The Scheduling Build and Load Process

PowerSchool

Student Information System
## Document Properties

<table>
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<tr>
<th>Copyright</th>
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Introduction

Refer to the instructions in this book to complete each step in the ‘Prepare to Build’ process in PowerSchool Student Information System (SIS). If you are building your schedule, this is the process to follow:

Prepare to Build

Step A: Auto Scheduler Setup

Step B: Create Build Scenario(s)

Step C: Define Schedule Parameters

Step D: Create the Course Catalog

Step E: Define Rooms, Departments, Facilities

Step F: Define Student Information

Step G: Enter Student Course Requests

Step H: Define Course Information

Step I: Define Teacher Information

Step J: Define Constraints

Step K: Build Course Rank

Step L: Validate
Follow this process if you want to use a copied master schedule or a manually built master schedule to load students into based on their course requests.

Load Only

Step A: Auto Scheduler Setup

Step B: Define Course and Section Information

Step C: Define Rooms

Step D: Prepare Teacher and Student Information

Step E: Enter Student Course Requests

Step F: Manually Adjust the Master Schedule

Step G: Define Load Constraints

Step H: Load Students

Step I: Evaluate the Load

Step J: Explore Post-Load Options

Step K: Schedule Complete
Common Types of Schedules

### 5 day/7 Period Schedule

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### 6 Day/7 Period Schedule

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### Block Schedule 4 x 4 Block
(4 courses per semester)

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<th>Course 2</th>
</tr>
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<tr>
<td>8:30 – 10:00</td>
<td>English 10</td>
<td>Art</td>
</tr>
<tr>
<td>10:30 – 12:00</td>
<td>Social Studies 10</td>
<td>Geometry 1</td>
</tr>
<tr>
<td>12:00 - 1:30</td>
<td>Chemistry 1</td>
<td>Trigonometry 1</td>
</tr>
<tr>
<td>1:30 - 3:00</td>
<td>French 1</td>
<td>Physics 1</td>
</tr>
</tbody>
</table>
### Schedule for an A/B Block Day

<table>
<thead>
<tr>
<th>Time</th>
<th>DAY A</th>
<th>DAY B</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 - 10:00</td>
<td>English 10</td>
<td>Art</td>
</tr>
<tr>
<td>10:30 – 12:00</td>
<td>Social Studies 10</td>
<td>Geometry 1</td>
</tr>
<tr>
<td>12:00 - 1:30</td>
<td>Chemistry 1</td>
<td>Trigonometry 1</td>
</tr>
<tr>
<td>1:30 - 3</td>
<td>French 1</td>
<td>Physics 1</td>
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</table>

### A Traditional 6 X 4 Schedule

<table>
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<td></td>
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<tr>
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</tr>
<tr>
<td></td>
<td>Comp. 1</td>
<td>Comp. 1</td>
<td>Comp. 1</td>
<td>Art</td>
</tr>
</tbody>
</table>
Common Questions To Consider Prior to Scheduling

Some questions to consider prior to beginning the scheduling process may be but not limited to the following questions:

- How many periods per day?
- How many days per cycle?
- Does every course meet the same number of periods?
- Do all courses meet the same amount of days?
- If no, how many different day combinations are there?
- What are some constraints on the schedule in terms of time (days, periods, etc.), teacher availability, space?
- Are teams going to be used?
- How does the school plan to get the student requests into the system? Are they going to use the student request screens, manually enter them or import them?
- If the basic structure of the current master schedule is going to remain the same, it may be in the school’s best interest to copy the master schedule then schedule their students by performing the Load Only procedure to complete their scheduling process.

Once these issues are addressed and decided on, the school is ready to prepare to create their schedule. The school should also know whether or not they will be doing and Build and load or a Load only before they begin.
Set Up

Years and Terms

Automatic Schedule Set-up

When beginning the scheduling process for a Build or Load Only situation, the school will need to create years and terms. There are two ways to enter Year and Term information. One way to enter this data is to manually enter the information. Another is a new feature called Automatic Schedule Setup. To use this feature, follow the path:

Start page > PowerScheduler > Automatic Schedule Setup

The screen below appears. Select the appropriate selections and click Continue.

Start Page > PowerScheduler > Automatic Schedule Setup

Automatic Schedule Setup

| Option                      | Value
|-----------------------------|-------|
| Lowest term level division  | Quarters
| Number of periods           | 9     |
| Number of days              | 1     |

Continue

The screen below appears. Select the terms that you wish to schedule. Click Continue.

Start Page > PowerScheduler > Automatic Schedule Setup - Schedule Term Selection

Automatic Schedule Setup - Schedule Term Selection

- Full Year
- Semester Semester
- Trimester Trimester Trimester
- Quarter Quarter Quarter Quarter

Continue
The screen below appears. Define the term begin and end dates based on your school calendar for the upcoming school year. Click Continue when data entry is completed.

**Note:** The dates can be adjusted anytime during the scheduling process. It is recommended that the user be sure of the correct dates prior committing. It is safe to change the dates after committing, however this should be done prior the 1\textsuperscript{st} day of the term.
The Scenario set-up page appears. Complete your scenario set-up. See the screen below.

Using the Automatic Schedule set-up bypasses the manual entry of the Years and Terms information and assigns the internal numbers automatically and sequentially. The Automatic Schedule Set-up feature can be run multiple times, however, each time it is run, it will overwrite any previous Years and Terms information and replace that information with the newly entered data.
Manual Entry of Years and Terms

To enter the Year and Terms information manually, follow the path:
Start Page > PowerScheduler > Schedule Years and Terms

The screen below appears. Click New.

The screen below appears. Enter the appropriate information as illustrated by the example below. Click Submit when data entry is completed.
To add additional terms, click the Edit Term link.

The screen below appears. Click new to enter additional terms.

The creating and sequencing of terms are critical. As illustrated in Figure A, the internal numbers for `sched_terms` are generated in sequence upon creation. The largest block of time should be created first, this being the year term (i.e. 2004-2005). The semesters usually follow with Semester 1 being created next. If the school uses trimesters instead of semesters, Trimester 1 would be created after the year term. In short the sequencing is dependent on the largest portion of the school year that term represents. The largest portion is ALWAYS the first term to be created.

The order of the internal numbers (see Figure A. below) MUST be in sequence. If the years and terms were not created in the correct order they must be corrected prior to any course setup. The incorrect terms must be deleted in sequence and then recreated in the correct sequence. This will save a lot of time and prevent confusion should problems occur that would necessitate importing of data into PowerSchool. Adjustment of the Years and Terms after the course preferences have been entered causes havoc on the bitmaps; which the “Regenerate Bitmap” function still cannot correct. These bitmap errors will prevent a successful run of the build. If term was entered in error or out of sequence, click on Delete and the selection will be removed.

Enter all pertinent information using the examples on the page as guidelines. Click Submit when data entry is completed.
Note: Prior to 2003 PowerSchool could only handle a one-day schedule. Currently, PowerSchool supports a schedule with up to 99 periods, 26 days and 99 terms.

It is important to remember that the Scheduling side only deals with scheduling and NOT grades. If the school has courses that are GRADED by the quarter, but all are actually a semester long courses, these courses should be scheduled as semester courses.

A common misconception is that the scheduling terms must also coincide with how they award credits and/or grades. This is not the case. The years and terms in the scheduling area are only associated with how the courses are scheduled. The grades and credit for any particular course is dealt with during the “End of Term Process,” long AFTER the schedule is committed to the active side.

Course Catalog

The list of courses that the school will offer next school year is referred to as the course catalog. Courses in the course catalog are copied from the Master Course List that houses all the courses available to the district. Not all courses on the Master Course List are available for the catalog within a particular school. In order to appear for selection on the scheduling area, these courses must be made active on the live side, regardless of whether or not that course is being offered for
the current school year. Without activation on the live side, the course cannot be accessed on the scheduling area for the upcoming school year.

It is highly recommended that any **new** courses that are not yet entered in the Master Course list (on the live side) that will be offered in the upcoming school year should be created prior to creating the scheduling course catalog. To edit the course catalog, under Parameters on the Scheduling menu, follow the path:

Start Page > PowerScheduler > Catalogs

The screen below appears

---

Once entered and activated, the new courses can be added to the scheduling course catalog by clicking the Edit Course Catalog function. This screen will display the course list that the school can use to associate to that particular scheduling catalog. Select or deselect a course by checking or un-checking the box adjacent to the course name. Only courses that are selected on this screen will be associated with that school, that build and that catalog.
Since the course catalog is in the scheduling area, one can edit information in the course catalog without affecting the courses set-up on the school's master course list that is on the active side. For example, one may want to change the credit hours for a course for scheduling course request purposes, but revert to the course's real credit hours when committing schedules for the next school year. Once a master schedule is committed, the course information, including credit hours, is retrieved from the district level and is not overwritten by anything changed in the scheduling area. Other than in calculating credits requested, credit hours do not have anything else to do with scheduling.

There can be more than one course catalog. Course catalogs are associated with builds, and a catalog is only active when it is associated with the active build scenario. This also means that you can only edit courses in the catalog that is active.

If a school chooses, the same course catalog can be used from year to year by merely updating the courses added or removed from the catalog.
Scenario

Before creating build scenarios, the school needs to know the basic build information, such as the number of terms, days, and periods in their master schedule. When building the master schedule, PowerSchool evaluates every possible schedule combination before it adds a course to that schedule.

To create a scenario, follow the following path:
Start Page > PowerScheduler > Scenarios

Click new.

- Select the appropriate radio button for a Build or Load only scenario.
- Name your build and make the build the active by clicking the selection.
- As an option, you can add a description of the build.
- Associate terms to this scenario by clicking Associate. Select the appropriate terms from the pop-up window and click submit when done. The information will populate this field.
- Select the number of Periods and Days from the drop down menus.
- Select the Course Catalog from the drop down menu.

See page below:
# Edit Build Scenario

## Build Information

- **Build and Load**
  Use this scenario setting to build a master schedule and load students into the built schedule.

- **Load Only**
  Use this scenario setting if a master schedule is copied or imported and you need to only load students.

### Build Name

- **2005 - 2006**
- **Active Build**

## Build Description

- **Automated Schedule Setup**

## Terms

- **4**

## Periods

- **9**

## Days

- **1**

## Course Catalog

- **2004-05**

## Build Optimizations

- **Percent of schedule combinations to evaluate for each course**
  - **10**
- **Minimum number of schedule combinations to evaluate for each course**
  - **10000**

## Load Optimizations

- **Percent of schedule combinations to evaluate for each student**
  - **10**
- **Minimum number of schedule combinations to evaluate before skipping**
  - **10000**

## Best Schedule Weights

- **Student conflicts**
  - **50**
- **Section balance**
  - **50**
- **Total**
  - **100**

---

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Note: If using the Automated Schedule Setup, this page will automatically appear when all the term set-up pages have been completed. Based on the information entered, that information will populate the Build Name, Build Description, Terms, Periods, and Days fields. The user will need to select whether this is a Build or Load, Activate the Build and select the course catalog. (see picture below)

**Edit Build Scenario**

<table>
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<tr>
<td><strong>Load Only</strong></td>
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<td>Use this scenario setting if a master schedule is copied or imported and you need to only load students.</td>
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<td>Percent of schedule combinations to evaluate for each course: 10</td>
</tr>
<tr>
<td>Minimum number of schedule combinations to evaluate for each course: 10000</td>
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</table>

Usually, the default build and load optimization parameters are left alone. It is at a build workshop with an experienced trainer or on the phone with Technical Support that these parameters should be adjusted.

The build parameters define how much time the system will spend scheduling each course and student. Depending on the school’s courses, constraints, and other schedule parameters, there could be millions of ways to schedule a single multi-section course. Evaluating all of these schedule combinations would take many hours. The wrong parameter settings will cause the system to take too much time or not take enough time to figure out the best way to schedule each course and section.
Load optimization parameters define the minimum and maximum number of possibilities the system should evaluate while loading the student schedules. The percent of schedule combinations to evaluate for each course and student has default values of 10. The customer should change this value only if they encounter problems with the amount of time the system is using to evaluate a schedule for the students.

As an example, if they enter 25, the system evaluates one-quarter of the possible schedule combinations for each course or student schedule. If you enter 75, the system evaluates three-quarters of the possible schedule combinations for each course or student schedule.

The minimum number of schedule combinations to evaluate before skipping for each course has a default value of 10,000. This value is changed only if the school encounters problems with the amount of time the system is using to build the master schedule. By entering a high number, the system is forced to sample a minimum number of student schedule course possibilities.

For courses with few possible combinations to begin with, such as singletons, leaving this number high prevents the system from attempting too few schedule combinations and not being able to fit the course into the schedule. Typically, courses that have a history of being difficult to schedule require higher combinations in order to be scheduled.

**Advanced Build Scenario Settings**

In addition to the build and load optimization fields, on the Edit Build Scenario page, there are a number of more advanced optimizations. Edit these fields only if you encounter problems while building your master schedule or loading student schedules and only with the assistance of an experienced Scheduler trainer or a Technical Support Specialist

*Note: If you are able to run a successful build and load students into schedules satisfactorily, do not edit the Advanced Optimization fields.*
On the Scenarios page, select the Edit link under the Advanced heading. The screen below appears:

- The default value of the “Use dynamic student load on all combinations until (n) sections” field is 4. This means that of the course has up to 4 sections, the system will score those sections precisely when loading students. Entering a value of 5 or greater in this field will direct the system to score courses with fore or more sections less precisely.
- The Random Seed Number value default is 123. This field is changed only to test the randomization feature,
- Use Buildings is checked if this scenario uses buildings
- Use Houses is checked if the scenario uses houses.
The “Swap rooms after building each course” default value is True. At times it isn’t possible to schedule a teacher in his or her preferred room due to room shortages or cross teaching across departments. A checkbox here will direct the system to swap rooms as soon as a conflict arises. Deselecting this box will limit the system to the teacher’s preferred rooms. After the schedule has been built, the user can make manual adjustments.

The “Use swap rooms on master in sections” default value is False. This is in place for the purpose of retaining the manual room changes a user has made on a schedule that is not yet completely built. When the build is restarted, the system will not swap those rooms therefore retaining any manual changes made.

The default value of the “Calculate future assignments for better combinations” is True to ensure that the system will take the time to make sure that course assignment decisions made now are smart ones. Because this process can be extremely time consuming, the user has the option of adjusting the amount of the time the system spends on future assignments.

The “percent of future assignments to calculate after teacher is scheduled” field is used to fine-tune the amount of time that the system spends scheduling each teacher. The number used in this field will represent what percent of time a teacher will already be scheduled before the system starts calculating future assignments for him or her. The higher the number, the faster the system will move and the greater the chance that this teacher will encounter scheduling conflicts.

The default value of the “Maximum time to spend on future assignments” is .1 second. If an error on the build log states that the system ran out of time when calculating future assignments, the value in this field should be increase.

The default value of 2MB is set for the “maximum memory allowed for teacher assignment optimization.” This value can be increase only if the system that the build is running on has a great deal of memory, which in turn could increase the speed that the build runs.

The “Maximum time to spend on teacher assignments sort optimization” has a default value of .25 seconds. The order in which the system selects teachers to schedule is very useful; however, leaving the default value ensures that the system will not spend an excessive amount of time determining this order.

The “Maximum repeat count for validation error messages” has a default value of 25. This setting minimizes repeated error messages on the Build and Load logs to the value in this field. If a user wished to see all the error messages, repeated or not, they can change the value to any number above 25.

The Section-type handling field in not an editable field. By default, the section type handling has been strict.
Duplicate Scenario

Schools can create one or several build scenarios. The system will use the scenarios and parameters that the school defines to build the master schedule. (Important: See note on scenario duplication below)

When a scenario is duplicated, items copied over are the Teacher Assignments, Constrains and Course Relationship. If the student schedules are to be copied over, the Master Schedule must also be copied. The screen below appears when you follow the path:

Start Page > PowerScheduler > Scheduling Functions > Duplicate Scenarios

Notice: When duplicating the scenario, it is important to inform the schools that certain information is shared across scenarios. These items are in tables that house the course information, teacher information, room information, student information as well as days, periods and terms information. If any data is changed in those tables in the active scenario, it will also change in the inactive one(s).
Periods

To build a master schedule, the system requires periods. The number of periods that a schedule will utilize is determined by the school and entered when a scenario is created. If the school plans to work with a copy of a previous year’s master schedule, the periods will remain the same as they were in that copied schedule.

Periods are portions of time within the school’s schedule. The actual time a period starts or concludes is irrelevant. For example, if a school has 7 periods in a one-day cycle that runs 45 minute periods and another day that has the same amount of periods but they run 30 minutes instead, the engine doesn’t recognize the time difference and views both days as identical even if the amount of time each period runs differs. The time factor is dealt with on the active side by using the Bell Schedule Feature.

The number of periods to label is determined by the number indicated when the scenario was first set-up.

To label periods, follow the path:
Start Page > PowerScheduler > Periods > Add/Edit Period

The screen below appears. Enter the appropriate information and click Submit when done.
The sort feature selects a sort order for displaying the periods on the Master Schedule.

**Days**

To build a master schedule, the system requires days. The school determines the amount of days they have prior to the start of the scheduling process. Once determined, this figure is entered when they complete the scenario information.

Days are also known as cycles. A day or cycle is the number of repeating days that comprise the schedule such as a 1, 2 or 3 day cycle. Days in a cycle are often called, Day 1 or Day 2; Day A or Day B: Green or Blue; or any other variation the school can think of. The system will only handle 26 days, the number of letters in the alphabet.

Keep in mind that a cycle is NOT the same as a calendar day of the week. Schools sometimes confuse days with the days of the week. It is essential that the user completely understand the concept of days in order to achieve the exact master schedule that they have envisioned.

The number of days to label is determined by the number indicated when the scenario was first set-up.

To label the days, follow the path:
Start Page > PowerScheduler > Add/Edit Day

The screen below appears. Fill in the appropriate information. Click Submit to record your changes.

