



MyEducationBC

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## Scheduling Module 8

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# Workspace and Build Validation

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April 2019 v1.4

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## Version History

Version	Date	Description
1.0	10 Apr 2015	Document created
1.1	7 Mar 2016	Re-ordered sections and provided additional details
1.2	2 Mar 2017	Updated images for 5.6. Added section 5.2, additional information on resolving fatal Build errors
1.3	27 Dec 2018	5.9 Update for new Feature – Conflict Matrix
1.4	29 Apr 2019	Added hyperlinks to Table of Contents

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# 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.

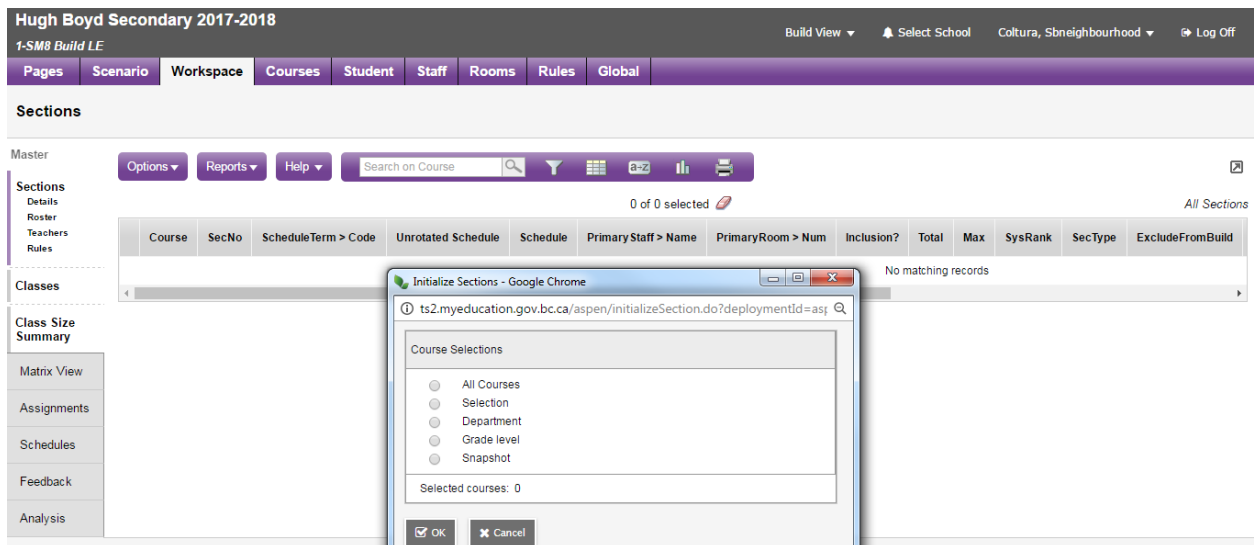
It will not schedule Teachers against sections.

## 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:

The screenshot shows the 'Sections' page in the MyEducationBC system. The page title is 'Hugh Boyd Secondary 2017-2018'. The navigation bar includes 'Pages', 'Scenario', 'Workspace', 'Courses', 'Student', 'Staff', 'Rooms', 'Rules', and 'Global'. The 'Sections' section is active, showing a search bar and a table of sections. A red arrow points to the 'Schedule' column header. The table has the following data:

Course	SecNo	ScheduleTerm > Code	Unrotated Schedule	Schedule	Primary Staff > Name	PrimaryRoom > Num	Inclusion?	Total	Max	SysRank	SecType	Exc
A2DP-12DPB-01	01						N	0	30	0		N
AELC-12-01	01						N	0	30	0		N
IMYP-10-01	01						N	0	30	0		N
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

Matrix View Printer Friendly Version

Conflict Matrix Students

Course(s) Department Mathematics Q X Refresh

Course(s)	MAWM-11	MFMP-10IB	MFOM-11	MFOM-12	MMA-09IB	MPREC-11	MPREC-12	MWPM-10
MAWM-11 MA(A&W) - APPRENTICESHIP AND WORKPLACE MATH 11 Number of requests: 14		1	2					
MFMP-10IB MA - FOUN. 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-09IB 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:

Course(s)

Department -- Choose a filter -- Selection Department Grade level Maximum sections

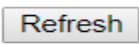
In the example above you can see 2 students have chosen MAWM-11 and MFOM-11.

