a student after that student's last scheduled class.
- **Assigned During Temporary Free Time?**
Select "YES" if you wish study halls to be scheduled for a student during the periods that have been defined as temporary free times.
Select "NO" if you do not want study halls scheduled for a student during the times that have been defined as temporary free times.
Select "NO" if you do not want study halls scheduled for a student during the times that have been defined as temporary free times.
- **List Consecutive Study Halls?**
Select "YES" if you want a report to be printed listing all of the students who have consecutive study hall.
Select "NO" if you do not want a report to be printed listing all of the students who have consecutive study halls.
- **Attempt To Reschedule Study Halls?**
Select "YES" if you want the Study Hall Sectioner to retain the student's current Study Halls.
Select "NO" if you do not want the Study Hall Sectioner to retain the student's current Study Halls.

- **Request Audit Trail Active**

Select "YES" if you want the request audit trail ACTIVE during the scheduling process.

Select "NO" if you do not want the request audit trail ACTIVE during the scheduling process.

- **Maximum Study Halls / Student / Day**

Key the maximum number of study halls that may be assigned to a student for a particular day. Leave the field blank if you do not wish to set a limit.

- **Seat Loading Factor**

Key a percentage factor for increasing or decreasing the maximum seat value for each section during the scheduling process. The values and their effect on the Scheduler are identical to the Seat Loading Factor values discussed in the Course Sectioning section (s. chapter 5).

If you select the "Schedule partial Students" on the Student Scheduler, additional options will be made available to choose from. These options are:

- All Partial Scheduled Students
- Individual Students
- Selected Grade Levels Partials only
- Selected Grade Levels All Students

Selecting the All Partial Scheduled Students option will kick off Study Hall Sectioning immediately. If the Individual Students option is chosen, you can select up to 10 students from the selection boxes. Once selections are complete, click on "Start Scheduling Run" and processing will begin. If Selected Grade Levels is selected checkboxes regarding your grade settings will be made available, so you can easily select the grades. Once your selections are complete processing will begin for students who are in these grade levels on the Profile and who have requests.

4 File Maintenance For Scheduling

4.1 Option File

The Data File is used to tailor the system, to suit the needs of the school. School option fields are defined here; to be used for validation by both data entry and report applications. The Data File also contains the default options for report printing, scheduling. The Option records are first entered when Solstar is installed, and you may view or change the options.

4.1.1 School Options

School Code / Name

This field is made up of seven alphanumeric characters, and the last three digits must be unique for each school. The School Code and School Name are built into your Security File and can't be changed. These fields are entered by M & J Data based on information received from the user. If you need either the name or code changed, please contact M & J Data at (800) 752-2236 or contact Haneke Software Inc. at (704) 712-2426.

School Year

The School Year is shown so that you will know in which year you are presently working. If the year needs to be changed, refer to chapter 12.1.1.

Grade Levels

The first entry field is the Grade Levels field. Here you define the grade or class levels that attend your school. Each grade level can be 1 to 2 alphanumeric characters in length, and there can be up to 12 separate class levels per school. At least one level is required, and the levels will be used by Solstar for data entry validation, report printing, and scheduling.

Priority

A scheduling Priority code for each class level is required. The Priority code is one alphanumeric character long, and will be used to prioritize students in the

scheduling process. The lower the number or letter, the higher the scheduling priority will be. Alpha characters will be lower than numeric characters.

Semesters

Semesters is the next entry field, and the semesters that are going to be offered during the school year should be entered. The valid entry is 1 to 7 numeric digits (only the numbers 1-7), with each digit representing a valid semester. The system uses these values for data entry validation, report printing and scheduling, and at least one valid semester code is required.

Day Pattern Codes

The Day Pattern Codes are the days classes may be taught during the school year, and up to 8 alphanumeric day codes may be entered. The system will use these codes for data entry validation, report printing and scheduling and at least one valid day code is required. Examples of entries are: ["M,T,W,R,F"], ["A,B,C,D,E,F"], and ["1,2,3,4,5"]. Solstar can handle day patterns up to 8-day cycles.

If you select the button label "select all" all fields will be marked, click "deselect all" to undo.

Shift

The Shift is the period range your school teaches classes. The "from" field is the beginning period of the shift, and the "to:" field is the ending period of the shift. Up to four shifts may be entered, and the periods entered must be numeric digits. The "to" period can't be less than the "from" period. At least one shift must be entered to define the period range for the school. If the school has an 8 period day, then the shift would be : 01 08.

NOTE:

Shift can be used in situations where a school building is used for several levels of instruction, such as Day School, Night Classes, Adult Education, or if the school is on split sessions. Periods 01 to 07 could be day classes, 08-12 for night classes etc.

Sex Code

The Sex Code is the code used by the system to designate males and females. The codes will be used by Solstar for data entry validation, report printing and scheduling. The fields are required. Examples of valid entries are: M or F (default is a blank field)

Majority Ethnic Code

The Majority Ethnic Code is an optional field to designate the ethnic groups in your school that is not a minority ethnic group. This field may be matched against the ethnic code for each student during scheduling to balance classes for ethnic minorities.

Homeroom Type

Enter either a ["T"] or ["R"] to designate the Homeroom Type assignments in the school. This is a required field. The ["T"] code indicates that the Teacher ID will be used to assign students to a homeroom, and the ["R"] code indicated that a room code would be used to assign students to a homeroom. If a ["T"] is used, the teacher's name will automatically replace the teacher ID on display screens and reports.

Zero-Fill Options

The final block of entry options is the Zero-Fill Options. These four fields are used to indicate whether or not you wish to have a keyed in Course Code, Student ID number, Teacher ID number or Family code shifted to the right and have the leading positions filled with zeros. This can reduce key entry. There are two entry fields per Code, with the left position having a value of ["Y"] or ["N"]; no further entry is needed. A ["Y"] indication will require you to give a numeric value for the field length. It is critical that this entry be made and not changed. If for example you use Y 4 for Course ID. Courses 121 will be stored as 0121, etc. If this is later changed to Y 5, entering course 121 will translate to 00121 and the course will not be found. Entering 0121 will still be converted to 00121 and the original course 0121 will not be found. This will be true for student ID, Teacher ID and Family ID as well. Alpha characters can be used with the entry being Y, but a course N12 when entered if the course specifier is Y 4 will be stored as 0N12.

Course will allow an alphanumeric entry of 1 to 8 in the second entry position, which will allow a course number of up to 8 characters in length.

Profile will allow an alphanumeric entry of 1 to 9 in the second entry position, and will allow a Student ID number of up to 9 characters in length (will accommodate a Social Security number).

Teacher will allow an alphanumeric entry of 1 to 4 in the second entry position, and will allow a Teacher ID number of up to 4 characters in length.

When entering a Course number, Student ID number, Teacher ID number, or Family Code number, if you key less characters than the number indicated in the second Zero-fill Option field, the number will be shifted to the right and the remaining fields will be filled with 0's. If you key in a number that have more characters than the number indicated in this field, the rightmost characters would be truncated to achieve the desired length.

NOTE:

If this option is selected by keying ["Y"] in the corresponding fields, care should be taken when determining the field length to allow for future expansion.

4.1.2 School Address

Here you can enter, view or change the school address or mailing permit information. This information is optional, and when defined, the information is used on Request Verification Mailers.

The screenshot shows a web form titled "School Address". The form is divided into two main sections: "School Address:" and "Mailing Permit:". The "School Address:" section includes fields for Street Address (1100 47TH STREET), City (EMERYVILLE), State (CA), Zip (94608), Principal Name (WILLARD E. WILLIAMS ED.D), and Phone (510652105625). The "Mailing Permit:" section includes fields for Line 1, Line 2, City, State, Zip, and Permit Number. A "Back to Mainmenu" button is located in the bottom right corner of the form.

Figure 4.1: School Address

Here are the entry field lengths:

- Street Address : up to 30 alphanumeric characters
- City : up to 20 alphanumeric characters
- State : 2 character abbreviation
- Zip : 9 alphanumeric characters
- Principal Name : up to 30 alphanumeric
- Phone : up to 14 alphanumeric characters
(format is (area code) phone number x extension)

Mailing Permit

- Line 1 : up to 25 alphanumeric characters
- Line 2 : up to 25 alphanumeric characters
- City : up to 20 alphanumeric characters
- State : 2 character abbreviation
- Zip : 9 alphanumeric characters
- Permit Number : up to 10 alphanumeric characters

If you use the Mailing Permit, "U.S. POSTAGE PAID" will automatically be printed in the block between Line 2 and City line.

4.1.3 Student Scheduler Options

You can reach the Student Scheduler options by selecting the tab "Options" and clicking on "Student Scheduler options". You can change the options from "NO" to "YES" and continue changing the options to suit your scheduling requirements. These options will become the default options and whenever you run the student scheduler, these options will be used.

Student Scheduler Options			
Course Balancing:	Do you want Course Balancing by Sex?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	Do you want Course Balancing by Ethnic?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Course Seats Balancing Intensity	<input checked="" type="checkbox"/> Hi	<input type="checkbox"/> Low
Lift Restrictions:	Can Sex Restriction be lifted?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Can Location Restriction be lifted?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	Can Grade Level Restriction be lifted?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Can Ability Restriction be lifted?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Miscellaneous:	Do you want Alternates to be scheduled?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Can partial Schedules be retained?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Minutes in Reject Phase per Student	<input type="text" value="5"/>	
	Seat Loading Factor	<input type="text" value="100"/>	
	Attempts to schedule Period Conflict?	<input type="text" value="30000"/>	
			<input type="button" value="Back"/>

Figure 4.2: Enter Student Scheduler options here.

Course Balancing

- **Sex**

Select "YES" if you want the Sectioner to attempt to balance by sex the number of students assigned to all sections of a course. Select "No" if you don't want balancing by sex.

- **Ethnic?**

Select "YES" if you want the Sectioner to attempt to balance by minority ethnic code the number of students assigned to all sections of a course. Select "NO" if you don't want ethnic balancing.

- **Seating Balancing Intensity**

Select "HI" if you want the Scheduler to select sections for scheduling based on most remaining seats. This option instructs the sectioning algorithm to consider seat balancing as most important criterion for se-

lecting a section to assign to a student. This option will equally schedule students to all sections of a course.

You should only use this option if you consider seat balancing important.

However, if you choose to use this option, the run time for the Scheduler may be greater. This is because the Scheduler may not schedule the best section to fully schedule a student in order to achieve good balancing. When this happens, the scheduler must enter additional logic for resolving period conflicts. This additional logic can be time consuming, but may be acceptable for you to achieve good balancing.

Select "LOW" if seat balancing is not of primary concern and you want the Scheduler to run as quickly as possible. The sectioning algorithm will choose sections for a student using look-ahead and look-back logic in order to anticipate the best section that should be scheduled for the student. Seat balancing logic is used, but it is not as important in the section process as it is with "HI" intensity.

Lift Restrictions

- **Sex**

Select "YES" if classes restricted to a particular sex can have the selectable restriction lifted during the scheduling process. Select "NO" if the sex restriction cannot be lifted.

- **Location?**

Select "YES" if classes restricted to students with a particular location code can have the selectable restriction lifted during the scheduling process. Select "NO" if the location restriction cannot be lifted.

- **Grade Levels?**

Select "YES" if classes restricted to students in a particular grade level can have the selectable restriction lifted during the scheduling process. Select "NO" if the grade level restriction cannot be lifted.

- **Ability?**

Select "YES" if classes restricted to students with particular ability ratings can have the selectable restriction lifted during the scheduling process. Select "NO" if the ability restriction cannot be lifted.

- **Do You Want Alternate Schedules?**

Select "YES" if predefined class alternates may be attempted to be scheduled for a student if all of the original class combinations have been exhausted. Select "NO" if alternates should be scheduled.

- **Can Partial Schedules Be Retained?**

Select "YES" if the scheduling routine is to retain all class schedules for a student, even if he/she has some rejected course requests. Select "NO" if scheduled course requests are to be retained only if the student had no

rejected course requests. It is strongly recommended that this option be set to YES, since you will be able to determine the reason that a student had certain courses rejected and correct the situation.

- **Seat Loading Factor**

Key a percentage factor for increasing or decreasing the maximum seat value for each section during the scheduling process. A value of 100 means to leave the maximum seats at the size defined in the class file (i.e., 100%). A value of 80 instructs the Sectioner to decrease the maximum seats value by 20% during scheduling (i.e., if Max Seats is 25 and you specify a loading factor of 80, then the Sectioner will use Max Seats of 20 instead of 25). A value of 150 instructs the Sectioner to increase the maximum seats by 50% during scheduling (i.e., if Max Seats is 30 and you specify a loading factor of 150, then the Sectioner will use Max Seats of 45 instead of 30).

- **Attempts To Schedule Period Conflict**

Key a numeric value, up to 5 digits, to define the maximum number of attempts the scheduler should try to schedule a student when period conflicts are encountered. The system defaults to 30,000 combinations. In this case, the Scheduler will try to schedule a student up to 30,000 different times if period conflicts are encountered. Increasing this value may allow the algorithm to fully schedule a few more students, but it also may increase the run time of the scheduler. In one example, the scheduling results were the same when the Attempts field was set a 30,000 and the rerun at 10,000. When the Attempts field was set at 500, there was one less student scheduled, and the run time was faster. As you can see, reducing the number of attempts did not alter the results much, and allow Solstar to run faster. If speed is of major concern, experiment with the settings.

- **Minutes In Reject Phase**

Key a numeric value, up to 2 digits to define the maximum number of minutes that may be spent on a student during the reject phase of the Scheduler. The system defaults to 5 minutes. At the 5-minute setting, the Scheduler will allow five minutes per student during the reject phase. Increasing the value may allow the algorithm to fully schedule a few more students, but it also will increase the run time. As with the Attempts fields, if speed is of prime concern, a lower number will likely increase the speed, but could reduce the results.

4.1.4 Study Hall Generator

To access the Study Hall Scheduler options select the tab "Options" and click on the button "Study Hall Scheduler Options". When the Study Hall Scheduler

Options are selected, the following screen will display. This screen does not have to be used, if study halls are not going to be used by the school.

Study Hall Scheduler Options

Lift Restrictions:

Can Sex Restriction be lifted?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Can Location Restriction be lifted?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Can Grade Levels Restrictions be lifted?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Assign before first scheduled Class?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Assign after last scheduled Class?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Assign during temporary Free Time?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
List Students with consecutive Study Halls?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Attempt to reschedule Current Study Halls?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Maximum Study Halls for Student per Day:

Seat Loading Factor:

Figure 4.3: Set default options for study halls scheduling runs

Lift Restrictions:

- **Sex**
Select "YES" if classes restricted to a particular sex can have the selectable restriction lifted during the scheduling process. Select "NO" if the sex restriction cannot be lifted.
- **Location?**
Select "YES" if classes restricted with a particular location code can have the selectable restriction lifted during the scheduling process. Select "NO" if the location restriction can't be lifted.
- **Grade Level?**
Select "YES" if classes restricted with a particular grade level can have the selectable restriction lifted during the scheduling process. Select "NO" if the grade level restriction can't be lifted.
- **Assign Before First Scheduled Class?**
Select "YES" if you wish study halls to be scheduled for a student during the periods before that student's first scheduled class. Select "NO" if you do not want study halls scheduled for a student before that student's first scheduled class.

- **Assigned After Last Scheduled Class?**

Select "YES" if you wish study halls to be scheduled for a student during the periods after that student's last scheduled class. Select "NO" if you do not want study halls scheduled in for a student after that student's last scheduled class.

- **Assigned During Temporary Free Time?**

Select "YES" if you wish study halls to be scheduled for a student during the periods that has been defined as temporary free times. Select "NO" if you do not want study halls scheduled for a student during the times that have been defined as temporary free times.

- **List Consecutive Study Halls?**

Select "YES" if you want a report to be printed listing all of the students whom have consecutive study halls. Select "NO" if you do not want a report to be printed listing all of the students who have consecutive study halls.

- **Attempt To Reschedule Study Halls?**

Select "YES" if you want the Study Hall Sectioner to retain the student's current Study Halls. Select "NO" if you do not want the Study Hall Sectioner to retain then student's current Study Halls.

- **Maximum Study Halls / Student / Day**

Key the maximum number of study halls that may be assigned to a student for a particular day. Leave the field blank if you do not wish to set a limit.

- **Seat Loading Factor**

Key a percentage factor for increasing or decreasing the maximum seat value for each section during the scheduling process. The values and their effect on the Scheduler are identical to the Seat Loading Factor values discussed in the Student Scheduler Options.

4.1.5 Master Schedule Generator

To access the Master Schedule Generator options select the tab "Options" and click on the button "Master Schedule Generator Options". The Master Schedule Generator Options Screen lists the execution options selected for the Generator run. This screen is only used if the Resource Allocation system is used to generate the master schedule. These options can be overridden at the time of execution of the master schedule builder.

The fields are described as:

TEACHERS

- **Assign?**

"YES" in this field instructs the Generator to attempt to assign teachers to meeting times. "NO" in this field instructs the Generator not to assign any teachers to meeting times.

Master Scheduler Options			
Teachers:	Assign Teachers?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Use Department for Selection?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Use Subject Area for selection?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	Override selectable Teacher Free Time?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Generate Section if Teacher cannot be assigned?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Rooms:	Assign Rooms?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Use Department for Selection?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	Use Subject Area for Selection?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Override selectable Room Free Time?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Generate Section if Room cannot be assigned?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Limits: Maximum Consecutive Periods per Day for Teachers:

Figure 4.4: The Master Scheduler options

- **Use Department?**

"YES" in this field instructs the Generator to choose a teacher from the department matching that of the course if no teacher has that course as a resource. "NO" in this field instructs the Generator not to base a teacher selection on department.

- **Use Subject Area?**

"YES" in this field instructs the Generator to choose a teacher from the subject area matching that of the course, if no teacher has that course as a resource.

"NO" in this field instructs the Generator not to base a teacher selection on subject area.

- **Override Selectable Teacher Free Time If Necessary?**

"YES" in this field instructs the Generator to lift a teacher's selectable free time restrictions, if necessary, in order to assign a teacher to a meeting time. "NO" in this field instructs the Generator not to lift selectable free time restrictions when choosing a teacher.

- **Generate Section If Teacher Cannot Be Assigned?**

"YES" in this field instructs the Generator to create a section using the best possible meeting times even if a teacher could not be found to instruct during those meeting times. "NO" in this field instructs the Generator to generate a section only if a teacher could be assigned to each meeting time of the section.

