ASPIRE

Scheduling:
Using the Loader

Contents

Loader Automates Student Scheduling

Loader provides an automated process for placing student course requests into the Master Schedule based on a set of rules for the entire school. Loader also generates the schedule options for individual students in the Walk In Scheduler (WIS). "Loader" is the engine behind all automated scheduling functions in Aspire.

Loader's efficiency is driven in part by the structure of the Master Schedule. Loader is extremely effective when the structure of the Master Schedule follows the guidelines suggested in the Master Schedule Module documentation.

The purpose of this document is to provide the greatest advantage in automated student scheduling by leveraging Loader's settings and rules in the Mass Scheduling process. All the settings and optimizations you set up in Loader for use in the mass scheduling process are in effect when scheduling individual students in WIS.

Getting Started with Loader Overview

Running Loader requires prerequisite rules, settings and system conditions so it can run effectively. Loader is typically only run at the beginning of the new school year as part of the mass scheduling process. Walk In Scheduler runs Loader behind the scenes for individual student schedules throughout the year.

Here are the steps of to using Loader:

1. Establish the prerequisites.
    a. Loader rules.
    b. Loader Options.
2. Pre-schedule Courses.
3. Run Loader.
4. Adjust Master Schedule to better accommodate student requests.
5. Rerun Loader as needed.
6. Confirm results and decide to keep or tweak the results.
7. Continue steps 3 - 6 until satisfied.

Prerequisites

All courses need to be assigned to Faculty, selected to the target track, and set-up properly in the Master Schedule Editor. Students need to be enrolled in that track and have Course Requests entered which will be used by the Loader. That track must have no Attendance or Mark Reporting entries. The Term Codes table must be properly set up. You need to have at least one Loader Rule in the system.

Loader Rules

Loader requires at least one rule. Even if you do not use Loader Rules, you will need to have a Loader Rule in the system for Loader to work. There are two types of Loader Class Rules. There are Class Rules of before / after and same / different. There are also Course Load Balancing rules.

Settings – Loader Options

Loader settings are under Loader Options…

Pre-Scheduled

Pre-Scheduled may be performed, based on what you are trying to accomplish when running the Loader. If you have a listing or group of students that you want to schedule into a particular period or section of a course, you need to pre-schedule them into that course rather than have the Loader attempt to schedule their request for that course.

Run Loader

Students are placed into the Master Schedule based on their requests and the loader rules. Results of the load are visible on the "Summary of Loader Results" report. Choosing the "Summary of

Loader Results by Course" allows you to see percentages and the schedule counts. These are helpful in determining if another attempt is required.

Adjust Master Schedule to better accommodate student requests.

If you determine you are not satisfied with the results, changes in the Master Schedule are usually made to change the outcome of a load. Reports like "Conflict matrix" and the "Unscheduled Student Report" provide valuable feedback on courses that may need to be moved to accommodate more students.

Rerun Loader as needed.

Loader can be run as many times as needed. Each time the "Delete Future Schedules" button is clicked all the students in classes at that moment are removed and their requests are reset to unscheduled. Rerunning Loader places students back into classes based on the updated Master Schedule and any Loader Rule changes.

Continue until satisfied.

Most schools have a target percentage of students they strive to successfully schedule with full schedules. Usually this goal is over 90%. This means the scheduler at the school continues to change and adjust the Master Schedule and rerunning Loader until the "Summary of Loader Results" report shows a full schedule percentage greater than the desired percentage. This takes a real commitment to meeting student needs.

Details of Running Loader in the Mass Scheduling Process

The mass scheduling process uses Loader Rules and Loader Options to load students course requests into the Master Schedule. The rules and options set in Loader influence exactly what Loader does with each student request it places into the schedule. Loader performance can be affected by the complexity of the rules and options you select.

Pre-Scheduled

Pre-Scheduled may be performed, based on what you are trying to accomplish when running the Loader. If you have a listing or group of students that you want to schedule into a particular period or section of a course, you need to Pre-Schedule them into that course rather than have the Loader attempt to schedule their request for that course.

If you already know the course, period, day, term, etc. that you want a student Pre-Scheduled to ensure that that student gets "locked -in" to that section.