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

Conflict Matrix ::

Name	YOG	Schd?	SchdPri	Team	House
Dolomount, Milai	2020	Y	0		
Hanschke, Marjana	2019	Y	0		

As adjustments are made to course requests the:



button can be used to update the Conflict Matrix values.

### 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:

Sections :: MAC--11CS-01 - CS: ACCOUNTING 11

<p>Number * <input type="text" value="MAC--11CS"/></p> <p>Description CS: ACCOUNTING 11</p> <p>Master type Class</p>	<p>Section number * <input type="text" value="01"/></p> <p>Staff &gt; Name <input type="text"/></p> <p>Additional staff for split <input type="text"/></p> <p>Build Class &gt; Identifier <input type="text"/></p>
<p>School Room &gt; Number <input type="text"/></p> <p>Schedule Term &gt; Code <input type="text"/></p> <p>Schedule <input type="text" value="Edit Schedule"/></p> <p>System rank 0</p>	<p>Prescheduled room <input type="checkbox"/></p> <p>Prescheduled term <input type="checkbox"/></p> <p>Prescheduled schedule <input type="checkbox"/></p> <p>User rank adjustment <input type="text" value="0"/></p>
<p>Team <input type="text"/></p> <p>House <input type="text"/></p> <p>Section type <input type="text"/></p> <p>Platoon <input type="text"/></p>	<p>Team schedule mode <input type="text"/></p> <p>House schedule mode <input type="text"/></p> <p>Section type schedule mode <input type="text"/></p>

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	<input type="text" value="1103"/> <input type="button" value="Q"/> <input type="button" value="X"/>	Prescheduled room	<input checked="" type="checkbox"/> 
Schedule Term > Code	<input type="text"/> <input type="button" value="Q"/>	Prescheduled term	<input type="checkbox"/>
Schedule	<a href="#">Edit Schedule</a>	Prescheduled schedule	<input type="checkbox"/>
System rank	0	User rank adjustment	<input type="text" value="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					
<b>Sections</b>													
Master													
Options ▾ Reports ▾ Help ▾ Search on Course <input type="text"/> <input type="button" value="Q"/> <input type="button" value="F"/> <input type="button" value="A-Z"/> <input type="button" value="Bar"/> <input type="button" value="Print"/>													
1.MAC--11CS-01 0 of 130 selected <span style="float: right;">Custom Selection</span>													
<input type="checkbox"/>	Course	SecNo	ScheduleTerm > Code	Unrotated Schedule	Schedule	PrimaryStaff > Name	PrimaryRoom > Num	Inclusion?	Total	Max	SysRank	SecType	Exc
<input type="checkbox"/>	MAC--11CS-01	01					103 	N	0	30	0		N
<input type="checkbox"/>	MADFS08IBFY-01	01						N	0	30	0		N
<input type="checkbox"/>	MAF--11-01	01						N	0	30	0		N
<input type="checkbox"/>	MAF--12-01	01						N	0	30	0		N

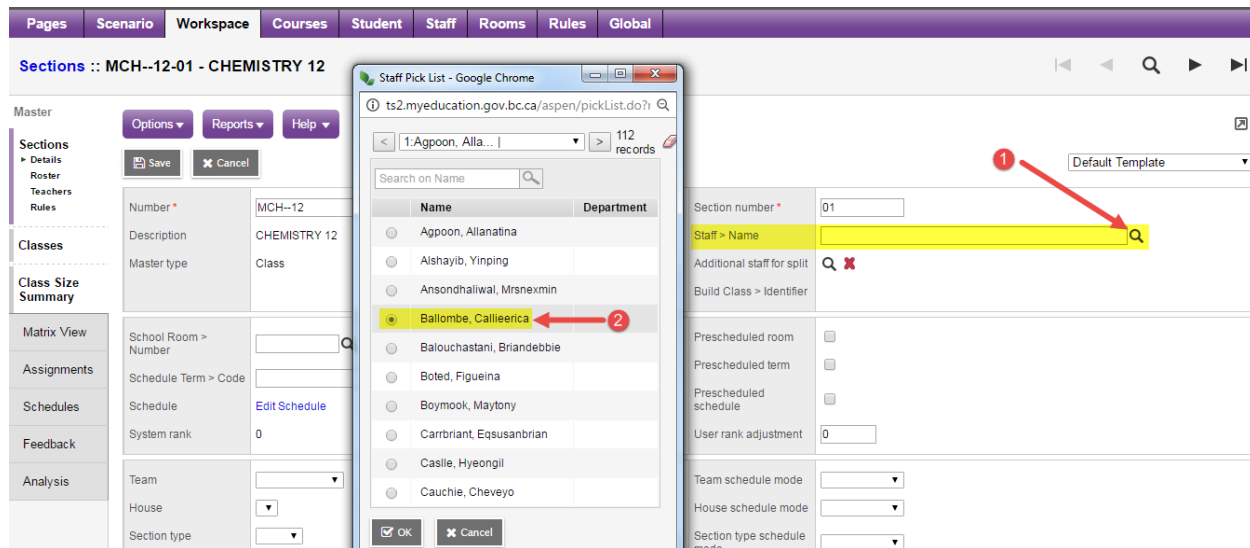
**Note:** It is **VERY** important that schools realize the Build engine will populate a Room for all sections. This is very different from BCeSIS – which would not auto fill in a Room. Schools must, therefore, use a Room Rule or Preschedule sections into rooms.

