



MyEducationBC

---

## Scheduling Module 8

---

# Workspace and Build Validation

---

May 2024 v1.6

---

## Version History

Version	Date	Description
1.0	Apr 2015	Document created
1.1	Mar 2016	Re-ordered sections and provided additional details
1.2	Mar 2017	Updated images for 5.6. Added section 5.2, additional information on resolving fatal Build errors
1.3	Dec 2018	5.9 Update for new Feature – Conflict Matrix
1.4	Apr 2019	Added hyperlinks to Table of Contents
1.5	Nov 2022	Section 3.1 Added new screenshot
1.6	May 2024	Add Co-Teacher(s) to course section(s)

## Confidentiality

This document contains information which is proprietary and confidential to Fujitsu Consulting (Canada) Inc. (including the information of third parties, including but not limited to, Follett of Canada Inc., submitted with their permission). In consideration of receipt of this document, the recipient agrees to treat this information as confidential and to not use or reproduce this information for any purpose other than its evaluation of this proposal or disclose this information to any other person for any purpose, without the express prior consent of Fujitsu Consulting (Canada) Inc. (and any applicable third party.)

## Table of Contents

<b>INTRODUCTION .....</b>	<b>4</b>
<b>1.0 INITIALIZE THE WORKSPACE.....</b>	<b>4</b>
1.1 Steps to Initialize .....	4
<b>2.0 CONFLICT MATRIX .....</b>	<b>6</b>
<b>3.0 PRE-SCHEDULE – TERMS, SCHEDULE AND ROOMS .....</b>	<b>8</b>
3.1 Setting Section Details .....	8
<b>4.0 ASSIGN TEACHERS TO SECTIONS .....</b>	<b>10</b>
4.1 Section Details, Modify List and Mass Update.....	10
4.2 Add Co-Teacher(s) to Multiple Course Section(s) .....	11
4.3 Assignments .....	13
<b>5.0 VALIDATE FOR BUILD .....</b>	<b>16</b>
5.1 Process for Running – Validation .....	16
5.2 Resolving Fatal Validation Errors .....	17
5.3 Examples of Fatal Validation errors.....	18
<b>6.0 BUILD .....</b>	<b>21</b>
6.1 Building the Master Schedule.....	21
6.2 Resolving Fatal Build errors .....	28

## Introduction

This scheduling module covers the steps to create course sections, manually enter constraints against sections, assign teachers to sections, the build validation process, using the Build engine to create the master schedule and how to resolve issues encountered.

The Build engine will (try to) populate the following fields **Schedule Term**, **Schedule – Period (Day)** and **Room**, for all sections.

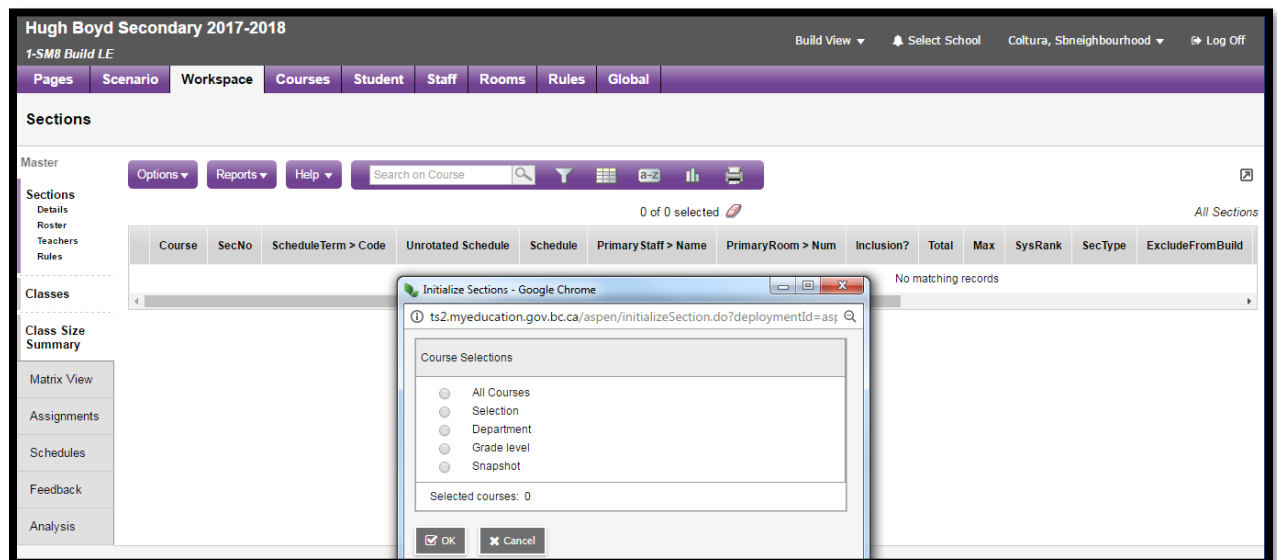
It will not schedule Teachers against sections.

## 1.0 Initialize the Workspace

After you determine the number of sections you need for each course, you must initialize the Workspace. This will create the number of sections for each course, indicated in the Course Details > Sections scheduled field.

### 1.1 Steps to Initialize

1. Click the Workspace top tab.
2. On the Options menu, click Initialize Sections. The Initialize Sections dialog box appears:



3. Select one of the following to select which courses you want to initialize sections for:
  - All courses.
  - Selection: A list of all courses appears. Select the courses you want to initialize.
  - Department: A list of departments appears. Select which departments of courses you want to initialize.
  - Grade level: A list of grade levels appears. Select which grade levels of courses you want to initialize.
  - Snapshot: A list of snapshots appears. Select the snapshot of courses you want to initialize.
4. Click **OK**.

The system creates the number of sections, for each course that you defined. In the example below 133 sections were created:

**Hugh Boyd Secondary 2017-2018**

1-SM8 Build LE

Build View Select School Coltura, Sbnighbourhood Log Off

Pages Scenario Workspace Courses Student Staff Rooms Rules Global

**Sections**

Master Options Reports Help Search on Course

Sections Details Roster Teachers Rules

Classes Class Size Summary Matrix View

1:A2DP-12DPB-01 0 of 133 selected

	Course	SecNo	ScheduleTerm > Code	Unrotated Schedule	Schedule	Primary Staff > Name	PrimaryRoom > Num	Inclusion?	Total	Max	SysRank	SecType	Exc
<input type="checkbox"/>	A2DP-12DPB-01	01						N	0	30	0		N
<input type="checkbox"/>	AELC-12-01	01						N	0	30	0		N
<input type="checkbox"/>	IMYP-10-01	01						N	0	30	0		N
<input type="checkbox"/>	MAC-11CS-01	01						N	0	30	0		N

## 2.0 Conflict Matrix

This feature provides a dynamic view of the students who have chosen two courses.

It is a side tab in the Build view > Workspace top tab.