Pre-Scheduled refers to using a scheduling application (Assign Students or Student Schedule) to schedule a student into the selected course. Choose 'PRE -SCHEDULED' as the Entry Code. 'Pre -Scheduled' MUST BE THE ENTRY CODE SELECTED. If any other code is used, the Loader will not recognize the course as Pre-Scheduled and it will delete the course the next time the Loader is run.

Pre-Scheduled in Assign Students

Assign Students does not use Course Requests when it schedules students. If you have used Assign Students to perform Pre-Scheduling, and the student's Pre-Scheduled course previously had a request, those requests will still appear in the Course Requests application as unscheduled. Go into Course Requests and remove the requests for that course from the appropriate students.

Pre-Scheduled in the Student Schedule Editor

If you are using Student Schedule to perform Pre-Scheduling, pick the course to Pre-Schedule from the list of Course Requests on the left. This will mark the request as Pre-Scheduled and it will not have to be removed from the Course Requests application.

Some Pre-Scheduled Scenarios:

- You have a list of Special Education students that you want to be placed into a particular period of a course. Since you already know the students to schedule and what period you want to schedule them into, you may use Pre-Scheduled to make sure that they are placed into the proper period of that course.
- You offer three sections of a Band elective course that students in different grade levels can be scheduled into. The same faculty member teaches all three sections. You want the more experienced students to be placed into the third section of that course. You already know the students to schedule and where to schedule them, so you can use Pre-Scheduled to ensure that the more experienced students are scheduled into the third section of Band.
- Any time you have a list, or pre -determined roster of students, and you know which section of a course they MUST be placed. Pre-Scheduled can be a useful tool for you to make sure that your selected students end up exactly where you want them.

Loader Rules

Loader requires at least one rule. Even if you do not use Loader rules, you will need to have a loader rule in the system to use Loader. There are two types of rules, Class Rules (before / after and same / different), and Course Load Balancing rules.

Note in all Loader Rules it is a good practice to create rules that go both directions. If you have a rule to schedule Course A before Course B then it is best to also put in a rule for Course B. In this case the rule would be to schedule Course B after Course A. This way as Loader is working the rule is applied regardless of which course it attempted first.
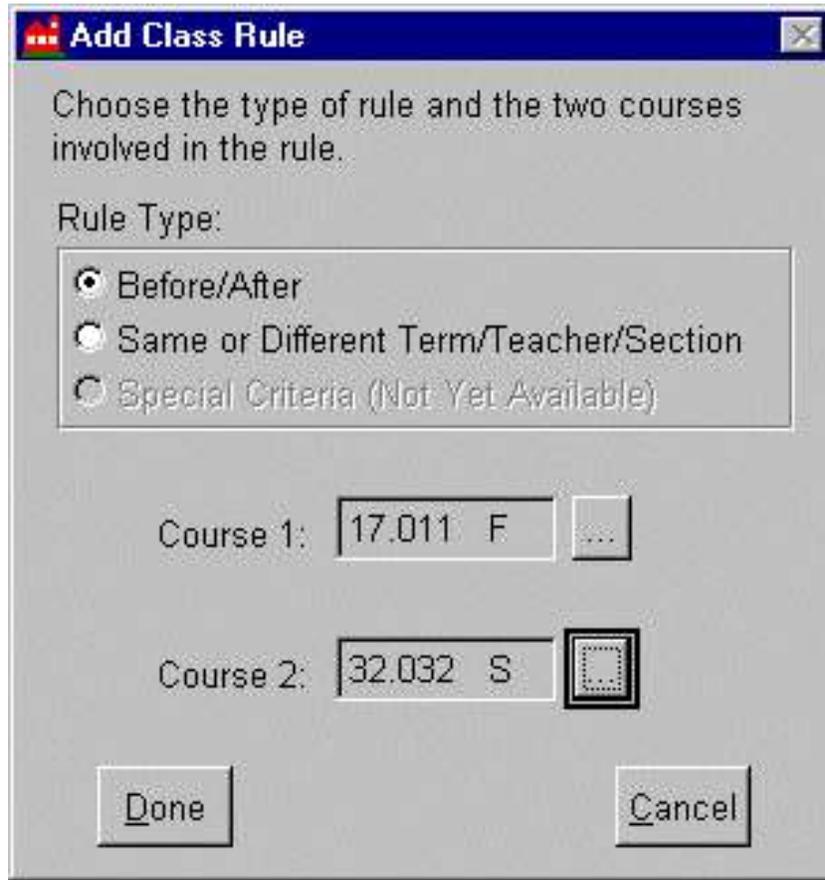
Select 'Class Rules'

Class Rules defines relationships between TWO DIFFERENT COURSES and how the Loader will schedule them, based on those relationships.