- **Rooms Assign?**

"YES" in this field instructs the Generator to attempt to assign rooms to meeting times. "NO" in this field instructs the Generator not to assign any rooms to meeting times.

- **Use Department?**

"YES" in this field instructs the Generator to choose a room from the department matching that of the course if no room has that course as a resource. "NO" in this field instructs the Generator not to base room selection on department.

- **Use Subject Area?**

"YES" in this field instructs the Generator to choose a room from the subject area matching that of the course if no room has that course as a resource. "NO" in this field instructs the Generator no to base a room selection on subject area.

- **Override Selectable Room Free Time If Necessary?**

"YES" in this field instructs the Generator to lift the selectable free time restrictions of a room, if necessary, in order to assign a room to a meeting time. "NO" in this field instructs the Generator not to lift selectable free time restrictions when choosing a room.

- **Generate Section If Room Cannot Be Assigned?**

"YES" in this field instructs the Generator to create a section using the best possible meeting times even if a room could not be found for use during those meeting times. "NO" in this field instructs the Generator to generate a section only if a room could be assigned to each meeting time of the section.

Limits

Maximum Consecutive Periods

Per Day For Teachers – Key a value. 1-99, specifying for each day the maximum number of consecutive periods that may be assigned to any teacher in the Master Schedule.

If any changes are to be made, select the desired response, either "YES" or "NO".

4.1.6 Family Codes

(Shortcut: Alt+F)

The family codes options allow you to define the Housing codes to be used for demographics of the student body and to define the Salutation codes to be used for addressing letters and other documents to be sent to the Parent/Guardian of the student. The Family Code menu is shown below.

Housing and Salutation Codes			
Housing Codes		Salutation Codes	
Code	Code Description	Code	Code Description
C	Car	K	King
H	House	M	Mister
P	Palace	*	
*			

Back to Mainmenu

Figure 4.5: Housing and Salutation Codes for family codes.

Housing Type Codes

Selecting the tab "Options" and clicking on "Housing Codes" will take you to the Housing Type Codes entry screen shown here. The housing code entry field consists of one alpha character, and up to 20 separate housing codes can be entered. The Code description field consists of 20 alphanumeric characters. After keying in the Code and description, press [Enter] and the Housing Type codes will be posted. Housing type codes must be entered here in order to be used later with the Family Profile.

Salutation Codes

Selecting the tab "Options" and clicking on "Salutation Codes" will take you to the Salutation Codes entry screen shown here. The salutation code entry field consists of one alpha character, and up to 20 separate salutation codes can be entered. The Code description field consists of 20 alphanumeric characters. After keying in the Code and description press [Enter] and the Salutation Codes will be posted. Salutation codes must be entered here, in order to be used later with the Family Profile.

4.2 Student Profile

(Shortcut: Alt+S)

Housing and Salutation Codes			
Housing Codes		Salutation Codes	
Code	Code Description	Code	Code Description
C	Car	▶ K	King
H	House	M	Mister
P	Palace	*	
*			

Back to Mainmenu

Figure 4.6: Housing & Salutation

4.2.1 Add Profile

The data to be entered is as follows:

- **Student ID**
Enter the student identification code, 1 to 9 alphanumeric characters. Be consistent in the form of this field to allow for easy inquiry later. **(Required.)**
- **Family ID**
Enter the Family ID code, 1 to 9 alphanumeric characters. The code must be a valid code already entered in the Family File. (Optional)
- **Last Name**
Enter the Last name of the student, 1 to 15 alphanumeric characters. **(Required.)**
- **First Name**
Enter the First name of the student, 1 to 12 alphanumeric characters. **(Required.)**
- **Middle Name**
Enter the Middle name of the student, 1 to 12 alphanumeric characters. (Optional.)
- **Sex**
For the student, enter the sex code that corresponds with a valid sex code in the School Option Record. **(Required.)**

The data entry screen is shown below:

The screenshot shows a software window titled "Students" with a menu bar containing "Student Data", "Other", and "Back". The main content area is a form with the following fields and controls:

- Student ID: text input
- Family ID: text input
- Priority: checkbox
- Last Name: text input
- First Name: text input
- Middle Name: text input
- Ethnic: checkbox
- Sex: dropdown menu
- Birthdate: text input
- Shift: checkbox
- Location: checkbox
- Street: text input
- City: text input
- State: text input
- Zip: text input
- Current Grade Level: dropdown menu
- Next Grade Level: dropdown menu
- Current Homeroom: text input
- Next Homeroom: text input
- Current Counselor: text input
- Next Counselor: text input

At the bottom of the window is a navigation bar with the following buttons:

- Prev. Student
- Next Student
- Cancel New Entry
- Delete Student
- Search for Student
- Courses Requests
- Student Schedule
- Back to Mainmenu

Figure 4.7: This is the main student template

- **Birthdate**
Enter the date-of-birth for the student, 1 to 6 alphanumeric characters in the form [MM-DD-YY]. (Optional.)
- **Street**
Enter the street mailing address for the student, 1 – 20 alphanumeric characters. (Optional.)
- **City**
Enter the city of the mailing address, 1 – 13 alphanumeric characters. (Optional)
- **State**
Enter the state of the mailing address, 2 characters, using postal abbreviations. (Optional.)
- **ZIP**
Enter the Zip Code of the mailing address, 5 to 9 alphanumeric characters. This field will accommodate the Zip + 4 Codes. (Optional.)
- **Parent Name**
Enter the name of the parent(s) for the student, 1 to 28 alphanumeric characters. (Optional.)

The screenshot shows a window titled "Students" with a menu bar containing "Student Data", "Other", and "Back". The main area is a form with the following fields and values:

Student ID	00001001	Family ID	00000012	Priority	e
Last Name	ALBERT	Ethnic	B	Shift	1
First Name	CANALEN	Location	e		
Middle Name	M				
Sex	Male	Birthdate	10.04.1931		
Street	1234 MAIN STREET				
City	CHARLOTTE				
State	NC	Zip	eeeeeeeee		
Current Grade Level	09	Next Grade Level	10		
Current Homeroom		Next Homeroom			
Current Counselor	0014	Next Counselor			

At the bottom of the window is a navigation bar with the following buttons: "Prev. Student", "Next Student", "New Student", "Delete Student", "Search for Student", "Courses Requests", "Student Schedule", and "Back to Mainmenu".

Figure 4.8: This is the secondary template

- Current Grade Level**
Enter the Current Grade Level for the student, In alphanumeric characters. This is a required entry and is checked against the School Options for validity.
- Next Grade Level**
Enter the Next Grade Level for the student, 2 alphanumeric characters. This is a required entry and is checked against the School Options for validity. Be sure that option records are completed for both this year and next year.
- Current Homeroom**
Enter the Current school year homeroom for the student, 1-6 alphanumeric characters. (Optional.)
The homeroom can be a Room code or Teacher ID. Homeroom entries are not checked for accuracy. Teacher ID Homeroom entries are checked against the Teacher File for Validity.
- Next Homeroom**
Enter the next school year homeroom for the student, 1 to 6 alphanumeric characters, (Optional.)
- Current Counselor**
Enter the teacher ID of the current school year counselor for the student, 1 to 4 alphanumeric characters. Entries are checked against the Teacher File for validity.

- **Next Counselor**

Enter the teacher ID of the next school year counselor for the student, 1 to 4 alphanumeric characters. Entries are checked against the Teacher File for validity.

- **Priority**

Enter an alphanumeric code to specify the sequence in which the student is to be scheduled. This field is required, but if left blank, the system will automatically assign the priority level associated with the scheduling grade level.

NOTE:

Lower characters have higher scheduling priority.

- **Ethnic**

Enter a code to specify that the student belongs to a specific ethnic group. The scheduler may use the code for balancing classes, and any alphanumeric character is valid for this optional field.

- **Shift**

Enter the shift within the school day that the student wants to attend classes. This field should be used only when the school uses a multi-shift schedule. The shift code will limit the student classes that meet during the shift specified. The valid shifts were previously entered in the School Option File. (Optional.)

- **Location**

Enter a code to restrict the student to classes that have a similar location code. This can be used to schedule students within a specific area of the campus, or to keep groups of students together. This optional field will accept any alphanumeric character.

- **Ability Levels**

Enter the ability scores for any of the nine subject areas. This optional field can accept the digits 1-9 for each character, and reflects the ability of the student in that subject area. These scores are used with the subject area fields in the # Course records to schedule classes by ability level, if desired. The meaning of the number is user-defined.

- **Handicap Code**

Enter a handicap code to denote a handicap that the student has. This field is optional, but if a code is keyed, it must be a valid code defined in the School Option File.

- **Aid**

Enter a handicap aid code to denote the handicap aid that the student receives. This field is optional, but if a code is keyed, it must be a valid code defined in the School Option File. Handicap aid codes are used in attendance reports to determine the weighting factor in calculating a student's absences for funding purposes.

- **Disadvantage**

Enter a free form code to indicate any kind of disadvantage that the student may have. This field is optional and is not used by the system.

- **Scheduled Status**

This area is for information only. The entry "Fully" indicates that the Scheduler was able to assign a section to each of the student's requests. If there is at least 1 unscheduled request, or if the students' course requests have been altered in any way, this field will show "Modified".

4.2.2 Change/Inquire Profile

To change an entry of a student select the tab "Datafiles" and click on "Students" to enter the "Students" screen. Then select the desired student either by browsing with the "Prev. Student" or "Next Student" button or by searching for the student using the "Search for Student" function. When the desired student is shown on the screen click on the the information you want to change and replace it with the new value. To confirm the new value click on "Save".

4.2.3 Delete Profile

To delete a Student Profile click on "Delete Student", then retrieve the required student profile using the procedures outlined above. Once the proper student profile appears on the screen, review it to make sure that deletion is desired. If it is okay to delete the profile, press the Function Key indicated, and the profile will be deleted. In addition to deleting the profile, all student Requests, Study Hall Assignments and Request Audit records for that student will be deleted.

4.2.4 Display Student Schedule

From the Profile Screen, you can also display the schedule for the student. Clicking on "Student Schedule" will display a list of the student's scheduled course requests and assigned study hall. No changes can be made from this screen.

4.3 Family Profile

(Shortcut: Alt+F)

The Family File is designed to allow the administration to link a student to a family file. This can be used for census and demographic information, and can also be used to eliminate duplication of data among siblings. Linking students to a family file can also help eliminate duplicate mailings, etc.

4.3.1 Add Profile

The data entry screen is shown on the next page followed by the data entry field descriptions.

The screenshot shows a web-based data entry form for families. The form is organized into several sections. At the top, there are navigation tabs: 'Family Data' (selected), 'Other', and 'Back'. Below the tabs, the 'Family ID' field contains the value '1'. The 'Parent/Guardian' section includes fields for 'Last Name' (Test), 'First Name' (Person), 'Middle Initial', and a 'Salutation' dropdown menu. The 'Residence Address' section includes fields for 'Street', 'City', and 'State'. The 'Housing' section has a dropdown menu. Below that are fields for 'Residence Phone', 'Business Phone', 'Emergency Phone', 'Medical-Phone', and 'Medical-Name'. The 'Spouse/Other' section includes fields for 'Last Name', 'First Name', and 'Middle Initial'. The 'Mailing Address' section includes fields for 'Street', 'City', 'State', and 'Zip'. The 'Family Data' section features a table with four columns. At the bottom of the form, there is a 'Zone' field and a row of seven buttons: 'Prev. Family', 'Next Family', 'New Family', 'Delete Family', 'Search for Family', 'Family Members', and 'Back to Mainmenu'.

Figure 4.9: Enter Family Data as desired.

Family ID

Enter the family identification code, 1 to 9 alphanumeric characters. Be consistent in the form of this field to allow for easy inquiry later. **(Required.)**

Parent/Guardian Last Name

Enter the Last name of the family, 1 to 18 alphanumeric characters. **(Required.)**

Parent/Guardian First Name

Enter the First name of the family head, 1 to 12 alphanumeric characters. **(Required.)**

Parent/Guardian Middle Initial

Enter the Middle initial of the family head, 1 alphanumeric character. Optional.

Salutation Code

Select the Salutation type for the family from the combo box. You can only select Salutation Codes, which are present in the list. To define Salutation

Codes go back to the main menu and choose "Salutation Codes" from the "Options" tab.

Spouse/Other Last Name

Enter the last name of the spouse, 1 to 18 alphanumeric characters in this optional field.

Spouse/Other First Name

Enter the first name of the spouse, 1 or 12 alphanumeric characters in this optional field.

Spouse/Other Middle Initial

Enter the Middle initial of the spouse, 1 alphanumeric character. Optional.

Residence Address-Street

Enter the city of the mailing address, 1-13 alphanumeric characters. Optional.

Residence Address-State

Enter the state of the mailing address, 2 characters using postal abbreviations. Optional.

Residence Address-ZIP

Enter the Zip Code of the mailing address, 1 to 11 alphanumeric characters. This field will accommodate the Zip + 4 Codes plus delivery point code. Optional.

Mailing Address-Street

Enter the street residence address for the family, 1 – 20 alphanumeric characters. Optional.

Mailing Address-City

Enter the city of the residence address, 1 – 13 alphanumeric characters. Optional.

Mailing Address-State

Enter the state of the residence address as 2 characters, using postal abbreviations. Optional.

Mailing Address-ZIP

Enter the Zip Code of the residence address, 5 to 11 alphanumeric characters. The field will accommodate the Zip + 4 Codes plus 2 digit delivery point code. Optional.

Housing Code

Select the Housing code for the family from the combo box. You can only select Housing codes, which are present in the list. To define Housing Codes

go back to the main menu and choose "Housing Codes" from the "Options" tab.

Residence Phone

Enter the family residence phone number in this 10 character alphanumeric field. Optional.

Business Phone

Enter the family business phone number in this 10 character alphanumeric field. Optional.

Emergency Phone

Enter the family emergency phone number in this 10 character alphanumeric field. Optional.

Medical Phone

Enter the telephone number of the Doctor or Medical facility to contact in an emergency. This 10 character alphanumeric field is optional.

Medical Name

Enter the name of the Doctor or Medical facility to contact in an emergency. This 21 character alphanumeric field is optional.

Family Data

There are 5 fields for entry of data on families. There are two 1 character alphanumeric fields, one 2 character alphanumeric field, and one 4 character alphanumeric field. In addition to these, there is one freeform field 55 alphanumeric fields in length. These fields are all user-defined, so it is up to the user keep track of their meaning.

Zone

A four-character alphanumeric field designation chosen by the administration to identify census zones, elementary school zones. Or for any other purpose it chooses. This field is user-defined, so it is up to the user to keep track of their meaning.

Student Information

Clicking on "Family Members" in the entry screen will display a pop-up screen listing all of the students listed under that Family code.

4.3.2 Change/Inquire Family Information

To change an entry of a family select the tab "Datafiles" and click on "Families" to enter the "Families" screen. Then select the desired family either by browsing with the "Prev. Family" or "Next Family" button or by searching for the family using the "Search for Family" function. When the desired family

is shown on the screen click on the the information you want to change and replace it with the new value. To confirm the new value click on "Save".

4.3.3 Delete Family Information

To delete a Family file, retrieve the required family file using the procedures outlined above. Once the proper family file appears on the screen, review it to make sure that deletion is desired. If it is okay to delete it, click on "Delete Family" and confirm the following request by clicking on "Yes".

4.4 Course File Maintenance

The Course File is a listing of all Courses (Subjects) that are available at the school. The data in the Course File is referred to by other applications for printing of reports, displaying course information on screens, and validating course codes on data entry screens. A unique Number should identify each course, which can be up to eight (8) alphanumeric digits in length. In addition to the Course Number, a Title or Course Name is available. This is the Long Name for a specific course that will be used on Student Schedules, Report Cards and other Reports. The Course Title field is fifteen (15) alphanumeric characters in length. The Course Records are initially entered when the student scheduling system is installed. After the initial entry, course records can be added, changed or deleted and can be copied from year to year.

The Menu screen for Course File is similar in format to the other entry screens, and you can add a Course, View or Change a Course, or Delete a Course. From the Menu screen you can also Display Students Requesting the Course, and Display the Course File. To show/modify the data of a course you can either browse through the courses by using the "Prev. Course" or "Next Course" buttons or double click on a course from the list that shows up when you click on "Search for Course".

The subject area of a course is associated with the ability level of the student and the matching ability level in the section. The subject area is a single numeric digit from 1 to 9 which identifies the position in the student master record for the particular courses ability. For example if Algebra had a subject area of 4 and the student had a low ability in Algebra then he would have a number of 1 to 5 in position 4 of the student profile.

4.5 Teacher File Maintenance

The Teacher File Maintenance is used to enter and maintain information relating to Teachers and Counselors at the school, and to enter and maintain

Resource Teacher File data. The resource teacher data is used only by the resource allocator system to assign teachers to the appropriate classes and is not used if the master schedule is created manually. The Resource Teacher File contains information about the free time requests and resource courses for each teacher. In the resource Allocator program, this information will be used to assign teachers to a class (section). Each record of the Teacher File contains information about a particular teacher or counselor. The data in the Teacher File is referred to by other applications for printing of reports, displaying teacher names on screens, and validating teacher ID's on data entry screens. The Teacher Records are initially entered when the student scheduling system is installed. After the initial entry, teacher records can be added, changed or deleted. The teacher file can be copied from year to year. The menu screen for Teacher File is similar in format to the other entry screens, and you can add a Teacher, View or Change a Teacher or Delete a Teacher. To enter the "Teachers" screen select the tab "Datafiles" and click on "Teachers".

4.5.1 Add Teacher

There are only two required entry fields in the Teacher File, Teacher ID and Name. The remaining fields, while optional, give you better control in setting up the parameters for assigning and utilizing the staff in your school.

Teacher ID

The Teacher ID is a 1-4 character alphanumeric field. You should be consistent in the pattern of teacher ID's.

Teacher Title

The Teacher Title is an optional 1-4 character alphanumeric field. The title will be printed on selected reports as a prefix to the teacher name.

Teacher Name

The Teacher Name is a 15-character field. And the last name should be entered first. When displayed or printed, the name will appear just as entered.

Note:

All of the following entry fields to the end of this section will be used by the Master Schedule Generator to Assign Teachers to classes that are generated by the Master Schedule Generator.

Homeroom

Enter a Homeroom room code if this teacher is assigned a homeroom class. This optional field is 1-6 alphanumeric characters.