## 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:



The screenshot shows the 'Staff Pick List' pop-up window over the 'Staff > Name' field in the 'MCH--12-01 - CHEMISTRY 12' section details. The pop-up window lists staff members with 'Ballombe, Callieerica' selected. A red arrow labeled '1' points to the magnifying glass icon in the 'Staff > Name' field of the main section details. Another red arrow labeled '2' points to the selected staff member in the pop-up window.

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 Assignments

To create teacher assignments:

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

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

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, Yinping	3	1 2	2 2		
Ansondhaliwal, Mrsnexmin	0				
Ballombe, Callieerica	0				
Deleuhteraj, Prasadabbis	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**.

Going back to the **Workspace**, we can now see that these sections have the teachers assigned:

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

Sections

Master

Options Reports Help Search on Course 0 of 11 selected Custom Selection

<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				Aishayib, Yinping		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				Aishayib, Yinping		N	0	30	0		N
<input type="checkbox"/>	MSS--10IB-02	02				Aishayib, Yinping		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

**Note:** It is a school scheduler's choice if they want to assign teachers to sections prior to Building the schedule or after it is built. Often, if there is a teacher constraint, the teacher will be applied to a section prior to Building, for those section(s) that the teacher teaches. For sections that do not have a teacher constraint, no teacher need be assigned prior to Building.

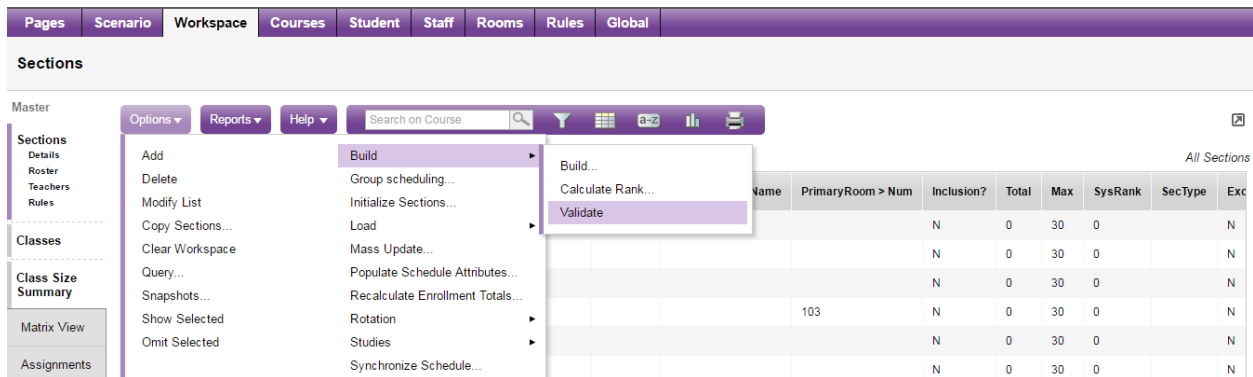
## 5.0 Validate for Build

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

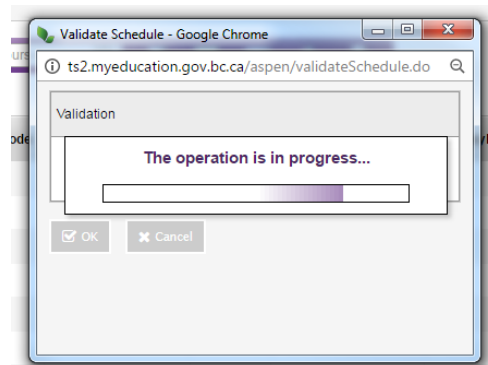
### 5.1 Process for Running – Validation