**Hugh Boyd Secondary 2019-2020**  
Committed Timetable 2018-19 USE THIS ONE

Build view ▼ Select school Bond, Daniel

Pages Scenario **Workspace** Courses Student Staff Rooms Rules Global

**Conflict Matrix**

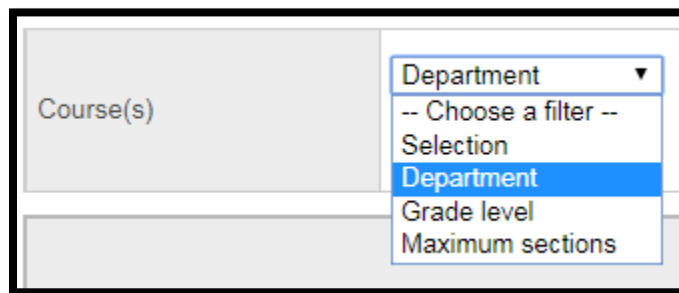
Master Options Reports Help  
Printer Friendly Version

Conflict Matrix Students

Course(s) Department Mathematics Q X Refresh

Course(s)	MAWM-11	MFMP-10/B	MFOM-11	MFOM-12	MMA-09/B	MPREC-11	MPREC-12	MWPM-10
MAWM-11 MA(A&W) - APPRENTICESHIP AND WORKPLACE MATH 11 Number of requests:14		1	2					
MFMP-10/B MA - FOUND OF MATH AND PRE-CALC. 10 Number of requests:106	1		1	1	2			4
MFOM-11 MA - FOUNDATIONS OF MATHEMATICS 11 Number of requests:27	2	1		1		3		
MFOM-12 MA - FOUNDATIONS OF MATHEMATICS 12 Number of requests:37		1	1				4	
MMA-09/B MA - MATHEMATICS 9 Number of requests:78		2						5
MPREC-11 MA - PRE-CALCULUS 11 Number of requests:78			3				2	
MPREC-12 MA - PRE-CALCULUS 12 Number of requests:70				4		2		
MWPM-10 MA (AW) - WORKPLACE MATHEMATICS 10 Number of requests:20		4			5			

Courses to display can be viewed by:



In the example above you can see 2 students have chosen MAWM-11 and MFOM-11.

Clicking on the hyperlinked number, in this case 2, will show a list of those students.


**Hugh Boyd Secondary 2019-2020** Build view ▼ Select school Bond, Daniel ▼ Log Off

Committed Timetable 2018-19 USE THIS ONE

Pages Scenario Workspace Courses Student Staff Rooms Rules Global

**Conflict Matrix ::** ◀ ◀ 🔍 ▶ ▶

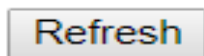
Master Options▼ Reports▼ Help▼ Search on Name 🔍 Filter a-z Bar Print

Matrix View 0 of 2 selected  Students requesting courses MFOM-11 and MAWM-11

<input type="checkbox"/>	Name	YOG	Schd?	SchdPri	Team	House
<input type="checkbox"/>	Dolomount, Milai	2020	Y	0		
<input type="checkbox"/>	Hanschke, Marijana	2019	Y	0		

Conflict Matrix  
► Students  
Assignments

As adjustments are made to course requests the:



- button can be used to update the Conflict Matrix values.

Clicking this button indicates that you want the system to recalculate the information if you leave this page, manually make a change to a section and then return.

## 3.0 Pre-Schedule – Terms, Schedule and Rooms

Before the Build process is run, schools may want to indicate specific Terms, Schedules (Period/Day), or Rooms for sections. This is a way of putting direct constraints into the schedule. When these are pre-set/manually entered, the Build engine will not alter the settings and will schedule remaining sections around them.

### 3.1 Setting Section Details

1. Click the Workspace top tab.
2. Click on the Master side tab and then into Details of a Section:

The screenshot shows the 'Details' tab for a section named 'ACTIVE LIVING 11'. The interface includes a sidebar with navigation options like Sections, Classes, Matrix View, etc. The main area contains fields for Section number, Staff Name, Prescheduled room, Prescheduled term, Prescheduled schedule, User rank adjustment, Study criteria, Team, House, Section type, and Platoon. The 'Prescheduled' fields are checked, indicating they are set.

1. Set a specific room
2. Set a specific Term
3. Set a specific Schedule (Period/Day). A schedule cannot be set unless a Term is defined.
4. Set a teacher

**Note:** The Build engine is NOT going to add teachers to sections.

3. Click **Save**



- When any one of the first 3 are set, the **Prescheduled** check boxes to the right of these are checked on Save. Example: The section shown below was prescheduled to be in Room 103 and the Prescheduled room check box is now checked. This checkbox is what the Build engine references to determine if the section was **Prescheduled** and if should be ignored.

School Room > Number	103	Prescheduled room	<input checked="" type="checkbox"/>
Schedule Term > Code		Prescheduled term	<input type="checkbox"/>
Schedule	<a href="#">Edit Schedule</a>	Prescheduled schedule	<input type="checkbox"/>
System rank	0	User rank adjustment	0

Looking back at the Section list, we can now see that this section is **Prescheduled** into this room:

Pages

Scenario

Workspace

Courses

Student

Staff

Rooms

Rules

Global

Sections

Master

Options

Reports

Help

Search on Course

A-Z

0 of 130 selected

Custom Selection

	Course	SecNo	ScheduleTerm > Code	Unrotated Schedule	Schedule	Primary Staff > Name	PrimaryRoom > Num	Inclusion?	Total	Max	SysRank	SecType	Exc
	MAC--11CS-01	01					103	N	0	30	0		N
	MADFS08IBFY-01	01						N	0	30	0		N
	MAF--11-01	01						N	0	30	0		N
	MAF--12-01	01						N	0	30	0		N