There are two types of Class Rules. 'Before/After Rules' where you might define that the Loader schedule Biology before Biology Lab for example. And 'Same or Different Rules' where you might tell the Loader to schedule a student into section 2 of Biology Lab if that student is scheduled into

Section 2 of Biology; or schedule the student with any Faculty Member besides Mr. Smith for Biology if the student is scheduled with Mr. Smith for Biology Lab.
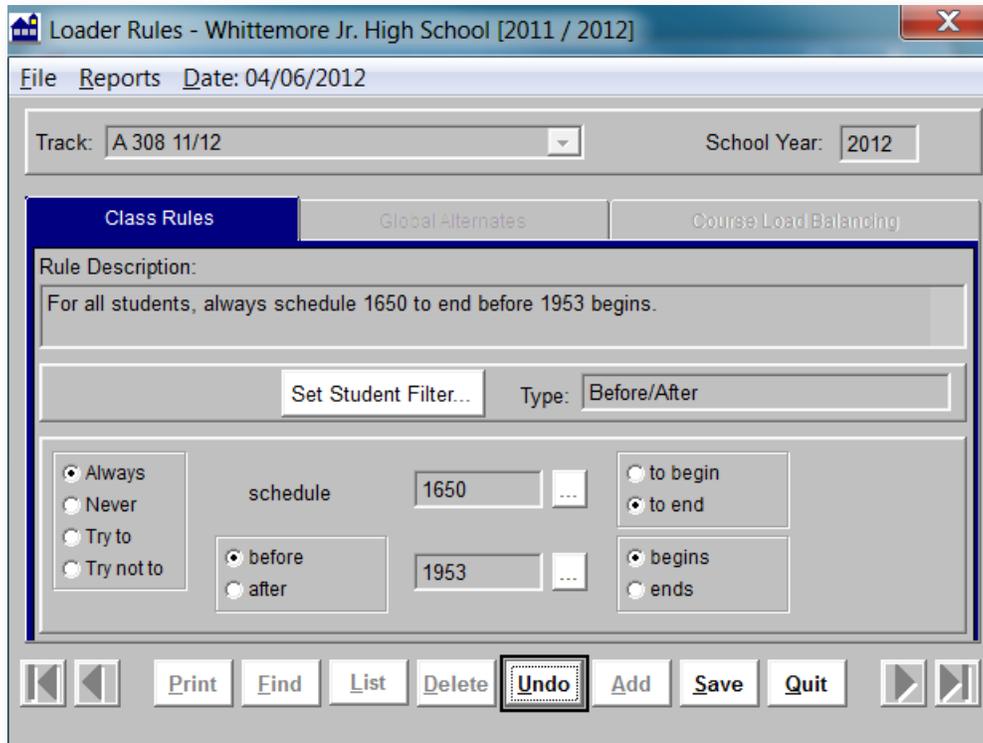
- Click ADD
- Choose the type of Class Rule to use and then select Course 1 and Course 2.

Class Rule type and course selection screen.

Before/After Rules

After selecting the two courses, tell the Loader what you want to do with them:

Class Rules Before/After rule definition screen.

Define the Rule:

- Set Restraint (choose one):
  - o 'Always' do this…and 'Never' do this…are Hard Rules. The Loader must always or must never do what you've defined.
  - o 'Try to do' this… and 'Try not to' do this are Soft Rules. The Loader will attempt to follow your rule, but if it has to, it may break the rule to schedule a student successfully.
- …schedule Class 1 to begin or end (choose one)…
- …before or after (choose one)…
- …Class 2 begins or ends (choose one).

Set Student Filter (If Desired)

This will allow you to apply this rule to a specific grade level, gender, or service instead of to everybody.

Click 'Set Student Filter' and make any desired selections.