**Edit Days**
This is an example of a 5-day cycle (Figure A) and 1-day cycle (Figure B)

### 5 day / 7 Period Schedule

<table>
<thead>
<tr>
<th>Reading</th>
<th>Writing</th>
<th>Reading</th>
<th>Writing</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 9</td>
<td>Math 9</td>
<td>Math 9</td>
<td>Math 9</td>
<td>Math 9</td>
</tr>
<tr>
<td>History</td>
<td>History</td>
<td>History</td>
<td>History</td>
<td>History</td>
</tr>
<tr>
<td>LA</td>
<td>LA</td>
<td>LA</td>
<td>LA</td>
<td>LA</td>
</tr>
<tr>
<td>PE 9</td>
<td>LAB</td>
<td>PE 9</td>
<td>Study</td>
<td>PE 9</td>
</tr>
<tr>
<td>Music</td>
<td>Study</td>
<td>Music</td>
<td>Office Aide</td>
<td>Music</td>
</tr>
</tbody>
</table>

(Figure A)

### 1 day / 7 Period Schedule

<table>
<thead>
<tr>
<th>Reading</th>
<th>Reading</th>
<th>Reading</th>
<th>Reading</th>
<th>Reading</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>History</td>
<td>History</td>
<td>History</td>
<td>History</td>
<td>History</td>
<td>History</td>
</tr>
<tr>
<td>LA</td>
<td>LA</td>
<td>LA</td>
<td>LA</td>
<td>LA</td>
<td>LA</td>
</tr>
<tr>
<td>PE 9</td>
<td>PE 9</td>
<td>PE 9</td>
<td>PE 9</td>
<td>PE 9</td>
<td>PE 9</td>
</tr>
<tr>
<td>Music</td>
<td>Music</td>
<td>Music</td>
<td>Music</td>
<td>Music</td>
<td>Music</td>
</tr>
</tbody>
</table>

(Figure B)

As illustrated the whole cycle of courses recycles after the 5th day (Figure A). A one-day cycle would have the same courses run every day with no variance (Figure B).
Houses

To create Houses, follow the path:
Start Page > PowerScheduler > Houses

The screen below appears. Click New to add a House. Labels are limited to 10 characters.

![Houses screen]

To edit a House, click on the blue name link then edit. Click Submit to record the change.

Add/Edit House

<table>
<thead>
<tr>
<th>Option</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>House</td>
<td>Brick (Limit 10 characters)</td>
</tr>
</tbody>
</table>

![Add/Edit House form]

Some schools separate students into houses or more commonly known as “small learning communities.” For example, assume the school has Early House, select students from Grades 9-12 and the Late House B, the remaining students from Grades 9-12. The school then determines which rooms, teachers, and students belong to each house. The system references which house a room is assigned to before scheduling courses in that room and gives scheduling priority to the appropriate house. Not used much in the West Coast, it is sometimes used in the East coast.

Note: Houses are attached to Rooms, Teachers and Students. The "Use House" flag is set up in the Advanced Scenario Settings page.

Edit Advanced Build Scenario

![Edit Advanced Build Scenario]

If the "Use house" flag is set to be true, the sections will be assigned to Houses based on what teachers in the sections are assigned to. If a student is assigned a House, he/she will be assigned to a section with the same House. If a student is not assigned to a House, he/she can be assigned to any section with or without house.
Section Types

Section types are special sections of a course. Select the New button to create additional section types. A school might offer a separate section of a course for Special Education students. In this case, one section of a course called Language Arts with 3 sections, one of which will be identified as a Special Education section. The teacher who instructs this section will have a Special Education section type assignment. The students' requests will also reflect the Special Education section type. In addition, the “Use Section Types” box on the course preferences screen must also be selected.

To create Section Types, follow the path:
Start Page > PowerScheduler > Section Types
The screen below appears. Click new to add a Section Type.

Enter a Section Type and assign it an appropriate Section Type code. See example bellow. Click Submit when data entry is complete. The section Type is limited to 20 characters and the Section type code is limited to 2 characters.

Add/Edit Section Types

Students who request a course without section type will simply get into sections that are not assigned a section type (section type = NULL) while student requests with section types get assigned to sections with matching section types.

Note: PowerSchool does not support any teaming/blocking relationships between any courses with section types.
Teams

Some schools, most often middle or junior high schools, assign students and teachers to teams to provide the best support and monitoring system for the students.

The Teams page displays the team name and number. The *team id number* is used when using the “Update selection” feature to mass change or mass assign the team for a group of students. Not using the team number will cause build and load errors.

*Note: In both Static and Dynamic teaming, teachers are grouped together.*

Teams are either static or dynamically assigned.

If a school desires static teams, the students must be manually assigned to a particular team. The students can be pre-assigned to a team that we call "static team" or assigned to a team on the fly as they are loaded which we call "dynamic team".

If dynamic teams are needed, the school defines the team names and assign teachers to the teams, but then allows the system to decide which students to assign to which teams for the best possible balance.

Also in the case of Dynamic Teaming, the teachers are on a team together. For example, Shawn’s request for a Math course is satisfied by Mr. Johnson on the Bears team and every other academic request is filled by a teacher or teachers that are assigned to the Bears team.

If you team the students, they travel from class to class with a teacher on the same team, but it doesn't always mean they travel as a group of kids. The system would dynamically assign them to a section. If the user wants to control the rosters, the Load Constraint of “Section Links” (See Load Constraints) is used to accomplish that task.

The Teacher Team constraint, (See Build Constraints) assigns the teacher to a team so that students will have one of the teachers on their team. The course must also be flagged to use teams. Teachers can have a default team by using the "Teacher Team" constraint to assign teachers on different teams for different courses. The same teacher can teach multiple different teams for the same course.
Note: If any type of teaming is used, the teachers **MUST** be assigned at team. You cannot just team the students.

During the loading of a student into his/her sections, the student's team should match the section's team if the section has a team or the course of the section uses team.

The rules are:
1. If the student has team ("static team"), he/she can only be assigned to sections with matching team.
2. If the student does not have a team, it depends on the very first section the student assigned to, the team of that section will become the student's team and from then on he/she can only be assigned to sections with the same team.

Note: The “Relaxed” section type was never supported by the engine. It also did not throw an error when a user chose the “Relaxed” section type in the Edit Advanced Build Scenario Page under the Section type handling.

Strict teaming designated that the students assigned to a particular team can only be enrolled in a section assigned to the same team. The students not assigned to any team will only end up in a section that is not tagged with teams.

When a course is flagged as "UseTeam", NULL team is considered as actual team. As a result, only students with NULL team can be assigned to NULL-team sections.
Facilities

Some courses require special equipment or facilities. For instance, the Home Economics course requires the room that has the equipment such as the stove or sewing machines. These unique items make it a necessity for the class to be scheduled in those particular rooms. To associate courses that need special amenities, the system uses Facilities. You can assign multiple facilities to courses and rooms.

To create Facilities, follow the path:
Start Page > PowerScheduler > Facilities

The screen below appears. Click new to create a new facility.

Facilities
Build: Test  Catalog: Test

The screen below appears. Facility name is limited to 20 characters. Click Submit when data entry is completed.

Add/Edit Facility
Option Value
Facility (Limit 20 characters)
Submit
Buildings

Some school campuses contain several buildings. Each of these buildings can be defined. The buildings can then be associated with students, teachers, and rooms. The system will then know to schedule courses in the appropriate building, taught by the appropriate teacher, and taken by the appropriate students.

To create Buildings, follow the path:
Start Page > PowerScheduler > Buildings

The screen below appears. Click new to create a new Building.

The screen below appears. Building names are limited to 10 characters. Click Submit when data entry is completed.
Departments

Courses, rooms, and teachers belong to departments. When building the master schedule, the system attempts to schedule courses in one of the rooms belonging to the appropriate department.

To create a department, follow the path:
Start Page > PowerScheduler > Departments

Click New. The Screen below appears.

Department names are limited to 10 characters. Click Submit when data entry is completed.
Requesting

Before you can enter student course requests for next year, define grade-level requirements, and create course groups and student course request pages for each grade level. Then, enter student course requests.

Items to consider before collecting course requests could be:

- Who request courses at the school?
- When is the deadline for submitting the requests?
- How are the requests going to be entered into PowerSchool? (Import, Manually or via Course Request screens)
- What type of requests will each grade need to select?

Collect the following information for each grade level. This information is used to create course groups and course request pages for each grade level.

- Required courses
- Number of credits students must earn
- Possible semester elective courses
- Possible yearlong elective courses
- Possible no-credit courses
- Number of terms for each request
- Before- or after-school courses
- Possible lunch periods

Types of Course Requests

Required courses are courses that a student must take to fulfill a graduation requirement.

Elective courses are courses that a student chooses to take. This course may or may not fulfill a graduation requirement.

Alternate courses are courses that act as a substitute for an elective course when necessary. Keep in mind, alternate requests can only replace elective courses.
A sample of a 9th Grade Request page could illustrate the following:

*Every 9th grader takes a course from each of the following choices:*

- Honors English 9, College Prep English 9, English 9
- Honors World Civilizations, World Civilizations
- Honors Algebra, Algebra, Pre-Algebra, Basic Math
- Honors Biology, Biology, Life Sciences
- Spanish 1, French I, American Sign Language

*Every 9th grader must take Health and PE.*

*Every 9th grader chooses two courses from the following list:*

- Art 1
- Music 1
- Computer Education 1
- Business 1
- Wood Shop 1

Request considerations could include questions like:

*Must the student take the course selected?*

An example in this case could be a 9th Grader must choose between Honors English 9, English 9 or College Prep English 9.

*Can the student leave the selection blank if they wish?*

An example in this case could be a 12th Grader has already fulfilled all his Foreign Language requirements and opts not to take a 3rd year of French.

*How many electives does a student request per grade level?*

*Should you permit Alternate Course Requests?*

Keep in mind that Alternate Course Requests can only replace Electives. It also increases your overall percentage of courses scheduled and requests fulfilled.

*What should I consider about Course Substitutions?*

Global Substitutions are found on the course reference page. This function will select the first, second or third course substitution you want the system to schedule for every student who cannot be scheduled in the selected course. For example, if any student requesting Ceramics can’t get into this class, he or she can get Sculpture instead. This substitution is
global among all students who request the course. This feature is on the Course Preference Page.

Individual Student Request Alternates allow the student to dictate which course can act as a substitute for any given elective request. For example, a student requests the Honors English 9 course, however, if it is not possible, they can take College Prep Eng 9. This feature is found on the Student Requests page.

Before you begin the requesting process, the more time spent deciding on the factors mentioned will save the user an enormous amount of time later and it will also yield a favorable success percentage in the end.

Note: It is highly recommended that the course request pages be designed to accommodate the average student. The screens should be geared for the majority, not the minority. Students also need to know what electives are going to be available to them, per grade level?

There are several ways to enter course requests into the system.

1. Users can create screens for their students or counselors to enter the requests.
2. Counselors can enter the data manually.
3. The requests can also be entered via data import.
Course Groups

To enter course requests using the Course Request Screens in PowerSchool, the Course Groups used in the creation of the request screens are first defined. Follow the path:

Start Page > PowerScheduler > Course Groups

Click new and the screen below appears.

![Course Group Creation Screen]

Enter the Course Group name. If there are multiple high schools on your server, you may want to create a system for naming your course groups so that they sort in a certain way. For example, you might call Apple Grove High School’s course group containing ninth-grade core courses AGHS-9-Core Courses. If you followed this system, all of your high schools would sort together, as would the grade levels within them.

Indicate via the dropdown whether this group is to be used for Scheduling only, Graduation Sets only or both. Select the appropriate Radio button to indicate its use for all schools on the server or only the school you are working with.

Select the checkbox next to the name of each course that should belong to this group. Click Submit. The course group you just created appears in the course group menu. This group is now available to use in setting up request pages. Repeat this process for all course groups needed for each grade level at your school.
Requests

Note: In v. 3.7 and above, the Course Request screen setup follows the logic that clicking Grade 9 means, future 9th Grades, current 8th grades will be viewing that screen.

Screen Set Up

Choose the appropriate grade level in the grades menu. For example, to create a course request page for next year’s 9th graders, choose Grade 9. The Grade [level] Request Screen Setup page appears.
• Select the “This Grade may Register for Classes” button to enable students with access to register on the web, via the parent or student portal.

• Enter a minimum and maximum number of credits needed to complete the requesting process. For example, you could enter 5 for Minimum and 7 for Maximum, thus ensuring that no student takes less than five or more than seven courses. Should the student veer from the requirements, an error page will appear notifying the student to go back and complete the process correctly.

Note: Leaving the Minimum and Maximum fields blank makes it possible for students to request too many or too few credit hours.

• Enter the message you want to display on the page in the blank field. Click Submit. Now, create the requirements to display on the request page for this grade level.

• Because course requirements vary for each grade, you can create new or edit existing course request pages for each grade level in your school. Request screens must be re-created for each scheduling year.

• The Next School Indicator field points to the school students will attend next year. For example, your school district consists of two high schools and three junior high schools. An eighth grader entering student course requests will view the request page for the high school set as his or her next school. Other eighth graders, whose next school is set to the other high school, would view a different request page.

Note: It is a requirement to set all students’ next school indicator, even if they will be staying at the same school next year.
Single Class Requirements

Requirements make up the body of the request page, informing students which courses they must take and offering them selections from course groups. There are three types of requirements:

- Single class requirement: Students make one selection from a course group. The screen below will appear:

![Single Class Requirement](image)

- Enter a name for the requirement, such as 9th Grade Math.
- Enter a description or instructions for students to read on the screen so they understand exactly what they need to do to meet this requirement. For example your message could read:

> You are required to enroll in one Math course. Use the pop-up menu to make your selection from the list of available courses.

- Use the pop-up menu to choose the course group you want students to make their selection from. Enter what you want the first item of the pop-up menu to read. If you want the first item to be blank, enter an asterisk (*). The user can also elect to enter a message such as the one below:

> Choose one of the following:
• Choose either "Must select one" or "Can leave blank" from the pop-up menu. If you chose "Must select one" in the previous field, you can enter an alert message students will receive if they do not select one of the courses in the group. If you do not enter a specific message for this requirement, the system displays a generic system generated message.

• Use the pop-up menu to determine if the request is an Elective, an Alternate or a Required course.

• Use the pop-up menu to choose the number of requests that should be generated when this requirement is selected. For example, if Math is a yearlong course but sections operate on semesters, choose 2 for two requests. Semester electives may only need one request.

• Enter a number between 0 and 100 to indicate the order in which you want this requirement to appear on the request page you are creating.
Multi-Class Requirements

- Multi-class requirement: Students make a number of selections from a course group. You define the number they must select.

You are required to enroll in one Math course. Use the pop-up menu to make your selection from the list of available courses.

- To present the list of courses on the screen, select one of the following options to determine how you want the system to display the list of courses in the course group:
  - As a scrolling list: If you select this option, enter the number of lines you want the system to display before the student must scroll to see the other courses in the list.
  - As plain text: This is the most common selection for this field.
  - Don’t display the list

- Use the pop-up menu to determine if the request is to be an Elective, an Alternate or a Required course.

- Use the pop-up menu to choose the number of requests that should be generated when this requirement is selected. For example, if Math is a yearlong course but sections operate on semesters, choose 2 for two requests. Semester electives may only need one request.

- Enter a number between 0 and 100 to indicate the order in which you want this requirement to appear on the request page you are creating.
Core Requirements

- Core requirement: Students view a set of requests that you predefine for them, such as core classes for ninth graders. Students cannot make or change selections.

  **Grade-Specific Requirement For Course Requests: Grade 10 (Future)**

<table>
<thead>
<tr>
<th>New Core Requirement</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirement Name</td>
<td>English 10</td>
</tr>
<tr>
<td>Description/Instructions: Advise students on how to comply with this requirement</td>
<td>All tenth grade students are required to take English 10. In this course, all tenth graders will learn the fundamentals of effective writing and expand</td>
</tr>
<tr>
<td>List of valid courses for this item</td>
<td>HIS English 10</td>
</tr>
<tr>
<td>How to present the list of required courses</td>
<td>As a scrolling list</td>
</tr>
<tr>
<td>Number of requests to generate per course</td>
<td>1</td>
</tr>
<tr>
<td>Item sort order</td>
<td>10 (a number from 0 to 10)</td>
</tr>
</tbody>
</table>

- Enter a description or instructions for students to read on the screen so they understand exactly what they need to do to meet this requirement. For example your message could read:

  *You are required to enroll in one Math course*

- To present the list of courses on the screen, select one of the following options to determine how you want the system to display the list of courses in the course group:
  - As a scrolling list: If you select this option, enter the number of lines you want the system to display before the student must scroll to see the other courses in the list.
  - As plain text: This is the most common selection for this field.
  - Don’t display the list

- Use the pop-up menu to choose the number of requests that should be generated when this requirement is selected. For example, if Math is a yearlong course but sections operate on semesters, choose 2 for two requests. Semester electives may only need one request.

- Enter a number between 0 and 100 to indicate the order in which you want this requirement to appear on the request page you are creating.
Manually Enter Individual Course Requests

Course requests can also be entered into the system manually, either by student or for a group of students. To enter a student request manually, search and select the student. On the student scheduling preferences, select the request link.

The screen below appears:

Click new.

Click Associate to select the name of the course. Press and hold Command (Mac) or Control (Windows) to make multiple selections.
• Select the ALT checkbox to indicate whether this request is an alternate course request. If you selected the Alternate checkbox, enter a priority number so the system will know which alternate to load first when a student does not receive the elective that he or she wants.

• If this student should request a specific section type, select the course’s from the pop-up menu. For example, a student may request a bilingual section of a course.

• Click Associate to select the course that will serve as a first alternate for this request.

• Select the Delete checkbox as well as the Delete Requests button to remove the course request.

Manually Enter Group Requests

Course Requests can be entered for a group of students. To accomplish this, select a group of students from the student selection screen.
Select the students you want to work with by selecting a grade level, a gender, running a query or simply selecting them all.

Click the Functions button. The Scheduling Functions appears. Select the Mass Add Request function.