Sections

Details

Rooster

Teachers

Rules

Classes

Class Size

Summary


Matrix View

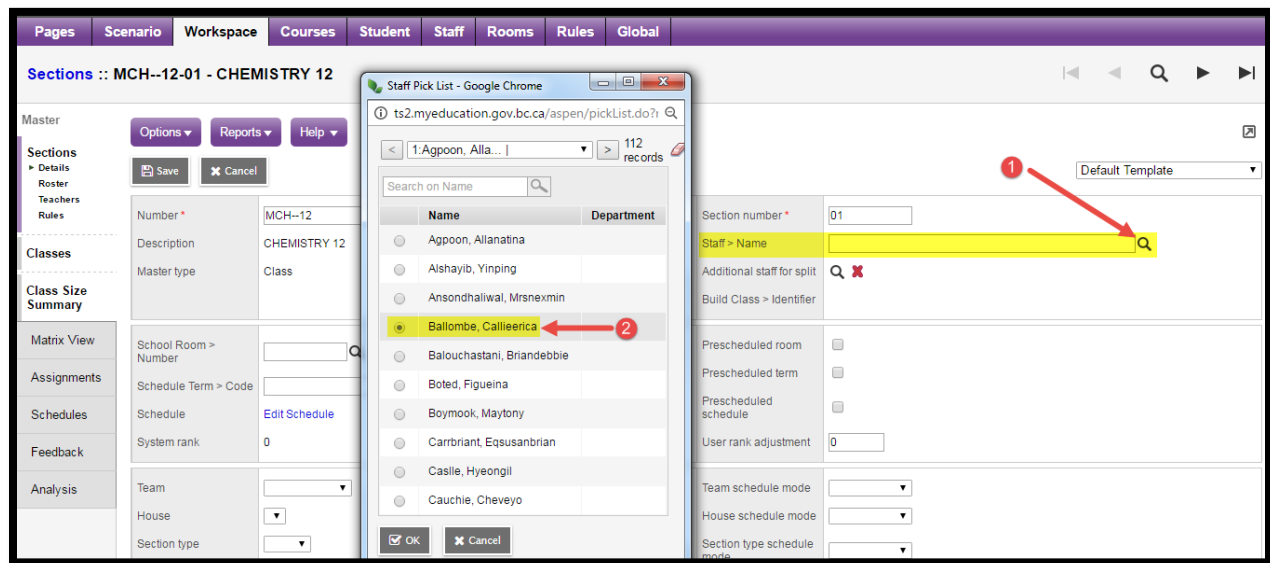
**Note:** It is **VERY** important that schools realize the Build engine will populate a Room for all sections. This is very different from BCeSIS – which would not auto fill in a Room. Schools must, therefore, use a Room Rule or Preschedule sections into rooms.

## 4.0 Assign Teachers to Sections

Once sections are created, the distribution of teachers across sections can be completed; if this is your schools process. There are several methods available to complete this.

### 4.1 Section Details, Modify List and Mass Update

1. Click on an individual section to enter the Details.
2. Click the  symbol next to the **Staff > Name** and select a staff from the pop up:

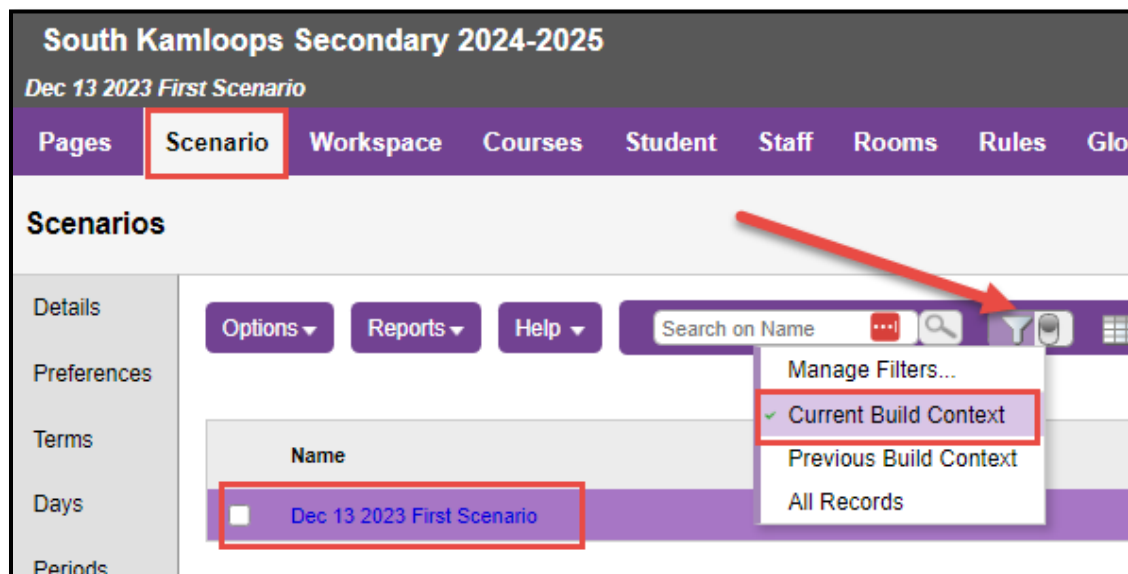


3. Click **OK**, on the pop up window.
4. Click **Save**, on the course section detail.
5. The teacher chosen is now assigned to this section.

The **Modify List** or **Mass Update**, available under the **Workspace > Options** menu, can also be used. Be sure when using Mass Update that you have done an Options > Show Selected for the appropriate list of course sections when assigning a given staff member.

## 4.2 Add Co-Teacher(s) to Multiple Course Section(s)

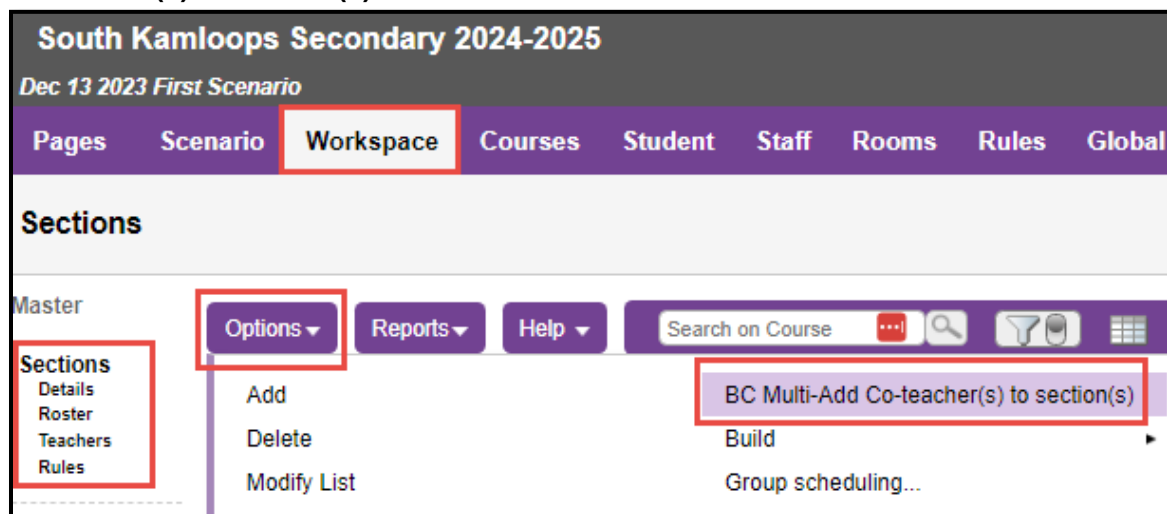
Build View > Scenario top tab > Filter = Current Build Context