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
-------	----------	-----------	---------	---------	-------	-------	-------	--------

**Feedback category**

Master Options Reports Help

Matrix View 0 of 4 selected

Assignments	Level	RunType	Feedback Instances
Schedules	Info	Build	3
<b>Feedback Details</b>	<b>Fatal</b>	Build	18
Analysis	Warning	Build	63
	All	Build	84

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

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

**Feedback category :: Fatal**

Master Options Reports Help Search on Timestamp 0 of 9 selected Custom Selection


Assignments	RunType	DataType	Level	Message	Fixed?	
Schedules	Fix...	Build	Course	Fatal	Field Course > sections must be greater than 0 (record: A2DP-12, 0, value: 0).	N
<b>Feedback Details</b>	Fix...	Build	Course	Fatal	Field Course > enrollmentMax must be greater than 0 (record: A2DP-12, 0, value: 0).	N
Analysis	Fix...	Build	Course	Fatal	Field Course > baseTermNumber must be greater than 0 (record: A2DP-12, 0, value: 0).	N
	Fix...	Build	Course	Fatal	Field Course > coveredTermNumber must be greater than 0 (record: A2DP-12, 0, value: 0).	N
	Fix...	Build	Course	Fatal	Field Course > periodsPerCycle must be greater than 0 (record: A2DP-12, null, value: null).	N
	Fix...	Build	Course	Fatal	Field Course > patternSet cannot be blank (record: A2DP-12, ,).	N
	Fix...	Build	Room	Fatal	Field Room > maxCapacity must be greater than 0 (record: 113, , value: 0).	N
	Fix...	Build	Teacher	Fatal	Field Teacher > maxInARow must be greater than 0 (record: Carbriant, Eqsusanbrian, , value: 0).	N
	Fix...	Build	Teacher	Fatal	Field Teacher > maxInARow must be greater than 0 (record: Castle, Hyeongil, , value: 0).	N

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

#### 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.

**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.

**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.



**4. Field Room > maxCapacity must be greater than 0 (record: 113, , value: 0)**

The screenshot shows a form for editing a room record. At the top are 'Save' and 'Cancel' buttons. The form fields are:
 

- Number\*: 113
- Department: (empty dropdown)
- Type: Classroom
- Building: (empty text box)
- Location code: (empty dropdown)
- Max capacity: 0 (highlighted in yellow with a red arrow pointing to it)
- Include in scheduling:

**5. Field Teacher > maxInARow must be greater than 0 (record: Carrbriant, 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.

The screenshot shows a form for editing a teacher record. The top section contains:
 

- Legal first name\*: Eqsusanbrian
- Legal middle name: (empty text box)
- Legal last name\*: Carrbriant
- Staff ID: 657007
- Type: Teacher
- School > Name: Hugh Boyd Secondary
- Homeroom: 18
- Department: (empty dropdown)
- Status: Active

 The bottom section contains:
 

- Include in scheduling:
- Max-in-a-row: 0 (highlighted in yellow with a red arrow pointing to it)
- Is always free?:
- Max preps: 0
- Classroom > Number: (empty text box with search icon)
- Use preferred room only?:
- Max rooms: 0
- Location code: (empty dropdown)
- Use preferred location only?:
- Max locations: 0
- Max periods: 0

 At the bottom are 'Save' and 'Cancel' buttons.

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.

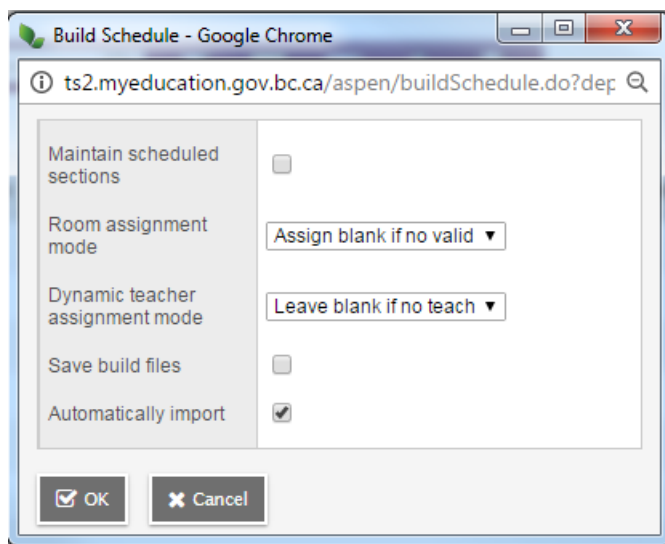
## 6.0 Build

### 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.

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.