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export Using Template</td>
<td>Uses a template to export data on currently selected students.</td>
</tr>
<tr>
<td>List Students</td>
<td>Prints a quick list of currently selected students.</td>
</tr>
<tr>
<td>Mass Add Requests</td>
<td>Lets you enter the same course request for selected student at one time.</td>
</tr>
</tbody>
</table>

The screen below appears.
• Click Associate to select the course number that you want to assign to the group of students you selected.

• If applicable, choose the course’s section type from the pop-up menu. For example, these students may request a bilingual section of a course.

• Indicate whether the request is a required, elective or an alternate type of request. Make your selection from the pop-up menu,

• If the Alternate in the Request Type field was selected, enter a priority for the request. The lower the number, the higher the priority and the more likely these students will be scheduled into this alternate class.

---

**Import Student Requests**

If there is another way that a school gathers their request data, it is possible still get the data into PowerSchool. Importing a text tab delimited file containing hundreds or even thousands of request utilizes the Quick import functionality on the live side.

The required fields to import requests into PowerSchool are as follows:
PowerSchool

- Student_number = Student Number
- CourseNumber = Course Number
- SchoolId = Enter the PowerSchool SchoolID that the request is associated with. This number may not always be the same SchoolID of the student’s current school. The school number is the SchoolID number of the school indicated by the next_school field. (For example, an 8th grader may be requesting courses for 9th grade at the high school)
- YearID = Enter the appropriate Year ID. For the 2004-2005 school year it is 1400.
- Optional fields are:
  - SectionTypeCode = Must be a valid section type in PowerSchool
  - GlobalAlternateCourse = Enter True if this is an alternate request and False if this is a primary request.
  - AlternatePriority = If this request is an alternate request, a priority may be set.
  - AlternateCourse1 = Enter the course number for the student first choice to replace the primary request on the same row.

Once all the data has been entered on the spreadsheet, save the file in a text tab delimited format. From the home screen, follow the path:

Start Page > Special Functions > Importing & Exporting > Quick Import

Quick Import

<table>
<thead>
<tr>
<th>Option</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table:</td>
<td>Course requests</td>
</tr>
<tr>
<td>Field delimiter:</td>
<td>Tab</td>
</tr>
<tr>
<td>End-of-line marker:</td>
<td>CR</td>
</tr>
<tr>
<td>File to import:</td>
<td>import.txt</td>
</tr>
<tr>
<td>Suggest field map</td>
<td>Yes</td>
</tr>
<tr>
<td>School</td>
<td>Apple Grove High School</td>
</tr>
</tbody>
</table>

Select the Course Requests table to import your file into. Ignore the Field Delimiter and End of line number fields. Browse for the file you wish to import. Click Import. The confirmation screen will appear to make sure you are mapping the data into the correct fields. Click Submit when you are satisfied.
### Import Records from an ASCII Text File

<table>
<thead>
<tr>
<th>Col#</th>
<th>From your file</th>
<th>To PowerSchool</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Student_Number</td>
<td>Student_Number</td>
</tr>
<tr>
<td>2.</td>
<td>CourseNumber</td>
<td>CourseNumber</td>
</tr>
<tr>
<td>3.</td>
<td>SectionTypeCode</td>
<td>SectionTypeCode</td>
</tr>
<tr>
<td>4.</td>
<td>GlobalAlternateCourse</td>
<td>GlobalAlternateCourse</td>
</tr>
<tr>
<td>5.</td>
<td>AlternatePriority</td>
<td>AlternatePriority</td>
</tr>
<tr>
<td>6.</td>
<td>AlternateGroupCode</td>
<td>AlternateGroupCode</td>
</tr>
<tr>
<td>7.</td>
<td>AlternateCourseNumber1</td>
<td>AlternateCourseNumber1</td>
</tr>
<tr>
<td>8.</td>
<td>SchoolId</td>
<td>SchoolID</td>
</tr>
<tr>
<td>9.</td>
<td>YearID</td>
<td>YearID</td>
</tr>
</tbody>
</table>

Check to exclude first row

The lines below can be used to assign a constant value to field(s) in all of the imported records.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Submit
Note: The Auto Generate function applies to a number of resources. Before any Auto Generate function can be utilized, the user must copy a master schedule in order to auto generate room, teacher and course information. This function can be found on the Scheduling Functions screen.

Start Page > PowerScheduler > Scheduling Functions > Copy Master Schedule

Click the Copy Master Schedule link. The screen below appears:

Copy Master Schedule

This function will replace the following information in the scheduling area:

1. Years and terms from the selected year into the scheduling area.
2. Periods from school setup into the scheduling area.
3. The entire Master Schedule from the selected year into the scheduling area.

Select the school year of the calendar you wish to copy. Click the confirmation box to complete the copying process. Once the Master Schedule is copied over, the Auto Generate features can be utilized saving the user a lot of man hours in data entry.

Tips on Resources:

* Remember to create a new scenario and make it active before copying the master schedule.
* Just remember to Auto Generate Rooms, Teacher Assignments and Course Information BEFORE you manually enter any rooms, teacher assignments or course information.
* If on any request, teacher assignment or reports screens, the UNKNOWN COURSE billing is in place instead of the actual course name, make sure the course is in the course catalog and flagged to be scheduled.
Rooms

Rooms define locations for courses so that the system best utilizes available space when building a master schedule. The master schedule and rooms are directly related when it comes time to display the master. If the rooms in the master are not valid the sections will not display. Be sure to create an entry for each classroom within your school that will be used for scheduling. This could include offices and libraries.

There are three ways to get Rooms into the system: Individually, Auto Generation (from a current master schedule) or Auto Creation.

Auto Generate Rooms

The Auto Generate Rooms function creates rooms from a master schedule that has been copied over to the scheduling area. Follow the path below and the screen below appears.

Start Page > PowerScheduler > Scheduling Functions

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto Create Rooms</td>
<td>Creates rooms from a pre-defined set of criteria.</td>
</tr>
<tr>
<td>Auto Fill Student Info</td>
<td>Populates required student scheduling fields by grade level</td>
</tr>
<tr>
<td>Auto Fill Course Info</td>
<td>Populates required course fields.</td>
</tr>
<tr>
<td>Auto Fill Teacher Info</td>
<td>Populates required teacher scheduling fields.</td>
</tr>
<tr>
<td>Auto Generate Course Info</td>
<td>Defines course information based upon the current master schedule.</td>
</tr>
<tr>
<td>Auto Generate Rooms</td>
<td>Creates rooms from the existing master schedule.</td>
</tr>
<tr>
<td>Auto Generate Teacher</td>
<td>Creates teacher assignments from existing master schedule.</td>
</tr>
</tbody>
</table>

Click the Auto Generate Rooms link and the screen below appears.

Select the check box to verify the command then click Submit. The rooms and room information from the current master schedule will be copied to the active scenario.
Create Rooms Individual Rooms

To create rooms individually, select Rooms under the resource menu and click new. The screen below appears.

Add/Edit Room

- Enter a room number.
- Enter a room description.
- Associate a room to a department
- Associate a room to a Building (Optional)
- Associate a room to a House (Optional)
- The “Use for Scheduling” checkbox must be selected if one wants the system to consider this classroom when it assigns courses to rooms. Otherwise, deselect the checkbox. Some rooms, such as the cafeteria may not be used for scheduling but one may wish to leave it in the system. If this is the case the checkbox should be deselected to indicate this fact.
- The “Room is Always Free” checkbox is only selected when one wants the system to schedule multiple sections in this room at the same time. This feature is often used with gymnasiums. However, sometimes the Room Maximum field can cause problems, and it would make more sense to break the class into Gym 1 and Gym 2 if you know that the maximum number of courses taught in the Gym is two. If you deselect this checkbox, only one course can be scheduled in this room per period, unless the course is pre-scheduled.
• The “Department Use Only” checkbox should be selected only if one wants the system to only schedule courses that belong to this room's department. If the checkbox is not selected, the system will try to schedule courses with the same department as the room, but it is possible for the system to schedule a course that belongs to another department into this room. This would happen if other departments need more space than others.

• The “Facility Use Only” checkbox is used to specify that the system can schedule only courses requiring the facilities you enter in the Room Facilities field in this room. If there are not many courses that require the facilities in this room and you select this checkbox, the system does not fully schedule the room. The room remains free rather than holding another course. If the checkbox is not selected, the system considers the facilities you enter in the Room Facilities field as suggestions. For example, assume the system needs to schedule the computer course, Database Administration. Even though the course does not require a computer lab facility, the system can schedule the course in the room with the computer lab if it is free.

Note: Room Facilities are associated to a room, if it has any. Facilities are any special characteristics of a room that courses require. For example, a room might have a kitchen, computer lab, stage, or wood shop. Most regular academic classrooms do not have a facility. There is a limit of 50 characters that can be entered in this field. Do not exceed 50 characters as the total number of characters in the names of all facilities associated a room.

Facility Use Only means that the room can only be used for courses that request that facility. When choosing both Facility Use Only AND Department Use Only, it means that the room can only be used for courses that request the same facility from the same Department.

• The “Room Maximum” determines the maximum number of students that the room can accommodate. The capacity of the room constrains the engine to limit the courses that it can schedule into that room. If the maximum capacity of the room is 25, the system cannot schedule a course section whose maximum exceeds 25.

To pre-assign a course to a particular room, one can define a Course Room constraint. (See Build Constraints)
Auto Create Rooms

Using the Auto Create Rooms feature, one can enter for each department the room start number, increment number, number of rooms, department, facilities, and room maximum. The system will then generate the list of rooms. Follow the path below and the screen below will appear.

Start Page > PowerScheduler > Scheduling Functions > Auto-Create Rooms

Click the Auto Create Rooms link. The screen below appears.
• Enter a starting number for the room numbers.

If you wish to create room numbers in a certain sequence, you can number the rooms by dictating the increment number. In this field, enter the value by which the room numbers increase from the starting number.

• Enter the number of rooms that should be created.

If you wish to prefix the room numbers with a letter(s) or number(s), this value will concatenate with the room start number or letter. For example, entering the prefix MA creates the room number MA23 for the math room 23.

• The data for the rest of the fields can be entered in, as one would do for the individual rooms. All the same rules apply, keeping in mind you are entering data for a group of rooms.
Students

In order for the students to appear in the scheduling area, they must be pointed to the appropriate school and once that is accomplished, student preferences can be entered either individually or for groups of students.

Next School Indicator

The setup of the Next School indicator is the first step to point students to the correct school’s scheduling area. You will need the School numbers. This information can be found in the District page by following path below.

Start Page > District Setup > Schools/School Info

<table>
<thead>
<tr>
<th>Schools</th>
<th>Abbrev.</th>
<th>School Number</th>
<th>Sort Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington Elementary</td>
<td>WE</td>
<td>2106002</td>
<td>10</td>
</tr>
<tr>
<td>Jefferson Elementary</td>
<td>JE</td>
<td>2106001</td>
<td>20</td>
</tr>
<tr>
<td>Cherry Hill Middle School</td>
<td>CHMS</td>
<td>2106050</td>
<td>30</td>
</tr>
</tbody>
</table>

To fill the Next School Indicator pop-up information, follow the path:

Start Page > School Setup > Next School

The screen below appears. Fill in the School name, the school abbreviation and the school number that you obtained from the district area. It is important the numbers match exactly as what is recorded in the district area. Click Submit when data entry is complete.
Select the group(s) of students from the live side by typing in your query or clicking the appropriate grade level. Click the Search icon.

The search student page appears. Select the next school indicator function from the functions drop down menu.

Once the students are selected, select the appropriate school to copy the students over to the scheduling side of the selected school.
Student Preferences

There are several ways to enter student preferences:

- Individually
- Auto Fill Student Information
- Update Selections
- Edit Student Field Value

Individual Student Preferences

To enter individual student preferences, follow the path:

Start Page > PowerScheduler

Select Students under the Resources menu on the left frame of your browser. The Search student page appears. Search for the student. His/her name will then appear in the frame to the left. Click on the student’s name and the page below will display.
As illustrated on the Student Preference screen, all the required settings for a student must be entered or they will appear as an error or warning on the build or load error logs.

**Auto Fill Student Preferences**

Required entries for all the students in the scheduling area can be entered using the Auto Fill Student Information function. Follow the path:

Start Page > PowerScheduler > Scheduling Functions

The screen below appears. Click the Auto Fill Student Information link.

The screen below appears:

- Enter the appropriate Next Year Grade information.
- Set each grade Priority. The lower the number the higher the priority. In this example, the 11th grade receive a high priority, because the school wants to make sure that the incoming Seniors get first priority when being scheduled.
• Schedule This Student flag must be Yes or the engine will not schedule any student not flagged YES.

• The Year of Graduation must be the year of Graduation for that grade level. Click Submit when data entry is completed.

**Note:** For 12th grade students that are being retained, enter 12 in the Grade 12 column. The Schedule This Student must be flagged to Yes and their year of Graduation is to be set to the appropriate year that they graduate. A priority should also be given. The next year indicator for current 12th graders that are graduating must be set to the Graduated Students School before using this function.

**Update Selections**

Student preference information can be entered for groups of students by using the “Update Selections” feature located in the Functions area of the PowerScheduler. Follow the path:

Start Page > PowerScheduler > Scheduling Functions > Update Selections

The screen below appears:
The student field values, must be changed by grade level. Under the Search Students, first select the grade level of students that you wish to work with. It is recommended that you start with the highest grade level and work your way back.

**Update Selections**

Then under the Search Students, select the grade you wish to work with. Once the grade level is selected, click the Modify Records.

The screen below appears:
Select the appropriate field and enter the corresponding data. Click the Modify Selected Records button to complete your entry. The browser returns you to the Update Selections screen with your initial group of students still in memory. Simply click the Modify Selected Records link again choose another field to modify. Continue this process until all the fields in your selected grade level is completed.

The required fields to change are the following:

- **Sched_NextYearGrade**: Enter data to indicate their grade level for the scheduling year.
- **Sched_Priority**: Enter data to indicate their priority in the scheduling scheme.
- **Sched_Scheduled**: Enter “True” to flag these students for scheduling.
- **Sched_YearOfGraduation**: Enter the year this group of students graduate.
Edit Student Field Values

To edit the student field values, you are editing the scheduling fields from the active side of the application. All the same data entry rules apply to the same fields as it did with the Update Selections feature. Select the grade level that you wish to work with by clicking on the grade.

The screen below appears. Select the Student Field value field on the functions drop down. See illustration below:

Note: Be aware that this function in effect modifies the data in these fields. Use this method only if you know exactly what you are doing.
Enter the field to change and the new field value. These fields are the same field names used in the Update selections section, mentioned previously. Click Submit when data entry is complete. A confirmation screen will appear to make sure that the data want to modify is the correct data and the correct modification information. Click Submit on the bottom of this page to confirm your entry.

Field Value

Click the back button on your Browser to take you back to the Student Field Value screen. Erase the field name and information and replace with a new scheduling field and its accompanying data. Repeat until all the fields that you wish to modify has been changed.

Optional Parameters for Student Preferences:

- **Houses:** If the school uses houses, they would have been created in the section “Schedule Parameters.” To complete this task for a single student, the Associate button must be used. If the Update Selection or Edit Student Field Value is used to update a group of students, one must know exactly what these houses are named in the system since this information will be typed in. Any variation in spelling will cause the student to appear as an error or warning on the build or load error logs.

- **Teams:** If the school uses teams, they should have been created in the “Schedule Parameters” section. As mentioned previously, Student Teams are assigned either statically or dynamically. If static teams are used, each student must be assigned to a particular team, either individually or in groups.

To assign a group of students to a team, the “Update Selections” feature or Edit Student field value feature can be used to complete this task. The data to enter must be the Team Number and not the team name. See screen below.
To assign a student to a team individually, you simply associate the team to the student. You do not need to know the number of the team. The team number will appear next to the Next Year Team field after you complete the procedure.

If there is a number to the right of the blank Next Year Team pop-up menu, this is an indication that the student was previously associated with a team at a different school. You must clear the Next Year Team field using the “Update Selections” function.

Sometimes, when a school does a mass change of the next school indicator, it may bring over students that have or will be transferring out. A way to find these students is to use the update selections function to find any student with an entry code of 2 (Transferred Out), 3 (Graduated) or 4 (Imported as inactive). Finding these students will enable the user to blank out the next school indicator field taking these students out of the list of students that need to be scheduled. The table below lists all the Status codes and their meaning.

**Enrollment Status Codes (enroll_status);**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Current (Active)</td>
<td>If “0” is in value the enroll_status field, this is an indication that the student is active in the SIS system. The student will move year to year as long as they are active.</td>
</tr>
<tr>
<td>-1</td>
<td>Pre-registered (Inactive)</td>
<td>A student enrolled with a date that is sometime in the future.</td>
</tr>
<tr>
<td>2</td>
<td>Transferred Out (Inactive)</td>
<td>Student was manually transferred out of the system</td>
</tr>
<tr>
<td>3</td>
<td>Graduated (Inactive)</td>
<td>Student has completed the highest grade on the server. These students have been moved to the Graduated Students School.</td>
</tr>
<tr>
<td>4</td>
<td>Imported as Historical (Inactive)</td>
<td>These students were imported with an enrollment date of one in the past. The enroll_status is set by the student’s entrydate and exitdate fields. Trying to manipulate this by importing the enroll_status will result in this code.</td>
</tr>
</tbody>
</table>
Pre-Registered Students

PowerScheduler currently allows for students who are pre-registered (and currently inactive) for the upcoming school year to be scheduled for the upcoming school year. Certain steps must be set up first.

Prior to committing the master schedule and the student schedules, review and confirm the accurate dates for upcoming school year. Committing with improper dates will cause problems in both new and current students’ entrydate and exitdate into the school year and problems with the dateenrolled and the dateleft dates of the student course enrollment records.

Enroll a new student or reenroll an inactive student and set their entry date as the first day of the upcoming school year. In addition set the grade_level to be the grade level they will be starting on the date they will be enrolled. By doing this it will set a student’s enroll_status to a value of –1 to be used when searching on the active side of PowerSchool to locate the students.