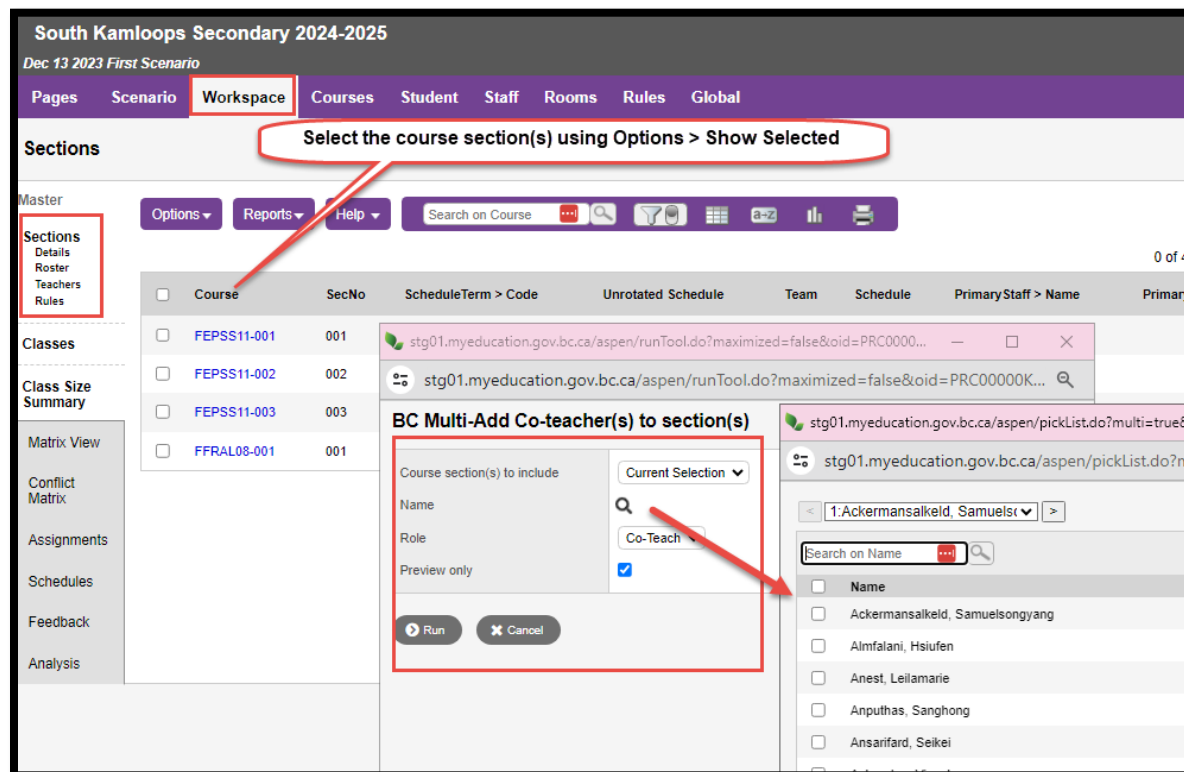
Users can add one or more teachers to one or more course sections for current build context within a scenario using the BC Multi-Add Co-teacher(s) to section(s) procedure.

- Users must be assigned the add on role to use this procedure - **Add Co-Teacher to Multi-Course Sections Add-On Role**
- **Note:** Co teachers can be added and users should also check to make sure they have a primary teacher attached to the course section, the Prepare Grade Input will not run without a primary teacher added.


Build View > Workspace top tab > Master Schedule side tab > Options > BC Multi-Add Co-teacher(s) to section(s)



1. **School view > Schedule top tab > Master side tab > Filter = Current year**
2. Select all the sections you would like to add the Co-Teacher to then go to **Options > Show Selected**.
3. Then **Options > BC Multi-Add Co-teacher(s) to section(s)**



4. Use the following table to fill in the fields:

Field	Description
Course section(s) to include	Current Selection
Name	Click  to select Teacher(s) to assign to selection sections.
Role	Co-Teach
Gradebook access	Select this checkbox if the teacher(s) should have access to this section(s) in the gradebook.
Preview Only	Uncheck if you would like the procedure to run. If checked it will list the sections it would add the co-teacher(s)' too if it were to run.

5. Click Run

## 4.3 Assignments

To create teacher assignments:

1. Click the Workspace tab.
2. Click the Assignments side-tab. The Assignments page appears:

**Hugh Boyd Secondary 2017-2018**  
1-SM8 Build LE

Pages Scenario Workspace **Courses** Student Staff Rooms Rules Global

**Assignments**

Master  
Matrix View

Options Reports Help

Save Revert

**Assignments**

Course filter Department Social Studies Class courses only ☒ Specify term  
Teacher filter Department All Courses with sections only ☒ Course term  
Initialize unassigned sections ☐ Teacher term

	MGEO-12 MGEO-12	MSS-10IB MSS-10	MSS-10IBINC MSS-10
<b>Sections offered</b>	5	5	1
Agpoon, Allanatina	0		
Alshayib, Yinping	0		
Ansondhaliwal, Mrsnexmin	0		
Ballombe, Callieerica	0		
Delakhotel, Dineebha	0		
<b>Assigned</b>	0	0	0
<b>Unassigned</b>	5	5	1

This view allows you to see all sections of courses, within a Department and all Teachers assigned to a Department, depending on the filters chosen.

1. At the top of the page, click the **Course** filter drop-down to filter the courses that appear in the grid by Department, Grade level, or Snapshot. Each time you select a different value in a field, the page refreshes to display the appropriate courses in the grid.
2. Click the **Teacher** filter drop-down to filter the teachers that appear in the grid by Department, Grade level, or Snapshot. Each time you select a different value in a field, the page refreshes to display the appropriate teachers in the grid.
3. The **Select the Class courses only** checkbox should be checked when using the Course filter set to Grade in order to omit any courses with a master type of Package.
4. Select the **Courses with sections only** checkbox to display only courses with at least one section defined.

For each course (displayed in columns), the page displays the number of sections defined. At the bottom of each column, the page keeps a tally of how many of those sections are assigned and unassigned.

Staff members in the department appear in rows. Next to each staff member's name, the total *number* of sections for all courses assigned to the teacher appears.

**Note:** This *number* is not just the number of sections that currently appear on the page based on the filters you define. It shows all sections that have been assigned to this teacher. Classes groupings of courses for teachers must be considered when reviewing the totals displayed.

In each cell of the grid, click into the cell and enter the number of sections of the course you want to assign to a teacher.

		MGEO-12 MGEO-12	MSS--10IB MSS--10	MSS--10IBINC MSS--10	
<b>Sections offered</b> 1		5	5	1	
Agpoon, Allanatina	0				
Alshayib, Yiping	3	1 2	2 2		
Ansondhaliwal, Mrsnexmin	0				
Ballombe, Callieerica	0				
Belashchastni, Briandebbia	0				
<b>Assigned</b> 3		1	2	0	
<b>Unassigned</b> 4		4	3	1	

1. Sections offered shows the number of sections created for each course.
2. Shows the number of sections assigned to each teacher.
3. Shows the total number of sections assigned
4. Shows the total number of sections that still need to be assigned to a teacher. There are still 4 sections of MGEO-12, 3 sections of MSS--10IB and 1 section of MSS--10IBINC, that need to be assigned to teachers.
5. Once sections are assigned, click **Save**.