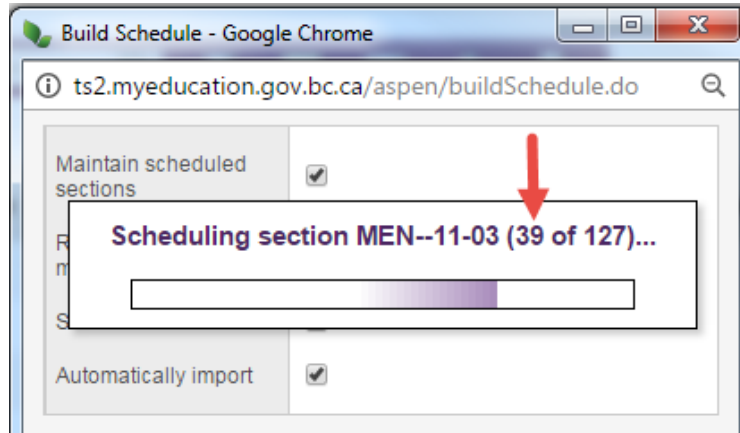
Sections											
Master											
Options Reports Help Search on SysRank											
1: Sched JA2DP-12DPB-01 0 of 127 selected											
	Course	SecNo	ScheduleTerm > Code	Unrotated Schedule	Schedule	PrimaryStaff > Name	PrimaryRoom > Num	Inclusion?	Total	Max	SysRank ▲
<input type="checkbox"/>	A2DP-12DPB-01	01	S1		1(1-2)		103	N	0	30	Sched
<input type="checkbox"/>	AELC-12-01	01	S1		1(1-2)		103	N	0	30	Sched
<input type="checkbox"/>	MFR--12-03	03	S1		3(1-2)		100	N	0	30	1
<input type="checkbox"/>	MFR--12-04	04	S2		1(1-2)		100	N	0	30	2
<input type="checkbox"/>	MFR--12-05	05	S2		2(1-2)		100	N	0	30	3
<input type="checkbox"/>	MSC--10IB-01	01	S1		1(1-2)		100	N	0	30	4
<input type="checkbox"/>	IMYP-10-01	01	S1		3(1-2)		106	N	0	30	5
<input type="checkbox"/>	MAC--11CS-01	01	S2		2(1-2)		103	N	0	30	6
<input type="checkbox"/>	MFR--12-01	01	S2		4(1-2)		100	N	0	30	7
<input type="checkbox"/>	MFR--12-02	02	S1		2(1-2)		100	N	0	30	8
<input type="checkbox"/>	MSC--10IB-02	02	S2		4(1-2)		106	N	0	30	9
<input type="checkbox"/>	MVAC-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 and 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
<b>Feedback category</b>								
Master	Options ▾			Reports ▾		Help ▾		
Matrix View	0 of 4 selected 🍷							
Assignments	<input type="checkbox"/>	Level	RunType					Feedback Instances
Schedules	<input type="checkbox"/>	Info	Build					8
Feedback Details	<input type="checkbox"/>	Fatal	Build					2 ←
	<input type="checkbox"/>	Warning	Build					63
Analysis	<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):

Analysis		
Master	Options ▾ Reports ▾ Help ▾	
Matrix View	<a href="#">Printer Friendly Version</a>	
Assignments	Last run type	Build
Schedules	Status of last run	Failed
Feedback	Validation Errors	0
	Validation Warnings	63
Analysis Section Teacher Rooms Patterns	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):

Analysis ::		
Master	Options ▾ Reports ▾ Help ▾	
Matrix View	<a href="#">Printer Friendly Version</a>	
Assignments	<a href="#">Attributes</a> <a href="#">Course</a> <a href="#">Course Sections</a> <a href="#">Course Rules</a>	
Schedules	Failed section	MEN--11-03 ENGLISH 11
Feedback	<b>Prescheduled Attributes</b> <a href="#">Modify</a>	
Analysis Section Teacher Rooms Patterns	Schedule Term	Not Prescheduled
	Schedule	Not Prescheduled
	School Classroom	Not Prescheduled

4. 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

The screenshot shows the 'Build Schedule' dialog box in a Google Chrome browser window. The dialog has a yellow background and contains the text 'The operation is in progress...'. There are 'OK' and 'Cancel' buttons at the bottom. A red arrow points from the text 'See how no sections are listed as progressing' to the dialog box.