Some 'Before and After' Examples:

- Always schedule Class 1 to begin before Class 2 begins.
- Never schedule Class 1 to begin before Class 2 begins.
- For students in grade 10, try to schedule Class 1 to end before Class 2 begins.
- For students in grade 10, whose gender is Female, never try to schedule Class 1 to begin after Class 2 begins.

You will notice that there may be more than one way to define rules that mean the same thing. The settings can be mixed and matched to meet your needs. Use the wording logic that you are most comfortable with.

Same or Different Rules

After selecting the two courses, you can also use same or different rules to tell the Loader what you want to do with them:
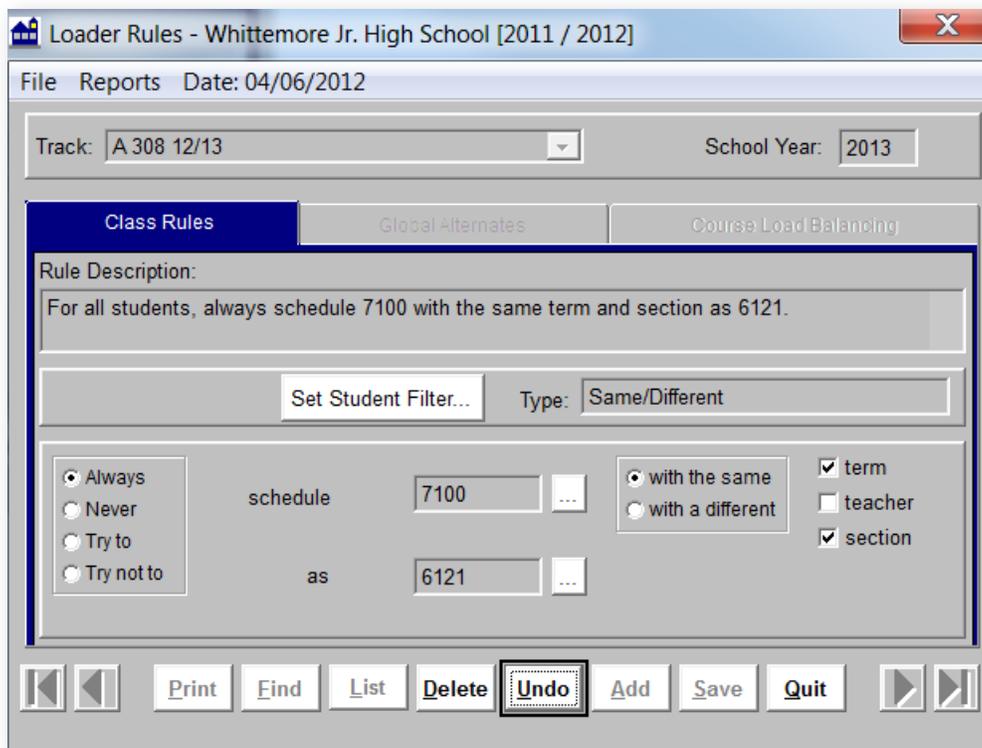
Class Rules Same/Different rule definition screen.

Define the Rule:
- Set Restraint (choose from Always, Never, Try to, or Try not to)…
- …schedule Class 1 with the same or with a different (choose one)…
- …term, teacher, or section number (choose one)…
- …as Class 2.

Set Student Filter (If Desired)
This will allow you to apply this rule to a specific grade level, gender, or service instead of to everybody.

- Click 'Set Student Filter' and make any desired selections.

Some 'Same or Different' Examples:
- Always schedule Class 1 with the same teacher as Class 2.
- Try to schedule Class 1 with a different teacher than Class 2.
- For students in the 12th grade, never schedule Class 1 in the same term as Class 2.
- For students in the 9th grade, whose gender is Male, try to schedule Class 1 with the same section number as Class 2.
- Group all students in section 1 of course 1 with the same section number of other courses. This is useful in teacher teaming scenarios. The trick is to assure all the teachers in a team have the same section numbers as other team members.

Again, in the creation of rules, you may see that the same rule can be stated in different ways. Use the syntax that is most comfortable to you.

Viewing / Editing / Deleting Course Rules
You can use the VCR buttons to scroll through the course rules or use the List button to bring up a listing of the rules that have been defined.