Set the students next_school to the school that the student will be attending. They will be available to be scheduled in the scheduling area. Since the student is pre-registered he/she will not need the / to be typed in the scheduling area for searching. The enrollment status of –1 allows the student to be treated as active in the scheduling area.

Complete the students scheduling set up by filling the information required by using the scheduling preferences such as the sched_nextyeargrade, sched_priority, sched_scheduled, and sched_yearofgraduation. The optional sched field information such as sched_nextyearteam, sched_nextyearhouse, and sched_nextyearbuilding can also be entered. This can be accomplished using the Update Selections (scheduling side) or Edit Student Field Value functions (live side).

For Pre-registered students, their student course request for the upcoming school year must be entered manually in the scheduling area. Due to the student enrolling in the grade that they will be in on the first day of school next year, the utilization of the course request screen is impossible.

One may think—why not enroll them in the grade they currently are in? This would require you to give the student a current entrydate causing additional problems when it comes to attendance. Students who have an enrollment status of –1 become active when the date the student is enrolled on occurs.

Following the recommended steps will enable all –1 coded students to be treated like the active students and allow them to be scheduled.

Teachers

Another step in scheduling is the defining of teacher scheduling information for every teacher who instructs at least one course at the school. In order for the teachers to be scheduled, like the
students, they must be made active for scheduling. Once the teachers are selected, follow this path from the live side to activate teachers on the scheduling side.

Start Page > Staff > Select A Staff Member > Group Staff Functions

The screen below appears and on would select the Set Staff Field Value Function:

Click on the Set Staff Field Value link to change the value of the sched_scheduled field to true. This field value will copy teacher information from the live side to the scheduling area.

**Teacher Field Value**

![Teacher Field Value](image)

**Individual Teacher Preferences**

The majority of the information for teacher scheduling preferences is unique to each teacher. To edit each teacher’s preferences individually, click on the Teachers link under the Resource menu located on the left frame of the browser. A list of the Teachers will replace the information on the left frame. Click on the desired teacher whose preferences you wish to edit. The screen below will appear.
Click the Associate button to assign the teacher’s department.

The system will always attempt to schedule courses assigned to this teacher in their preferred classroom first. Click associate to accomplish this task.

When assigning the maximum consecutive periods a teacher can be assigned, the pop-up menu is used to select the maximum number of periods this teacher can teach in a row.

The Schedule This Teacher checkbox must be checked if you want the system to include this teacher when scheduling. Deselecting this checkbox will result the engine to ignoring this teacher in the scheduling process.

To allow a teacher to be scheduled for an unlimited number of courses during the same period and in the same room, the “Is Always Free” check box must be selected. Although rarely used, some cases would necessitate its selection. For example, some Special Education teachers teach different subjects to different students in the same room during the same period.

If the teacher is going to be assigned a lunch section, this checkbox must be selected. For each section of a lunch course, PowerScheduler can assign a teacher to supervise during lunchtime. If supervision is not necessary, scheduling teachers for lunch ensures that the teachers will have time set aside for their own lunch break. Teachers can be assigned to only one lunch section per day, though that section can span several periods. Teachers are scheduled for one section of the
lunch course for each day combination and term specified by the lunch course. There is no need to assign an actual lunch assignment to a teacher.

Clicking the Associate button will assign the teacher to a Building and/or a House. Both selections are optional.

Also option is the assignment of teams. If the school uses teams, use the pop-up menu to select the team to which you want this teacher to belong. Like the students, if there is a number to the right of the blank Team Code pop-up menu, the teacher was previously associated to a team at a different school. One must use the Update Selections function to clear this field.

**Auto Fill Teacher Information**

Depending on the number of teachers that need to be scheduled, there are some parameters that can be assigned to groups of teachers using the update selections feature or the Auto Fill Teacher Information feature.

To fill in teacher information simultaneously for selected teachers, a user can use the Auto Fill Teacher Information feature to enter the desired information. To select the group of teachers, use the Select Teachers by Hand function in the Update Selections area. Follow the path:

Start Page > PowerScheduler > Scheduling Functions > Update Selections

Click Select all “XX” records in this table. Select the Select Records by Hand link.

**Update Selections**

The screen below appears:

Select Records By Hand: Teachers - 39 records selected

Once the teacher group is selected, click Submit on the bottom of the screen.

Click the Functions link on the left frame and select the Auto Fill Teacher Information link.
The screen below appears:

Indicate whose preferences you need to modify. Select all the teachers or just the teachers that you selected by hand.

In the example above, the 8 teachers selected were English teachers. Click Associate to select the appropriate department you wish to associate to your selection of teachers. The Clear value button deletes any data that was previously entered in that field. If you wish to leave the data currently housed in that field the same, simply skip that step.

To mass assign the teachers the same rooms, click Associate and select the appropriate room. To clear any room data currently housed in that field for the selected teachers, click the Clear Value button. If you wish to leave any data currently housed in that field the same, simply skip that step.

The next four selections have a default value of no change. If you wish to leave any data currently housed in that field the same, simply skip that step.

To assign the selected teachers the same number of maximum consecutive periods that they should teach, use the drop down button to make your selection.
To assign the selected teachers a lunch section, select Yes. If you do not want these teachers assigned a lunch, select No.

To mark the selected teachers for scheduling, select Yes. If you do not want these teachers to be considered for scheduling, select No.

To flag the selected teachers Always Free, select yes. If you do not want these teachers to be Always Free select No.

Click Submit once all data entry is completed.

**Teacher Assignments - Individual Entry**

To enter teacher assignments individually, click the assignment link on each Teacher Scheduling Preference screen.

The screen below appears. Click New to enter an assignment.

The screen below appears:
Associate a Course number to this assignment.

If a section type related to this assignment select the appropriate section type from the drop down, otherwise, leave this field blank.

Enter the number of assignments related to this course.

Choose the appropriate term related to this assignment.

Note: See example below. Note that for this teacher, she has a total of 4 sections of the same course per Semester. Make sure that unless your courses are to be scheduled as Year Long classes, each group of assignments be assigned to their own terms. Also in the example below, the same course also has one section that is tagged with a section type for each term. Make sure that all sections of courses that will have a section type assigned have their own separate entry.

Auto Generate Teacher Assignments

The Auto Generate Teacher Assignments feature automatically generates teacher assignments from the existing master schedule. Click the Functions link take you to the Scheduling Functions
screen. Click Auto Generate Teacher Assignments to copy teacher assignments from a copied Master Schedule. The Auto Generate function will overwrite any teacher assignments that you may have defined manually earlier. It is advised that if using the Auto Generate Teacher Assignment feature, the user do any manual adjustments after this feature has been utilized. The user can add or delete any assignments assigned to teachers after this function has been run.

<table>
<thead>
<tr>
<th>Scheduling Functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build 2004 - 2005</td>
</tr>
<tr>
<td>Catalog 2004 - 2005</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
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<tr>
<td>Auto Create Rooms</td>
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<tr>
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<tr>
<td>Auto Generate Course Information</td>
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</tr>
<tr>
<td>Auto Generate Rooms</td>
<td>Creates rooms from the existing master schedule.</td>
</tr>
<tr>
<td>Auto Generate Teacher Assignments</td>
<td>Creates teacher assignments from existing master schedule.</td>
</tr>
</tbody>
</table>

To verify that these assignments display the correct terms, number of assignments, and other information, run the Teacher Assignments by Teacher Report or view the current Master Schedule.

**Course Preferences**

For each course, define its shape, or build type. You must also define sections, room requirements, load options, and substitute information.

**Course Set Up**

Static information that cannot be changed in this screen are the Course Name, Course Number, Credit type, Alternate Course Number, Grade Scale, CIP Code and Vocational Class field. This information is copied over from the Master Course List on the active side and can only be adjusted on the active side. When the schedule is committed, any information adjusted on those fields in the scheduling area will NOT overwrite the information in the same fields if the active side.
Currently, there is an option to change the credit hours on the Course Preference screen. Changing the credit hours on this page changes the credit hours on the scheduling course catalog for that particular course. Changes to course on the scheduling side will not overwrite or impact the credit hours on the active side upon schedule commitment. The scheduling course catalog is not transferred to the active side during the commit process. Only periods, days, years and terms, the master schedule and the student’s schedules are the only items carried over during the commit process.

The main use for credit hours during the scheduling process was to assist in the tabulating the credits that a student is requesting through the course request screens. A course like Study Hall may have a credit worth of 0 on the active side. However if it schedules with a .5, one can pinpoint the number of credit hours that a student must request so the student does not over request or under request all without affecting the credit hours on the active side. It is important to remember that scheduling deals with placing courses and students in a master schedule, not how many credit hours a student may or may not earn at terms end. This is dealt with on the live side during the storing of grades.

The credit type of credit a student receives for passing this course, such as MATH, ENG, or FINE is indicated in this field. This is very helpful for counselors to track the amount of credits a student has for each required subject.

If your school uses the alternate course number field, it is likely used for state reporting or district purposes.

If there were a specific grade scale associated with this course, it would be displayed on this section of the course preference page.

In some states, schools use CIP codes to identify courses as part of a state-managed vocational program. This information would be displayed on this section of the course preference page.

If this course is tagged as a vocational course, it is indicated on this section of the course preference page.
In order for the engine to consider a course for scheduling, the Schedule This Course checkbox must be selected. The system then schedules this course in the master schedule. If you deselect this checkbox, the system does not include the course in the master schedule.

To schedule time for lunch or teacher-supervised breaks in your school's master schedule, create lunch sections. Check the Use for Lunch box to assign this course for Lunch. Lunch sections are sections of a course that has been designated for lunch periods.

Start by creating a lunch course in PowerScheduler, indicating that it will be used exclusively for scheduled lunches. Then, create sections for that course. Select the period(s) that each section of the lunch course will span and the day(s) on which it occurs. PowerSchool will only support one lunch course.

Select the department to which a course belongs by clicking the Associate button. Chose the appropriate department. In order to create a new department or edit an existing one, one can click on the Department link and it takes the user to the appropriate screen.

The Build Type defines the shape of a course. Currently the choices are Standard, Lab and Lab Float.

Standard: This course meets for the same number of periods every time it meets. For example, a course that meets everyday for one period is standard (Example A). A course that meets for one period every other day is also standard (Example B).

Example A                      Example B
Lab: This is a standard course that meets for the same number of consecutive extra period(s) on certain days in the cycle. For example, a standard Chemistry course meets everyday in a six-day cycle (Days A-F). Two days in the cycle, the class meets for two consecutive periods to complete an involved laboratory assignment.

LabFloat: This is a standard course that meets extra period(s) some days in the cycle, but the extra period does not need to be consecutive to the course.

For example, a Humanities course meets everyday in a six-day cycle. One day during the cycle, the students attend a two-period lab in which they complete a community service assignment. The community service assignment does not have to occur directly before or after the Humanities course.

Maximum Enrollment: This number is the maximum number of students that the system will schedule in any given section(s) of this course.

Full Catalog Description is where a detailed course description that will display in the printed version of the course catalog.
Note: If there is a figure in the Sections Defined field, the figure is calculated by the number of teacher assignments that were auto generated or created manually. If the number does not match the number of teacher sections, the function to reset the number of sections is found in the Functions menu: Select Reset Sections Offered. Utilizing this function resets the number to match the teacher assignments. If after running this tool, the sections count does not reset, call Technical Support for additional assistance.

The only exception would be for the Lunch Course. There are no teacher assignments, but there has to be a figure in the Sections offered field. In this case, the figures will not match.

The Sections Offered field is the number of sections to schedule for this course.

The Periods Per Cycle figure could be greater than or less than the number of days in the cycle. This number is the number of periods this course meets within the cycle. Another way to express periods per cycle is:

\[
\text{Periods/Meeting} \times \text{Frequency} + \text{Lab Periods/Meeting} = \text{Periods Per Cycle}.
\]

**NOTE:** The formula is the same for both Standard and Lab Courses. This figure is automatically calculated for the user.

Periods Per Meeting is number of periods a course section meets each time it convenes. Most courses meet for a single period. In other cases, some courses may have an intensive curriculum that necessitates that it meets for two or more periods per meeting, like block courses.
The course **Frequency** is determined by the number of days a course meets during a cycle. For example, in a 2-day cycle, PE is held A day and B day. Therefore, the frequency is 2. In the same schedule, Health meets only on A day therefore its frequency is 1. It is important to understand that the frequency of a course is not related to the number of periods it meets within a given cycle.

In the following example, the course has a frequency of 2, since it meets A and B day and its Periods Per Cycle is 4 because it meets 4 times within the cycle.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

The Terms per Year value is automatically calculated and reflects the number of terms per year this course meets. If a course has a Terms Per Year value of 1, it means that a section of this course only meets for a single term, whether it be a year, semester, trimester, etc. However, if a course has a Terms Per Year value of 4, it means this course meets all four terms in the year.

The Terms Per Year is related to the number of terms you set in the build scenario. Remember that the Terms Per Year value equals the lowest common multiple (LCM) of all scheduling terms. For example, if a school has trimesters, semesters and quarters, the LCM is 12. For a semester course, the Terms Per Year value would be 6, or half of the schedule terms; a trimester course would have a Terms Per Year value of 4, and a quarterly course would have a Terms Per Year value of 3. Keep in mind that the SIS will only handle 99.

The checkbox to **Allow Student Repeats in Same Term** allows the system to schedule a student in more than one section of this course in the same term. In some cases, students may need to double-up on a course within the same term. If the school allows this for the course, a student would need to have 2 requests for that particular course. If the checkbox is not selected, and there are 2 requests from a student, an error would prevent the scheduling process to continue.

The checkbox to **Allow Student Repeats in Different Terms** allows the system to schedule a student in more than one section of this course in different terms. If the school allows this for the course, a student would have 2 requests for that particular course. If the checkbox is not selected, and there are 2 requests from a student, an error would prevent the scheduling process to continue.

For courses with more than one section, selecting the **Balance Terms** tells the system to try to place an equal number of sections in each valid term. For example, a course consisting of 13 sections is only offered during Term 1 and Term 3 in a four-term year. Therefore, the system will
try to schedule seven sections in one term and six sections in the other. This feature only works for a course that is not a full year course.

To indicate the Valid Start Periods, one would select the checkbox next to the appropriate period(s) lets the system know which period(s) the course is valid to start. If you want a course that has two periods per meeting to start any period except 6 or 7 in a seven-period day, select the checkboxes next to Period 1, Period 2, Period 3, Period 4, and Period 5. If the user does not select any periods, the system will consider all the periods as valid start periods.

Note: There is no need to select valid start periods if all the periods can be start periods. This feature is only used to limit the possibility of start periods.

To select the valid terms of a course, click Associate to select the terms that the course can meet. For example, if the school wants the system to schedule a half-year course in the fall semester of the school year, they would select S1 (first semester) as the only valid term for this course.

The valid day combination is an indication of the valid days that this course can meet. For example, if a course only going to be valid on the B day of an AB schedule, enter B. For multiple days, enclose multiple entries in parentheses and separate multiple entries with commas, such as (A,B).

If the course is a lab, select the check box. The Lab frequency is indicated by entering the number of days the lab portion of this course meets. The valid day combination for the lab alerts the system as to when the valid days for this lab may occur. For example, if the lab is only going to be valid on the B day of an AB schedule, enter B. For multiple days, enclose multiple entries in parentheses and separate multiple entries with commas, such as (A,B).

Associating a facility to a lab course triggers the system to schedule the course into the room that contains that facility because it is really needed.
To set a course load priority, enter a numerical value of 1 to 99 (1 being the highest priority) to prioritize in which course the system should schedule a student when a conflict between two of the student’s requests arises.

You can enter the same load priority number for several courses. For example, enter a load priority of 10 for all academic courses to ensure that students are loaded into these courses first, 20 for academic electives, and 30 for non-academic electives.

If this course has a Section Link constraint associated with it, you may want to give it the highest load priority to prevent the section link from being broken.

Use the pop-up menu to select the Load Type of the course. The user can choose from Academic, Elective, or Alternate course choices. The system uses this classification to balance the types of courses in which the student is scheduled during a schedule term. For example, if your school’s scheduling terms are semesters, the system does not schedule the student in all elective courses the first semester and all academic courses the second semester.

Use Balance Priority pop-up menu to set a secondary priority for the course when loading student schedules. The primary load priority is determined by the Load Priority field.

The following settings create an additional priority. For example, if you select Grade from the pop-up menu, the system not only attempts to keep an equal number of students in each section, but also an equal number from all grade levels. The default setting for loading students into the master schedule is Section. Use the pop-up menu to select one of the following options to ensure a balance of students in each section. This is an optional choice. The default value always balances by Section.

* **Section**: When loading students into sections, the system always attempts to keep an even number of students among sections.
* **Gender**: Balances the number of males and females in each section.
* **Grade**: Balances the number of students from each grade level within each section.
* **EthnicCode**: Balances the number of students with different ethnic codes within each section.
* **House**: Balances the number of members from each house within each section.

Select the **Use Pre-Established Teams** checkbox to trigger the system to reference teams when scheduling students into this course.

Select the **Close Section After Max** checkbox if you want the system to stop scheduling students in a section of this course after the enrollment reaches the number you defined in the Maximum Enrollment Field.
Resources

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Note: This flag is only taken into consideration during the Load. The Build will totally ignore this flag.

If the Don't Allow Course Student Substitutions flag is checked, it means that for students who request the course, this course cannot be replaced by any other courses even if the student is unable to be scheduled in this course.

Click Associate to select the first, second or third global course substitution you want the system to schedule for every student who cannot be scheduled in this course.

Scheduled Lunch

To schedule time for lunch or teacher-supervised breaks in your school's master schedule, create lunch sections. Lunch sections are sections of a course that has been designated for lunch periods. Start by creating an actual course called LUNCH in PowerScheduler. This is an indication that LUNCH will the only course that will be used exclusively for scheduled lunches. Select the valid term(s) and valid period(s) that each section of the lunch course will span as well as the day(s) on which it occurs. This information dictates where the engine will schedule those sections for that course.