Pages
Scenario
Workspace
Courses
Student
Staff
Rooms
Rules
Global

Sections

Master

Options

Reports

Help

Search on Course

0 of 11 selected

Custom Selection

Sections

Details

Roster

Teachers

Rules

Classes

Class Size Summary

Matrix View

Assignments

Schedules

Feedback

Analysis

<input type="checkbox"/>	Course	SecNo	ScheduleTerm > Code	Unrotated Schedule	Schedule	PrimaryStaff > Name	PrimaryRoom > Num	Inclusion?	Total	Max	SysRank	SecType	Exclude
<input type="checkbox"/>	MGEO-12-01	01				Alshayib, Yingping		N	0	30	0		N
<input type="checkbox"/>	MGEO-12-02	02						N	0	30	0		N
<input type="checkbox"/>	MGEO-12-03	03						N	0	30	0		N
<input type="checkbox"/>	MGEO-12-04	04						N	0	30	0		N
<input type="checkbox"/>	MGEO-12-05	05						N	0	30	0		N
<input type="checkbox"/>	MSS--10IB-01	01				Alshayib, Yingping		N	0	30	0		N
<input type="checkbox"/>	MSS--10IB-02	02				Alshayib, Yingping		N	0	30	0		N
<input type="checkbox"/>	MSS--10IB-03	03						N	0	30	0		N
<input type="checkbox"/>	MSS--10IB-04	04						N	0	30	0		N
<input type="checkbox"/>	MSS--10IB-05	05						N	0	30	0		N
<input type="checkbox"/>	MSS--10IBINC-01	01						N	0	30	0		N

Page 15

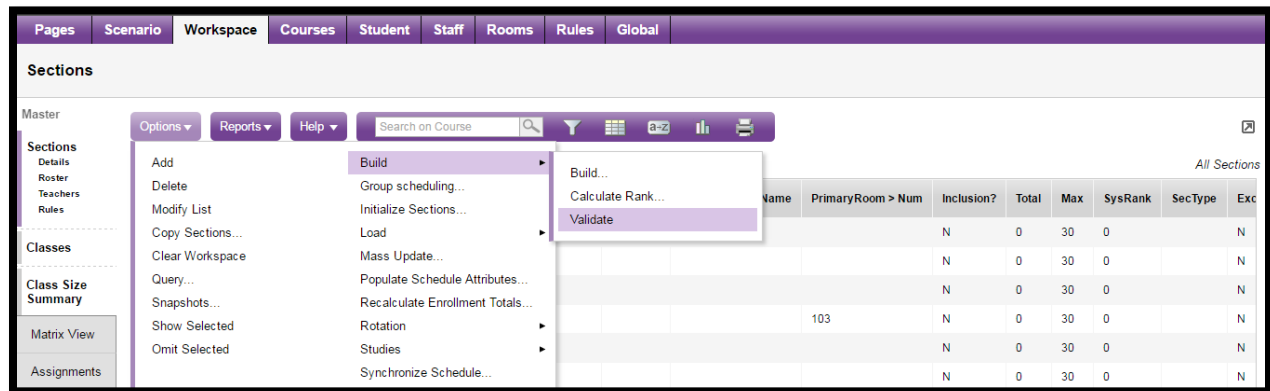
## 5.0 Validate for Build

The validate process checks to ensure all required scheduling attributes are set up. If any are missing you cannot run the Build process.

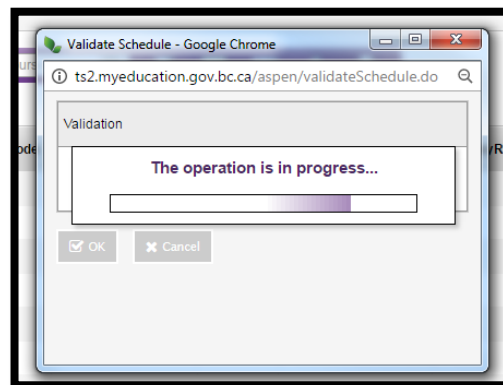
### 5.1 Process for Running – Validation

From the Workspace top tab > Master/Sections side tab:

1. Click **Options > Build > Validate**:



2. The **Validate Schedule** pop up window appears, click **OK**. The **Operation in progress** status will appear:



3. Once complete a Pink Message will appear indicating there are Fatal errors. Most schools will encounter errors; this is just part of the process. If no Fatal errors are encountered, a Green Message will appear indicating No Fatal errors.



## 5.2 Resolving Fatal Validation Errors

Once Build Validation is complete, the errors and information about them can be found on the **Feedback** side tab:

Pages	Scenario	Workspace	Courses	Student	Staff	Rooms	Rules	Global
<b>Feedback category</b>								
Master	Options ▾ Reports ▾ Help ▾							
Matrix View	0 of 4 selected							
Assignments								
Schedules								
<b>Feedback Details</b>								
Analysis								
		Level	RunType	Feedback Instances				
		<input type="checkbox"/> Info	Build	3				
		<input type="checkbox"/> <b>Fatal</b>	Build	18				
		<input type="checkbox"/> Warning	Build	63				
		<input type="checkbox"/> All	Build	84				

Click on the link **Fatal** for details of all errors:


Pages	Scenario	Workspace	Courses	Student	Staff	Rooms	Rules	Global
<b>Feedback category :: Fatal</b>								
Master	Options ▾ Reports ▾ Help ▾ Search on Timestamp							
Matrix View	0 of 9 selected  Custom Selection							
Assignments								
Schedules								
<b>Feedback Details</b>								
Analysis								
		RunType	DataType	Level	Message	Fixed?		
		<input type="checkbox"/> Fix...	Build	Course	Fatal	Field Course > sections must be greater than 0 (record: A2DP-12, 0, value: 0).		
		<input type="checkbox"/> Fix...	Build	Course	Fatal	Field Course > enrollmentMax must be greater than 0 (record: A2DP-12, 0, value: 0).		
		<input type="checkbox"/> Fix...	Build	Course	Fatal	Field Course > baseTermNumber must be greater than 0 (record: A2DP-12, 0, value: 0).		
		<input type="checkbox"/> Fix...	Build	Course	Fatal	Field Course > coveredTermNumber must be greater than 0 (record: A2DP-12, 0, value: 0).		
		<input type="checkbox"/> Fix...	Build	Course	Fatal	Field Course > periodsPerCycle must be greater than 0 (record: A2DP-12, null, value: null).		
		<input type="checkbox"/> Fix...	Build	Course	Fatal	Field Course > patternSet cannot be blank (record: A2DP-12, ).		
		<input type="checkbox"/> Fix...	Build	Room	Fatal	Field Room > maxCapacity must be greater than 0 (record: 113, , value: 0).		
		<input type="checkbox"/> Fix...	Build	Teacher	Fatal	Field Teacher > maxInARow must be greater than 0 (record: Carrbriant, Eqsusanbrian, , value: 0).		
		<input type="checkbox"/> Fix...	Build	Teacher	Fatal	Field Teacher > maxInARow must be greater than 0 (record: Caslle, Hyeongil, , value: 0).		