If you need to edit a rule, simply select that rule, click Edit, make the necessary changes, and click Save.

To delete a class rule, select that rule, click Delete, and verify that you want to delete that rule.

Course Load Balancing (Depreciated)
Course Load Balancing tab is not be used by any LEA's at the time of this writing. . This functionality does not currently work since course groups were removed from the software in late 2011. If you feel you need this functionality please let your specialist know.

Loader Options

Loader Options affect the way loader works. Depending on your goals and desired results Loader Options may be tweaked to influence the end results. Because settings may be different with each run we have two Loader Options sections. Different settings are recommended for the "…First Time" and "…the Second and Additional Times".

Loader Results

Seeing into the results of each Loader run is critical to determining if the run is a "keeper" or not. Typically 3 reports ("Summary of Loader Results", "Unscheduled Student Report" and "UT Faculty Schedule Matrix") provide enough visibility into the results to let you make the keep or tweak decision.

You may find additional reports that better meet your specific situation. Here are the reports on the mass scheduling reports list.

UT Faculty Schdule Matrix
UT Course CACTUS/CIP Code List
Course Directory Report
Course Request List & Tally
Student Course Request List
Conflict Matrix
Unscheduled Student Report
Class Size Report
Student Schedule Analysis
Summary of Loader Results
Loader Checklist Report

Suggested Settings for Running the Loader for the First Time

Launch the Loader

Select the students to Load from the initial screen, and from the 'Select' tab as needed.
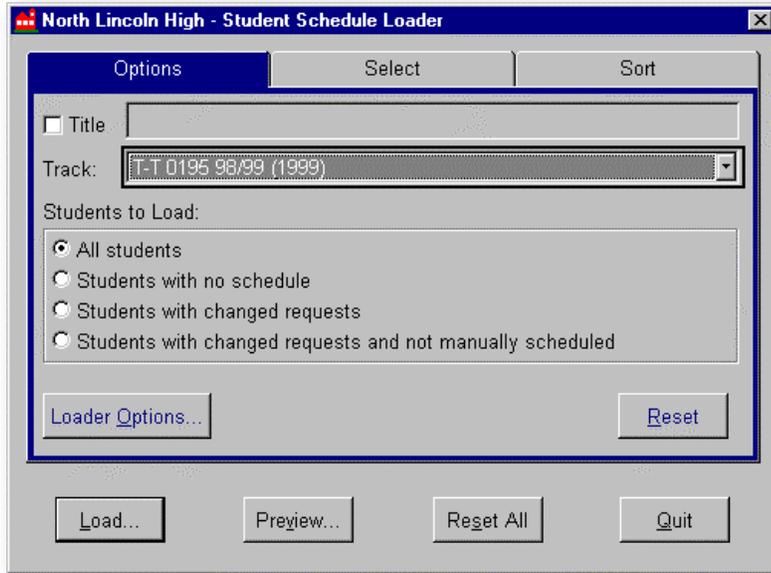
Initial Loader Options screen.

- Select track – remember that only tracks with a Master Schedule, Course Requests, NO attendance records, and NO mark records can be selected. **

- Select students to Load. NOTE – the Loader will DELETE the schedules that currently exist for the track each time it is run, based on the students selected. **If you PRE-SCHEDULED students into courses and their Entry Code into that course was 'Pre-Scheduled', those courses WILL NOT BE DELETED**, no matter which selection you make on this screen. **If you scheduled a student with any other Entry Code, that schedule record will be deleted.**

  o Also, go to the 'Select' tab if you want to select a particular grade level or a particular group, etc.

  o Or, do not narrow down the selection if you want the only criteria for selected students when running the Loader to be what was selected on the opening screen.