For each section of a lunch course, PowerScheduler can assign a teacher to supervise during lunchtime. If supervision is not necessary, scheduling teachers for lunch ensures that the teachers will have time set aside for their own lunch break. Teachers can be assigned to only one lunch section per day, though that section can span several periods. Teachers are scheduled for one section of the lunch course for each day combination and term specified by the lunch course.

To assign a teacher for lunch follow the path:

Start Page > PowerScheduler > Teachers > Teacher Scheduling Preferences
Make sure that the Schedule this teacher and Schedule for lunch boxes are flagged. There is no need to create assignments for the designated LUNCH course.

Note: While the teachers do not need to be flagged for lunch, the students need to request lunch.

See the examples below:

1 day cycle, year long schedule = 1 student request
3 day cycle, year long schedule = 3 student requests
2 day cycle, 2 semester terms = 4 requests
For example, a five-day, quarterly schedule where lunch can be periods 3, 5, or 7, set up the lunch course with a frequency of five, valid terms for each quarter, and valid start periods selected for 3, 5 and 7, and the number of sections as 3. Each teacher can be scheduled for one of 20 lunch sections (one for each day and term) that will start in either period 3, 5, or 7 in the respective day and term combination.

*Note: Though PowerScheduler schedules lunch courses in the same manner as other courses, you can filter lunch courses for certain reports and functions. When defining course scheduling preferences, specify that the course is excluded from report cards and transcripts. The course will not appear on those object reports. Also, lunch courses are not included in functions such as splitting year-long courses and exporting information to PowerGrade.*

If you use the lunch functionality for any other teacher scheduling purpose, remember that you can only have one lunch course and that it must follow the same rules as scheduled lunch. That is, there should be only one period of time each day of the year in which teachers are assigned to this activity.

**Course Relationships**

For each course, you can define related courses. The system uses these course relationships when building the schedule. Relate courses to alert the system that it must consider other courses when determining the best place for a course in the master schedule.

For example, if the Latin teacher can instruct Latin I, Latin II and Latin III courses at the same time in the same room, you can relate the courses so that the system knows it is possible to do so.

*If you define a relationship for a course with another course, it is not necessary to define the relationship for both courses.*

The Course Relationship Link is located on the top of the Course information page.

**Course Information**

*Note: If you are entering multiple relationships for one or more courses, you can select the preference to view the Relationship page instead of the Course Information page every time you select a course.*

Click the name of the course for which you want to define a relationship from the left frame. On the Course Relationships page, click New. The Edit Course Relationship page appears.
Click Associate to select the number Course Number of the course for which you want to define a relationship.

Use the pop-up menu to select one of the following Relationship Type options:

**Block**: Courses that must be related to one another in the schedule. For example, you may want pottery to be scheduled before or after ceramics so that they can share a hot kiln. Alternatively, a Medieval Literature class may follow a Medieval History class.

**Concurrent**: Courses that can meet at the same time, in the same place, and be taught by the same teacher. For example, a special education teacher might have a class of 10 students, three of whom are taking remedial reading and the remainder of whom study remedial vocabulary and spelling.

**Coreq**: Two courses that are scheduled during the same term of a student’s schedule.

**Postreq**: A course that must be in a student’s schedule in a term after the related course.

**Prereq**: A course that must be in a student’s schedule in a term before the related course. For example, Course A is a prerequisite of Course B. When the system schedules a student for these courses, it ensures that Course A is scheduled into a term before when Course B is in the student’s schedule.

*Note*: Coreq, Postreq, and Prereq only relate to the current scheduling year. The system does not check historical data for previous courses.
Relationship Codes

If you selected a Relationship Type of Block, you must define a Relationship Code. Use the pop-up menu to select one of the following options:

**Simultaneous**: The blocked course must be scheduled at the same time as the current course. If the same teacher instructs both courses, they must also be concurrent.

*Note: When two courses are blocked simultaneously, share the same teacher(s), and have the same number of sections, there is no need to add a concurrent relationship between the two courses. The engine propagates concurrent relationships amongst courses that share a concurrent relationship. For example, if Course A has a concurrent relationship with Course B and Course B has a concurrent relationship with Course C, there is no need to add a concurrent relationship between Course A and Course C.*

**BeforeAfter**: The blocked course must be scheduled either before or after the current course.

**Before**: The blocked course must be scheduled before the current course.

**After**: The blocked course must be scheduled after the current course.

**Term**: Two courses occur on the same days and periods, but in different terms.

**Combine**: Combine courses that have different student requests but have the same teacher and the same attributes, such as frequency, periods per meeting, valid start periods, and number of sections. Since the engine processes combined courses as a single course, select an "anchor" course in the Course Number field from which you can combine additional courses. For example, a combined block relationship is applied to Latin I, Latin II and Latin III, which are all taught by the same teacher but requested by different students. Those three courses will be scheduled at the same time with the same teacher in the same room. When editing course relationships for Latin II and Latin III, associating Latin I as the anchor course for each combined relationship.
Opposite Days: Two courses occur during the same period and term, but on alternate days.

Section: The blocked course must have the same students in each section as the current course. For example, all students in section 1 of the blocked course must be in section 1 of the associated course.

Click Submit when data entry is completed.

Build Constraints

Build constraints restrict the actual building of the master schedule.

*Note: To view a list of build constraints and the number of each that have been defined for your schedule, choose Build Constraints from the constraints menu.*

### Build Constraints

<table>
<thead>
<tr>
<th>Build Constraint</th>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Optimize</td>
<td>Set build optimization parameters for a course</td>
<td>0</td>
</tr>
<tr>
<td>Course Restrict</td>
<td>Restrict a section of a course to a particular period or day.</td>
<td>0</td>
</tr>
<tr>
<td>Course Room</td>
<td>Force a course to schedule in a specific room.</td>
<td>0</td>
</tr>
<tr>
<td>Course Team</td>
<td>Specify teaching teams for blocked courses.</td>
<td>U</td>
</tr>
<tr>
<td>Pre-Schedule</td>
<td>Pre-Schedule a section of a course.</td>
<td>0</td>
</tr>
<tr>
<td>Schedule Break</td>
<td>Identify breaks in the schedule for max-in-a-row counts.</td>
<td>0</td>
</tr>
<tr>
<td>Teacher Dovetail</td>
<td>Partial course scheduled using as few periods possible.</td>
<td>0</td>
</tr>
<tr>
<td>Teacher Free</td>
<td>Specify periods that a teacher must be free.</td>
<td>0</td>
</tr>
<tr>
<td>Teacher Part-Time</td>
<td>Limit a teacher's schedule to a range of periods.</td>
<td>0</td>
</tr>
<tr>
<td>Teacher Team</td>
<td>Specify teaching teams for a set of courses.</td>
<td>0</td>
</tr>
</tbody>
</table>

Course Optimize

This constraint is used to override the global sampling parameters when scheduling a specific course. For example, if you have a course that you know will be very difficult to schedule, increase both the minimum number of combinations to sample and sampling percentage using this constraint.

*Note: You can only define one Course Optimize constraint per course.*

Start Page > PowerScheduler > Constraints > Course Optimize Constraints

Click New and the Edit Course Optimization page appears.
Click Associate to select the course you want to optimize.

Enter a figure of the Minimum number of combinations to sample

Enter the minimum number of combinations you want the system to sample when scheduling this course into the master schedule. For example, if this field on the Edit Build Scenario page is set for 10,000 and you have a course you know will be difficult to schedule, enter 50,000 so that the system will evaluate five times as many combinations as it does for your other courses.

The Sampling Percentage calculates the percentage of combinations you want the system to sample when scheduling this course into the master schedule. For example, if this field on the Edit Build Scenario page is set for 75% and you have a course you know will be difficult to schedule, enter 100 to have the system evaluate all possible combinations.

**Course Restriction**

This constraint is used to restrict sections of a course to particular periods and days or to meet any time except the specified periods and days.

For example, use this constraint to force three sections of a five-section course to schedule at the same time. The system normally spreads the sections out over different periods. With this constraint, you can force them to be scheduled where you want.
Click Associate to select Course Number of the course that you want to restrict.

Use the pop-up menu to select to which term you want this constraint to apply.

Select the checkbox next to each period of each day that you want this course to be taught.

Select the Applies to days only checkbox to apply this constraint to only the day(s) specified in the Schedule checkboxes. The system does not consider periods and terms for this constraint if this box is checked.

Select the Applies to periods only checkbox to apply this constraint to only the period(s) specified in the Schedule checkboxes. The system does not consider days and terms for this constraint if this box is checked.
Select the Applies to term only checkbox to apply this constraint to only the term specified in the Term pop-up menu. The system does not consider days and periods for this constraint if this box is checked.

The minimum and/or maximum number of sections you want to restrict is entered in the Minimum Number of Sections field and/or the Maximum Number of Sections fields. If the Minimum Number of Sections and Maximum Number of Sections fields are both 0, then this course cannot be taught in any period or day the one(s) indicated.

If the course section you want to restrict has a section type, use the pop-up menu to select it. If a course has five sections and the two sections you want to restrict contain section types, you must create two constraints. A course can have multiple Course Room Constraints.

**Course Room**

This constraint is used to assign a course to a particular room or a number of rooms. For example, you could force the Computer-Aided Drafting class to be taught in the Computer Lab rather than the Shop.

*This constraint basically forces the course to be scheduled in that room above anything else.*

**Edit Course Room Constraint**

<table>
<thead>
<tr>
<th>Option</th>
<th>Value</th>
<th>Associate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Number</td>
<td>042002</td>
<td></td>
</tr>
<tr>
<td>Room</td>
<td>340</td>
<td></td>
</tr>
<tr>
<td>Teacher (optional)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Click Associate to select the course number that you want to assign to a particular room.

Click Associate to select the room number that you want this course to be scheduled.

Click Associate to select the teacher who will be instructing this course.

*Note: This constraint only applies to the sections of this course taught by the teacher you select. If you do not select a teacher, this constraint applies to all sections of the selected course. If the room does not have the facility the course requires, an error message will be generated to alert the user to pay attention to the room when troubleshooting. A course can have multiple room constraints.*
Course Team

This constraint is used to block teachers and courses together so that certain courses can only be taught at the same time as certain other courses. For example, Teacher 1 must teach Course 1 only when Teacher 2 is teaching Course 2 (or vise versa).

By default, the course team constraint forces two sections/teachers to meet at the same time. The two sections can have different section numbers. When there is a non-simultaneous relationship between the two teamed courses, the course team relationship will follow the course relationship. For example, Course A is blocked Before/After Course B while teacher A of Course A is teamed with teacher B of Course B. The relationship between the sections of teacher A/Course A and teacher B/Course B is not simultaneous anymore, instead it is before/after.

However, if the user wants the relationship between sections of Course A and Course B to be before/after while the two teachers have to meet the same time, the user can check the "Force Simultaneous" check-box in the constraint. So you have something like this:

Course A section#1 P1(A-B)Teacher A  --  Course B section#1 P2(A-B)Teacher A
Course A section#2 P2(A-B)Teacher B  --  Course B section#2 P1(A-B)Teacher B

A block course relationship does not require the two courses to have the same number of sections. A Course Team constraint allows Course 1 and Course 2 to offer different numbers of sections, as long as there is at least one section of each using the blocking specified.
Click Associate to select the course number of the first course you want to team.
Click Associate to select the name of the first teacher instructing the first course.
Enter the number of sections of the first you want to constrain.
Click Associate to select the course number of the course you want to team with the first course.
Click Associate to select the name of the teacher instructing Course Number 2.
Enter the number of sections of the second course you want to constrain.
Select the Simultaneous Blocking checkbox if you need these two teachers to be scheduled at the same time. Otherwise, the other blocking course relationship (such as Before or After) prevails.
Select the Same Room checkbox if you want to force both teachers to be scheduled in the same room.
Enter the minimum number of sections of these teachers that will be teamed together. For example, if each teacher has six sections of each course but you enter 3 in this field, then only three of the six sections will be teamed.

**Pre-Schedule**

This constraint is used to schedule sections of a course ahead of time when you already know exactly when and where they must meet in the master schedule. For example, use this constraint to schedule sections of Band in first period, which is the only time the Band Teacher is available.
Click Associate to select the course number of the course to preschedule.

Select the appropriate checkbox next to each period in each day that you want to preschedule this course.

For example, if you have a one-day schedule and select Period 1 and Period 2, a section of this course will span periods 1 and 2 every day. Alternatively, if you have a two-day schedule and select Period 1 for both days, the section will meet every day during first period.

Note: Create a separate Preschedule constraint for each section of a course.

Both optional features, click Associate to select the room number of the room where this prescheduled course is to meet and click Associate to select the teacher who instructs the prescheduled course.

If the section of the course you want to preschedule has a section type, use the pop-up menu to select it.

Note: If you want to preschedule two sections of the same course, one of which has a section type, you must create two constraints.

If the section of the course you want to pre-schedule is associated with a teacher team, use the pop-up menu to select it.

Schedule Break

This constraint is used to add flexibility to teachers' max-in-a-row count. On teacher's preference page, there is max-in-a-row to indicate how many consecutive periods the teacher can teach. The Schedule Break constraint breaks the max-in-a-row from certain period and it applies to all the teachers. For example, if we have a Schedule break constraint set at period 2, it means starting from period 3, the max-in-a-row will be re-calculated. In other words, you can have a teacher with max-in-a-row set to 2 to teach period 1, period 2, period 3 and period 4 but cannot teach period 5 at the same time because there is a break after period 2, consecutive periods have been re-calculated, while period 3, 4 and 5 will exceed the max-in-a-row 2.

Teacher Dovetail

This constraint is used to fit partial courses together during the same period so that they take up less room.
For example, if you have a course meets every other day in 6 day cycle and the teacher teaches two sections of the course, making the teacher dovetail for the course means the teacher will teach the two sections using only the same one period every other day.

A similar example applies to term too. For an example, if a semester course meets every day and the teacher teaches the two section of the course, making the teacher dovetail for the course means the teacher will take the same period on different semester.

Click Associate to select the course number of one of the courses you want to dovetail with another.

Click Associate to select the teacher who instructs this course. Only the sections of the course taught by this teacher will be constrained.

*Note: If you do not select a teacher, all teachers of the course you selected will be constrained.*

**Teacher Free**

This constraint is used to specify those periods when a teacher must be free, such as when teaching at another school. This is the opposite of the Teacher Part-Time constraint.
Click Associate to select the name of the teacher who you want to be free during certain periods of the day.
Use the pop-up menu to select the term to which you want to apply this constraint.
Select the checkbox next to each period in each day that you want this teacher to be free.

Teacher Part-Time

This constraint is used to define which periods a part-time teacher is available to be scheduled. This is the opposite of the Teacher Free constraint.

Click Associate to select the teacher who is on a part-time schedule.
Use the pop-up menu to select the Beginning Period that this teacher is available.
Use the pop-up menu to select the Ending Period that this teacher is available.
Enter the maximum number of consecutive periods this teacher is available. If you do not select any periods but do enter a value in this field, then the teacher will be available in any configuration of consecutive periods.
For example, assume you do not select any periods and enter 4 in the Maximum Periods field. If your school has a seven-period day, this teacher would be available for periods 1-4, 2-5, 3-6, or 4-7.

Teacher Team

This constraint is used to allow teachers to teach course sections outside of their own team. For example, if a teacher belongs to the Blue team but also must teach a section for the Red team, define this constraint to allow Red team students to be scheduled with this teacher for the selected course.
Click Associate to select the Course Number you want to link to a teacher.

Use the pop-up menu to select the appropriate teacher team code.

Click Associate to select the teacher who will be teaching outside of his/her assigned team.

Enter the number of course sections you want this teacher to teach outside of his/her assigned team.

Load Constraints

*Note: To view a list of load constraints and the number of each that have been defined for your schedule, choose Load Constraints from the constraints menu.*

Follow the path:

Start Page > PowerScheduler > Constraints > Load Constraints

The screen below displays.

Load Constraints


<table>
<thead>
<tr>
<th>Load Constraint</th>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance Adjustment</td>
<td>Pre-load a section with n students before calculating assigned.</td>
<td>0</td>
</tr>
<tr>
<td>Student/Student Avoid</td>
<td>Keep two students from being scheduled together.</td>
<td>0</td>
</tr>
<tr>
<td>Student/Teacher Avoid</td>
<td>Keep an individual student and teacher from being scheduled together.</td>
<td>0</td>
</tr>
<tr>
<td>Student Free</td>
<td>Schedule a free period for a student.</td>
<td>0</td>
</tr>
<tr>
<td>Section Link</td>
<td>Link the sections of two courses with the same students.</td>
<td>0</td>
</tr>
<tr>
<td>Student Preference</td>
<td>Force a student to schedule in a specific teacher's section.</td>
<td>0</td>
</tr>
</tbody>
</table>
**Balance Adjustment**

This constraint is used to preload a course section with a certain number of pseudo students before adding the rest of the students. For example, use this constraint if you have an English class that needs five seats open for ESL students.

Click Associate to select the course number of the course you want to balance. Enter the section number of the selected course that you want to balance. Click Associate to select the name of the teacher who instructs this course section. Enter the number of “pseudo” students to load into this section to hold seats.

**Student Avoid**

This constraint is used to instruct the system that two of the selected students cannot be scheduled into any of the same course sections.
**Teacher Avoid**

This constraint is used to instruct the system that the selected student and the selected teacher cannot be scheduled into any of the same course sections.

---

**Student Free Constraint**

Use a Student Free constraint to specify those periods when a student must be free, such as when taking a course at another school or who works part-time.
Click Associate to select the name of the student who needs to have a free period(s).
Use the pop-up menu to select the term that this student needs the free period(s).
Select the checkbox next to each period in each day that you want to schedule this student to have a free period(s).

**Section Link**

Use a Section Link constraint to specify that if students are enrolled in one course section, they must also be enrolled in another, specific course section.

Click Associate to select the Course Number of Course number 1 and 2 of the courses for which you want to link sections.
Enter the section numbers of courses that you want to link together.

**Student Preference**

Use a Student Preference constraint to schedule a student into a particular course section. You can also specify the course per a specific term and teacher.