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

The screenshot shows a table of sections sorted by SysRank. The table has columns: Course, SecNo, ScheduleTerm > Code, Unrotated Schedule, Schedule, Primary Staff > Name, PrimaryRoom > Num, Inclusion?, Total, Max, SysRank, SecType, and Es. The first row is highlighted in yellow. A red arrow points to the 'SysRank' column header. A red box highlights the first row with the text: '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:

Scenarios :: 1-SM8 Build LE

Details	Options ▾ Reports ▾ Help ▾ Search on Number 🔍				
Preferences	0 of 8 selected 🍷				
Terms	<input type="checkbox"/>	Number	ID	Name	Scheduled?
Days	<input type="checkbox"/>	1	1	1	Y
Periods Details	<input type="checkbox"/>	2	2	2	Y
	<input type="checkbox"/>	3	3	3	Y
Rotations	<input type="checkbox"/>	4	4	4	Y
Bell Schedules	<input type="checkbox"/>	5	5	5	Y
	<input type="checkbox"/>	6	6	6	Y
	<input type="checkbox"/>	7	7	7	Y
	<input type="checkbox"/>	8	8	8	Y

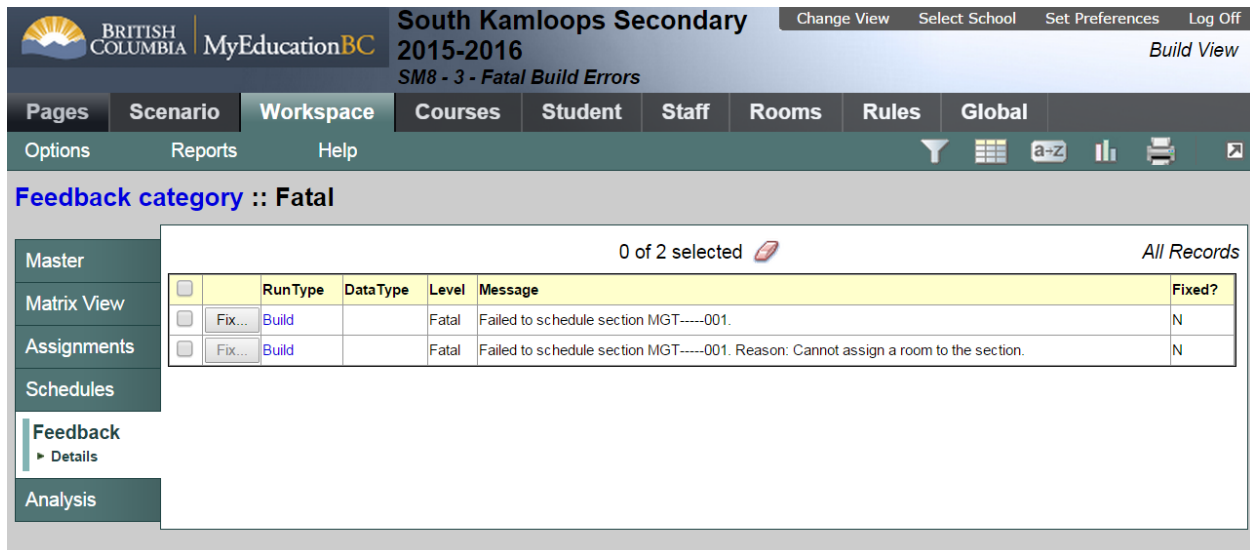
When you look at the Patterns, they were only built with 7:

Pages	Scenario	Workspace	Courses	Student	Staff	Rooms	Rules	Global
<b>Patterns</b>								
Pattern Library Details	Options ▾ Reports ▾ Help ▾ Search on Pattern 🔍				Criteria Days = All; Periods = All; PPC = All; Pattern Style = All; Pattern Type = All;			
Pattern Sets					Change Filter...			
Requests	0 of 21 selected 🍷							
Logs	<input type="checkbox"/>	Pattern	Days	Periods	PPC	TPY		
Reference	<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:




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Change View Select School Set Preferences Log Off Build View

Pages Scenario Workspace Courses Student Staff Rooms Rules Global

Options Reports Help

Feedback category :: Fatal

0 of 2 selected  All Records

RunType	DataType	Level	Message	Fixed?
Build		Fatal	Failed to schedule section MGT-----001.	N
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.