Select 'Loader Options'
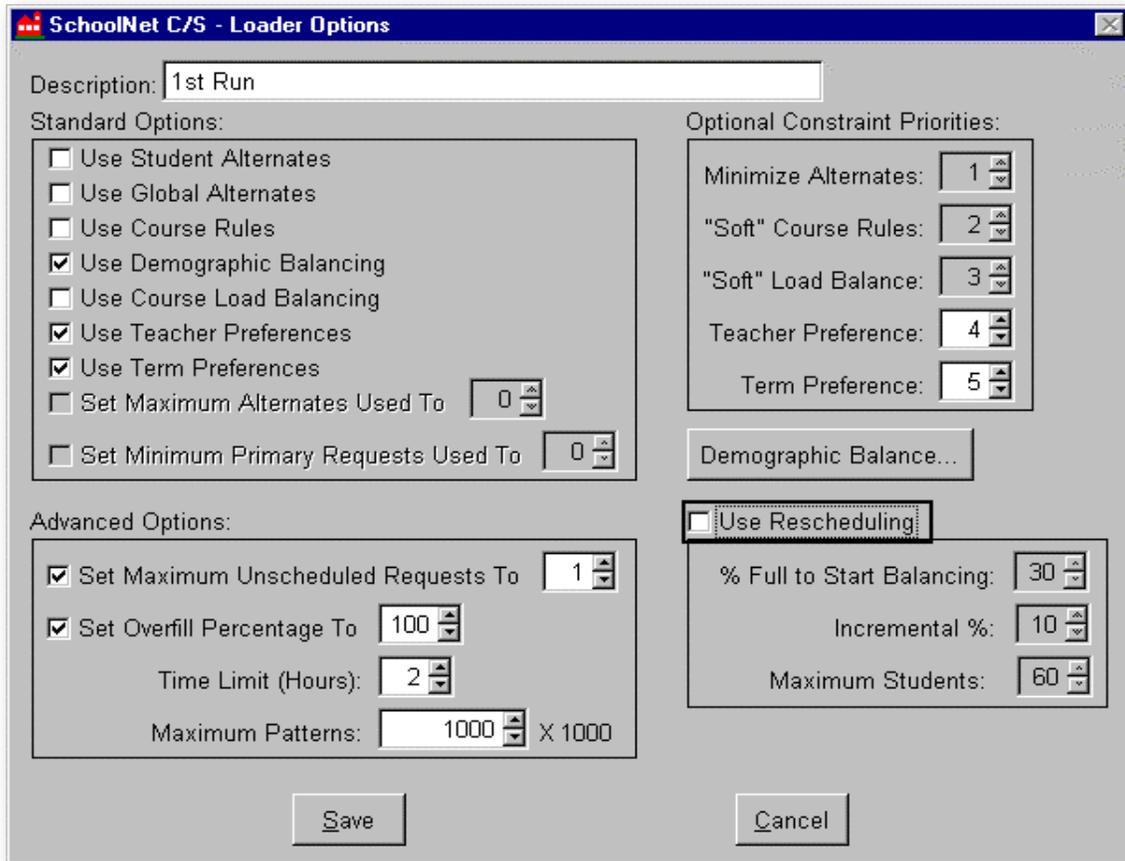
Loader Options screen, 1st run.

- Rename "Default Options" to 1st Run [optional]
- Turn off "Use Student Alternates"
- Turn off "Use Global Alternates"
- If using Teacher Preferences, check it on.
- If using Term Preferences, check it on.
- Check "Set Maximum Unscheduled Requests"; Set spinner value to 1
- Check "Set Overfill Percentage" and set spinner value to "100"
- Un-check "Use Rescheduling"
- Save the loader options

Setting for Demographic Balancing

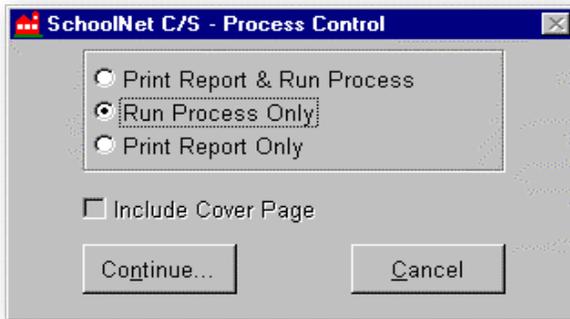Click "Demographic Balancing" from the main options screen:
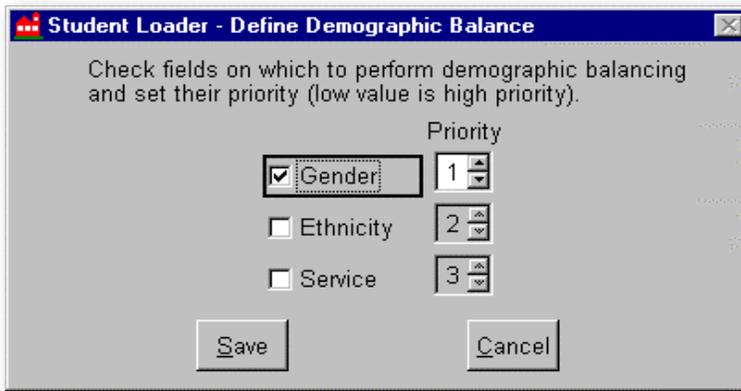
Demographic Balancing selection screen.