Subject Area

The 1 digit number code is used to designate the teaching of courses in a specific Subject Area. The school defines the subject area fields. The sub-

ject areas are used in conjunction with the achievement levels in the student profile.

Designators

Designators are an 8 alphanumeric character field used to denote user-defined codes to designate teachers according to any user-defined criteria. Since the codes are user-defined and are no part of the system, it is up to the user to keep track of their meaning. As an example, suppose you have a teacher who knows sign language, knows computers, and also works well with the physically handicapped. You could set up designators to identify each of these characteristics/skills such as:

- S = SIGN LANGUAGE
- C = COMPUTER KNOWLEDGE
- H = HANDICAPPED TRAINED

For that teacher, you would enter [S][C][H] under the designators. If the Resource Class File (in the Master Schedule Generator) uses the same designators or any combination, the Generator will try to schedule this teacher for that class.

Maximum Periods Per Day

A value of 1-99 is used to specify the Maximum Periods Per Day that may be taught by this teacher.

Maximum Preparations Per Semester

A value of 1-99 is used to specify the Maximum Preparations Per Semester that may be taught by the teacher. Preparations are defined as unique courses for any semester, and will normally involve a separate preparation on the part of the teacher.

Maximum Sections Per Semester

The Maximum Sections Per Semester is the value of 1 to 99 used to specify the maximum number of sections for any semester that may be assigned to the teacher.

Maximum Contact Periods Per Year

Maximum Contact Periods Per Year is defined as the maximum total contact periods the teacher may be assigned to teach for the year. A contact period is defined as a single module on a single day during the semester.

Contact Periods = Semesters X Days X Periods

Example: A teacher teaches 2 classes, 5 days a week for two semesters. The contact periods would be 20 (2 X 5 X 2).

NOTE:

If any of the maximum limit (instructional load) fields is zero (i.e. the field is left blank), the teacher will not be assigned to any class. It is our

suggestion that you use entries of 99 in the Maximum Entry fields initially, and lower the number on subsequent Master Schedule Generator runs as necessary.

Reserved Classroom

A teacher may have a specific Reserved Classroom for the school year. By entering the class room number in this field, the teacher will be assigned only to this room.

Additional Teacher Data

In addition to the basic data mentioned above, you could also indicate Resource Free Time and Teacher Resource Courses for each teacher. The Resource Allocator will use this information for not assigning the teacher during the free time and assigning this teacher to these specific courses. It is a good idea to enter this data at the time you are entering the basic teacher data if you are planning on using the Resource Allocator Program. The Resource Courses entered should be the courses that the teacher normally teaches, not all of the courses that the teacher is qualified to teach.

Resource Free Time

Resource Free Time is the time when a teacher would not like to be scheduled for a class. If a teacher spends time at two schools, you can designate Free Time as the time that the teacher will be at the other school, and the Scheduler will not schedule the teacher to classes during that time. This is also helpful for teachers who are taking classes or need a specific time period left free for conferences.

You can schedule up to 10 free times for each teacher, and each free time request consists of request type, days, semesters, period from and period to. The Type tells the Master Schedule Generator if the free time request can be lifted during the generation process to allow more complete section assignments. There are two values available for this required field, ["F"] for fixed and ["S"] for selectable.

- F = Fixed free time request. If this value is chosen, the restriction can't be lifted during schedule generation.
- S = Selectable free time request. If this value is chosen, the scheduler will attempt to honor the request, but will override it if the teacher is needed for a class.

The remaining entry fields, days, semesters, period from and period to are self-explanatory and are required for each free time request. They serve to further define the free time requested by each teacher.

4.5.2 Teacher Resource Courses

Teacher Resource Courses instructs the Master Schedule Generator which courses a teacher may teach, and the maximum number of sections of these courses the teacher may be assigned. When the Master Schedule Generator is generating meeting times for sections and a teacher assignment is needed, the Resource Courses are scanned for available teachers. As with the other functions, you can Add, Change and Delete Resource Courses from a teacher's record. The entry fields are the Course (number) and the Maximum Sections per Semester. Solstar will verify the course number and add the title for you. This function is only needed if the Resource Allocator is planned to be used.

4.5.3 Change/Inquire Teacher

To review a teacher entry click on the tab "Datafiles" in the main menu and then click on "Teachers". You can navigate by clicking on the buttons "Prev. Teacher" or "Next Teacher" or by using the "Search for Teacher" function. If you want to change an entry simply click into the field you want to change and key in the new value. To save the data click on "Save".

4.5.4 Delete Teachers

To delete a Teacher select the teacher you want to delete, click on "Delete Teacher" and confirm the following request by clicking on "Yes".

4.5.5 Display Teacher Schedule

To show the schedule of a teacher just click on "Teacher Schedule". This will retrieve the teacher's schedule and the resulting screen will display the Course Number, Section and Title, the Semesters, Periods and Days, the Room assigned and the number of students assigned to each class. This screen is for display purposes and can't be changed.

Free Time & Courses

You can also display/change the free time and courses from the "Teachers" screen by clicking on "Free Time & Courses".

4.5.6 Multiple Teachers for a Single Course

Solstar does not have a particular setup to allow multiple teachers in a single course, but this may be accomplished by setting up a new teacher ID with the abbreviated names of the teachers involved. In order that this new assignment

not interfere with the teachers individual assignments, the times that these multiple teacher are assigned should be set up as free time for the individual teachers. This can be done with the master schedule generator, but it will take multiple passes of the generator to do t his.

4.6 Request File

The Request File is unique to the Scheduling System, and is used to enter and maintain information relating to courses requested by students.

Entry of Student Course Requests can be done in several ways. The data can be:

- Keyed in manually for each student
- Entered by Scanning
- Imported from another Database

Note:

For import, Solstar-Windows expects this data to a correctly formatted ASCII-text file conforming to the request file layout.

From the main menu in the Requests File program, you can Enter/Adjust Student Course Requests or Delete All Course Requests for a Student. If you choose to Enter/Adjust the requests, you will be asked to identify the student you wish to work with, either by ID number or name. The selection method and options are the same here as in the Profile section.

Through the Enter/Adjust Requests option, the initial entry of Student Course Requests can be accomplished. It is also through this option that viewing of requests and request changes can be made after the requests have been entered (by keying, scanning or importing).

Once the student has been selected and the Request records are displayed on the screen, you can view, change or delete the requests, check on the request status, and show the student's schedule. There is room for up to 14 requests per screen, and if a student has more requests than will fit on one screen, the requests will be scrolled to the next screen.

4.6.1 Enter Course Requests

When the Enter/Adjust Requests screen appears, the cursor will be on the first entry field. If you wish for the student to be scheduled to any section of a course, the only required entry field is the Course field, which is the Course Number. Solstar will fill in the priority and the title of the course. During the scheduling run, Solstar will place the student in the section (class) that best suits the schedule. To enter a course just double click on a course from the left hand list ("All courses") and they will appear in the right hand list ("Requested

courses"). To make any changes (e.g. for changing the priority) just select the requested course and click on "Edit selected Request". Then you will be able to make changes to the entry fields at the bottom of the screen. When your changes are complete click on "Apply changes" to accept those changes.

Once the requests have been entered, browse to the next student by using the "Prev. Student" or "Next Student" buttons or close the window by clicking on "Close".

The preceding procedure was for simple entry where the requests are for a course and not for a specific teacher, sections, period or day. With Solstar you have the option of having your requests be as broad as this or as specific as requesting a certain period, or requesting to not be scheduled into a certain teacher's class. You have that freedom.

As previously stated, the only required entry in the request file is the course number or identifier. Any entries in the following fields will further define the section/teacher, period or day that Solstar will schedule for the requests.

Priority

The course scheduling priority code of the course requested. The valid codes are:

- R = Required
- E = Elective
- O = Optional
- A = Alternate

The order of course scheduling is Required, Elective, then Optional. An Alternate course request must directly follow the Required or Elective course for which it is an alternate. The Alternate course will attempt to be scheduled only if the request for which it is an alternate fails to be scheduled.

If this field is left blank, the priority will default to the priority set in the course file. If the course has another priority entered in the Course File, then that priority will be the default.

Semester

These are the semesters during the school year in which the student desires to attend this course. Any combination of valid semester codes is acceptable. If used, the scheduler will assign the student to a class section that meets during these semesters.

Type

A Type is a code that shows a special request option for the course. The valid type codes are:

- T = Teacher request (The student is requesting a class taught by this teacher)
- N = Not this Teacher (The student does not want a class taught by this teacher)
- P = Preschedule this Section (Student is manually scheduled to this class section)
- S = Section Request (The student requests this section)

Sect/Tchr

The Section number or Teacher ID which completes the "TYPE" request mentioned above. This field is required only if the "TYPE" field has been used.

For a "Teacher Request" ["T"] or "Not This Teacher" ["N"] type, this field contains the teacher ID. For prescheduling, this field contains a section number.

Days

The days during the school year the student desires to attend this course. Key any combination of the valid day codes which are designated in the School Option File. This field is valid only for Preschedule course requests. If the student wants to designate all days of the week, you may key ["ALL"].

4.6.2 Insert a Course

This function is used primarily to enter an Alternate request after the requests have been entered. The Alternate Request must be entered directly under the Required course for which it is an alternate.

To insert a course insert the position you want to insert the course in. Then select the course to insert and click on the "->" button.

4.6.3 Delete a Course Request

To delete a student's course request, select the tab "Datafiles" and click on "Students". Then select the desired student and click on "Course Requests". To delete a course request double click the desired course in the list "Requested courses".

NOTE:

When you delete a preferred course request that has alternate requests following, the first alternate acquires the priority of the deleted request. The remaining alternate requests are unchanged.

Change a Course Request

To make a change to a course request, click on the desired course in the list "Requested courses" and click on "Edit selected Request". This makes the input fields at the bottom of the window available. Change the desired data and click on "Apply changes" when your modifications are complete.

Course Status

Click on "Students requesting Courses" to show a table with the students requesting this course. You can browse through the courses by using the "Prev. Course" or "Next Course" buttons.

The "Title/Status" column to the right of each course request will be replaced with the scheduling status of the request. If a course request has just been prescheduled (i.e., scheduled manually), and the section assignment will cause the Class File seats to overload (i.e., more students will be assigned than there are available seats), a warning message is displayed in this field.

If this field is in the form S-XXXX, then this course request has been scheduled to section XXXX of the Master Schedule. If the scheduled course request has been locked, "LOCK" is displayed beside the section assigned. If the course request has been prescheduled i.e., scheduled manually, an "M" on the far right in the "Status" field shows that the request was manually scheduled and not by the scheduler. If the course request has been prescheduled and the meeting time of the section assigned is in conflict with the meeting time of the assigned section of another scheduled request, the word "CONF" is displayed beside the section assigned.

NOTE:

The Scheduler never double schedules a student (i.e., it does not allow meeting time conflicts between assigned sections). If the student is double scheduled, at least one of the sections in conflict was manually scheduled.

If this field is "NOT SCHEDULED", the course request has not been processed by the Scheduler or the request has been modified (i.e., unscheduled manually).

If this field is any of the following, then the course request has been rejected by the Scheduler:

- **Course not offered:**
The course has no sections in the Class File.
- **Semester Request:**
Student requested particular semesters, but classes with those semesters were not offered.
- **Sex Restriction:**
Rejected due to sex restriction.
- **Location Restriction:**
Rejected due to grade level restriction.

- **Ability Low:**
Ability level was lower than restriction.
- **Ability High:**
Ability level was higher than restriction.
- **Teacher not wanted:**
Student requested not to be scheduled to the available teacher.
- **Teacher Request:**
Teacher requested does not teach the course.
- **Section Request:**
The section requested is not offered.
- **Outside Shift:**
The classes offered met outside the student's restriction.
- **Period Conflict:**
The classes available were rejected due to a period conflict with a schedule class.
- **Section Closed:**
The sections selected for scheduling were closed (all seats taken).
- **Prescheduled Request:**
The section to be prescheduled was not offered.
- **Array Size:**
The student's requests would not "fit" into the scheduler memory arrays.

Display Schedule

When a student's course requests are displayed for adjustment, press the appropriate Function Key to display a listing of the student's scheduled course requests and study halls. The information on this screen is for viewing only and can't be changed.

4.7 Maintenance to Scheduled Course or Study Hall Requests

If you want to do maintenance to a student's scheduled course requests, select the tab "Datafiles" and click on "Students". Then click on "Student Schedule". Now, select the course you would like to change or to delete.

The maintenance of Study Hall requests is identical with the maintenance of scheduled course requests. You may have a need to assign study halls before or adjust study hall assignments after the Study Hall Scheduler has been run. With this function, you can manually maintain study hall assignments before or after Study Hall sectioning.

NOTE:

For any adjustments made to the student's schedule, the applicable Class File and Study Hall Class File seat counts will be updated automatically to reflect the changes made.

Course

The course code previously entered into the Course File.

Sect

The section scheduled for this course and entered into the Master Schedule.

Sem

The semesters or terms during the school year the student is scheduled for this class or study hall. Semesters may not be entered for Study Halls.

Days

The days of the week the student is scheduled for the class or study hall. If you key "All" in this field, the designation will be for all days specified in the School Option File. If used, these days will be used by the system to override the normal Master Schedule days for this class. If not used for a Study Hall, the days will default to the Study Hall Master Schedule days for this study hall.

Periods

The periods of the day the student is scheduled for the class or study hall. This field is for display only and can't be modified.

Instructor

The name or code of the instructor assigned to the class. For display only.

Room

The room where the class or study hall has been scheduled to meet. For display only.

Title

The title of the class or study hall. For display only.

4.7.1 Display Student Schedule

Select the tab "Datafiles" and click on "Students". Then select the desired student and click on "Student Schedule".

4.7.2 Add Class or Study Hall

To add a class or study hall just click on "New Record". This will make the input fields at the top of the screen available. Choose the class and enter the desired data. Then click on "Apply" to save the new record.

4.7.3 Change Class or Study Hall

Click into the row with the class or study hall you want to change. Then click on "Edit current Record". This will make the input fields at the top of the screen available for the selected course. Choose the class and enter the desired data. Then click on "Apply" to save the new record.

4.7.4 Delete Class or Study Hall

Click into the row containing the class or study hall you want to delete. Then click on "Delete Record" and confirm the following request by clicking on "Yes".

4.7.5 Display unscheduled Requests

If you want to display a listing of the student's unscheduled course requests, select the tab "Datafiles", click on "Students", then on "Student Schedule (F2)" and then click on "Unscheduled Course Requests".

The "Status" column to the right of each unscheduled course request shows the reason the course request is unscheduled. If the reason is "NOT SCHEDULED", the course request has not been processed by the Scheduler or the request has been modified (unscheduled manually).

The reasons for the course rejection listed on this screen are identical to those listed earlier in the section on Course Status, p. 4.6.3.

4.7.6 Delete unscheduled Course Requests

Select the course request you want to delete, click on "Delete Request" and confirm the following request with "Yes".

4.8 Room File Maintenance

The Room File Maintenance is split to 3 different screens, which are:

- **"Rooms":**

Here you can create, modify or delete rooms.

- **"Rooms Freetime & Courses":**

Here you can set the free time or the courses taught in a room.

- **"Room Schedule":**

This screen shows the courses taught in a room and the meeting times.

This screen is used to enter and maintain information relating to Rooms at the school as well as Resource Room file data. Information concerning a particular room is kept in the Room file, while the Resource Room file contains information on free time requests and resource courses for each room.

Like most other Solstar data files, the information in the Room File is used by other parts of the program for printing reports, displaying information on screens, and validating room codes on data entry screens.

To show, add, modify or to delete a room select the tab "Datafiles" and click on "Rooms".

4.8.1 Add Rooms

If you click on "New Room" the screen below will appear.

Room	Department	Subject Area
<input type="text"/>	<input type="text"/>	<input type="text"/>
Designators	Seats	Study Hall Use
<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

Prev. Room	Next Room	Cancel New Entry	Delete Room	Search for Room	Room Freetime & Courses	Room Schedule	Back to Mainmenu
------------	-----------	------------------	-------------	-----------------	-------------------------	---------------	------------------

Figure 4.10: Here you can key in a room

The data for the Room file is entered as follows:

Field	Characters	Description
Room	1 to 6 (alphanumeric)	Enter the room identification code or number. This is one of two required entry fields.
Department	1 to 6 (alphanumeric)	Enter the code used in relating this room to a specific department in the school. This optional field can be used by the Master Schedule generator to select a room for a generated section based on the department.
Subject Area	1 (numeric)	Enter the code to designate the teaching of courses in a particular subject area. The subject areas are defined by the school. This optional field can be used by the Master Schedule generator to select a room for a generated section based on the subject area.
Designators	1 to 8 (alphanumeric)	This optional field is user-defined and is used to designate rooms according to certain criteria, characteristics, or equipment. The Generator can use this field to match classes with rooms having similar characteristics and needs. Since this field is completely user defined, it is up to the user to keep track of the code meaning. As an example, you can give the designator "C" (Computer) to a room indicating that the room contains computers. If one of your Resource Classes also contains the designator "C", then the Generator will attempt to schedule the Class to that room.

Seats	1 to 999 (numeric)	This required field is used to indicate the number of seats that are available in the classroom for assignment to students. If this field is left blank the Master Schedule Generator will not use this room.
Study Hall Use	1 (alpha or blank)	This optional field is used to indicate if a room can be used for a Study Hall. This is used by the Study Hall Generator to assign Study Halls to specific classrooms. The valid entries are "Y" or "Blank" for "use rooms for Study halls", and "N" for "do not use room for Study Halls". There are two additional room functions that can be signaled from the Add Room screen, Resource Free Time and Resource Courses.

4.8.2 Change / Inquire Room

A completed Room File screen will look similar to the screen below, and can be used to view the characteristics of a room or to make changes to that room's data.

In the example above, room 101 is assigned to the Business department, subject area 1. The room contains computers (C) and windows (W) and has 25 seats available. The room cannot be used for Study Halls.

To make a change just key in the data. When browse to the next recordset or leave this screen the data will be updated.

4.8.3 Display Room Schedule

By clicking on "Room Schedule (F2)" or pressing the F2 key from the previous screen, the room schedule shown below will appear.