**Edit Student Preference Constraint**

<table>
<thead>
<tr>
<th>Option</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>8479</td>
</tr>
<tr>
<td>Course Number</td>
<td>6402008</td>
</tr>
<tr>
<td>Term (optional)</td>
<td>Semester 1</td>
</tr>
<tr>
<td>Section Number</td>
<td>01</td>
</tr>
<tr>
<td>Teacher (optional)</td>
<td>555</td>
</tr>
</tbody>
</table>

Click Associate to select the student you want to force to schedule in a specific course section.
Click Associate to select the course. Use the pop-up menu to select the term to which you want this constraint to apply.
Enter the section number of the course into which you want the student to be scheduled.
Click Associate to select the teacher who instructs this course section (optional).

**Course Rank**

The course rank file defines the order in which the system schedules courses into the master schedule. The rank is a value that the system assigns to a course according to how difficult it is to schedule. As the system fills the master schedule with courses during the build, it becomes more difficult to schedule each successive course. Therefore, the order in which the system schedules courses is important.

First, the system builds the course rank based on course definitions and constraints. The system assigns each course a sequential number in increments of ten (such as 10, 20, 30). Then, you can manually change the rank of some courses based on your experience or special circumstances not reflected in course definitions or constraints.
For example, singletons (courses that are offered only once per term) are scheduled before multiple courses because there are less choices for students to get singletons. To schedule them first will assure a better schedule for the students that request singletons.

Demand for a course (the number of student course requests) and constraints on a course affect course rank. The system initially builds the course rank based on constraints and other parameters that you defined.

It is important to keep the course rank file up-to-date as you build your schedule and adjust your courses, teachers, constraints, and other parameters.

**Build Course Rank**

The first time you build the course rank, the system creates a rank file. As you build your schedule and adjust parameters, such as courses, teachers, and constraints, the rank file needs to be updated.

First, Build the initial Course Rank.

Click Build Rank.

The Confirm Build Course Rank page appears.
Click Submit. The Course Rank page appears.

**Update Course Rank**

If you edit the number of sections of a course, significantly change the number of student course requests, or add or delete constraints, you must update the course rank. The system saves any manual changes you made to course rank values and updates those you have not changed. Updating the course rank recalculates the system rank and updates the course rank for courses that you have not adjusted.

If you make several changes, including adding or deleting a course, you need to rebuild the course rank from scratch. The system overwrites all manual changes you made to the course rank.
Click Update Rank. The Update Build Course Rank confirmation message appears. Click Submit.

Confirm Update Course Rank

Please confirm you want to update the current course rank by pressing the submit button.

The Updated course ranking screen appears.

Edit Course Rank

After creating an initial rank file, you can edit a course rank based on your own experience or special circumstances not reflected in the parameters and constraints you defined. The rank you manually give a course overrides the rank assigned by the system.

For example, the system calculates a course rank of 90 for Concert Band based on the constraints you entered for this course compared to the constraints you entered for other courses. Due to experience in dealing with the conflicts band members face when trying to schedule Concert Band, you decide to change the rank of this class. By changing the rank from 90 to 5, you force other courses to schedule around Concert Band, reducing the chance of conflicts.

Select Course Rank from the PowerScheduler menu. The Course Rank page appears.
Select the delete checkbox to delete this course from the course rank. **You should only delete a course from the course rank if it is not going to be scheduled.**

The Sys Rank is the rank that the system has determined for the course.

The Rank is the rank the system determined for the course appears. The Sys Rank value is the same as the Rank value if the course rank has not been manually changed, however if the user wishes, the rank can be changed here.

The Course Number, Course Name, Sections, PPC, number of course requests, and number of course conflicts are displayed as non-editable text.

Under the course Constraints, if a dot were to appear, this is an indication that there are constraints tied to the course, if there is no dot, there are none.

The comment field houses any comments about why the user may be editing a particular course rank number.
Schedule Engine Download and Installation

The first step in that process is to download the latest scheduling engine. Follow the path:
Start Page > PowerScheduler > Engine Download

Mac Procedure:

Note: If you do not have StuffIt Expander installed, download the application from http://www.aladdinsys.com/.

Download and install the engine. Click PSSchedulerInstall.sit. The Download Manager page appears, and the engine downloads. Double-click PSSchedulerInstall.sit. If you have StuffIt Expander installed on your computer, the UnStuff page appears and creates a folder in your applications folder.

If you are using Mac OS X 10.2.2 without the “Security Update 2002-11-21” installed, the engine will not run properly. To install the security update, select Software Update from the Mac OS X System Preferences dialog, which is available from the Apple menu.

PC Procedure:

Note: If you do not have WinZip installed, download the application from http://www.winzip.com/.

1. Click PSSchedEngineInstall.ZIP. Depending on the type of computer you are using, different pages appear. However, everyone must save the scheduling engine software. Select a folder or directory that you will remember when asked where to store the software. Open WinZip. The WinZip page appears. Click Open to open Archive page, then navigate to the appropriate location,
Double-click PSSchedEngineInstall. On the WinZip page, double-click PSSchedEngineInstall.exe to extract the file. The InstallShield Wizard page appears.

Click Next. The Choose Destination Location page appears. Click Browse in the Destination Folder field to navigate to the appropriate location. When the InstallShield Wizard completes the process, click finish and the InstallShield Wizard page closes.

Note: For users that have SSL enabled, to allow the engine to communicate with your server, your LocalEngine.properties file must have the URL SSL Verify field set to False. See illustration below.

**Engine Notes for SSL**

```
## Default Local Engine properties, See Engine documentation for definitions and other settings.
#
log output = none
URL SSL Verify = false
keep all temp files = true
```
Validate your Master Schedule Data

After you follow all of the steps to prepare to build your master schedule, you need to validate the data you entered. When you validate the data, the Validation Log lists all errors and warnings associated with the data that was entered during the ‘Prepare to Build’ steps.

For example, the system alerts you if you assigned too many course sections to a teacher or if a student who is to be scheduled does not have any course requests.

Follow the path:
Start Page > PowerScheduler > Build Schedule

Select the validate option as illustrated. Click Execute.
Build Validation Errors

After you fix the issues the validation presents, you are ready to build your master schedule. The screen below is an example of what a validation error screen may look like.

It is necessary to correct the Errors in order for process to move forward. The engine will process information with warnings. Although warnings are not necessary to clear up, it is wise to take heed of the warnings because they may be flags for potential problems during the build.

When you click Validate on the Scheduling page, the system checks the data that was entered under Constraints, Courses, Rooms, Students and Teachers.
The table below contains examples of validation errors messages:

<table>
<thead>
<tr>
<th>Validation type</th>
<th>Error messages</th>
</tr>
</thead>
</table>
| Course          | • Course has been dropped. Missing from course rank. Sections offered is zero.  
                   • Invalid minimum periods-per-day.  
                   • Invalid frequency.  
                   • Invalid maximum days-per-cycle.  
                   • Invalid term length.  
                   • Invalid schedule type.  
                   • Dropped course still listed in course rank.  
                   • Course is not flagged to be scheduled.  
                   • The assigned course number is not valid.  
                   • Requested course number is not a valid course flagged for scheduling. |
| Teachers        | • Teacher is flagged for scheduling but has no teacher assignments.  
                   • Teacher has more periods assigned than periods available.  
                   • Teacher's max-in-a-row is zero.  
                   • Too many Sections assigned to teachers |
| Students        | • Scheduled student has no scheduled requests.  
                   • Student with requests is not flagged for scheduling.  
                   • Student is not flagged for scheduling but has requests. |

Once you know where the errors in your data are, go back and make the necessary corrections. Revalidate your scenario as many times as you have to until it is error-free. You will not be able to begin to build your master schedule until all of the errors are cleared.
Building The Master Schedule

Once all the prep work has been completed and you have passed the validation process, it is time to build the master schedule. When building a master schedule, the system assigns each section to a period and schedules the sections into rooms, assigns teachers to the sections based on teacher assignments. The system will attempt to satisfy as many student course requests as possible, while respecting constraints and the course rank.

The goal is to create a master schedule that satisfies the most student course requests possible while maintaining a good balance of students in course sections.

Plan on building the master schedule several times. It is likely that you will make changes and rebuild several times before you have a satisfactory schedule.

After you decide the master schedule is complete, you have the option of allowing the system to optimize it. Then, finalize the master schedule before loading student schedules.

Begin Building

Since the data is processed on the computer that the engine is housed, make sure that the computer meets the minimum requirements so that the process operates to its fullest capacity. The faster the processor, the faster the engine will run.

See Appendix A for recommended system requirements.

Once the engine is downloaded and installed, it is time to hit the Build button and get scheduling underway. Follow the path:

Start Page > PowerScheduler > Scheduling > Build Schedule

Select the Build Master Schedule Option.
Click Execute. The process will begin by PowerSchool packaging the information and notifying the scheduling engine on the user’s computer that it is ready to begin the build process. The engine downloads the files necessary for the build and begins to build the schedule.

It is not unusual for the engine to immediately quit. You must eliminate all build errors in order to proceed. Check the build error log to refer to the course that the engine quit on. Once the error is cleared, the building of the schedule can resume according to the previously set build rank.

The PowerSchool Scheduler page displays the following buttons:

- **More Detail** (Mac) or **Schedule Details** (Windows): Click this button to view additional information about the course the engine is scheduling. The button name changes to Faster. Click Faster to return to the page that appears less information but runs faster.
- **Abort Schedule**: Click this button to stop the build. Then, click Yes when asked if you are sure you want to stop scheduling. The system saves the schedule it created before you click Abort Schedule, but does not schedule the course it is currently reviewing.
For example, you start the build process on Friday afternoon but want to stop the build before you leave for the weekend. On Monday, restart the build where the system left off on Friday afternoon. For more information, see the section “Restart the Build.”

- **Skip Course**: Click this button to force the system to move on to schedule the next course. Then, click Yes when asked if you are sure you want to skip this course. You may want to click Skip Course if the system has tested one million of more than two million combinations for a course and is beginning to slow while attempting the final million combinations. The system schedules the course in the best combination it has attempted.

### Build Results Log

If the system stops immediately, the PowerSchool Scheduler page displays the following message: “No longer listening for incoming connections.” Check the build error log. This log displays any new validation errors the engine discovered. Even though you validated your data before you began the build process, the scheduling engine is able to find more potential problems than PowerSchool’s validation procedure.

To view the Build Results Log, follow the path:

Start Page > PowerScheduler > Scheduling > Build Master Schedule Queue

Under the Results Log, click View.

The Results Log page appears.
On this page, the information displayed are warnings, courses that were scheduled and on the last line, it displays the course the engine could not schedule or stopped on. To find a more information on why the course was unable to schedule, consult the Build Log.

Start Page > PowerScheduler > Scheduling > Build Master Schedule Queue

Under the Build Log, click View.

The Build Log Page appears. Scroll to the bottom of the page.
The Diagnostics dump tells you why the build stopped and what type of information to look for to correct the error.

```
***************
**** Diagnostics Dump *******
***************

Course: 0060 - Drawing and Design

AssignRms           Could not assign rooms to all sections:
BadBmpCombo         Invalid bitmaps dropped:
NeedRmps            Not enough distinct periods to schedule all sections for a teacher:
NeedTchs            Not enough teachers to cover all simultaneous sections:
FindRms             There are no rooms available for one or more sections:

***************
**** End: Build analysis *******
***************

Total run time: 77.29 seconds.
```

When the user thinks that the error may be cleared up, it is time to hit the Build button again.
Import the Master Schedule

Each time you click Build, you should import the results of that build unless you want to rebuild from scratch. Importing the Master Schedule flags the sections as locked. If you rebuild from this point forward, the user must check the option to use Locked Master Records, otherwise, the existing master schedule will be overwritten with the latest imported master schedule.

Start Page > PowerScheduler > Scheduling > Build Master Schedule Queue

Under the Results, click Import.

Build Master Schedule Queue

<table>
<thead>
<tr>
<th>Build Type</th>
<th>Started</th>
<th>Success</th>
<th>Completed</th>
<th>Results Log</th>
<th>Results</th>
<th>Build Log</th>
<th>Comment</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build</td>
<td>True</td>
<td>True</td>
<td>9/19/03</td>
<td>View</td>
<td>Import</td>
<td>View</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Each time you run a build, a new result appears on the Build Master Schedule Queue page. To import, click Import. The page below appears:

Select the Master Schedule option if you want to import the master schedule without student schedules. Select the Master Schedule with Student Schedules option if you want to import both the master and student Schedules.

Revisiting the Build Rank

Before you restart the build, you may need to rebuild or update your course rank if you made significant changes to a course or student course requests.

The system uses the course rank to determine the order in which it schedules each course. If you make changes to a course or student course requests, those changes may affect when the system should schedule the course during the build process.
Update the course rank if you add a new course to the course catalog. When you update the rank, the system fits the new course into the rank without moving or recalculating the rank of all the other courses. For more information, see the section “Build Course Rank.”

Rebuild the course rank for all courses if you add or drop sections from a course. The system deletes the previous course rank file and recalculates rank for every course.

If you rebuild the rank, do not lock previously scheduled courses when you build the schedule again. Rebuilding the rank places all courses, including those that were scheduled during the last build, in a new scheduling order. To allow the system to create the most successful schedule with the new rank order, build the schedule again by deselecting the “Use locked master records?” option.

Unlock Previously Scheduled Courses

When the schedule is rebuilt using “Locked Sections”, the system automatically selects the Locked Section checkbox on the Edit Section page to lock sections that were successfully scheduled in the previous build. The purpose of locking sections is to save time when rebuilding the master schedule.

Unlock all sections for a course when you want to rebuild that course in the master schedule. Make sure that all the sections of the course that you want to rebuild are unlocked. Leaving even once section of a multi-section course will throw an engine error causing the build to stop. The sections are locked as the build runs successfully.

If the build partially finishes and then you later rebuild, the system starts where it left off. To have the system rebuild sections of a certain course and then jump to where it left off, you must unlock the sections of the course and select the Use Locked Master Records checkbox when rebuilding. For example, unlock sections of a Biology course. When rebuilding, select the Use Locked Master Records checkbox. The system starts rebuilding with Biology and then skips to where it left off in the previous build.

If you do not select the Use Locked Master Records checkbox when rebuilding the master schedule, the system rebuilds all sections, locked or not.

Unlock Individual Sections

To unlock individual sections, follow the path:
Start Page > PowerScheduler > Courses
Select the Section link. The page below will appear. Deselect the Locked Section box next to the Section Number field. Click submit on the bottom of the page.
Unlock Multiple Sections

Use the Update selections function to deselect the Locked Section field for multiple sections. Follow the path:

Start Page > PowerScheduler > Scheduling Functions > Update Selections

The Screen below appears:

Select the course number field in the pop-up menu under the Search Schedule Sections field. Enter the course number as illustrated above. Click the “Search all “XXX” records in this school” button. The screen below appears.
In the Locked Sections field, enter “False”. Click Modify Selected Records.

**Delete or Edit a Section from the Master Schedule**

To unlock individual sections, follow the path:

Start Page > PowerScheduler > Courses

Click the Sections link. The page below appears. Click on the Section # link to open the section.

Enter any modifications then click submit to update section information.

Click the Delete button at the bottom of the page to erase the section from the master calendar.

**View the Master Schedule**

The first time you display the master schedule after creating or modifying it, the Master Schedule Preferences page appears.

Start Page > PowerScheduler > Master Schedule
Select the periods, days, rooms and teachers to display on the master schedule. Choose your sort preference then click Submit.

Based on the preference that was chosen, the Master Schedule displays.
Click a course number to edit the information for that section of the selected course. The Edit Section page appears.

Click a number for one of the classes to view a list of students in that class. The Class Roster page displays the students for the class.

### Optimize the Completed Master Schedule

When you determine that your master schedule is complete, the system can perform a final optimization. Although it is not required, PowerSchool recommends that you optimize the master schedule. See the section “Optimize the Master Schedule.”

Optimize your schedule before or after you make any manual adjustments. If you want to optimize your master schedule after you make manual adjustments and you want to keep these
courses where you manually scheduled them, enter very high rank numbers for the adjusted courses in the course rank. You can then define that the system only optimizes courses with a lower rank number. If you did not keep track of the courses you adjusted, do not optimize.

Optimizing your schedule can only make it better. To safeguard the original completed master schedule before you optimize, duplicate the scenario. See the section “Duplicate the Scenario.”

After optimizing the master schedule, you can finalize it. For more information, see the section “Finalize the Master Schedule.”

To Optimize your schedule, follow the path:
Start Page > PowerScheduler > Scheduling > Build Schedule

The screen below appears:

Select the Optimize button.

For Time Allowed for Optimization, enter the number of hours in the first field and the number of minutes in the second field. This is the time limit you are setting the system to spend optimizing your master schedule. Keep in mind, that PowerSchool restarts nightly so do not enter a number higher than 12 in the hours field.
Enter a rank number to flag the system to ignore optimization for courses above a specific rank. For example, if you enter 800 in the Max rank field, the system will optimize the courses with a course rank of 1-799. Click submit and the Scheduler runs again.

Once optimization is complete, import the latest results.