The Messages are very accurate and should be read; they provide very detailed information.

To resolve an error click on the button. This will take you to a screen where the problem exists.

## 5.3 Examples of Fatal Validation errors

### 5.3.1 Field Course > sections must be greater than 0 (record: A2DP-12, 0, value: 0).

Clicking the  button will take you to a popup window displaying the Course > Details for A2DP-12. You can see the **Sections scheduled = 0**: with this value set to zero, no sections were created, during the initialization process; yet the Include in Scheduling box was checked – this is inconsistent if you are going to Include the section in scheduling you need to create at least one section.



Include in scheduling	<input checked="" type="checkbox"/>	Covered terms per year	<input type="text" value="0"/>
Sections scheduled	<input type="text" value="0"/>	Base terms per year *	<input type="text" value="0"/>
Section enrollment max	<input type="text" value="0"/>	Periods per cycle	<input type="text" value="0"/>
		Schedule Pattern Set > Name	<input type="text"/>

There are three ways this could be corrected:

- If you are not offering the course uncheck Include in scheduling or;
- If you are offering the course, update the Sections scheduled value and then from the Workspace re-Initialize for only this course or;
- If you are offering the course, update the Sections scheduled value and then from the Workspace manually add the required sections.

### 5.3.2 Field Course > enrollmentMax must be greater than 0 (record: A2DP-12, 0, value: 0)



Include in scheduling	<input checked="" type="checkbox"/>	Covered terms per year	<input type="text" value="0"/>
Sections scheduled	<input type="text" value="1"/>	Base terms per year *	<input type="text" value="0"/>
Section enrollment max	<input type="text" value="0"/>	Periods per cycle	<input type="text" value="0"/>
		Schedule Pattern Set > Name	<input type="text"/>

Depending on how the sections were added, in the first error, this needs to be greater than zero and the section(s) created must have enrollment max greater than zero.

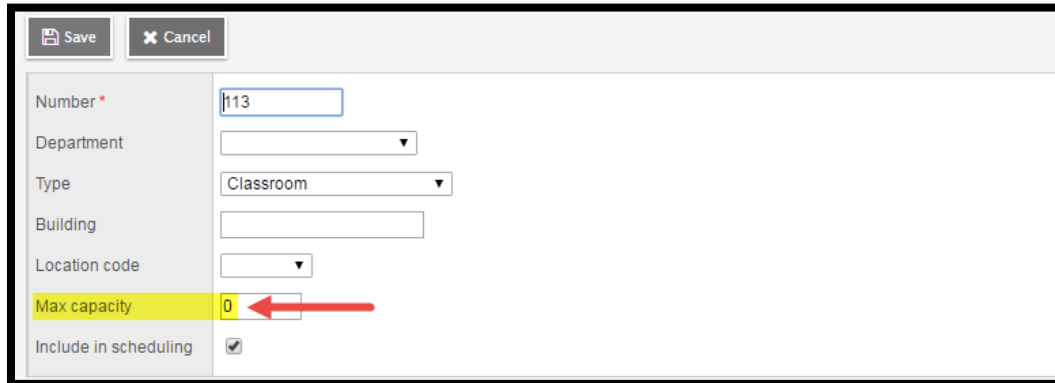
### 5.3.3 Field Course > baseTermNumber must be greater than 0 (record: A2DP-12, 0, value: 0)

Include in scheduling	<input checked="" type="checkbox"/>	Covered terms per year	<input type="text" value="0"/>
Sections scheduled	<input type="text" value="1"/>	Base terms per year *	<input type="text" value="0"/> 
Section enrollment max	<input type="text" value="30"/>	Periods per cycle	<input type="text" value="0.0"/>
		Schedule Pattern Set > Name	<input type="text"/>

This error can be corrected by entering the correct number of Base terms per year.

**Note:** There are multiple errors for the same course A2DP-12. All of these errors, can be fixed at the same time. Then re-run the Build Validation process again.

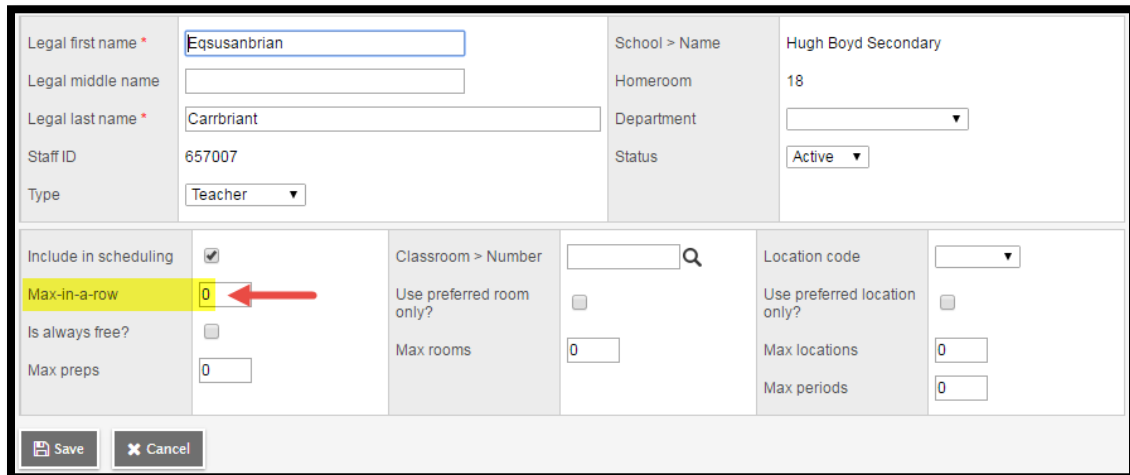
### 5.3.4 Field Room > maxCapacity must be greater than 0 (record: 113, , value: 0)



A screenshot of a web form for editing a room record. The form has a header with 'Save' and 'Cancel' buttons. The fields include: Number (113), Department (dropdown), Type (Classroom), Building (text), Location code (dropdown), Max capacity (0, highlighted in yellow with a red arrow pointing to it), and Include in scheduling (checked checkbox).

### 5.3.5 Field Teacher > maxInARow must be greater than 0 (record: Carrbrian, Eqsusanbrian, , value: 0)

Even though the Build engine will not schedule Teachers, the Max in a row for every Teacher that has Include in scheduling checked – must have this value set greater than zero.



A screenshot of a web form for editing a teacher record. The form is divided into two main sections. The top section contains: Legal first name (Eqsusanbrian), Legal middle name (text), Legal last name (Carrbrian), Staff ID (657007), Type (Teacher), School > Name (Hugh Boyd Secondary), Homeroom (18), Department (dropdown), and Status (Active). The bottom section contains: Include in scheduling (checked checkbox), Max-in-a-row (0, highlighted in yellow with a red arrow pointing to it), Is always free? (unchecked checkbox), Max preps (0), Classroom > Number (text with search icon), Use preferred room only? (unchecked checkbox), Max rooms (0), Location code (dropdown), Use preferred location only? (unchecked checkbox), Max locations (0), and Max periods (0). The form has 'Save' and 'Cancel' buttons at the bottom.