The screen lists the room number at the bottom of the screen, and gives basic information on all classes taught in the room. The class information includes:

- Course Title
- Semester the class meets
- Period the class meets
- Days the class meets
- Teachers
- Course Number

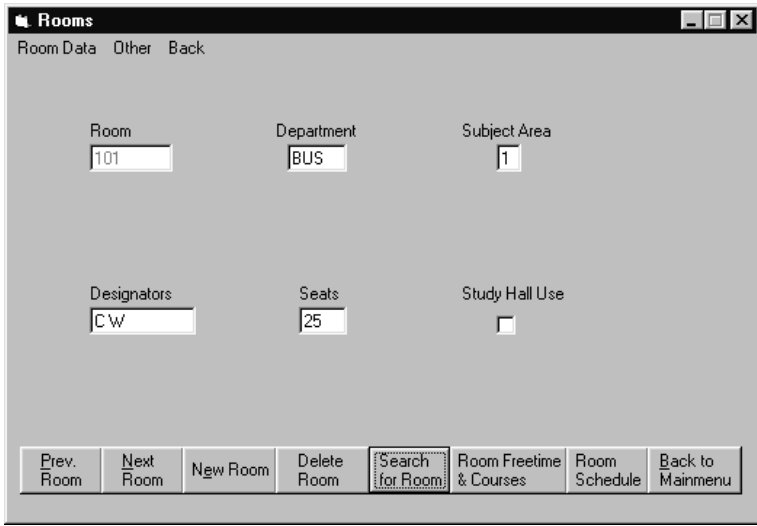


Figure 4.11: An example for a defined room

- Course Section

This screen is for viewing only and cannot be changed.

4.8.4 Delete Rooms

To delete a room click on "Delete Room" and confirm the following request with "Yes".

4.8.5 Free time & Courses

If you click on "Free time & Courses", the screen below will appear. This screen allows you to specify times when a room should remain unassigned to classes. The free time requests are optional and up to 10 free time requests can be entered for each room. Each free time request consists of request type, days, semesters, period from, and period to.

The entries for these fields are as follows, and all are required for each free time request:

Type

This field indicates whether the free time is "Fixed" or "Selectable". This indicator tells Generator if the free time can be lifted during the generation process to allow more complete section assignments. A "Fixed" free time request can-

Room Schedule							
Course Title	Semesters	From	To	Days	Teacher	Course	Section
STUDY HALL	12	1	9	ALL	0699	9998	6
ENGLISH CP 11	12	3	3	ALL	0078	1400	2
ENGLISH CP 12	12	4	4	ALL	0078	1600	1
ENGLISH CP 11	12	5	5	ALL	0078	1400	3
ENGLISH CP 11	12	6	6	ALL	0078	1400	1
ENGLISH CP 12	12	7	7	ALL	0078	1600	2

Current Room:

Figure 4.12: An example for a room schedule

not be lifted during Master Schedule Generation, while a "Selectable" free time request can be lifted during Master Schedule Generation.

Days

You may specify the actual days of the week that the room is not to be assigned classes. Any combination of valid day codes designated in the School Option file may be used.

Semesters

You may specify the semesters in the school year that the room is not to be assigned classes. Any combination of valid semester codes designated in the School Option file may be used.

Period Room

This is the starting period in the school day when the classroom is not to be assigned classes.

Period To

This is the ending period in the school day when the classroom is not to be assigned classes. The absence of an entry in this field will limit the free time to the period indicated in the Period From field.

The Free Times are stored in the Resource Room file for later use, and any error conditions will be accompanied by an on screen error message.

Room Freetime and Courses						
Room Freetime					Courses	
Type	Days	Semesters	from	to	Course	Max Sections/Semester
*					*	
Current Room						
1939					Prev. Room	Next Room
					Back to Room List	

Figure 4.13: The free time & courses mask.

4.9 Resource Courses

The Room Resource Courses information instructs the Resource Allocation System which courses may be taught in a room and the maximum numbers of sections that may be assigned to the room. When the Master Schedule Generator is generating meeting times for sections and a room assignment must be made, the resource courses are scanned for available rooms in order to make the room assignment for the meeting times. To enter the Resource Courses select the tab "Datafiles" and click on "Rooms". Then select the desired room and click on "Room Freetime & Courses".

There are two required fields for each Resource Course: the course number and the maximum sections per semester.

Field	Characters	Description
COURSE	1 to 8	Select the course of the resource course.
MAXIMUM SECTIONS	2 (numeric)	This field specifies the maximum sections of this course that may be assigned to this room per semester.

4.9.1 Add Resource Course

From the Resource Courses screen, you can add additional resource classes by keying in the data in the next available blank line.

4.9.2 Change Resource Course

You can change existing information by selecting the desired Course and changing the desired data. As soon as you move to another record or leave the screen the changes will be saved.

4.9.3 Delete Resource Course

Resource classes can be deleted by browsing to the desired course, clicking on "Delete Class" and confirming the following request with "Yes".

4.10 Class File Maintenance

4.10.1 Add class

(Shortcut: Alt+L)

Class file maintenance is not used for the majority of the classes if the Resource Allocator program is used to generate the master schedule. It will be used even with the Resource Allocator to generate classes that are required at a specific time such as Band and Lunch. When these classes are generated with the class file, the Resource Allocator will generate its classes around those that have been set up in the class file maintenance program.

Once you have chosen Add Class, there are several entry fields that are required.

Class File Maintenance is used to enter and maintain information relating to classes offered at the school. The classes are the actual instructional or meeting times for the courses being taught (Course is the subject, class is the instruction time). It is very important that you enter the data properly, as an incorrect Master Schedule will result in incorrectly scheduled students. By entering the Class parameters, Solstar can better schedule students to their requested courses. Each class has certain entries that help define the parameters mentioned above. The course name and number are required. The system will use the course number to validate data entry, and the name will appear on screens, schedules and other printed material.

In order for the Scheduler to determine how much space is available in each class, the Maximum Seats field should be entered. The scheduler will keep track of the number of students scheduled for a class, and will close out the

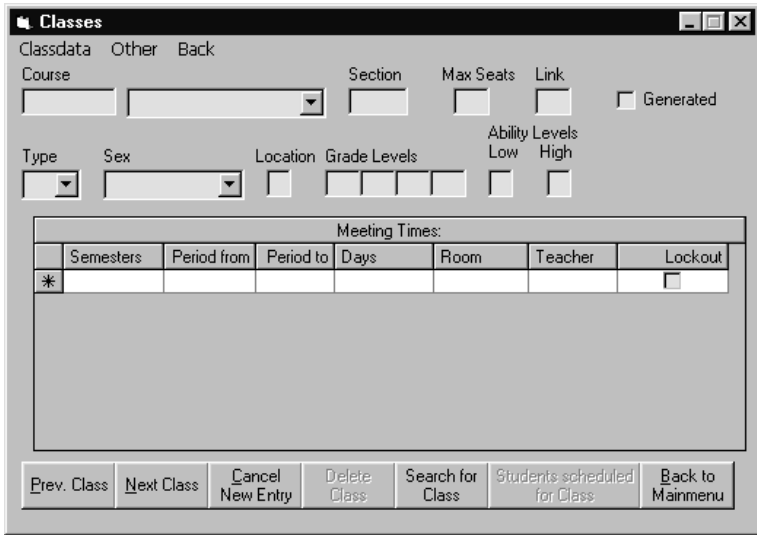


Figure 4.14: The template, in which you can define classes.

class when it is full. The information on seats assigned includes data on the sex of those assigned as well as the number of seats remaining. The Class File Maintenance program uses the Restrictions entered to determine if the classes are to be restricted in any way. Sex, Location, grade and Ability are some examples of the types of restrictions that are available in Solstar. The Meeting Times are the actual instructional periods for the Courses, and the data includes the Semester(s), periods, days, teacher and room information for each meeting time. With Solstar, there can be up to 8 (eight) meeting times for each class. From the Class File screen it is possible to view a list of the Students scheduled for the class.

From the Class File Maintenance main menu screen, you can also view the students scheduled for a class (gives the same information as Student above). You can also display the Class File, which will give a listing of the classes in the school. Additional information that is displayed includes the course number and title, section and semesters, period and days, room and teacher. From this screen you can also display the Students scheduled.

4.11 Study Hall Class File

The Study Hall Class File is used to enter and maintain the information relating to the study halls offered at the school. For each meeting time of a study

Classes
 Classdata Other Back

Course: 0001 APPLIED COMM Section: 1 Max Seats: 15 Link: Generated:

Type: Sex: Location: Grade Levels: Ability Levels: Low High

Meeting Times:							
	Semesters	Period from	Period to	Days	Room	Teacher	Lockout
▶	12	1	2	M	010	0014	<input type="checkbox"/>
*							<input type="checkbox"/>

Prev. Class Next Class New Class Delete Class Search for Class Students scheduled for Class Back to Mainmenu

Figure 4.15: Filled out Class File.

hall offered at the school there must be a corresponding Class entry. The data here is referred to by other functions for printing reports, displaying class information on screens, and scheduling students for study hall classes.

The data in the Study Hall Class file can be viewed, changed, deleted, and new classes can be entered.

5 Course Sectioning

Normal Scheduling

(Shortcut: ALT+?)

The Scheduler algorithm consists of several phases. The first phase determines which students are to be scheduled and the order in which they are to be scheduled. The second phase clears all assigned seats in the master schedule and loads the master schedule into memory tables. The third phase schedules the students in the order established in the first phase. A sub-phase of phase three is the reject phase. The reject phase is entered for a student if the schedule selected did not render the student fully scheduled (all course requests scheduled). The reject phase generates a user-defined number of alternate schedules in order to fully schedule all courses requested by a student.

The first phase scans the Request File to determine which students have had course requests entered. Each student is assigned a weight to reflect the number of singleton course offerings selected. The number of double-ton offerings selected, etc. students with course requests are sorted in descending order on the weight within ascending order on the student scheduling priority. The second phase reads the master schedule (Class File) and the Course File records and loads the data of these files into memory tables. These tables are used to facilitate the creation of many possible schedule combinations for students with minimal disk usage. Assigned seat counters are cleared in this phase.

The third phase is used to schedule the students selected and sorted in the first phase. Each student entering this phase is scheduled according to an algorithm established through parameters passed to the Scheduler. A sub-phase called the reject phase is entered within the third phase in order to fully schedule a student by creating all possible schedule combinations and choosing the schedule that offers the best master schedule seat balancing.

The scheduling algorithm is designed to assign sections for course requested by students while maintaining balancing of seats within the classes offered in the master schedule. The algorithm determines all possible sections of courses that can be assigned to a student. Sections offered outside the shift of the student are eliminated. Sections with meeting times that conflict with any sections previously scheduled for the student are eliminated.

The order in which courses requested by a student are chosen for scheduling is based on the priority of a request. The priority designates if a course is required, elective, alternate or optional. Required courses are processed first. Alternate requests that follow a rejected required course request are processed next. Elective course requests are processed next with alternate requests that follow a rejected elective course following. Optional course requests are processed last.

The selection of a course request to schedule within a priority is determined by the number of sections available after the elimination of sections due to restrictions and conflicts. All prescheduled requests are scheduled immediately; then any course requests for which there is only one section remaining that can be scheduled (singletons) are scheduled immediately. Singletons generated during the scheduling process (due to meeting time conflicts) are scheduled immediately.

After all singletons are scheduled, course requests for which more than one section is available are processed. The selection of the section to schedule is determined by a user-defined parameter. If the parameter designates "HIGH" balancing, then the section with the most seats remaining is scheduled. If the parameter designates "LOW" balancing, then a look-ahead and look-back technique is used to weight each section according to the fit of the section to previously scheduled sections and to the fit of future section if the section is chosen. The section with the lowest weight is scheduled.

Scheduling of sections for courses requested continues until all requests have been assigned a section or have been rejected because no section could be assigned. If any course request has been rejected due to a meeting time conflict with a previously scheduled section, then the algorithm enters the reject phase. The reject phase creates alternative section selections for previously scheduled requests in an effort to find a schedule that will accommodate a section for the rejected course request.

After all course requests have been processed by the Scheduler, the student will be fully scheduled or partially scheduled. Fully scheduled means that all preferred (required and elective) courses requested by a student were scheduled. Partially means that a requested preferred course could not be scheduled. If a course request with a priority of alternate is scheduled, then the alternate takes the place of the preferred course if it follows when fully or partially scheduled status is determined.

Fully scheduled students will be finalized by having all assigned sections updated to the Request File records of the student, the Profile record flagged as being fully scheduled, and seats in the master schedule updated.

Partially scheduled students may have restrictions lifted from sections (if allowed a user-defined option) in order to schedule rejected course requests.

This is accomplished by temporarily removing selectable restrictions from the Master Schedule and rescheduling rejected course requests.

Partially scheduled students will be finalized by having all assigned sections updated to the Requests File, the Profile record flagged as being partially scheduled, and seats in the master schedule updated.

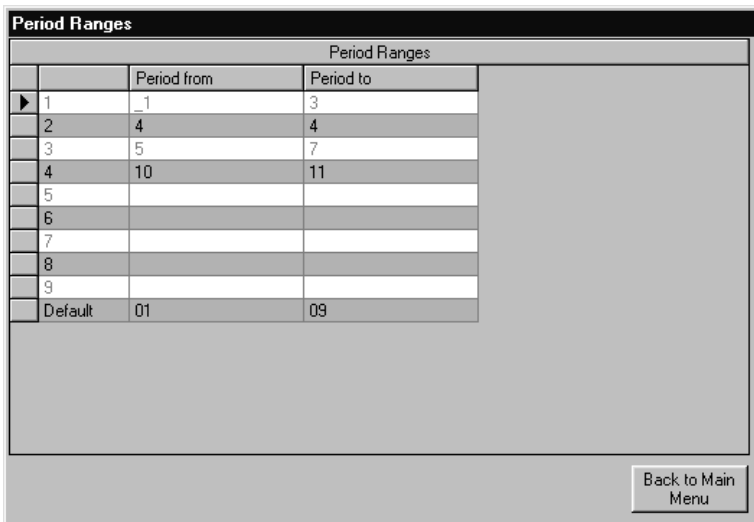
Scheduling statistics are reported on a grade level basis at the end of the scheduling run.

6 File Maintenance For Resource Allocator

6.1 Meeting Time Parameters

6.1.1 Set Period Patterns

This function is used to define the valid period ranges that can be used by the Generator when selecting periods for class meeting times. The Set Period Patterns screen is displayed by selecting the tab "Options" and clicking on "Conditional Period Ranges". This is a short hand method of telling the Resource Allocator that, for example, I want this class to be scheduled in the morning. The morning being periods 1-4. Condition 1 would be set for periods 1 to 4 and the resource allocator screen for creating the classes would be told to use conditional pattern 1.



The screenshot shows a window titled "Period Ranges" with a table containing the following data:

Period Ranges		
	Period from	Period to
▶ 1	1	3
2	4	4
3	5	7
4	10	11
5		
6		
7		
8		
9		
Default	01	09

A "Back to Main Menu" button is located in the bottom right corner of the window.

Figure 6.1: Define Period Ranges.

The first nine period ranges are conditional period ranges defined by the user to restrict the time of day a meeting time of a class to be generated is to meet. If you specify one of the conditional ranges for a meeting time of a class, then the generated class meeting time will be within the conditional period range.

The last conditional period range is the default period range, and it will be the period range set in the School Option file. If in the generation process you do not indicate a conditional range for a class meeting time, the periods selected for the generated class meeting time will fall within the default period range. When the screen above appears, key in the period ranges that you want and press [Enter]. the conditional period ranges will be recorded. To change one of the ranges, key over the existing data, press [Enter] and the data will be updated.

The conditional period ranges must fall within the range of shifts defined in the School Option file. The "From" field is the beginning period of the range and the "To" is the ending period of the range. The "To" period must not be less than the "From" period.

While the conditional period ranges 1 through 7 are optional, the Default period range is required to define the normal school day period range.

In the example on the previous page, the default period range is periods 1 through 7. When generating a class using the Resource Allocation system, the absence of a conditional period indicator in the Resource class file will signal Solstar to schedule the class in any period from 1 through 7. Selecting Conditional Period 1 when generating a class will restrict the meeting time of the class to periods 1 through 4. If Conditional Period 4 is selected, the class will be scheduled only during periods 6 through 7.

When defining the class parameters (via the Resource Class file) for generation of the Master Schedule, identifying and selecting a conditional period range will allow you to request that a class be taught during a specific range of periods.

6.1.2 Set Day Patterns

(Shortcut: ALT+D)

The Day Patterns are the days that classes can be taught, i.e., "Monday, Tuesday, Wednesday, Thursday, Friday", or "Monday, Wednesday, Friday", or "Tuesday, Thursday", etc. This function defines the valid day patterns to be used by the Generator when selecting days for meeting times.

All possible day combinations are displayed (see screen below) based on the valid days defined in the School Option file. The day patterns are grouped into one-day patterns, two-day patterns, etc. for easier selection (see display below).

Day Patterns				
<input type="checkbox"/> M	<input type="checkbox"/> T	<input type="checkbox"/> W	<input type="checkbox"/> R	<input type="checkbox"/> F
<input type="checkbox"/> MT	<input type="checkbox"/> MW	<input type="checkbox"/> MR	<input type="checkbox"/> MF	<input type="checkbox"/> TW
<input type="checkbox"/> TR	<input type="checkbox"/> TF	<input type="checkbox"/> WR	<input checked="" type="checkbox"/> WF	<input checked="" type="checkbox"/> RF
<input checked="" type="checkbox"/> MTW	<input checked="" type="checkbox"/> MTR	<input type="checkbox"/> MTF	<input type="checkbox"/> MWR	<input type="checkbox"/> MWF
<input type="checkbox"/> MRF	<input type="checkbox"/> TWR	<input type="checkbox"/> TWF	<input type="checkbox"/> TRF	<input type="checkbox"/> WRF
<input type="checkbox"/> MTWR	<input type="checkbox"/> MTWF	<input type="checkbox"/> MTRF	<input checked="" type="checkbox"/> MWRF	<input type="checkbox"/> TWRF
<input type="checkbox"/> MTWRF				

Figure 6.2: The template, to enter allowed days

Click to desired day Pattern or to the "select all" button, to undo "deselect all".

If you specify the number of days for a meeting time when a class is generated, the days selected for the generated class will be one of the valid day patterns.

When the screen above first appears, all of the day patterns will default to "Not Allowed" (a blank field). Click onto a checkbox to select.

After you have selected the desired day patterns leave the screen by clicking on "Back to Main menu" to store the selection.

The valid day patterns indicate to the Master Schedule Builder that if you want the class to be taught two days a week, it will select from the valid two day patterns an acceptable combination of days.