- Make selections as desired
- Set spinner value to indicate priority

Running the Loader

Click "Load"

Loader Process selection screen.

- To run the loader simply select "Run Process Only"
- Select "Continue"

The Loader will 'Initialize'. It will then run in three 'passes' and the progress of each pass will be displayed with a completion status bar.

The first pass gathers Course Requests. The second 'loads' (schedules) the students. The third pass actually saves the loaded schedules to the database. After the third pass, the first run is complete and student's schedules may be viewed through the Scheduling applications and reports.

Adjusting the Master Schedule

After the first run of the Loader, it is likely that changes will need to be made to the Master Schedule or you may want to run it a second time with different options. Either way, to delete or move a section of a course, you will need to remove the students from that section of the course first. This can easily be done through the Assign Students application.

Select the Faculty Member, select the course section, and 'move' the students out of the section with the left -arrow button. Once students are removed from a section of a course, it can be deleted and/or rearranged in the Master Schedule Editor. Once changes have been made, run the Loader again.

Settings for Running the Loader for the Second and Additional Times

Launch the Loader

Select the students to Load from the initial screen, and from the 'Select' tab as needed.

Select "Loader Options"

Loader Options screen, 2nd run.

- Rename "1st Run" to 2nd Run [optional]
- Un-check "Set Maximum Unscheduled Requests"
- Un-check "Set Overfill Percentage"
- Increase Maximum Patterns to 10 million (or other values as needed)
- Check "Use Rescheduling", leave default values in spinners
- Save the loader options

Setting for Demographic Balancing

Select "Demographic Balancing"

- Make selections as desired
- Set spinner value to indicate priority

Running the Loader

Select "Load"

- To run the loader simply select "Run Process Only"
- Select "Continue"

The Loader should then 'Initialize'. It will then run through the same three 'passes' as mentioned previously and the progress of each pass will be displayed with a completion status bar.

Run the Loader and edit the Master Schedule and Course Requests as often as needed to attain an acceptable completion rate of successfully scheduled students. Schedules can be viewed through the Scheduling applications and through the scheduling reports.

Loader Results

Reports

1. Total requests count
2. Total scheduled requests count
3. Total unscheduled requests count
4. Percentage requests scheduled
5. Percentage of requests unscheduled
6. Unscheduled request status codes:

B =Attempted/balance conflict

C = Attempted/teacher pref. conflict

D =Attempted/no meeting time

E = Attempted/team conflict

F = Attempted/full class

M =Modified request/reschedule

N = New request/not attempted

Q = Attempted/multiple conflicts

R = Attempted/rule conflict

S = Attempted/term pref. conflict

T = Attempted/time conflict

U = Attempted/max. unscheduled exceeded

V = Team request/acknowledged

X = Alternate/not used

Y = Attempted/max. alternates used

Z = Attempted/max. patterns exceeded

7. Count and percentage of unscheduled requests per unscheduled status code

Conclusion

"Loader" is the engine behind all automated scheduling functions in Aspire. Loader is an extremely effective tool for bulk loading students into the Master Schedule based on Loader Rules and Student Course Requests.

Appendix 1 Reference

** Loader Dropdown Box Problem "Fix"

Problem: Drop-down box to select track is blank, no tracks to select.

Fix: Check the following:

- make sure all track Editor settings including calendar are set up properly
- save at least 1 loader rule
- choose loader options and make any changes and save
- check zterm table to see that trmStart + trmDur = trmEnd on **ALL** records
- make sure there is at least one course request that is coded 'N' (not attempted)
- make sure the periods and terms in the master schedule are all selected for the track
- there can be no attendance records on classes in the master schedule