Once all **Fatal errors** have been corrected, re-run the Build Validation process. This is an iterative process that needs to be completed until **ALL Fatal errors** are corrected.

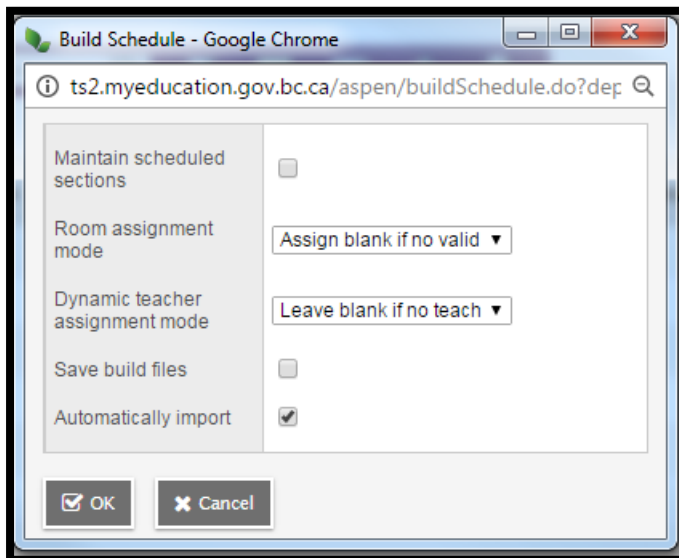
## 6.0 Build

### 6.1 Building the Master Schedule

When you build your master schedule, the system attempts to fill in the Term, Schedule (Day/Period) and Room for each of the sections you have prepared on the Workspace, while abiding by the scheduling attributes and rules defined.

#### 6.1.1 Steps to run the Build:

1. From the Workspace click **Options > Build > Build**
2. The Build Schedule dialogue box opens:



3. Select the Maintain scheduled sections checkbox if you want to keep any previously scheduled sections as they are.
4. At the Room assignment mode field, select one of the following:
  - Assign valid room only: The scheduler assigns a room to a section only if it obeys all constraints. The build stops if a room cannot be found that respects all constraints.
  - Assign best available room: When a valid room cannot be found for a section, the scheduler assigns a room based on the list of constraints that are set to be relaxed. The build stops if a room cannot be found after easing constraints.
  - Assign blank if no room available: The scheduler schedules the sections even if a room cannot be assigned.
5. If you have defined specific courses as courses a teacher is qualified to teach on the Staff tab, Assignments side-tab, the Dynamic teacher assignment mode field appears. Select one of the following to determine how you want Aspen to schedule such courses:

- Leave blank if no teacher available: If the scheduling engine cannot schedule a qualified teacher for a section of a course, it leaves the staff member assigned to the section blank and continues the build process. For example, if several teachers have a course with six sections identified as something they are qualified to teach on their Assignments side-tab, and the engine cannot schedule a qualified teacher for two of those sections, it schedules the four sections it can, leaves the staff name blank for the two it cannot, and continues to build.
  - Assign available teacher only: If the scheduling engine cannot schedule an available, qualified teacher for a section of a course, the build stops.
  - Do not attempt: Aspen does not reference courses on the Assignments side-tab on the Staff tab.
6. Only select the **Save build files** checkbox if you are have been directed to. The information generated in this file can be used by the application developers to troubleshoot serious errors. Most schools do not have to select this checkbox during the build process.
  7. Click **OK** to start the build

## How the Build engine proceeds

The application will calculate a System Rank, prior to beginning the Build. This is the order in which it will schedule sections.

The screenshot shows the 'Sections' table in the MyEducationBC application. The table lists various sections with columns for Course, SecNo, ScheduleTerm > Code, Unrotated Schedule, Schedule, PrimaryStaff > Name, PrimaryRoom > Num, Inclusion?, Total, Max, and SysRank. The SysRank column is highlighted in yellow, and a red arrow points to it with the number 1. The table is sorted by SysRank in ascending order. The first two rows are marked 'Sched' in the SysRank column, with a red arrow pointing to the second row and the number 2. The third row has a SysRank of 1, and the fourth row has a SysRank of 2, with a red arrow pointing to the fourth row and the number 3.

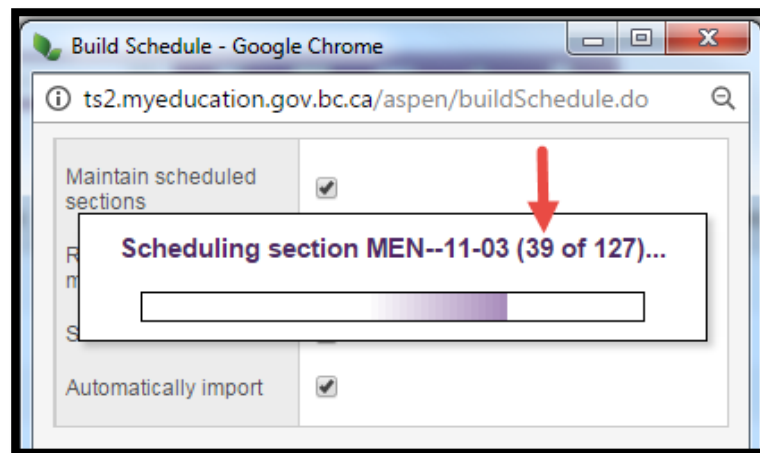
Course	SecNo	ScheduleTerm > Code	Unrotated Schedule	Schedule	PrimaryStaff > Name	PrimaryRoom > Num	Inclusion?	Total	Max	SysRank
A2DP-12DPB-01	01	S1		1(1-2)		103	N	0	30	Sched
AELC-12-01	01	S1		1(1-2)		103	N	0	30	Sched
MFR--12-03	03	S1		3(1-2)		100	N	0	30	1
MFR--12-04	04	S2		1(1-2)		100	N	0	30	2
MFR--12-05	05	S2		2(1-2)		100	N	0	30	3
MSC--10IB-01	01	S1		1(1-2)		100	N	0	30	4
IMYP-10-01	01	S1		3(1-2)		106	N	0	30	5
MAC--11CS-01	01	S2		2(1-2)		103	N	0	30	6
MFR--12-01	01	S2		4(1-2)		100	N	0	30	7
MFR--12-02	02	S1		2(1-2)		100	N	0	30	8
MSC--10IB-02	02	S2		4(1-2)		106	N	0	30	9
MYAC-10IB-01	01	S2		2(1-2)		106	N	0	30	10

1. The System Rank column;
2. These sections were Pre-Scheduled and therefore were not calculated into the rank;
3. Shows the order sections will be scheduled.