6.1.3 Set Semester Patterns

(Shortcut: ALT+E)

This function is used to define the valid Semester Patterns that can be used by the Generator when selecting semesters (terms) for class meeting times. If you specify the number of semesters for a class when generating classes, the semester(s) selected for the generated class will be one of the valid semester patterns.

All possible semester combinations are displayed for selection based on the valid semesters defined in the School Option file. The semester patterns are

grouped into one-semester patterns, two-semester patterns, etc. for easier selection.

The Semester Patterns screen is shown below. The selection process here is similar to the Day Pattern selection process. All semester patterns default to not allowed (a blank field). Click to field to select.



Figure 6.3: Enter Allowed Semester Patterns.

6.1.4 Set School Freetime

This function is used to define the times during the school day when no classes should meet and all students should remain unassigned to classes. This can be used to keep all students free for lunch if you do not want to schedule lunch as a course, or to keep all students free for regularly scheduled assemblies, etc. The use of free time is optional.

If you specify school free time, the generator will not use any time patterns within the school free time for generating class meeting times. If no free time is specified, the generator will use all possible combinations of valid semesters, days and periods in generating class meeting times.

Up to 10 free times requests can be defined for the school, and each free time request consists of days, semesters, period from, and period to. The screen on the next page is used to identify the requested free time.

School Freetime			
Days	Semesters	Period from	Period to
▶ ALL	12	1	2
*			

ALL

Back to Main Menu

Figure 6.4: Enter School Freetime.

When identifying the free time days, key in any combination of the valid day codes as designated in the School Option file. If you key "All" in the Days field, then the period specified will be kept free all valid days. This field is required for each free time request.

You can select the Semesters during the school year that you do not want to conduct classes. Enter any combination of valid semester codes as designated in the School Option file. This field is required for each free time request.

Enter the starting period of the free time in the "Period From" field. Enter the ending period of the free time in the "Period To" field. These fields are required for each free time request.

In the example above, the school administration wants to leave first period, first semester free every Monday. They also want to leave ninth period, first semester free every Friday. The Generator will leave those two periods free on those two days for the first semester, scheduling no classes then.

NOTE:

It is not necessary to define school free time for time patterns that are not valid days, semesters or periods.

In addition to setting the School Free Time, you can Print the Free Time options. The report format is identical to the screen display above.

6.2 Resource Class File

The Resource Class file is used to enter and maintain information relating to classes that are to be generated by Solstar Master Schedule Builder. The class requests and the parameters for generating a Master Schedule are contained in the Resource Class file. Each class (section of a course) to be generated must be defined in this file prior to running the Master Schedule Generator. A record of the Resource Class file may define the parameters for generation of multiple sections of a course with up to 8 meeting times possible for each class. The resource class records usually remains the same from year to year with minor modifications. New resource class records may be added later and you can inquire into, change, or delete existing records at any time. From the main menu, select the tab "Datafiles" and click on "Resource Classes (F2)" or press [F2] to display the Resource Class screen.

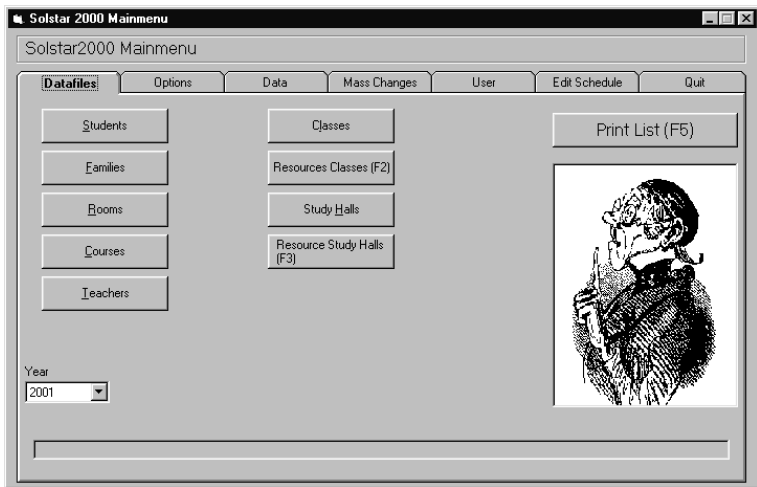


Figure 6.5: The Datafiles screen lets you choose the desired input mask.

6.2.1 Add Resource Class

Clicking on "New Class" on the Resource Class File menu screen will bring up the screen below.

To add a resource class, key in the requested data and click on "Save" to save the data. The data entry fields are as follows:

Resource Classes Resource Class Data Back

Course: 1010 Language Arts 9 Section from: 6 to: 7 Max Seats: 25 Priority: 5

Type: S Sex: Location: Grade Levels: 09 Ability Levels: Low High

Meeting Times:												
	Common	Semesters			Periods				Days			Cond
		#	Cond	Pattern	#	Cond	From	To	#	Cond	Pattern	
▶	<input type="checkbox"/>	2			1	N	1	3			MTWRFSS	
	<input checked="" type="checkbox"/>	1			1	C			2	N	W	S
*	<input type="checkbox"/>											

◀ ▶

Prev. Class Next Class New Class Delete Class Search for Class Master Schedule Back to Mainmenu

Figure 6.6: Set up Classes

- Course**

Enter the code of the course ('1-8 alphanumeric characters) for which sections (classes) are to be generated. The course codes must already be entered in the Course file. This field is required.
- Section from / to**

Each unique section (class) of a course that is to be generated must be identified by means of a section number in the range 1-9999 in the "From Section" field. You can also specify a range of sections to be generated by keying in the range in the "From" and "To" fields. The range of unique section numbers indicates the number of classes to be generated as well as the section numbers. The "Section From" field is required, and entry of a number in that field and not in the "To" field will create one section numbered "X" (number entered in "From" field). This field is required.
- Max Seats**

Enter the maximum number of students who can be scheduled to each of the sections per term. This value is used by the scheduler to determine when to close a class to further scheduling. This field is optional, however, if no seats are shown in the class file, no students will be scheduled to the class. It is recommended that the seats field be entered.
- Priority**

Enter the class generation priority that this resource class will have during Master Schedule Generation. The priority value range is 1 to 9 with

"1" having the highest priority and "9" the lowest. The default value is "5". If all resource courses have the same class generation priority, resource classes will be processed by the Generator in the order of processing difficulty. This priority can be used to override the order of generation. The resource classes will be processed in difficulty order within class generation priority. This field is class generation priority. This field is required and the default value of "5" will appear when the add screen is displayed.

- **Type Restriction**

Enter this field only if further restriction fields are going to be entered. This field tells the scheduler if restrictions can be lifted during the scheduling process to allow more complete section assignments. If there are any restrictions, this field is required. The field is optional and the values for the field are:

F = Fixed restrictions. Cannot be lifted during scheduling.

S = Selectable restrictions. Can be lifted during scheduling.

Blank = No restrictions.

- **Sex Restriction**

Enter a sex code to restrict scheduling of this class to a particular sex. The Scheduler will allow only students of the sex entered to be scheduled in the class. The code must match a valid sex code in the School Option record. This field is optional.

- **Location Restriction**

Enter the alphanumeric character for the class location restriction. Only students who have the same location restriction may be scheduled to this class. This field is optional.

- **Grade Levels Restriction**

Enter up to four grade levels to restrict scheduling of this class. Only students in one of these grade levels may be scheduled to the class. Each grade level must correspond to a valid grade level in the School Option record. This field is optional.

- **Ability Restriction**

Enter a low and high ability level for restricting class scheduling. Only students with an ability level in the course subject area falling within the high-low range may be scheduled to this class. This field is optional.

- **Meeting Times**

Each section may have from 1 to 8 meeting times and at least one meeting time is required. Each meeting time is made up of semesters, period from, period to, days room, and teacher. You must specify the parameters to be used for each meeting time to be generated.

- **Common**

Optional. A "C" in this field instructs the Generator to assign the same time pattern as this meeting time to all sections generated for this meet-

ing time to all sections generated for this resource course. Once a time pattern is selected for a section in the range of sections specified for this resource course, the selected time pattern will remain common for all sections in the range. This option may be used to force multiple sections of a course to come together for a common meeting time, such as a lecture.

- **Semesters**

Required (Enter a number, or a number and a condition, or a pattern)

"#" – The number of semesters (items) the class is to meet. If you key a number from 1-7, the Generator will select a semester pattern from the meeting time from the semester patterns that have been designated as valid patterns.

- **Cond**

Semester Condition: An "S" in this field instructs the Generator to assign to this meeting time the specified number of same semesters (terms) as in the previous meeting time. If this field is keyed, the number of semesters must be specified. (If the semesters selected for the previous meeting time are 1-2-3, and the requested number of semesters for this meeting time is 2, the Generator could assign to this meeting time semesters 1-2, 2-3, or 1-3.)

- **Pattern**

You may specify the actual semesters the class is to meet by keying any combination of the valid semester codes which are designated in the School Option record.

- **Periods**

Required (Enter a number, or a number and a condition, or a period range (from-to)).

"#" – The number of periods the class is to meet.

- **Cond – Period condition:**

If this field is keyed, the number of periods must be specified.

1-9 – A number from 1 to 9 in this field instructs the Generator to select for the meeting time specified number of periods from the defined conditional period range (period pattern) that corresponds to the number keyed (1-9).

Blank – If the number of periods is specified and this field is left blank, the Generator will select for the meeting time the specified number of periods from the defined default conditional period range (period pattern).

A-C – A value of "A" or "B" or "C" in this field instructs the generator to assign to the meeting time the specified number of periods that are consecutive to the periods of the previous meeting time.

C – Consecutive to the periods of the previous meeting time (either before or after) (Ex. If the period selected for the previous meeting

time is 3, and the requested number of periods is 2, the Generator could assign to the meeting time with the "C" condition either periods 1-2 or 4-5.)

A – Consecutive (after) to the periods of the previous meeting time, (Ex. If the period selected for the previous meeting time is 3, and the requested number of periods is 2, the Generator could assign to the meeting time with the "A" condition only periods 4-5.)

B – Consecutive (before) to the periods of the previous meeting time. (Ex. If the period selected for the previous meeting time is 3, and the requested number of meeting times is 2, the Generator could assign to the meeting time with the "B" condition only periods 1-2.)

S – An "S" in this field instructs the Generator to assign to this meeting time the specified number of same periods as in the previous meeting time. This condition may not be specified for the first meeting time.

N – An "N" in this field instructs the Generator not assign to this meeting time a period falling within the specified period range. An entry in the "From" field is required. If no entry is keyed in the "To" field, then the meeting time will not be scheduled during the period keyed in the "From" field. (Ex. If the "From" period is 1 and the "To" period is 3, then the Generator will not assign a meeting time in periods 1,2, or 3 for the meeting time with the "N" condition. If the "From" period is 6 and there is no "To" entry, the Generator will not assign a meeting time in period 6 for the meeting time with the "N" condition.)

- **From / To**

The actual beginning and ending periods the class is to meet.

- **Days**

Required (Enter a number, or a number and condition (s), or a number and a condition (N) and a pattern, or a pattern)

"#" – The number of days the class is to meet. If you key a number from 1 to 8, the Generator will select a day pattern for the meeting time from the day patterns that have been designated as valid patterns.

- **Cond – Day condition:**

N – An "N" in this field instructs the Generator not to select a day pattern containing any of the specified days for this meeting time. If this condition is specified, the number of day and the pattern must be specified. (Ex. If the specified pattern for this meeting time is MWF, and the requested number of days is 1, the Generator will assign this meeting time to only R or F (assuming valid days are MTWRF).)

S – An "S:" in this field instructs the Generator to assign this meeting time the specified number of same days as in the previous meeting time. This condition may not be specified for the first meeting time. With this condition, the number of days must be specified.

(Ex. If the days selected for the previous meeting time are MWF, and the requested number of days for this meeting time is 2, the Generator could assign to this meeting time days MW, WF or MF.)

- **Pattern**

You may specify the actual days the class is to meet by keying any combination of the valid day codes which are designated in the School Option record. If you specify an "N" condition, this pattern will specify the days not to be used.

- **Room**

Optional enter a condition or a condition (D) and an ID or an ID

- **Cond – Room condition:**

C – Select a common (same) room for all sections generated for this resource course. A "C" in this field instructs the Generator to assign the same room to this meeting time for all sections generated for this resource course. Once a room is selected for a section in the range of sections specified for this resource class, the selected room will remain common for all sections in the range.

N – Do not assign a room. An "N" in this field instructs the Generator not to assign any room to this meeting time.

S – Select same room as previous meeting time of this section. An "S" in this field instructs the Generator to assign to this meeting time the same room as was assigned to the previous meeting time.

D – Use the designators for selecting a room. A "D" in this field instructs the Generator to assign to this meeting time a room with designators matching the specified designators. If this condition is specified. The desired designator codes must be specified in the Room ID field. (Ex. If the room designators specified are WXL, and the following rooms are available for assignment:

Room A – Designators PXRLW

Room B – Designators WZN

Room C – Designators XLW

The Generator could assign to the meeting time Rooms A or C, but not B.)

NOTE:

If this course has been specified as a resource course for a room, the Generator may select that room for this meeting time instead of a room with matching designators. If this course has not been defined as a resource course for any room, the Generator may select a room with a matching department or subject area for this meeting time instead of a room with matching designators.

ID – You may specify the actual code of the room to be assigned to this meeting time. The Generator will attempt to assign the specified room to the meeting time. If that room cannot be assigned, the

meeting time may not be generated. However, you may specify at Generator run time that a meeting time should be generated even if a room cannot be assigned.

If you specify a "D" condition, this field will specify the designators to be used for a room assignment.

If you leave this field and the condition field blank, the Generator will attempt to assign a room for this meeting time. If this course has been defined as a resource course for any room, the Generator will attempt to find one of those rooms. If this course has not been defined as a resource course for any room, the Generator will attempt to find a room with a subject area or department that matched the subject area/department of this course.

Teachers – Optional (Enter a condition, or a Condition(D) and an ID, or an ID)

- **Cond – Teacher condition:**

C – Select a common (same) teacher for all sections generated for this resource class. A "C" in this field instructs the Generator to assign the same teacher to this meeting time for all sections generated for this resource class. Once a teacher is selected for a section in the range of sections specified for this resource class, the selected teacher will remain common for all sections in the range.

N – Do not assign a teacher, An "N" in this field instructs the Generator not to assign any teacher to this meeting time.

S – Select same teacher as previous meeting time of this section. An "S" in this field instructs the Generator to assign to this meeting time the same teacher as was assigned to the previous meeting time.

D – Use the designators for selecting a teacher. A "D" in this field instructs the Generator to assign to this meeting time a teacher with designators matching the specified designators. If this condition is specified, the desired designator codes must be specified in the Teacher ID field. (See Room Section for example of designator use.)

NOTE:

If this course has been specified as a resource course for a teacher, the Generator may select that teacher for this meeting time instead of a teacher with matching designators. If this course has not been defined as a resource course for any teacher, the Generator may select a teacher with a matching department or subject area for this meeting time instead of a teacher with matching designators.

ID – You may specify the actual ID of the teacher to be assigned to this meeting time. The Generator will attempt to assign the specified teacher to the meeting time. If that teacher cannot be assigned, the meeting time may not be generated. However, you may specify, at

Generator run time that a meeting time should be generated even if a teacher cannot be assigned.

If you specify a "D" condition, this field will specify the designators to be used for a teacher assignment.

If you leave this field and the condition field blank, the Generator will attempt to assign a teacher for this meeting time. If this course has been defined as a resource course for any teacher, the Generator will attempt to find one of those teachers. If this course has not been defined as a resource course for any teacher, the Generator will attempt to find a teacher with a subject area or department that matches the subject area/department of this course.

A complete Resource Class file entry will look similar to the screen below.

ResourceClasses

Resource Class Data Back

Course: 0001 APPLIED COMM

Section from: 1 to: 2

Max Seats: Priority:

Type: Sex: Location: Grade Levels: Ability Levels: Low High

Meeting Times:												
	Common	Semesters			Periods				Days			Cond
		#	Cond	Pattern	#	Cond	From	To	#	Cond	Pattern	
	<input type="checkbox"/>	1			1				1	-		
	<input type="checkbox"/>											

Prev. Class Next Class New Class Delete Class Search for Class Back to Mainmenu

Figure 6.7: Complete Resource Class file

In the example above, we want the generator to create two sections of course 1010, Language Arts 9, sections 6 and 7. When generated, both sections will have 25 seats, and will have a selectable restriction for only students in grade level 9. Both sections will have two meeting times. The first meeting time will meet 2 semesters, one period (not periods 1-3 and will meet all days. The teacher and room will be selected by the generator from rooms and teachers having this course defined as a resource course or from teachers and rooms having this subject area or department matching the subject area or department of the course. The second meeting time will be common for both sections of the course (to bring classes together for a lecture). The second meeting time

will be one semester period consecutive to the periods generated for the first meeting time, and will meet two days per week, excluding Wednesday. The generator will select for the semester, one of the semesters chosen for the first meeting time. The generator will select for the second meeting time one period that is consecutive (either before or after) to the period of the previous meeting time. The teacher and room will be the same as the one chose for the first meeting time.

6.2.2 Change / Inquire Resource Class

(Shortcut: F2)

For the Resource Class File screen press [F2] in the main menu or click on the tab "Datafiles" and then on "Resource Classes (F2)". The entry fields are the Course number and the Section number. Select the course by browsing with the buttons "Prev. Class" and "Next Class" or by searching using the button "Search for Class". The Resource Class file screen for the requested class will appear. The screen on the next page is an example of what you would see. If you want to make any changes to the shown data just click into the field and enter or select the new value. To leave the screen either you made changes or not click on "Back to Main menu".

Delete Resource Class

To delete a Resource Class simply click on "Delete Class" and click "Yes" for the following request.

6.2.3 Display Resource Class File

From the main menu press [F2] or select the tab "Datafiles" and click on "Resource Classes (F2)" to display the Resource Classes. If no Resource classes have been defined and you want to leave this screen, press "Esc". If one or more Resource Classes have been defined you can also click on "Back to Main menu".

Display Students Requesting Courses

To display all students requesting a course select the tab "Datafiles", click on "Courses" and then on "Students requesting course".

The information on this screen is for viewing only and cannot be changed. The students requesting the selected course will display on screen. Each student's ID, name, sex, ethnic code, shift, location, priority, grade level, and counselor are shown. Also, the type of request and the semester override, if any, are shown for each student.