**Other Build Functions**

To access other Build Functions, follow the path:

Start Page > PowerScheduler > Scheduling Functions

The screen below appears
<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auto Create Rooms</td>
<td>Creates rooms from a pre-defined set of criteria.</td>
</tr>
<tr>
<td>Auto Fill Student</td>
<td>Populates required student scheduling fields by grade level.</td>
</tr>
<tr>
<td>Information</td>
<td></td>
</tr>
<tr>
<td>Auto Fill Course</td>
<td>Populates required course fields.</td>
</tr>
<tr>
<td>Information</td>
<td></td>
</tr>
<tr>
<td>Auto Fill Teacher</td>
<td>Populates required teacher scheduling fields.</td>
</tr>
<tr>
<td>Information</td>
<td></td>
</tr>
<tr>
<td>Auto Generate Course</td>
<td>Defines course information based upon the current master schedule.</td>
</tr>
<tr>
<td>Information</td>
<td></td>
</tr>
<tr>
<td>Auto Generate Rooms</td>
<td>Creates rooms from the existing master schedule.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Auto Generate Teacher</td>
<td>Creates teacher assignments from existing master schedule.</td>
</tr>
<tr>
<td>Assignments</td>
<td></td>
</tr>
<tr>
<td>Calculate Sections</td>
<td>Calculates the number of sections needed for each course in the current</td>
</tr>
<tr>
<td></td>
<td>catalog.</td>
</tr>
<tr>
<td>Copy Master Schedule</td>
<td>Copies the current year schedule to the current scenario.</td>
</tr>
<tr>
<td>Delete Master Schedule</td>
<td>Deletes the current scenario master schedule.</td>
</tr>
<tr>
<td>Duplicate Scenarios</td>
<td>Duplicates master schedule, student schedules, teacher assignments,</td>
</tr>
<tr>
<td></td>
<td>constraints and/or course relationships.</td>
</tr>
<tr>
<td>Move Previous Year</td>
<td>Move previous year's setup data to the current year.</td>
</tr>
<tr>
<td>Data</td>
<td></td>
</tr>
<tr>
<td>Regenerate Bitmaps</td>
<td>Resets the bitmaps from the expressions for all sections and constraints</td>
</tr>
<tr>
<td></td>
<td>in the current build.</td>
</tr>
<tr>
<td>Reset Class Counts</td>
<td>This function resets student numbers in each section of the master</td>
</tr>
<tr>
<td></td>
<td>schedule.</td>
</tr>
<tr>
<td>Reset Sections Offered</td>
<td>This function resets the number of sections offered for the current course</td>
</tr>
<tr>
<td></td>
<td>catalog.</td>
</tr>
<tr>
<td>Set Schedule Year</td>
<td>Sets the schedule year used for scheduling requests.</td>
</tr>
<tr>
<td>Split Year-Long Classes</td>
<td>Splits both section and enrollment records of year-long classes.</td>
</tr>
<tr>
<td>Update Selections</td>
<td>Allows you to select, modify and delete scheduling records in mass.</td>
</tr>
</tbody>
</table>

**Regenerate Bitmaps**

To reset the bitmap from the expression for all sections and constraints in the current build, click Regenerate bitmaps link on the Scheduling Functions page. The “Expression to Bitmap” page appears.
Select the checkbox if you want to proceed. Click Submit and the Changes Recorded page appears.

**Reset Class Counts**

To reset the number of students in each section for all courses in the current build, click on the. The system resets the number of students in each section in the current build, and redisplays the Scheduling Functions page.

**Reset Sections Offered**

To reset the number of sections needed for all courses in the current course catalog, click Reset Sections Offered link from the functions page. The system resets the number of sections needed for the current course catalog, and redisplays the Scheduling Functions page.

*Note that for the Lunch Course, since there are not assignments, the “Reset Sections Offered” will wipe out the number of sections offered for the course. It may cause potential problems. To fix this issue, manually enter the number of lunch sections in the sections offered field and submit the page.*
Loading Students

The build process creates the master schedule by placing courses in specific rooms during certain periods and scheduling teachers to instruct those courses. The load process places students in a schedule that has been created, based on their course requests.

In a sense, the build creates the master schedule and the load creates the student schedules.

Although students are loaded into the schedule as it is building, this is not necessarily an optimal load. Students who are loaded into the schedule early on have an advantage over those loaded later. Their course requests are more likely to be met, as they have a head start. Also, while these students may be fully or close to fully scheduled, theirs may not be the best possible schedule that the system can create based on the completed master.

When the system created their schedules during the build process, the best possible schedules were chosen for them at that time; however, the build was not complete, and the system could not take into account any changes made to the schedule after they were loaded. The build function does one pass. It does not go back to review better alternatives for courses already scheduled. It basically ignores the Close At Max instruction as well as Alternates during the build when loading students. It also ignores all Load constraints at that point.

Once you have built a satisfactory master schedule, you can begin fine-tuning student schedules by running a load. The ultimate goal is to keep trying to help individual students get all of their course requests.

Do not load students into your master schedule until you are satisfied with it. Loading will not have any impact on the structure of the schedule, just on the placement of students within it. Also, do not make manual adjustments to student schedules and then reload students; the system will overwrite all of the changes you made. Manual adjustments to student schedules should take place when you are finished loading.

Loading is required in most cases. You need to load if you entered alternate course requests or global substitutions, or if you chose to close course sections at a maximum number. The build process does not consider these factors, which are not met unless you load. Also, if you are making manual adjustments to your master schedule, you need to do a load under most circumstances. After running a load, analyze the results.

If you move more than a few courses. As a result, whenever you change to the master schedule, you need to reload students.

Validate your Load Data

After you have a completed master schedule, whether built by the scheduling engine or manually, you need to validate load. When you validate the data, the Validation Log lists all errors and
warnings associated with the data that pertains to the Load that was entered when creating the master schedule.

For example, the system alerts you if you have a student that has the incorrect number of requests for a particular course.
After you fix the issues the validation presents, you are ready to load your students into your master schedule. The screen below is an example of what the validation error screen may look like.
The table below contains examples of validation errors messages:

<table>
<thead>
<tr>
<th>Validation type</th>
<th>Error messages</th>
</tr>
</thead>
</table>
| Course          | • Course has been dropped. Missing from course rank. Sections offered is zero.  
• Invalid minimum periods-per-day.  
• Invalid frequency.  
• Invalid maximum days-per-cycle.  
• Invalid term length.  
• Invalid schedule type.  
• Dropped course still listed in course rank.  
• Course is not flagged to be scheduled.  
• The assigned course number is not valid.  
• Requested course number is not a valid course flagged for scheduling. |
| Teachers        | • Teacher is flagged for scheduling but has no teacher assignments.  
• Teacher has more periods assigned than periods available.  
• Teacher's max-in-a-row is zero.  
• Too many Sections assigned to teachers |
| Students        | • Scheduled student has no scheduled requests.  
• Student with requests is not flagged for scheduling.  
• Student is not flagged for scheduling but has requests. |

**Run a Load**

Anytime you adjust the master schedule, you potentially affect and conflict many students' schedules. For example, moving a course section to a different period may allow a number of unmet course requests to be satisfied, but can cause problems with others. Imagine the possible
There are two approaches to loading:

**Loading all students** uses the approach to see if the system can create better schedules for all students. This is done when the master schedule is done, or a number of changes were made to the master schedule.

**To reload a selected group of students**, use the **Load Selected Student** option. For example, this approach is used when you have a last minute group of students to schedule.

To run a load, follow the path:
Start Page > PowerScheduler > Load Schedules

The page below appears:

![Load Schedules page](image)

Select the type of load you want to run: Full, Balance or Reschedule.

**Full Load**

When you run a Full load, the system reschedules all students. Keep in mind that all previously created student schedules or manually adjusted student schedules are overwritten.
Balance Load

When a Balance Load is run, the system adjusts student schedules to help improve the balance of students among sections, although there is no guarantee that students’ schedules will not change.

Reschedule

The Reschedule option triggers the system to reschedule only a selection of students whose schedules needed to be loaded again. This option can be selected multiple times. To use this function, select the students from the student selection area. Once students have been picked, select the reschedule option from the page and it will reschedule the selected students.

Close Sections at Maximum

When the Close Sections at Maximum button is selected, this ensures that the load closes course sections at their maximum enrollment numbers. Do not select this checkbox the first time you do a load. The build itself runs without considering section maximums, so this will let you determine if you can get a little better percentage. Also, doing so will help you focus on students with conflicts.

Use Global Course Substitutes

To ensure that the system automatically inserts any global course substitutes after student course substitutes have been tried and rejected, utilize the Use global course substitutes option.

Use Student Course Substitutes

To ensure that the system automatically inserts student course substitutes in the order chosen, utilize the Use student course substitutes option.

Import Student Schedules

After you load students into schedules, you must import the results in order to display student schedules in PowerSchool. You must import the load that corresponds with the appropriate build.

If you import rescheduled load that have changed for a student or a group of students after the first import, only the schedules of the selected students will be overwritten. Students’ schedules that did not change since the last import are not affected.

To import a load, follow the path:

Start Page > PowerScheduler > Load Student Schedules Queue
Click on the Load (Q). The screen below The Load Student Schedules Queue page appears.

Click Import in the appropriate row in the Results column. The Changes Recorded page appears once the selected load completes importing.

To display the Scheduling page, choose PowerScheduler from the main menu on the start page. The page displays the following information:

Build Scenario: The name of the build scenario. Click the name of the scenario to view or edit its information.

Last Build: The most recent date you built the master schedule for a build scenario.

Last Load: The most recent date you loaded student schedules for a build scenario.

Students With Requests: The total number of students for whom course requests were entered.

Requests Satisfied: The percentage of students that have all their course requests satisfied.

Students Without Conflicts: The percentage of students without any conflicts in their schedules.

Status: Indicates if the build scenario is active or inactive.
Load Results Log

Similar to the build error log, the load error log displays the names of students it cannot schedule. It also provides possible reasons the engine did not run properly and alerts you to any potential issues the engine finds.

To read a load error log, follow the path:
Start Page > PowerScheduler > Load Student Schedules Queue
Click on the Load (Q). The screen below The Load Student Schedules Queue page appears.

Load Student Schedules Queue

Click View in the Error Log column of the appropriate row. The “Error Log for the school appears.

This page alerts you to problems with the load. If your load was successful, a dashed line appears. If your load was unsuccessful, resolve the issues outlined in the log and reload.

Post-Load Options

After completing your first load, you can accept the results of the load and begin manually adjusting student schedules. Select this option only if you are positive that the master schedule will not change and that student schedules are correct. Verify student schedules to make sure the master schedule is correct. For more information on adjusting student schedules, see the section “Manually Adjust Student Schedules.”

Resolve student conflicts by using or adding alternate course requests if you did not use them in the first load. If your schedule contains alternate student course requests but you did not allow the system to use them, rerun the load and select the substitutes options.

Manually adjust student course requests to allow better scheduling. For example, if a student has a course request that is impossible to meet, change it. Repeat this process until you are satisfied with the results.

Select the students you want to reschedule. Then, reload student schedules.

If you select the options to resolve student conflicts or manually adjusts student course requests, you probably need to reload student schedules. In the event that the unsatisfactory load results are due to discrepancies in the master schedule, you need may need to rebuild or manually adjust the master schedule.
Manually Adjust Student Schedules

Manually adjust and fine-tune student schedules only if you are positive that the master schedule will not change and that student schedules are correct. You can also manually enroll students in courses based on their course requests.

To manually enroll a Student in a Course, choose Students from the PowerScheduler menu. The Scheduling page appears.

Enter the name of the student whose schedule you want to change then click the Search icon. The student’s name will appear on the left frame of the browser. Click the student’s name. Choose Schedule from the pop-up menu or click Schedule. The Schedule page appears.

Click the Enroll pop-up menu.

Choose the period in which you want to enroll this student in a course. The Available Period Courses page appears.
The page displays the course information, expression, term, teacher, credit type, credit hours and the current enrollment in that section followed by the maximum enrollment allowed.

Click a course name to add that course to the student’s schedule during the selected period. The Scheduling page appears.

**Drop a Student from a Course**

To manually drop a Student from a Course, choose Students from the PowerScheduler menu. The Scheduling page appears.

Enter the name of the student whose schedule you want to change then click the Search icon. The student’s name will appear on the left frame of the browser. Click the student’s name. Choose Schedule from the pop-up menu or click Schedule. The Schedule page appears.

Click the Drop pop-up menu.
Choose the period in which you want to drop this student from a course. Period names in the menu match the periods on the page. For example, to drop a course that convenes during Period A2 in Semester 2, select the second occurrence of A2. The Scheduling page appears.

*Note: To drop more than one course at a time, select the checkbox in the appropriate row, and then click Drop Classes.*

**Filter Manual Schedule Options**

To filter manual schedule options for a chosen Student, choose Students from the PowerScheduler menu. The Scheduling page appears.

Enter the name of the student whose schedule you want to change then click the Search icon. The student’s name will appear on the left frame of the browser. Click the student’s name. Choose Schedule from the pop-up menu or click Schedule. The Schedule page appears.

Click the Enroll pop-up menu.
Choose the period in which you want to enroll this student in a course. The Available Period Courses page appears.

Select one of the following to filter information on the Available Period Courses page.
- Period: Choose the period from the pop-up menu.
- Term: Choose the term from the pop-up menu.
- Teacher: Choose the teacher from the pop-up menu.
- Day: Choose the day from the pop-up menu.
- Grade: Choose the grade level from the pop-up menu.
- Course: To jump to a particular course, enter the course number and press Return (Mac) or Enter (Windows).
- Show only classes with available seats: Select this checkbox to display only classes that have not reached the maximum enrollment.

**Mass Enroll a Group of Students in a Course**

To manually mass enroll a group of students in a Course, choose Students from the PowerScheduler menu. The Scheduling page appears.
Query your group of students whose schedule you want to change then click the Search icon. From the selected students page, select the functions button on the bottom of the screen. The Functions page appears.

Click Schedule Mass Enroll. The Mass Enroll page appears.

Choose the Teacher, the period and term from the pop-up menu. Alternatively, the user can enter the course and section number. Separate the course and section numbers with a period and no spaces. (ie. course.section). Click submit and the Changes Recorded page appears.

**Checklist to Insure a Successful Build and Load**

**Analyze the Load Results**

When the load finishes, percentages for students with requests, students without conflicts, and total requests satisfied appear on the main Scheduling page.
Following is a checklist you can use to be sure that your student schedules are complete:

- You built a master schedule.
- You worked on conflicts, identified patterns, and corrected problems.
- You updated your master schedule.
- You optimized your master schedule. (optional)
- You ran a load.
- You checked your balances.
- You accommodated all student course requests. (optional)
- You reloaded and made any manual adjustments.
- Your balances are satisfactory.
- Your Teacher schedules are satisfactory.

Other Post Build/Load Functions

**Automated Study Hall**

The Automated Study Hall function provides study hall periods to students with incomplete schedules. The user creates a Study Hall Course and dedicates its use for Study Hall. Automated Study Hall creates study hall sections, into which students, teachers, and rooms are scheduled.

Perform this function only after you build and load a master schedule. In addition, set up a Study Hall course before creating study hall sections.

Follow the path:

Start Page > PowerScheduler > Automated Study Hall Parameters
The Auto Study hall Parameter Page appears. Use the following field information to complete your study hall set-up.

**Run For**: Choose whether you want to set up study hall sections for all students or only for the selected students.

**Terms**: Click Associate to select the terms in which you want to set up study hall sections. The terms available include only those terms in the active scenario.

**Course**: Click Associate to select a course from which you will create study hall sections. The courses available include only those courses in the active catalog.

**Rooms Allowed**: By default, all the rooms that are tagged as scheduled can be used for Study Hall. Click Associate to select the room(s) that can be used for study hall sections. The rooms available include only those that are selected to be scheduled and are associated with the selected school. Select the "Allow Multiple Sections Per Room" checkbox if there can be more than one section in a particular room at the same time.

**Teachers Allowed**: By default, not selecting any teachers will assume that ALL the teachers that are flagged to be scheduled can be assigned to a study hall section. Click Associate to select the teacher(s) that can be scheduled for study hall sections. The teachers available include only
those that are selected to be scheduled and are associated with the selected school. Select the "Allow Exceed Max-in-a-Row for Teachers" checkbox if you want to exceed the maximum number of periods in a row on a teacher's schedule.

**Max Number of Students per Section:** Enter the maximum number of students that can be scheduled into a study hall section.

**Periods Allowed:** By default, no periods selected assumes that all periods are applicable to study hall sections. Click Associate to select the period(s) in which study hall sections can be scheduled. The periods available include only those in the active scenario.

**Day Pattern List:** By default, if a day pattern is left empty, it means that there will be a section created for every single day. Click Add and select a day pattern on which study hall sections can be scheduled. That way, PowerScheduler can be more efficient by setting up study hall sections that span multiple days, if possible.

For example, a five-day schedule could include the day patterns MWF, TR, and MTF. PowerScheduler would first find the students that have free periods that fit a given day pattern. Then, for each period in the master schedule, it creates the appropriate number of study hall sections that occur on each day in the day pattern. Assuming the maximum number of students per section is 25, the day pattern MWF would produce the following study hall sections:

| Number of students with unscheduled Period 1 on MWF day pattern: 50 |
| Number of students with unscheduled Period 2 on MWF day pattern: 0 |
| Number of students with unscheduled Period 3 on MWF day pattern: 20 |
| Monday | Tuesday | Wednesday | Thursday | Friday |
| Period 1 | 2 Sections | 2 Sections | 2 Sections |         |
| Period 2 |           |           |           |         |
| Period 3 | 1 Section  | 1 Section  | 1 Section  |         |

Click Add for each day pattern you want to identify. Click Modify or Delete to edit or remove a day pattern. If you do not add any day patterns, PowerScheduler will create a unique study hall section for each day and period in the schedule.

Click Create. The Automated Study Hall function will begin to create study hall sections based on the preferences set.

After setting up study hall parameters, you can view the results of the study hall setup. Click “View last Results link” on the Automated Study Hall Parameters Page. The Automated Study Hall - Results Log page displays the date and time the of the last study hall run and the parameters and values set for that run.
The figure of the Total students fully scheduled field, contains the number of students who had all unscheduled time filled with study hall sections as a result of the last run of Automated Study Hall.
The figure of the Total students with unscheduled time field, contains the number of students who did not have all unscheduled time filled with study hall sections as a result of the last run of Automated Study Hall.

**How to Split Yearlong Classes**

Use this function to split yearlong classes into smaller terms. By creating yearlong classes and then using this function to divide the class into smaller terms, you reduce the number of classes you need to set up.

*Note: This function should be when the user is ready to commit their master schedule.*

Follow the Path:
Start Page > PowerScheduler > Scheduling Functions
On the Scheduling Functions page, click Split Year-Long Classes. The Split Year-Long Classes page appears.