**Note:** This value is calculated based on the applications defined scheduling algorithm. It can be adjusted by going into the Details of a section and entering a new value in the *User rank adjustment* field

Once started, a progress window will open indicating the progress the builder is making through scheduling all sections in the Workspace.

It is important to take note of the progress window. You should see the follow:



- If the progress window does not ever show a course section i.e. the number
- Of where it is at.
- chances are it never started
- THERE IS A PROBLEM WITH YOUR PATTERN SETUP (see section 5.2 Resolving Fatal Build errors)

The build might reach a section that it cannot schedule due to conflicts with previously scheduled sections. When this happens, the system attempts to reschedule previously scheduled sections to make room for the current section. If the system still cannot schedule the section after the repair attempts, the build will stop at that point and generates a **Fatal error**:

Pages

Scenario

Workspace

Courses

Student

Staff

Rooms

Rules

Global

Feedback category

Master

Matrix View

Assignments

Schedules

Feedback Details

Analysis

Options

Reports

Help

0 of 4 selected

<input type="checkbox"/>	Level	RunType	Feedback Instances
<input type="checkbox"/>	Info	Build	8
<input type="checkbox"/>	Fatal	Build	2
<input type="checkbox"/>	Warning	Build	63
<input type="checkbox"/>	All	Build	73

Fatal errors during the Build tend to be more complicated to resolve than Validation errors. These therefore often require much more thorough investigation.

The following is a suggested process.

It is important to go through all the available information, collect what is provided and then begin the investigation.

1. Fix button from the Feedback area is one piece of information.
2. Click the Analysis side tab and then each sub side leaf (Section, Teacher, Room, Pattern):

Pages

Scenario

Workspace

Courses

Student

Staff

Rooms

Rules

Global

Analysis

Master

Matrix View

Assignments

Schedules

Feedback

Analysis

Section

Teacher

Rooms

Patterns

Options ▾

Reports ▾

Help ▾

[Printer Friendly Version](#)

Last run type	Build
Status of last run	Failed
Validation Errors	0
Validation Warnings	63
Total sections	127
New sections scheduled	37
Previous sections scheduled	2
Failed section	MEN--11-03 ENGLISH 11
Build failure reason	Cannot find a schedule to fit the teacher in.
Total run time	4 sec.

3. Within each of these there will be sub top tabs (e.g. Section has – Attributes, Course, Course Section and Course Rules):



- Go through all of the information to determine the error.

If you never see the Progress window display course sections, as mentioned above, and the window disappears almost immediately, it indicates the process never started. This is usually caused by errors with the Patterns and/or Structure (Days, Periods) of the Scenario.

See how no sections are listed as progressing

It can be further determined that nothing started by checking the Workspace and sorting by System rank:

Pages Scenario Workspace Courses Student Staff Rooms Rules Global

Sections

Master

Options Reports Help Search on SysRank

Sections Details Roster Teachers Rules

1:1 MAWM-10IB-01 0 of 128 selected All Sections

Course	SecNo	ScheduleTerm > Code	Unrotated Schedule	Schedule	Primary Staff > Name	PrimaryRoom > Num	Inclusion?	Total	Max	SysRank ▲	SecType	Es
MAWM-10IB-01	01						N	0	30	1		N
MAWM-10IB-02	02						N	0	30	2		N
MEN-10IB-05	05						N	0	30	3		N
MEN-10IBINC-01	01						N	0	30	4		N
MSC-10IBINC-01	01						N	0	30	5		N

This was the 1st section to be scheduled, according to the SysRank and no Term, Schedule or Room were scheduled

No way to determine if it is an issue with the Patterns and/or Structure, is to run the Build Readiness Checklist report:

- Scenario tt > Details > Reports > Build Readiness Checklist.
- Number 8 on this list indicates:

### 8. Create patterns and pattern sets

*Patterns: 21; Pattern Sets: 2*

*Patterns matching scenario's structure: 0*

There are no Patterns matching the structure (in this example the number of Periods was changed AFTER patterns were created).

You can see this scenario has 8 Periods:

Pages Scenario Workspace Courses Student Staff Rooms Rules Global

Scenarios :: 1-SM8 Build LE

Details Preferences Terms Days Periods Details Rotations Bell Schedules

Options Reports Help Search on Number

0 of 8 selected

Number	ID	Name	Scheduled?
1	1	1	Y
2	2	2	Y
3	3	3	Y
4	4	4	Y
5	5	5	Y
6	6	6	Y
7	7	7	Y
8	8	8	Y

When you look at the Patterns, they were only built with 7:

Pages
Scenario
Workspace
Courses
Student
Staff
Rooms
Rules
Global

### Patterns

Pattern Library
Details

Options
Reports
Help

Search on Pattern

Criteria
Days = All; Periods = All; PPC = All; Pattern Style = All; Pattern Type = All;

Change Filter...

Pattern Sets
Requests
Logs
Reference

0 of 21 selected

	Pattern	Days	Periods	PPC	TPY
<input type="checkbox"/>	A(1)	2	7	1	0/0 (0)
<input type="checkbox"/>	A(1-2)	2	7	2	0/0 (0)
<input type="checkbox"/>	A(2)	2	7	1	0/0 (0)
<input type="checkbox"/>	B(1)	2	7	1	0/0 (0)

To correct this, either rebuild patterns, re-add to Pattern Sets, re-add to Pattern Sets to Courses or change the number of Periods back to a value that matches the Patterns.

## 6.2 Resolving Fatal Build errors

The process for resolving Build errors follows the same steps as correcting validation errors. Click on the word **Fatal** and the details of all errors open:

The screenshot shows the MyEducationBC interface for South Kamloops Secondary, 2015-2016. The 'Workspace' tab is active, and the 'Feedback category' is set to 'Fatal'. A table displays two fatal build errors. The table has columns for RunType, DataType, Level, Message, and Fixed?. The first error is 'Failed to schedule section MGT-----001.' and the second is 'Failed to schedule section MGT-----001. Reason: Cannot assign a room to the section.' Both are marked as 'N' for not fixed.

RunType	DataType	Level	Message	Fixed?
Fix...	Build	Fatal	Failed to schedule section MGT-----001.	N
Fix...	Build	Fatal	Failed to schedule section MGT-----001. Reason: Cannot assign a room to the section.	N

Build errors are often more complicated to resolve than Validation errors and will require a more complete analysis of all the scheduling attributes and rules used in this scenario.

You can also click the Rules leaf on the Workspace, Details side-tab to view any rules associated with this section. The rules are the restrictions that you place on a section and might be the reason the system is having trouble scheduling the section.

Then you build the schedule again, and the system stops at another section it is having trouble scheduling. Fix that problem and build again. Each time you build the schedule you have the option of locking the sections that are already scheduled, or unlocking them to be rescheduled.

You might want to save the Workspace as it is but continue to build the scenario. To do so, copy the scenario and rebuild the new copy.

When the system builds a schedule you are happy with, you can load students into the schedule (covered in the next learning event) to maximize section balances and requests satisfied.