The description of the screen headings follows:

Students requesting Course									
Students requesting Course									
Student	Last	First	Sex	Ethnic	Shift	Location	Priority	Grade	Counselor
▶ 00001003	ARTIS	SHANE	M				5	09	
00001005	BAINS	RUBY	F				5	09	

Current Course	
0001	APPLIED COMM

Figure 6.8: Students requesting a course

Student Name : Student ID and name
 Sex : Student's sex code
 Eth : Student's ethnic code
 Shf : Student's shift restriction
 Loc : Student's location restriction
 Pri : Student's scheduling priority
 Gd : Student's grade level
 Counselor : Student's counselor's name
 Request : Course scheduling priority and special request scheduling priority

R = Required	E = Elective
0 = Optional	A = Alternate
Txxxx = Teacher request	(xxxx = Teacher ID)
Nxxxx = Not this teacher	(xxxx = Teacher ID)
Pxxxx = Preschedule to section	(xxxx = Section '#')
Sxxxx = Section request	(xxxx = Section '#')

Semester

Semesters or terms requested. If blank, the semesters (terms) requested are the same as assigned to the section the student is scheduled for.

6.3 Edit Schedule

(Shortcut: F4)

To edit a created schedule press either [F4] in the main menu or select the tab "Edit Schedule" and then click on the button "Edit Schedule (F4)". You can now easily move courses from one position to another. To undo the last change simply click on "Cancel Last Change".

6.3.1 Display Master Schedule

When in the Resource Class file screen, click on "Master Schedule" to display the Master Schedule. The screen will look similar to the screen below.

Master Schedule								
Classes:								
Course Title	Course	Section	Semesters	Period from	Period to	Days	Room	Teacher
Algebra I	ALGI	1 12		1	1	ALL		
Algebra I	ALGI	2 12		1	1	ALL		
Am. History I	AMHIST I	1 12		2	2	ALL		
Am. History I	AMHIST I	2 12		2	2	ALL		
Biology I	BIO I	1 12		3	3	ALL		
Biology I	BIO I	2 12		3	3	ALL		
Chemistry I	CHEM I	1 12		1	1	ALL		
Chemistry I	CHEM I	2 12		1	1	ALL		
Computer Sc. I	COMP I	1 12		4	4	ALL		
Computer Sc. I	COMP I	2 12		4	4	ALL		
English I	ENG I	1 12		5	5	ALL		
English I	ENG I	2 12		5	5	ALL		
Football I	FOOTB I	8 12		1	1	ALL		
Football I	FOOTB I	9 12		1	1	ALL		
Geography I	GEOG I	1 12		1	1	ALL		
Geography I	GEOG I	2 12		1	1	ALL		
Physics I	PHYSIC I	1 12		7	7	ALL		
Physics I	PHYSIC I	2 12		7	7	ALL		
Spanish I	SPAN I	1 12		6	6	ALL		
Spanish I	SPAN I	2 12		6	6	ALL		

Back to resource classes

Figure 6.9: The Master Schedule Screen

The information on the screen is for viewing only and cannot be changed. The information on this screen shows the classes currently in the Class file. The column "Assign" displays the number of students assigned to each section.

If the checkbox in the "G" column is set the class was generated by the Generator and has not yet been made permanent. When the Generator is run, these classes will be deleted for generation of a new Master Schedule. You may set a generated section to permanent by manually unsetting the checkbox in the "G" column for each class file.

6.4 Study Hall Resource Class File

(Shortcut: F3)

The Study Hall scheduler is designed to place students into study halls during their unscheduled periods. The Study Hall scheduler is similar to the Student Scheduler in that each requires a course to be in the system as well as a class (section) in order to schedule students. The Study Hall course must be entered into the Course file just like any other course. The Study Hall Class file entry is different from regular class entry. For regular instructional classes, you must specify the number of the section or the number of sections you want created with the Resource Allocation system. The Study Hall Generator is designed to review the unscheduled periods of the students, and based on the number of unscheduled students, create the number of study halls per period that will satisfy those needs. The study hall sections created will also be subject to the semester and period patterns you designate as well as any restrictions, seat counts, and room or teacher requests.

6.4.1 Add Study Hall Resource Classes

To create a new Study Hall click on "New Study Hall" and enter the required data. To confirm the new Study Hall click on "Save".

The screenshot shows a window titled "Resource Study Halls" with a "Back" button. The form contains the following fields and controls:

- Course:** A text input field and a dropdown menu.
- Semester Patterns:** A vertical list of 10 empty text boxes.
- Period from:** A vertical list of 3 empty text boxes.
- Period to:** A vertical list of 3 empty text boxes.
- Type:** A dropdown menu.
- Sex:** A dropdown menu.
- Location:** A checkbox.
- Grade Levels:** Four empty text boxes.
- Max Seats:** A text input field.
- Room:** A text input field.
- Teacher:** A text input field.

At the bottom of the window, there is a row of six buttons: "Prev. Study Hall", "Next Study Hall", "New Study Hall", "Delete Study Hall", "Search for Study Hall", and "Back to Mainmenu".

Figure 6.10: Declare Study Hall Resources

This screen allows you to set the parameters to be used to create a Study Hall Class. The following are the entry fields:

Course

Key in the valid Study Hall course number. If you are going to have restrictions on the Study Halls, such as sex or grade level restrictions, a separate course must be entered for each restriction. (Ex. Suppose you want the Seniors to have their own Study Hall and call it Independent Studies. The rest of the students will take a Study Hall. You must create two courses, one independent studies. The rest of the students will take a Study Hall. You must create two courses, one Independent Studies, and the other Study Hall.) This required field is 8 alphanumeric characters in length.

Semester

Key in valid semester patterns for creation of Study Hall classes. You need to specify all of the semester patterns that your school can have, subject to a maximum of 10 patterns. (Ex: Your school has a 2-semester year. Your semester patterns are 1,2, and 1-2. This will allow students needing a Study Hall all year to stay in the same section, as well as accommodate those students needing a Study Hall only one semester.)

Periods

Key in the periods or period ranges for which you want to create study halls. There are four entry fields, each with a "period from" and a "period to" entry. If you determine from your review of the Students with Unscheduled Periods report that you need study halls every period, key in the default range (i.e., periods 01-09) and adequate study halls will be created for each period of the day. You can also specify period ranges. If you do not want a study hall to be created during period 5, you can specify ranges 1-4 and 6-9, and the Generator will create study hall classes only during periods 1-4 and 6-9. If you want study halls only in the morning, you can select a range that will include only morning periods. There are 4 period range options.

Restrictions

The restrictions allow you to limit your study halls to a specific sex, location, or grade level or range of grade levels. Any entries in the restrictions field will limit the study halls to those students meeting the restriction guidelines. Since the restrictions will eliminate some students, Study Halls will likely be needed for those students. A separate course will need to be created in the Course file for each restriction. If for example you are restricting your study halls by grade level only, and there are 4 grade levels, four separate study hall courses will need to be established.

Type

The type entry indicates whether or not the restriction can be lifted. The valid entries are "F" and "S".

"F" – Fixed restriction. Cannot be lifted.

"S" – Selectable restriction. Can be lifted.

This allows the Study Hall Scheduler to temporarily remove a restriction in order to more effectively schedule a student. This field is required if restrictions are to be used.

Sex

The Sex code of students to be included in the study hall. If "M" (male) is chose, only males will be scheduled to the study hall.

Loc

The Location code of students to be scheduled to the study hall. Only those students having the same Location code as entered here will be scheduled to the Study Hall. This can be used to keep students in a certain building or part of a building.

Grade Level

Enter up to 4 grade levels to be scheduled to the study halls. Only those grade levels appearing under the restrictions will be scheduled to the Study Hall. If you want all students in the school to be scheduled with no grade level restrictions, no entry is necessary.

Max Seats

Enter the Maximum number of seats available for each study hall. The generator will scan the available rooms searching for rooms that can accommodate the class size.

Rooms

Key in a specific room number if you want the generated study halls to be scheduled to that room. In the absence of a room entry, the Generator will search the classroom list for rooms available to handle a Study Hall. Only rooms identified with a "Y" under Study Hall Use will be considered. If no room is found, the Study Hall Generator will create the class anyway.

Teacher

Key in the Teacher ID for the teacher to be assigned to this specific study hall. In the absence of an entry, all teachers identified as available for study halls on the teacher profile will be scanned for availability. If a teacher is available, he/she will be scheduled to that study hall. If a teacher can not be found for a study hall class, the section will be generated but no teacher will be assigned.

NOTE:

If you want to have specific teachers and rooms assigned to Study Halls, and know where you want them assigned, enter those study hall classes in the Study Hall Class file in the Student Scheduling System. If a room or teacher is specified in the Study Hall Resource Class file, that room or teacher will be assigned to as many study halls as possible.

To add Study Hall Resource Classes, key in the fields as indicated above and press [Enter]. If no errors are present, the data will be entered and a new blank screen will appear for entry of the next group of resource classes.

6.4.2 Change / Inquire Study Hall Resource Classes

To view a Study Hall Resource class or to make a change to existing classes, press [F3] from the main menu or select the tab "Datafiles" and click on "Resource Study Halls (F3)". You can either browse by using the "Prev. Study Hall" or "Next Study Hall" buttons or search by using the "Search for Study Hall" button. When the Study Hall has appeared you can change the data shown on the screen.

The screenshot shows a window titled "Resource Study Halls" with a "Back" button. The window contains the following fields and controls:

- Course:** A text box containing "0001" and a dropdown menu showing "APPLIED COMM".
- Semester Patterns:** A list box containing "12", "12", and several empty slots.
- Period from:** A spinner box set to "1".
- Period to:** A spinner box set to "2".
- Type:** A dropdown menu.
- Sex:** A dropdown menu.
- Location:** A text box.
- Grade Levels:** Four text boxes.
- Max Seats:** A spinner box set to "12".
- Room:** A text box.
- Teacher:** A text box.

At the bottom of the window, there are six buttons: "Prev. Study Hall", "Next Study Hall", "New Study Hall", "Delete Study Hall", "Search for Study Hall", and "Back to Mainmenu".

Figure 6.11: Filled out Template.

6.4.3 Delete Study Hall Resource Class

To delete a Study Hall Resource class record, select the Study Hall Resource Class record you want to delete and click on "Delete Study Hall" from the

Study Hall Resource Class screen. After you confirmed the following request by clicking on "Yes" the record is deleted. Then you will be returned to the course selection screen for additional selections.

6.4.4 Display Study Resource Class File

From the main menu, press [F3] or select the tab "Datafiles" and click on "Resource Study Halls (F3)" to display the Study Hall Resource class file. Then click on "Search Study Hall" to view a list of all courses related to Study Halls. Double click a course to display the data on the screen.

Once all of the Study Hall Resource Class file data is entered and verified, the classes can be generated. Details are in chapter 8.

7 Master Schedule Generator

After all of the schedule components are successfully loaded, the Master Schedule Generator is ready to be run. The Master Schedule Generator algorithm consists of the following steps:

- A file will be built of all courses that potentially conflict with each other based on student requests. This file consists of all course combinations that have been requested.
- A priority file will be built to reflect the difficulty of generation of meeting times and assignment of resources for each record in the Resource Class file. The processing priority will be determined by sorting the priority file according to difficulty with the resource class file. The Resource Class File records will be selected for generation according to the file. The Classes with highest priority and most difficult to generate will be processed first.
- The permanent classes in the current Master Schedule or those Sections manually entered (Class File) will be loaded into memory arrays. During this loading process, any Class File record that has the "Generated" box checked was created by a previous run of the Master Schedule Generator and will be deleted.
- All Teachers and their corresponding resources will be loaded into memory arrays.
- All Rooms and their corresponding resources will be loaded into memory arrays.

The Resource Class records will be read in priority order for generation of sections according to the following steps:

1. Arrays will be built reflecting all possible meeting time combinations according to the parameters specified in the Resource Class record. These meeting times reflect the time pattern (semesters, periods, days) restrictions defined for the Resource Class.
2. The system will prioritize these possible meeting times according to the difficulty of "fit" into the current Master Schedule. This difficulty is determined by matching each meeting time against the meeting times of any section already established in the Master Schedule of courses that

could potentially conflict with this course. The possible meeting times will be sorted reflecting the ascending order of least potential conflict.

3. The possible meeting times will be accessed in the order in which they are sorted.
 - a) Each possible meeting time will be tested to see if it fulfills the requirements defined for the Resource Class.
 - b) If a teacher is to be assigned for this meeting time, the system will scan qualified teachers and their restrictions. Teachers with the least workload will be attempted first. If a teacher cannot be found for whom this meeting time can be assigned, the meeting time is rejected and the next possible meeting time will be attempted.
 - c) If a room is to be assigned for this meeting time, the system will scan allowable rooms and their restrictions. Rooms with the least seats are attempted first. If a room cannot be found for this meeting time, the meeting time is rejected and the possible meeting time will be attempted.
4. Calculation will be repeated until meeting times, teachers, and rooms have been selected fulfilling all requirements for the section. Then a record in the Master Schedule will be created for that section.

As stated earlier, the Master Schedule Generator is used to generate the Master Schedule of classes for the school. The generation is accomplished through allocation of time, teacher, and room resources to the classes requested. The Master Schedule Generator options are used by the Generator to determine how rooms and teachers will be selected for meeting times and for specifying the maximum consecutive periods per day for all teachers. The class requests and the resources must have been defined prior to a Master Schedule Generator run. If the meeting times of a specific section of a course are generated by the Master Schedule Generator, the character "G" will be inserted into the "Generated" field for that class in the Class File. This indicated that the class was automatically generated rather than entered manually. When the Generator is run, all sections having the "G" indicator will be deleted from the Class File for generation of a new Master Schedule. You can set individual or all classes in the Master Schedule to permanent by removing the "G" indicator for the desired classes. This can be accomplished manually or by using the class File Maintenance application in either the Scheduling system or the Resource Allocation system. Permanent sections will not be deleted, when the Generator is run.

The Master Schedule may be viewed and altered after generation and sections may be pre-defined prior to generation using the Class File Maintenance application in either the Scheduling system of the Resource Allocation system. The school resource and class requests may be adjusted and the Master Schedule generated an unlimited number of times.

To run the Master Schedule Generator, click on the tab "Edit Schedule" and then on the button "Master Schedule Generator". Confirm the following request with "Yes" to start the Master Schedule Generator.

Master Scheduler Options			
Teachers:	Assign Teachers?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Use Department for Selection?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Use Subject Area for selection?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	Override selectable Teacher Free Time?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Generate Section if Teacher cannot be assigned?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Rooms:	Assign Rooms?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Use Department for Selection?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
	Use Subject Area for Selection?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Override selectable Room Free Time?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
	Generate Section if Room cannot be assigned?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
		Limits:	Maximum Consecutive Periods per Day for Teachers <input type="text" value="6"/>
			<input type="button" value="Back"/>

The fields are described as:

Teachers

- Assign?**

"YES" in this field instructs the Generator to attempt to assign teachers to meeting times.

"NO" in this field instructs the Generator not to assign any teachers to meeting times.
- Use Department?**

"YES" in this field instructs the Generator to choose a teacher from the department matching that of the course if no teacher has that course as a resource.

"NO" in this field instructs the Generator not to base a teacher selection on department.
- Use Subject Area?**

"YES" in this field instructs the Generator to choose a teacher from the subject area matching that of the course if no teacher has that course as a resource.

"NO" in this field instructs the Generator not to base a teacher selection on subject area.

- **Override Selectable Teachers Freetime If Necessary?**

"YES" in this field instructs the Generator to lift a teacher's selectable free time restrictions, if necessary, in order to assign a teacher to a meeting time.

"NO" in this field instructs the Generator not to lift selectable free time restrictions when choosing a teacher.

- **Generate Section If Teacher Cannot Be Assigned?**

"YES" in this field instructs the Generator to create a section using the best possible meeting times even if a teacher could not be found to instruct during those meeting times.

"NO" in this field instructs the Generator to generate a section only if a teacher could be assigned to each meeting time of the section.

Rooms

- **Assign?**

"YES" in this field instructs the Generator to attempt to assign rooms to meeting times.

"NO" in this field instructs the Generator not to assign any rooms to meeting times.

- **Use Department?**

"YES" in this field instructs the Generator to choose a room from the department matching that of the course if no room has that course as a resource.

"NO" in this field instructs the Generator not to base room selection on department.

- **Use Subject Area?**

"YES" in this field instructs the Generator to choose a room from the subject area matching that of the course if no room has that course as a resource.

"NO" in this field instructs the Generator no to base a room selection on subject area.

- **Override Selectable Room Freetime If Necessary?**

"YES" in this field instructs the Generator to lift the selectable free time restrictions of a room, if necessary, in order to assign a room to a meeting time.

"NO" in this field instructs the Generator not to lift selectable free time restrictions when choosing a room.

- **Generate Section If Room Cannot Be Assigned?**

"YES" in this field instructs the Generator to create a section using the best possible meeting times even if a room could not be found for use during those meeting times.

"NO" in this field instructs the Generator to generate a section only if a room could be assigned to each meeting time of the section.

Limits

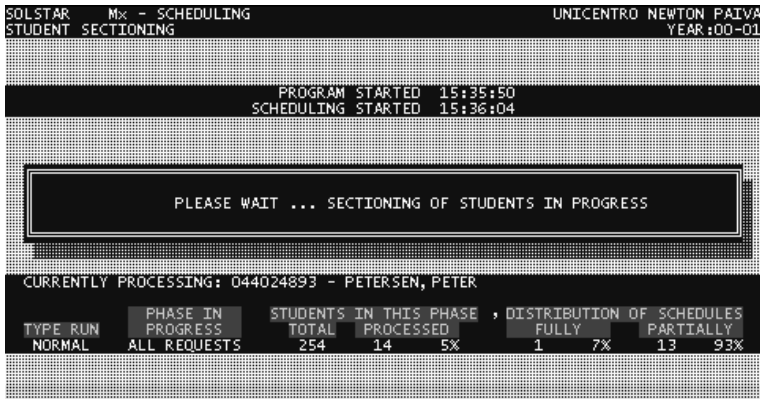
- **Maximum Consecutive Periods Per Day For Teachers**

Key a value. 1-99, specifying for each day the maximum number of consecutive periods that may be assigned to any teacher in the Master Schedule.

If any changes are to be made, select the desired response, either "YES" or "NO".

While the Generator is running, screen messages will appear to let you know the progress of the Generation process.

The following screen gives you a view of the progress being made during the actual generation process. The information constantly changes as the classes (sections) are created and written to the Class File.