![Split Year-Long Classes](image)

Select the term segment into which you want to split yearlong classes, and select the checkbox if you want to proceed. Click Submit and the Changes Recorded page appears.

**Commit the Master Schedule**

When you have a satisfactory schedule you must commit it. Once a schedule is committed, it replaces any existing master schedule and becomes your current schedule for the upcoming school year.

You can commit the schedule as soon as the current academic year has ended, or you can wait until just before the next academic year begins.
How to Commit the Master Schedule

On the start page, choose PowerScheduler from the main menu. Under Processing, choose Commit from the PowerScheduler menu. The Commit Master Schedule page appears.

Reference the fields below to copy over Use the following table to enter information in the fields:

Select the Copy Years and Terms checkbox to verify that the beginning and ending dates of the draft years and terms are correct. Click Years and Terms to view these dates.

Select this checkbox to verify that the draft periods are correct. Click Periods to view the periods.

Select this Copy Master Schedule checkbox to verify that the draft master schedule is complete.

Select this Copy Student Schedules checkbox to verify that the draft student schedules are complete.

Select Sections Only option to commit only sections.

Select Student Schedules Only option to commit only student schedules.

Select Sections & Student Schedules option to commit both sections and student schedules.

Once you’ve made all your selections, click Submit and the Changes Recorded page appears.
Reports

To access all Pre-Build and Post Build Reports, follow the path:
Start Page > PowerScheduler > Scheduling Reports

Select the report that you wish to run.

Before building your master schedule, use the pre-build reports to determine that the scenario information is correct and view how student course requests will affect your schedule for the next school year. For example, run the Course Request Tally report if there are more requests than you originally planned for a particular course. You can then adjust the section count.

You can also view reports to display which teachers are assigned to which courses and print a teacher assignments list. The teacher reports only display the names of teachers who are already assigned to courses.

After you build a master schedule, use the post-build reports to help you correct any errors in your data, such as non-scheduled course requests, non-scheduled student requests, and underscheduled students. You can also use these reports to view your room utilization, a list of student schedules, and your new master schedule.
Print Class Rosters

You can print class lists either before or after you commit your master schedule. You can either run the Class Roster (Browser) Report or the Class Roster (PDF) Report. Follow the path:

Start Page > Reports > Run Reports

Click on the Class Roster PDF link.
The screen below appears:

<table>
<thead>
<tr>
<th>Student Listings</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Rosters (PDF)</td>
<td>Class information and roll sheets.</td>
</tr>
<tr>
<td>Master Schedule (PDF)</td>
<td>User definable student schedule report.</td>
</tr>
<tr>
<td>Student Schedule Listing</td>
<td>User definable student schedule report.</td>
</tr>
</tbody>
</table>
Class Rosters (PDF)

Print rosters for (hold the COMMAND key to make multiple selections)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
</tbody>
</table>

Meeting(s) (leave unchecked for all)

Include students who

- are currently enrolled in class
- were enrolled on [date]
- were enrolled any time between _ and _

Heading font

Times

Size, line height, style

18 (points) [ ] Bold [ ] Italic [ ] Underline

Print heading on

First page of each class

Heading text (Fields)
Enter [(teachername)] to cause the teacher name to appear, and period (period) for the period

Column title font

Helvetica

Size, line height, style

10 (points) [ ] Bold [ ] Italic [ ] Underline

Print column titles on

All pages

Roster Font

Times

Size, line height, style

12 (points) [ ] Bold [ ] Italic [ ] Underline

Roster columns (Fields)

Rule width (points)

Horizontal [ ] Vertical [ ]

Cell padding (points)

Horizontal [ ] Vertical [ ]

Page size

Letter (8 1/2” x 11”)

Margins (inches)

Left [ ] Top [ ] Right [ ] Bottom [ ]

Orientation, Scale

Portrait (vertical)

Watermark text

Watermark mode

Overlay

When to print

ASAP
Select the teacher(s) for whom you want the report from the Roster(s) from the list. You may also select All Teachers to print a roster for every teacher.

Select the period(s) that you wish to report on by clicking on the proper period and day. Leave blank for all periods.

Select the students that you wish to run this report for. You can choose the students that are currently enrolled in the class, students enrolled on a specific day or students that were enrolled within a specific date range.

Enter a Heading font. Also indicate the size, line height and style of the font if you wish. Also indicate if you wish the heading to be printed by making a selection on the corresponding drop-down menu.

The following example will include the teacher's name, course name, and expression:

Teacher: ^(teachernname)
Course: ^(coursesname)
Expression: ^(expression)

Select the Column title font. Also indicate the size, line height and style of the font if you wish. Also indicate if you wish the column titles to be printed by making a selection on the corresponding drop-down menu.

Select the Roster font. Also indicate the size, line height and style of the font if you wish. The Columns of student listing area allows you to specify what information you want displayed on the roster.

For example, if you wanted to display: First and Last Name and Grade Level, with the information centered you will use the special field name\column title\column width\alignment format and enter the following:

lastfirst \ Name \ 1.5\c
grade_level \ Grade \ .5\c

The Rule width refers to the thickness of the grid lines on the roster. Cell padding is the amount of empty space that surrounds the information inside each cell.

Indicate the page size by choosing from the corresponding dropdown menu. Enter a custom height and width if a custom page was selected.

Choose the Orientation / Reduction for the print out.

Select Watermark text and watermark mode if a watermark is desired on the report.
Indicate when you want to print this report. Click Submit. You will be taken to the Report Que Page. The report is produced and returned via PDF format.

**Note** If you print rosters for every teacher and every period this process may take a bit of time. You may have to hit the Refresh selection in your report que a couple of times before a "Completed" result appears.

Print Schedules

If you would like to print student and teacher schedules, you can do so either before or after you commit your master schedule. You can also print student schedules by creating a report card template that prints out future and current schedules.


Click New.

Click Submit. The Report Cards page appears. Click on the report that you just created.

Enter Heading for your report. Remember that this can include any type of information, such as your school's address, a note to parents, HTML tags, or data codes that pull information from the PowerSchool database.
Schedule Listing

The report card heading is created, and you return to the Report Card page. Format schedule listings to display the student’s future schedule (or current if you want to print the schedule for the current year).

Click Schedule Listing. The Student Schedule Listing page appears.

Choose a style for the column titles and a style for the class listings from the pop-up menus.

Select the Use Future Schedule checkbox to use next year’s student schedules. To use this year’s schedules, deselect the checkbox.

The remaining items on the first section concern the format of the report card. Complete them as necessary. Use the defaults by not making any changes to the formatting fields. Click Submit when data entry is completed.
The report card listings are complete, and you return to the Report Card page. Now, set up the footer. The footer is exactly like the heading except that it appears below the schedule listings. This can include any type of information, including your school's address, a note to parents, HTML tags, or PowerSchool data codes.

Enter the content of the footer in the large white field using text, HTML tags, and PowerSchool data codes. Click Submit. The report card footer is created, and you return to the Report Card page.

To specify how the report fits on the page, click Margins & Page Setup. The Report Card Margins page appears.
Click Submit when data entry is completed.

To specify how the report will print, click Special Printing Options. The Special Printing Options page appears. (Optional)

**Special Printing Options: AGHS Progress Report**

![Special Printing Options](image)

To view or print a student schedule, select the student’s who's schedules you wish to preview from the start menu. Enter your search query. Click submit,

**Search Students**

![Search Students](image)

**Browse Students**

![Browse Students](image)

Select Print Report from the Functions menu.

![Print Report](image)

Click submit. The Print Report Screen appears:
Select the report card template that you created. Select any parameters that pertain to the report and click submit. The report queue will appear.

**Report Queue - My Jobs**

<table>
<thead>
<tr>
<th>Created</th>
<th>Job Name</th>
<th>Started</th>
<th>Ended</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/29/2004</td>
<td>Student Schedule</td>
<td>01/29/2004</td>
<td>01/29/2004</td>
<td>Completed</td>
</tr>
</tbody>
</table>

Click on a job name to view the Job Detail page, which provides additional information about the job. The Job Detail page can also be used to change the scheduled execution time or run a completed or canceled job again.

If a job is running or is waiting to be run, you can cancel it by clicking the red cancel icon. You can also cancel a job on the Job Detail page. Note: If you cancel a running job, depending on the job's complexity, it may not be immediately marked as canceled, but will eventually respond to the cancel request.

Completed and canceled jobs will automatically be deleted after 2 days. Click on the trash can icon to immediately delete an individual job, or you can delete all completed or canceled jobs.
Click on the report link when report is marked “Completed.” Note that the user may have to hit the refresh button several times for the “Completed” message to appear. Your report(s) will open as a PDF document. Print as needed.
Appendix A: Minimum System Requirements

Be sure that your network stations, and server meet the minimum requirements for PowerSchool.

Network Requirements

PowerSchool requires a full-time, high-speed (T-1 at 1.5 megabits) Internet connection to the school or district’s network. It is recommended that a minimum capacity of 10 MB Ethernet supporting the TCP/IP protocol be in place on the LAN/WAN, with 100 MB connectivity to the server. PowerSchool should be the only application running on the server.

Each workstation must have Internet access and/or a LAN/WAN connection, depending on the configuration of the district infrastructure.

Server Platform Requirements

PowerSchool will support a single database, single server configuration in districts with enrollments of up to approximately 10,000 students. The application can be installed on a Macintosh G4 running OS 9.2.2 or OS X, an Apple Xserve running OS X, or a Windows-based server running Windows 2000 Server. The server should be dedicated exclusively to PowerSchool.

Typical installation requires the placement of the PowerSchool server behind the district firewall to control access. However, it can also be placed outside the firewall with use of the built-in security features that are available in the application.

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Optimum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Macintosh</strong></td>
<td></td>
</tr>
<tr>
<td>Macintosh G4</td>
<td>Macintosh Xserve or Macintosh G4</td>
</tr>
<tr>
<td>933 MHz PowerPC G4 processor</td>
<td>Dual 1.25 GHz PowerPC G4 processor</td>
</tr>
<tr>
<td>256K L2 cache &amp; 1 MB L3 cache</td>
<td>256 L2 cache &amp; 2 MB L3 cache per processor</td>
</tr>
<tr>
<td><strong>Macintosh, continued</strong></td>
<td></td>
</tr>
<tr>
<td>512 MB PC2700 DDR RAM</td>
<td>1.5 GB PC2700 DDR RAM</td>
</tr>
<tr>
<td>20 GB Ultra ATA Drive @ 7200 rpm</td>
<td>20 GB Ultra ATA Drive @ 7200 rpm</td>
</tr>
<tr>
<td>Mac OS 9.2.2 or OS X (latest version)</td>
<td>Mac OS X (latest version)</td>
</tr>
<tr>
<td>Optical 1 - Combo drive (DVD/CD-RW)</td>
<td>Optical 1 - Combo drive (DVD/CD-RW)</td>
</tr>
<tr>
<td>Keyboard and mouse</td>
<td>Keyboard and mouse</td>
</tr>
</tbody>
</table>
## Minimum System Requirements

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Optimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uninterrupted power supply</td>
<td>Uninterrupted power supply</td>
</tr>
<tr>
<td>Network card: 100Base-T 100MB/second</td>
<td>Network card: Gigabit Ethernet</td>
</tr>
<tr>
<td>ISP: T1 with redundancy</td>
<td>ISP: T1 with redundancy</td>
</tr>
</tbody>
</table>

## Workstation Requirements

Since PowerSchool performance is directly affected by the performance of the workstation, users should use the following workstation configuration to ensure the best possible performance during data entry and analysis activities.

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Optimum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Macintosh</strong></td>
<td></td>
</tr>
<tr>
<td>PowerPC</td>
<td>G4 400+MHz</td>
</tr>
<tr>
<td>64MB RAM</td>
<td>128MB RAM</td>
</tr>
<tr>
<td>15” monitor, 800 x 600 resolution</td>
<td>17-19” monitor, 1024 x 768 resolution</td>
</tr>
<tr>
<td>50 MB available disk space</td>
<td>50 MB available disk space</td>
</tr>
</tbody>
</table>
### Minimum System Requirements

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Optimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mac OS 8.6, OS 9.2.2, OS X</td>
<td>Mac OS 8.6, OS 9.2.2, OS X</td>
</tr>
<tr>
<td>IE 5.0+, 128 encryption, Netscape 4.7+</td>
<td>IE 5.0+, 128 encryption, Netscape 4.7+</td>
</tr>
<tr>
<td>Adobe Acrobat</td>
<td>Adobe Acrobat</td>
</tr>
<tr>
<td>Surge protector</td>
<td>Surge protector</td>
</tr>
<tr>
<td>Internet access: 10Base-T 10MB/second</td>
<td>Internet access: 100Base-T 100MB/second</td>
</tr>
<tr>
<td>ISP: T1 with redundancy</td>
<td>ISP: T1 with redundancy</td>
</tr>
</tbody>
</table>

#### Windows

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Optimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentium</td>
<td>Pentium IV</td>
</tr>
<tr>
<td>64 MB RAM</td>
<td>128 MB RAM</td>
</tr>
<tr>
<td>15” monitor, 800 x 600 resolution</td>
<td>17-19” monitor, 1024 x 768 resolution</td>
</tr>
<tr>
<td>50 MB available disk space</td>
<td>50 MB available disk space</td>
</tr>
<tr>
<td>Windows 95, 98, NT 4.0, Win 2000</td>
<td>Windows 95, 98, NT 4.0, Win 2000</td>
</tr>
<tr>
<td>IE 5.0+, 128 encryption, Netscape 4.7+</td>
<td>IE 5.0+, 128 encryption, Netscape 4.7+</td>
</tr>
<tr>
<td>Adobe Acrobat</td>
<td>Adobe Acrobat</td>
</tr>
<tr>
<td>Surge protector</td>
<td>Surge protector</td>
</tr>
<tr>
<td>Internet access: 10Base-T 10MB/second</td>
<td>Internet access: 100Base-T 100MB/second</td>
</tr>
<tr>
<td>ISP: T1 with redundancy</td>
<td>ISP: T1 with redundancy</td>
</tr>
</tbody>
</table>

### Workstation Requirements – Scheduler

Since PowerScheduler uses a scheduling engine that requires local processing, the user responsible for scheduling should use the following workstation configuration to ensure the best possible performance during scheduling activities.

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Optimum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macintosh</td>
<td></td>
</tr>
<tr>
<td>G4 500 MHz processor</td>
<td>G4 Dual 1.25 GHz processors</td>
</tr>
<tr>
<td>512 MB RAM</td>
<td>1 GB RAM</td>
</tr>
<tr>
<td>15” monitor, 800 x 600 resolution</td>
<td>17-19” monitor, 1024 x 768 resolution</td>
</tr>
<tr>
<td>100 MB available disk space</td>
<td>100 MB available disk space</td>
</tr>
<tr>
<td>Minimum</td>
<td>Optimum</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Mac OS X v. 10.2</td>
<td>Mac OS X v. 10.2</td>
</tr>
<tr>
<td>IE 5.0+, 128 encryption, Netscape 4.7+</td>
<td>IE 5.0+, 128 encryption, Netscape 4.7+</td>
</tr>
<tr>
<td>Adobe Acrobat</td>
<td>Adobe Acrobat</td>
</tr>
<tr>
<td>Surge protector</td>
<td>Surge protector</td>
</tr>
<tr>
<td>Internet access: 10Base-T 10MB/second</td>
<td>Internet access: 100Base-T 100MB/second</td>
</tr>
<tr>
<td>ISP: T1 with redundancy</td>
<td>ISP: T1 with redundancy</td>
</tr>
</tbody>
</table>

**Windows**

<table>
<thead>
<tr>
<th>Pentium IV 1 GHz processor</th>
<th>Xeon Class 2+ GHz processor (fastest available)</th>
</tr>
</thead>
<tbody>
<tr>
<td>512 MB RAM</td>
<td>1 GB RAM</td>
</tr>
<tr>
<td>15” monitor, 800 x 600 resolution</td>
<td>17-19” monitor, 1024 x 768 resolution</td>
</tr>
<tr>
<td>100 MB available disk space</td>
<td>100 MB available disk space</td>
</tr>
<tr>
<td>IE 5.0+, 128 encryption, Netscape 4.7+</td>
<td>IE 5.0+, 128 encryption, Netscape 4.7+</td>
</tr>
<tr>
<td>Adobe Acrobat</td>
<td>Adobe Acrobat</td>
</tr>
<tr>
<td>Surge protector</td>
<td>Surge protector</td>
</tr>
<tr>
<td>Internet access: 10Base-T 10MB/second</td>
<td>Internet access: 100Base-T 100MB/second</td>
</tr>
<tr>
<td>ISP: T1 with redundancy</td>
<td>ISP: T1 with redundancy</td>
</tr>
</tbody>
</table>

Apple will only make recommendations as to the hardware configurations necessary to ensure the best performance of PowerSchool. It is the district’s responsibility to procure and install the necessary hardware.

**Software Requirements**

PowerSchool’s Web-based architecture supports the use of Internet browsers Netscape Navigator 4.7 or Internet Explorer 5.0 or later to access PowerSchool’s administration, teacher, and parent functionality.

PowerSchool requires Timbuktu Pro 6.0.2 for Mac OS or Timbuktu Pro for Windows 2000 loaded on the server. This enables utilization of the Internet for installation of the application on the server and enables the auto-update feature to be used.

PowerSchool includes comprehensive functionality that enables the export of data to industry standard third-party applications for data manipulation and analysis. This feature set also allows...
the user to import data into PowerSchool. You must have Microsoft Excel or the equivalent available to take full advantage of this functionality.

Additionally, you need Adobe Acrobat Reader to read the PDF files produced by PowerSchool’s reporting functionality.

Use an Apple G4 or Windows 2000 server to run PowerSchool, which supports up to 10,000 students with a single database. You will also need a full-time, high-speed (T-1 at 1.5 megabits) Internet/intranet connection. An Internet connection is needed for access to the system outside the school intranet.

All Web browsers should be Internet Explorer 5.x or Netscape 4.7 or later. All PowerSchool users need Web browsers.