TYPE RUN	PHASE IN PROGRESS	STUDENTS IN THIS PHASE			DISTRIBUTION OF SCHEDULES			
		TOTAL	PROCESSED	%	FULLY	PARTIALLY		
NORMAL	ALL REQUESTS	254	14	5%	1	13	7%	93%

Included on this screen is:

- **Course**
The name of the course presently being processed.
- **Sections From – To**
The number of sections of the named course to be created.
- **Section Numer**
The number of sections of the named course presently being processed.
- **Total "#" Of Sections To Be Generated**
The total number of sections in the school to be generated for the Master Schedule. This will be the total number of classes in the school.
- **Total "#" Of Sections Processed**
The running total of sections that have already been created.
- **Percent Of Sections Completed**
The running total of sections that have already been completed.

This screen gives you a visual indication of what is taking place in the Generation process and is for viewing only. The screen messages that precede the screen above are also for viewing only, and on most screens, the Student ID, Teacher ID, or Course Number, etc. will be displayed on the left of the screen below the message. This display indicates the data item that is being loaded into the memory arrays. On most computers, the display will change so rapidly that you will not be able to read it. However, on older, slower machines, the display can be read easily. Again these are merely messages to keep you informed of the progress of the Master Schedule Generator.

8 Study Hall Generator

The Study Hall Generator will review the unscheduled periods of the students, and create the number of study hall sections needed to accommodate those students. The Generator will create sections based on need, as well as room, seat and teacher availability.

Once the Study Hall Courses and Resource Classes are entered and the students have been scheduled, the Study Hall Generator can be run. To start the Study Hall Generator select the tab "Edit Schedule" and then click on "Study Hall Generator". After you confirmed the following request with "Yes", the Study Hall Generator starts.

The entries here instruct the Study Hall Generator to assign rooms and teachers if available. If you select "YES", the Generator will assign a teacher or room if possible, and a "NO" will instruct the Generator to not assign teachers and rooms to the generated sections. After keying your response, press [Enter] and the Generator will begin.

The Generator will:

- Search for valid Study Hall Courses.
- Scan the teacher and room files for available teachers and classrooms.
- Scan the Study Hall Resource Class file for the study hall class parameters.
- Scan the Student schedules for unscheduled periods.
- Create sections that best fulfill the Study Hall needs.

The Study Hall Classes File can be reached by selecting the tab "Datafiles" in the main menu and clicking on "Study Halls". The class file information will display and you can key in the desired changes. Once the Study Hall Class file is set, you can run the Study Hall Scheduler to place the students into the various Study Hall classes.

9 Printing Reports

9.1 Supported Printers

Any printer you have a Windows printer driver for is supported. This is true for printers which are connected to your PC or printers which are present within a network. Before the printing begins you can select the printer you want to use.

9.2 Printing reports

You find the button "Print Reports (F5)" on any tab except the "Data" tab. Just click on this button or press [F5]. A window with various reports opens. If you want to send a report to the printer, just double click the desired report.

For your convenience there are these options available:

- Print Preview** : Does not send the report to the printer, but shows it on the screen.
- Landscape** : Prints the report in landscape format.
- Seperate Pages** : Prints the desired data (e.g. per student) on seperate pages.
- Selective Print** : Lets you select e.g. the students you want to print the report for.
- Sheet Border** : If set, the printer only prints within these borders.

10 Mass Change Functions

The mass change functions are reached by selecting the tab "Mass Changes". The functions offered are:

- Mass Changes Students
- Mass Changes Requests
- Lock/Unlock Course Requests
- Course Substitution
- Replace Teachers

Mass changes are stored and can be used from year to year. Once the mass change has been stored, it must be recalled and applied. The mass change does not take effect until it is applied.

10.1 Mass Changes to Profile

This application is used to make Mass Changes to student's Profile information. It allows you to modify the information in the Profile by making the same changes to a group of students based on certain "student conditions". These "student conditions" for a particular mass change are entered to a data file using a data entry screen. The "student conditions" consist of the selection criteria for the Profile records to be changed as well as information about the change itself.

There is no limit on the number of Mass Change Records that may be created, and they may be created or modified at any time. A Mass Change Record will remain accessible until you delete it.

When you want to apply a mass change to the Profiles, you must first select the desired Mass Change Record. You can modify the selected Mass Change Record temporarily before applying it. Once you apply the Mass Change, the Profiles selected will be updated in accordance with the Mass Change.

There are four basic steps to make a Mass Change on the Profile:

1. Add Mass Change (create a Mass Change Record to specify the "student conditions" group to be changed and the change itself).
2. Select Mass Change (select the Mass Change Record that contains the Mass Change desired)

3. Modify Mass Change, if desired (make temporary changes to the "student conditions" of the selected Mass Change Record)
4. Apply Mass Change (change Student Profile records as specified in the selected Mass Change Record)

10.1.1 Add Mass Change

After selecting Add Mass Change from the Mass Changes to Profile Menu screen, the Add Mass Change Record screen will appear. All fields are optional except the Record ID.

The Mass Change to Profile Record is laid out in an "IF" / "THEN" from: "IF" certain conditions are present, "THEN" apply this change. The first field to enter is the Record ID which is a required field. The next optional field is title field, used as an explanation or title of the Mass Change. The next entry fields are for the "IF" "student conditions" which must be met for the profile to be selected for a change to be applied. (A detailed description of the entry fields will follow.) Next, in the box entitled "THEN", key in the data which will replace the student's fields in the profile. These are the changes that are to be made to the profiles. If you wish to delete the profiles of students who meet the "IF" criteria, select the checkbox "Delete Student Profile" in the box entitled "OR".

NOTE:

IF AN "*" is keyed in the first position of an "IF" field, then that field in the Profile will be tested for blanks, if an "*" is keyed in the first position of a "THEN" field, then that field in the Profile will be replaced with blanks.

Enter the data as follows:

- **Record ID**

The ID of the Mass Change Record, 1 to 8 alphanumeric characters. The Record ID must be unique for each Mass Change Record. **(Required.)**

- **Title**

A descriptive title of the Mass Change Record. The title is for your description of the mass change application.

- **Current HRoom**

The current school year homeroom in the Profile, 1 to 6 alphanumeric characters. The homeroom can be a room code or a teacher ID. (If the Homeroom Type in the current year School Option Record contains "R", key in a room code in this field. If the Homeroom type contains "T", key a teacher ID in this field. The teacher ID will be checked for validity, the Room will not.)

- **Current Grade**

The current school year grade level in the Profile, 1 to 2 alphanumeric characters. The grade level must correspond to a valid grade level in the current year School Option Record.

- **Course**

The Course Number of the course requested by the student to be used to identify the group. If only the Course number is used, all students requesting or assigned to that course will meet the selection criteria. The course number will be verified against courses entered in the Course File.

- **Sect**

The Section number of the Course assigned to the student. If both a Course and Section are entered, every student assigned to that course and section (class) will meet the selection criteria.

NOTE:

The Section field is a 4 character field. There is no Zero-fill option here, so leading zeros must be entered. An entry for section 1 would be 0001.

- **Next HRoom**

The next school year homeroom in the Profile, 1 to 6 alphanumeric characters. The homeroom can be a room code or a teacher ID. If the Homeroom type in the next year School Option Record contains an "R" then key in a room code. If it contains a "T", key in a teacher ID. The teacher ID will be verified, the room code will not.

- **Next Coun**

The teacher ID of the next school year counselor in the Profile, 1 to 4 alphanumeric characters. The ID will be checked against the next year Teacher File for validity.

- **Next Grade**

The next school year grade level in the Profile, 1 to 2 alphanumeric characters. The grade level must correspond to a valid grade level in the next year School Option Record.

- **Sex**

The sex code in the Profile. The code must correspond to a valid sex code in the School Option Record.

- **Pri**

The priority code in the Profile. This is the code that specifies in the sequence in which a student is to be scheduled. Lower alpha or numeric characters have higher scheduling priority.

- **Eth**

The ethnic code in the Profile. The ethnic code specifies the ethnic group to which a student belongs. The code may be used by the Scheduler for balancing classes according to the ratio of ethnic majority and

non-majority students requesting the course. Any alphanumeric character is valid.

- **Shf**

The shift in the Profile. The shift specifies the shift within the school day that a student wants to attend classes when the school uses a multi-shift schedule. The shift will limit a student to classes that meet during the specified shift. Valid shifts are 1-4, but they must have been previously defined in the School Option Record.

- **Loc**

The location code in the Profile. The code restricts a student to classes that meet in a specific area of the campus, or can be used to identify a group of students that are to be kept together during the day (i.e., team teaching). The Scheduler will match the location restriction to the Master Schedule locations when selecting classes for scheduling.

- **Subject Area Abil**

The ability scores in the Profile for the nine subject areas. Each character can be digit 1-9 and reflects the ability of a student in that subject area. The scores are used in conjunction with the subject area field in the Course File to schedule classes by ability level. The meaning of each ability score is user defined.

- **Fully Sched**

Enter "YES" if you want a student tested for fully scheduled (i.e., no preferred course request rejects).

- **Has Req**

Enter "YES" if you want a student tested for the existence of course requests for the processing year.

- **Last Name From**

The first six characters of the student's last name in the Profile to be used in the "Last Name From – To" range comparison. Both the "From" and "To" range comparison. Both the "From" and "To" name must be keyed if either is keyed. Any student with a last name, the first six characters of which are not less than the "From" characters and not greater than the "To" characters, will pass the "IF" test.

- **Last Name To**

The first six characters of the student's last name in the Profile to be used in the "Last Name From-To" range comparison.

Delete Student Profile

Select the checkbox (so you see a checkmark), if you want a student's Profile to be deleted in the student meets the "IF" conditions and no "THEN" values have been entered. De-select the checkbox (so you don't see a checkmark) if you don't want a student's profile to be deleted if the student meets all of the

"IF" conditions. Once all of the fields have been keyed in, click on "Apply Mass Changes", if you want to execute these mass changes. If you do not want to apply the mass changes, you can either browse to another definition for mass changes or exit to the main menu by clicking on "Back to Main menu".

10.1.2 Change/Inquire Mass Change

To view or change an existing Mass Change Record, select the tab "Mass Changes" in the main menu and click on the desired button. You can browse through the mass changes by using the buttons "Prev. Mass Change" or "Next Mass Change".

If you want to change an information just click on the desired field and enter the new value.

10.1.3 Delete Mass Change

To delete an existing Mass Change Record, select the tab "Mass Changes" in the main menu and click on the desired button. Now, select the desired mass change definition by browsing through the mass changes by using the buttons "Prev. Mass Change" or "Next Mass Change". Then click on "Delete Mass Change" and confirm the following request with "Yes" to delete the mass change definition.

10.1.4 Select/Apply Mass Changes

To apply an existing Mass Change Record, select the tab "Mass Changes" in the main menu and click on the desired button. Now, select the desired mass change definition by browsing through the mass changes by using the buttons "Prev. Mass Change" or "Next Mass Change". If you click on "Apply Mass Changes" and confirm the following request with "Yes" the mass changes will be executed.

From the Select/Apply Mass Changes menu screen, you can Change/Inquire (view) your selection, deselect the selected records begin applying the selected mass changes, or exit.

10.1.5 Select Mass Change

Select the tab "Mass Changes" and click on the button showing the desired function. You can browse through the Mass Changes by clicking on "Prev. Mass Change" or "Next Mass Change".

10.1.6 Change/Inquire Selection

If you want to make changes, key in the changes and browse to the next Mass Change to store it.

10.1.7 Apply Mass Changes To Profile

This function allows you to apply the selected Mass Change Records to the Profiles selected. In the application process, all selected Mass Change Records (with desired changes) will be applied to all student Profile records in application sequence order (the order that the Mass Change Records were selected). If a student's Profile fields match all of the defined "IF" fields in a selected Mass Change Records, than that student's profile will either be modified (to match the defined "THEN" fields) or deleted, as specified.

To apply the Mass Changes to the Profile, click on "Apply Mass Change" and confirm the following request with "Yes". Processing will begin immediately. Each Profile record will be tested for the selection criteria (the "IF" condition) in each of the selected Mass Change Records. If a Profile record meets the conditions of a selected Mass Change Record, it is modified accordingly (the "THEN" condition) or deleted (the "OR" condition) and then tested for the selection criteria of the next selected Mass Change Record an application sequences number order until the selected Mass Change Records are exhausted. Then the next student Profile record in student ID order is processed until all Profile records have been processed.

HINTS:

Mass Changes to Profiles can be used to change groups of students from one homeroom to another, to group students for homeroom or counselor assignment, to promote students to another grade level and for any other profile-related function.

Mass Changes can be stacked to be applied at one time and they will be applied in the order that they are selected. Since the Changes can be stacked, the order of selection may be critical. For example, selection order is critical when updating current and next grade levels. When moving everyone up a grade level, the order should be from the highest grade level to the lowest. If the changes are not done in this order everyone could end up on the same grade level.

10.2 Mass Changes To Course Requests

This function is used to make course request changes to a group of students. The changes will be made only for students who satisfy certain specified conditions. The conditions which may be imposed are listed below.

The change can be for:

- All students – no conditions
- Students who are fully scheduled
- Students not fully scheduled
- Students of a particular sex
- Students with a specific scheduling priority level
- Students with a specific ethnic code
- Students with a specific shift
- Students with a specific location
- Students with a specific grade level
- Students who have course request
- Students who have requested specific courses
- Students who have requested a specific class or section
- Students who have not requested specific courses
- Students who have been assigned to a specific section.

This application may be used to:

- Delete a preferred request
- Delete an alternate request
- Delete a request whether preferred or alternate
- Add a new preferred request
- Replace preferred with new preferred request
- Replace alternate with new alternate
- Replace a preferred request with a specific class
- Replace an alternate request with a new alternate if that alternate is for a specific preferred request
- Replace an assigned section (class) with another section (class).

The mass change conditions and changes are entered to a data file. After all conditions and changes are entered, the Profile records and Course Request records are matched to the conditions. For students who pass the conditions, their course requests are updated. Mass Change Records may be created at anytime and will remain accessible until they are deleted. Mass Changes are applied to the Course Requests in the same manner as the Mass Changes to Profiles. The Mass Changes are created, selected, compared to the Requests, and applied if the requests meet the set requirements. As with the Mass Change to Profiles program, you can Add, Change/Inquire (view), Delete, Print, and Select/Apply Mass Changes to Requests. The entry screen for Mass Changes top Requests is also similar to the Profile Mass Change screen. It consists of three main entry sections: "IF", "AND", and "THEN". The "IF" section is used to identify the Student Profiles and the "AND" section is used to identify the request conditions to be

NOTE:

If no entries are made in the "IF" and "AND" fields, the Mass Change to Requests described in the "THEN" fields will be applied to all students.

10.2.1 Add Mass Change

Adding a Mass Change to Requests is similar to adding a Mass Change to the Profile. With the exception of the Record ID, all fields in the Add Mass Change Screen are optional. The Student Conditions which must be met are entered in the row labeled "IF", and the Course Request conditions which must be met are entered in the row labeled "AND". The Courses which will be used for adding, replacing or deleting course requests are entered in the row labeled "THEN".

Here are the entry fields and a brief description of each for the "IF", AND "AND", and "THEN" sections.

- **Record ID**
This may consist of up to 8 alphanumeric characters, and must be unique for each record. This is the only required field on the screen.
- **Title**
For the user's use in describing the Mass Change.

IF Section

- **Sex**
If you want to restrict student selection by sex, enter the sex code for those students you want to be included in the Mass Change.
- **Pri**
To select students by their Scheduling Priority, key in the desired Priority to be used. Lower characters have higher scheduling priority.
- **Eth**
To select students belonging to a specific ethnic group, enter the desired ethnic code here.
- **Shf**
If you want to select only those students scheduled to a specific shift, enter the shift number here. This will only apply when the school uses a multi-shift schedule.
- **Loc**
To select students by their Location code, enter the desired Location code here. This is especially useful in team teaching and Block scheduling. By identifying a group of students by Location, and restricting a group of Classes by Location, you can assure that the students will be placed only in those classes.

- **Grade Level**

To limit your selection to a specific grade level, enter the grade level desired here.

- **Fully Scheduled**

- Enter "YES" if you want only students who are fully scheduled (no preferred course request rejects) to be included.
- Enter "NO" if you want only students who are not fully scheduled to be included.
- Enter "REQ" if you want only students who have course requests in the scheduling year Request file.

AND Section

- **Course**

Enter a course code for comparison to the student's courses already requested, 1 to 8 alphanumeric characters.

- **Assn Sect**

Enter the course Section number that the student is scheduled to or is requesting.

- **Pri**

Enter the priority of the course to be used in the comparison. The valid fields are "R", "E", "O", "A". or Blank. If a value is keyed, the course comparison will also include a match on priority.

- **Semester**

Enter the semesters requested for the course to be used in the comparison. If a value is keyed, the course comparison will also include a match on semesters.

- **Type**

Enter a code for comparison of special request options for the course. The valid types are:

- T – Teacher Request
- N – Not this Teacher
- P – Prescheduled this section
- S – Section Request

Only those students having one of the Type options included in their course requests will be included in the Mass Change if this field is used.

- **Tchr / Sect**

The Section Number or Teacher ID completes the TYPE request described above. This field is required only if the Type field is used. An entry of T for Teacher Request or N for Not this Teacher in the Type field will require a Teacher ID in this field. An entry of P for Prescheduled this Section or S for Section Request will require a Section Number in this field.

- **Present / Absent**

An entry of "P" or "PRESENT" indicated that the course must be present in the students' course requests in order to be selected for the mass change. An entry of "A" or "ABSENT" indicated that the course must not be present in the students' course requests in order to be selected for the mass change.

THEN Section

- **Add**

An entry of "A" or "Add" indicated that the Course Request is to be added for students matching the selection criteria. If the New Request has a priority of "A" (Alternate), then an Old Preferred course must be keyed to indicate which course to make the New Request an alternate to. An entry of "R" or "Replace" indicated that the Course Request is to replace an existing course already requested by students matching the selection criteria. The Old Preferred and/or Old Alternate fields are used to indicate which course requests to replace with the course information denoted by the New Request fields. There are four configurations for replacing a course request to define exactly which course request to replace. They are:

- If an Old Preferred course request is indicated but an Old Alternate is not, then the Old Preferred will be replaced with the New Request.
- If an Old Preferred course request is not indicated but an Old Alternate is indicated, then the Old Alternate will be replaced with the New Request.
- If both the Old Preferred and the Old Alternate are indicated and are the same course code, then each occurrence of that course with a priority of "A" (Alternate) or a priority equal to the Old Preferred priority, will be replaced by the New Request.
- If both the Old Preferred and the Old Alternate are indicated but are different course codes, then a replacement will take place only if the Old Alternate course is found as an alternate request to the Old Preferred course with the corresponding priority. In this case, only the Old Alternate request will be replaced with the New Request data. The Old Preferred remains unchanged.

In all replace configurations, a New Request must be indicated and either an Old Preferred or Old Alternate course request or both must be indicated to define the desired configuration. If a scheduled request is replaced, the appropriate Class File seats are adjusted.

- **Delete**

An entry of "D" or "DELETE" indicated that the Course Request is to be deleted for students matching the selection criteria.

The Old Preferred and Old Alternate fields are used to indicate which course requests are to be deleted. There are four configurations for deleting a course. They are:

- If an Old Preferred course request is indicated but an Old Alternate is not, then all occurrences of the Old Preferred request with its corresponding priority will be deleted.
- If an Old Preferred course request is not indicated but an Old Alternate is indicated, then each occurrence of that course as an alternate request to any other course will be deleted.
- If an Old Preferred and an Old Alternate are indicated and are the same course code, then all occurrences of that course that are either an alternate request or have a priority matching the Old Preferred priority will be deleted.
- If an Old Preferred and an Old Alternate are indicated by different course codes, then a deletion will take place only when the Old Alternate is found as an alternate request to the Old Preferred with the corresponding priority. In this case, only the Old Alternate course request will be deleted. The Old Preferred request remains unchanged.

In all delete configurations, either an Old Preferred or Old Alternate course request or both must be indicated to define the desired configuration. With each deletion, the appropriate Class File seats are adjusted. If "R" (Replace) or "D" (Delete) is chosen, then either an Old Preferred or an Old Alternate Course must be specified or replacement or deletion.

- **Old Preferred**

The course code and section number of the Preferred Course to be replaced or deleted.

- **Old Alternate**

The course code of the Alternate Course to be replaced or deleted.

- **New Request**

The New course and section number to be added for students meeting the selection criteria, or the course to replace an existing Preferred or Alternate Course.

- **Pri**

For the Old Preferred or New Request, a priority code may be keyed for comparison or for additions. If the field is left blank, it will usually default to "R". It will default to "A" if an Alternate Course is being replace.

10.2.2 Change/Inquire Mass Changes

If you want to change an information just click on the desired field and enter the new value.

10.2.3 Delete Mass Change

Select the Mass Change you want to delete. Then click on "Delete Mass Change" and confirm the following request with "Yes".

10.2.4 Select/Apply Mass Changes

After creating the Mass Change Records necessary to implement your changes, you must select which records on file you would like to apply to the course requests. Then click on "Apply Mass Changes".

If you decide to apply the Mass Changes to the Request File, the Profile Records will be matched against all "selected" Mass Change Record, and all of a student's course requests match the conditions established in the "AND" fields, then the course additions, replacements, or deletions will be applied as keyed in the "THEN" fields.

10.3 Lock/Unlock Course Requests

This function is used to "lock" scheduled course requests into the section assigned, or to "unlock" course requests that have been previously locked.

When a course request is locked, an indicator is set in the Request File record for the course request to indicate to the scheduler program to reschedule that request to the same section on future scheduling runs. When a course request is unlocked, the indicator will be removed from the Request File record for that course request. You have the option of locking only fully scheduled students or unlocking only partially scheduled students. When the Lock/Unlock Requests function is selected, a screen will appear to allow you to choose to Lock or Unlock requests or to exit. Choose the appropriate Function Key to carry out the operation you desire.

10.3.1 Options

If you choose Course Requests to be locked or to be unlocked, you have these options:

- **All Students**

If you choose to lock the schedules of all students, you will be asked to choose between All Selected Students and Fully Scheduled Students

Only. This option allows you to leave the Partially Scheduled students open for rescheduling. After selecting your choice, Solstar locks the schedules of those students selected.

- **Individual Students**

If you choose to lock the schedules of Individual Students, the combo boxes containing the names and ID's of the students will be made available. Select those students you want to (un)lock.

- **Selected Grade Levels**

If you choose to lock the schedules of the Selected grade levels, the checkboxes with the grade levels will be made available. Select the grade levels you want to (un)lock. This option allows you to leave the Partially Scheduled students open for rescheduling. After you select your choices, Solstar (un)locks the scheduled of those scheduled selected.

10.3.2 Starting the (Un)locking

After you selected the options click on "Lock Requests", if you want to lock the course requests or on "Unlock Requests" if you want to unlock the course requests and confirm the following request with "Yes".

10.4 Course Substitution

Course Substitution can be used for "Block Scheduling" in situations where it is necessary to keep groups of students together for two or more classes. The user can enter one "dummy" course selection covering a set range of periods for a group of students. After the students have been scheduled and the range of periods has been set, the single course selection can be replaced with multiple course selections. This will assure that a group of students will attend the same sections for several courses. Students are scheduled to sections of an artificial course using multiple meeting times. After the final scheduling is replaced with multiple course and section offerings. In order to effectively use this technique, you must control the meeting times of the artificial course and the substitution courses so that the section numbers of the courses correspond and the sum of meeting times exactly match.

Selecting Course Substitution from the Mass Changes menu will display a screen with the Course Substitution functions:

- New Mass Change
- Change/Inquire Mass Change
- Delete Mass Change
- Apply Mass Change

10.4.1 Add Mass Change

If you click on "Add Mass Change" the screen will be emptied so you can select the course to be replaced and the replacement course(s). The entry fields are:

- **Replace Course**

Select the course you want to be replaced.

- **Course/ And Course**

The courses to be substituted. You can select from 1 to 8 courses to be used for substituting the artificial course. The courses to be substituted must have been entered into the Course and Class file, and the sections of the courses to be substituted must exactly match the section numbers of the artificial course. After the Course and Substitution Courses have been selected browse to the next Mass Change by clicking on "Prev. Mass Change" or "Next Mass Change" or exit the screen by clicking on "Back to Main menu".

10.4.2 Change/Inquire Mass Change

To change a Mass Change select the desired Mass Change and select the new data. Then browse to the next Mass Change by clicking on "Prev. Mass Change" or "Next Mass Change" or exit the screen by clicking on "Back to Main menu".

10.4.3 Delete Mass Change

Using this option, you can delete previously entered Mass Change records. Select the desired Mass Change. Then click on "Delete Mass Change" and confirm the following request with "Yes".

10.4.4 Apply Mass Change

To apply the Mass Changes select the desired Mass Change. Then click on "Apply Mass Change" and confirm the following request with "Yes". The Student Course Request File will be scanned for all students scheduled for each artificial course you specified. When a course is found, the course will be deleted from the Request File for the student. Then corresponding sections for the replacing courses will be added to the student's course requests and will be flagged as scheduled. Students who do not have an artificial course request will be ignored.

EXAMPLE: Assume you have the following artificial courses scheduled for students:

11 User Management

To enter the User Management select the tab "User" and click on "User Management".

11.1 Creating a new User

Go to the frame at the top. The name "hera" already appears there. If you click on the "New" button, you will be able to enter a new name, for example "Miller".

The **second column** is used to indicate until when this password should remain locked (for example if the password's owner will be absent for a long period). The program will block access to the relevant section for an hour, after a password has been entered incorrectly for **three times** in a row. You can disable this lock, by simply deleting the field's contents before entering it. If you enter a date into this field, access will be denied up to the stated date. You will generally never enter anything in this field.

In the **third column** you can enter a long interval, after which the password that is linked to a name must be changed. You should determine the interval (number of days) according to the frequency, with which the program is used. In the case of a teacher, who only uses the program occasionally and who is only permitted to gain access to a small amount of information, you can set a longer interval, than for someone, who has access to all information, may change all information and who uses the program every day.

The frames below display the rights that are linked to the selected column. You can assign basic rights or impose restrictions quickly in the frame "Edit Data" You can, for example, specify that someone may not gain access to information about teachers.

The frame "Other Authorisations", allows you to define the rights for import/export of data, printing of reports, performing scheduling runs, performing mass changes and the administrator right.

11.2 Deleting a user

You delete a user, by marking him on the left-hand margin. The entire line will then be marked with a bar. Press the "Delete" button and this line will disappear, after the deletion has been confirmed.

11.3 Setting a password

At the top you determined rights for a user. Then you set a password for him, under "Password". This user can only use the program, by entering his password. Since the password should only be known to the relevant person, he must select "Misc./User/Change Password" and enter a new password. You can change a user's password at any time with this item. If no password is provided for a new user, he will not be able to gain access to the database.

11.4 Administrator

The administrator has the following additional, special rights:

- Creating of user accounts
- Changing of user passwords
- Deletion of user accounts
- Set current/next processing year
- Clone yearly Data Files
- Delete Years

12 Useful functions

12.1 Years in Solstar

12.1.1 Set Current/Next Processing Year

This utility allows you to set the current and/or next processing years. The processing year(s) defined here determine the school year(s) in process for processing. Yearly files (such as Teacher, Course, Class, Option Files) can only be accessed by the system for defined processing years. At least one processing year must be defined. To define the processing year(s) select the tab "Options" and click on the button "Set current / next processing Year".



Figure 12.1: Define Current and Next Year.

Enter the year(s) into the desired box(es) and click on "OK" for your changes to take effect.

NOTE:

If you wish to use the Solstar ATTENDANCE or Grade Reporting system, you must define a current processing year, since processing for these systems is always for the current school year.

12.1.2 Clone Yearly Files

The Clone Yearly Files functions allows you to carry over data files from year to year. This function is useful in setting up a new year when the data will

basically be the same from year to year. The program will copy and rename the file, so your cloned date will be identical to the original. The Clone Yearly Files function is called up by selecting the tab "Options" in the main menu. Then click on "Clone yearly Data Files". The following window will be displayed.

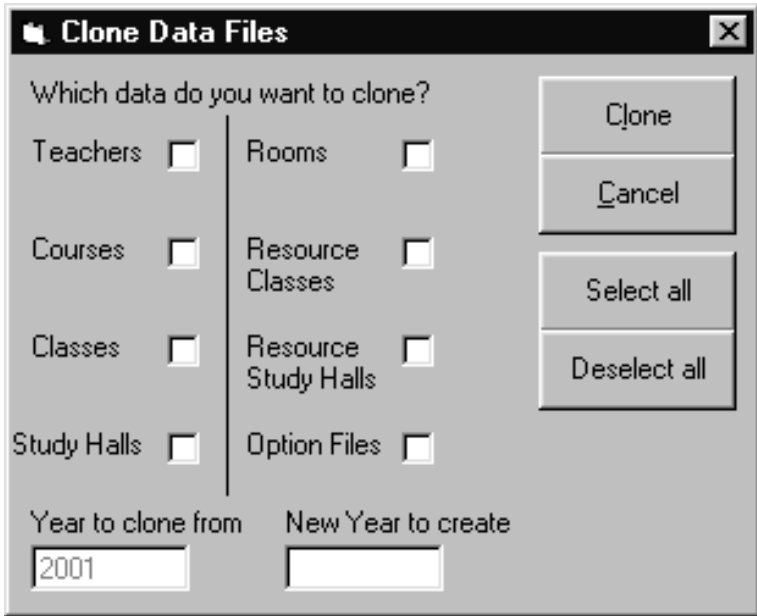


Figure 12.2: Transport Data Files into New Years

Here, you can choose which data to clone to the next year. Just click the checkboxes to select/de-select the desired data. If you want to select all checkboxes, just click on "Select all".

This might look like on the picture below.

If you made the required decisions just click on "Clone" and confirm the following request by clicking on "Yes" to start the cloning procedure.

12.2 Exchanging Data with Solstar-DOS

Actually this chapter describes the exchange of data between Solstar-DOS and Solstar-Windows. But you can also use this explanation as a basis for exchanging data with other programs since the data are stored as pure ASCII-text files and can be also imported from other programs.

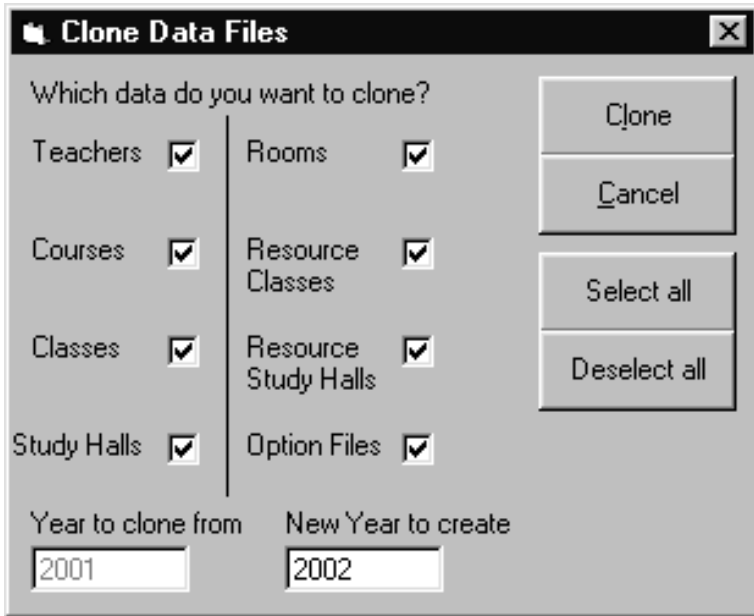


Figure 12.3: Selected Options and Set Year.

12.2.1 Importing Data from Solstar-DOS

The import of Solstar-DOS files is very easy. Click on the tab "Data" in the main menu.

How to create the data file within Solstar-DOS:

1. Go into the main menu
2. Press F3
3. Press F1 or F2, depending on the year you want to export
4. Press F4
5. Press F4
6. Enter the filename for the export file.
7. Press Return
8. Mark the sections you want to export with an "x" or mark "MERGE ALL FILES" with an "x" to export everything.
9. Press the RETURN key 3 times

Importing the data in Solstar-Windows:

1. Click on the tab "Data"

2. Select the sections you want to import. If you click on "Select all" each checkbox is selected.
3. Click on "Import from"
4. Choose the drive in which the file you want to import is located.
5. Click on the "->" button.
6. Choose the directory you saved the export file from Solstar-DOS to.
7. Select the file you want to import.
8. Click on the "->" button.
9. Click on the "Import" button.
10. Restart Solstar-Windows.

12.2.2 Exporting Data to Solstar-DOS

How to export the data from Solstar-Windows:

Exporting data from Solstar-Windows to Solstar-DOS is also very easy.

1. Click on the tab "Data"
2. Select the sections you want to export. If you click on "Select all" each checkbox is selected.
3. Click on "Export to"
4. Choose the drive you want to save the export file to.
5. Click on the "->" button.
6. Choose the directory you want to save the export file to.
7. Select the file you want to export.
8. Click on the "->" button.
9. You can enter a file name, if you do not want to use the one you selected previously
10. Click on the "Export" button.

How to import the data to Solstar-DOS:

1. Go into the main menu
2. Press F3
3. Press F1 or F2, depending on the year you want to import
4. Press F4
5. Press F2
6. Enter the filename for the import file.
7. Press Return
8. Mark the sections you want to export with an "x" or mark "BUILD ALL FILES" with an "x" to export everything.
9. Press the RETURN key 3 times.

12.3 Hotkeys in Solstar-Windows

12.3.1 Main topic hotkeys

- Students (Alt-S)
- Families (Alt-F)
- Rooms (Alt-R)
- Courses (Alt-C)
- Teachers (Alt-T)
- Classes (Alt-L)
- Study-Halls (Alt-H)
- School Options (Alt-O)
- School Address (Alt-A)
- Housing Codes (Alt-U)
- Conditional Period Patterns (Alt-P)
- Day Patterns (Alt-D)
- Semester Patterns (Alt-E)
- Import (Alt-I)
- Export (Alt-X)
- User Management (Alt-M)
- Student Scheduler (Alt-N)
- Quit (Alt-Q)
- Set current/next processing Year (Alt-Y)
- Resource Classes (F2)
- Resource Study Halls (F3)
- Edit Schedule (F4)
- Print Reports (F5)

12.3.2 Regular shortcuts

In any menu, where present:

- Back (Alt-B)
- Prev ... (Alt-P)
- Next ... (Alt-N)
- New ... (Alt-E)
- Cancel (Alt-C)
- OK (Alt-O)
- Print (Alt-P)

13 Service

Enquiries And Hotline

Enquiries And Telephonic Assistance: Providing a swift and knowledgeable reply to enquiries with regard to the Solstar-Windows requires a lot of resources. For this reason, assistance with regard to enquiries can only be provided under a maintenance contract for the Solstar-Windows.

Defects: Unfortunately even we are sometimes not perfect! It can therefore happen occasionally, that the program might contain an error. In order to be able to rectify such an error, we require the most detailed description that is possible. We in particular require the error message, which is displayed by the program, in addition to a description of the circumstances, under which this error occurs.

You should always try to rectify unusual behaviour on the part of the program, by reorganizing the information. Many problems disappear on their own in this way.

If a problem is also not solved after information has been reorganized, you must check whether the problem persists after the current intermediate update has been installed.

Suggestions For Improvement: The program is being improved on an ongoing basis. We therefore welcome your suggestions for improvement. We collect your correspondence and evaluate the suggestions for incorporation into the next update. Please accept, that it is not possible to implement improvements immediately.

Intermediate Updates

Solstar-Windows is updated continuously and known errors are rectified. In order to always remain up to date, the update can be downloaded on the Internet from our server: <http://www.haneke.com>

You require a password, to be able to install the update. You can obtain the password, by requesting it by e-mail from service@haneke.com Provide your customer address, when making the request.

The intermediate updates correct all technical errors in the program, which we were informed about, as well as small enhancements to the program.

Please install the intermediate update on top of the existing program. You do this, by retrieving the latest installation program, which you downloaded. The update must under all circumstances be installed in the same directory, as the one in which Solstar-Windows has already been installed.

During the installation, you will be requested to provide the password. You must enter your personal password, which is the one which you requested from us.

After the installation has been completed, the "Solstar.exe" file must contain a new date. Please check this. Your computer may also only contain one file, which is named "solstar.exe". If the menu for creating a new database appears the next time, after you have started Solstar-Windows, you must under all circumstances select the item for repairing and updating.

If you use a network, no computer may be operating while the installation is taking place. The update must be installed on all computers, which use the Solstar-Windows.