Clinician Scheduler Documentation

Release 2.3

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Jan 23, 2020

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CHAPTER

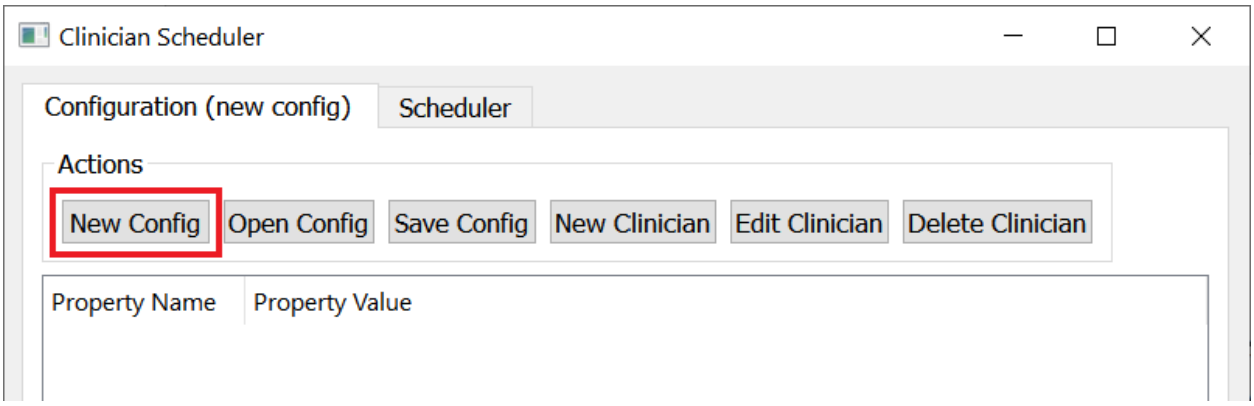
ONE

CLINICIAN CONFIGURATION

The clinician configuration specifies which clinicians are available, which divisions they are covering, and how many weeks they should cover in each of their divisions.

1.1 Creating a new configuration file

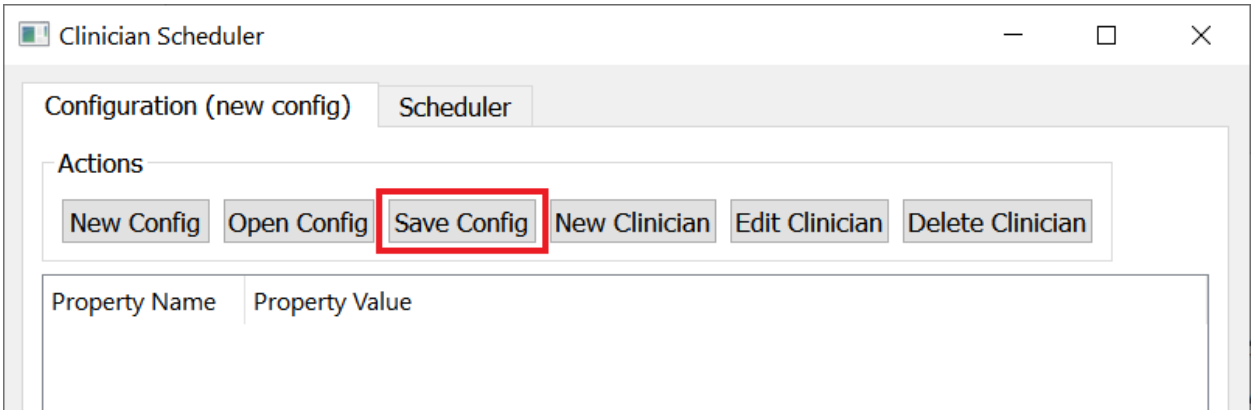
By default, you will get a blank configuration file when you launch the program. If you would like to discard the changes you have made and start a configuration file from scratch, simply click on *New Config*.



Warning: Unsaved changes to a configuration file will be discarded upon clicking on *New Config*.

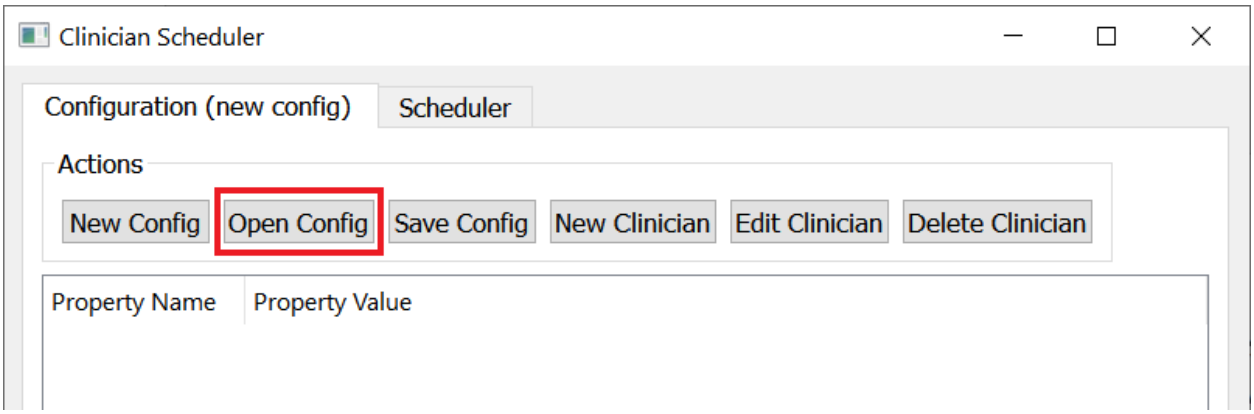
1.2 Saving the configuration file

When you are ready to save the configuration you created, click on *Save Config* and choose a place to save your file. Make note of the name and directory of the file so you could load it in future runs.



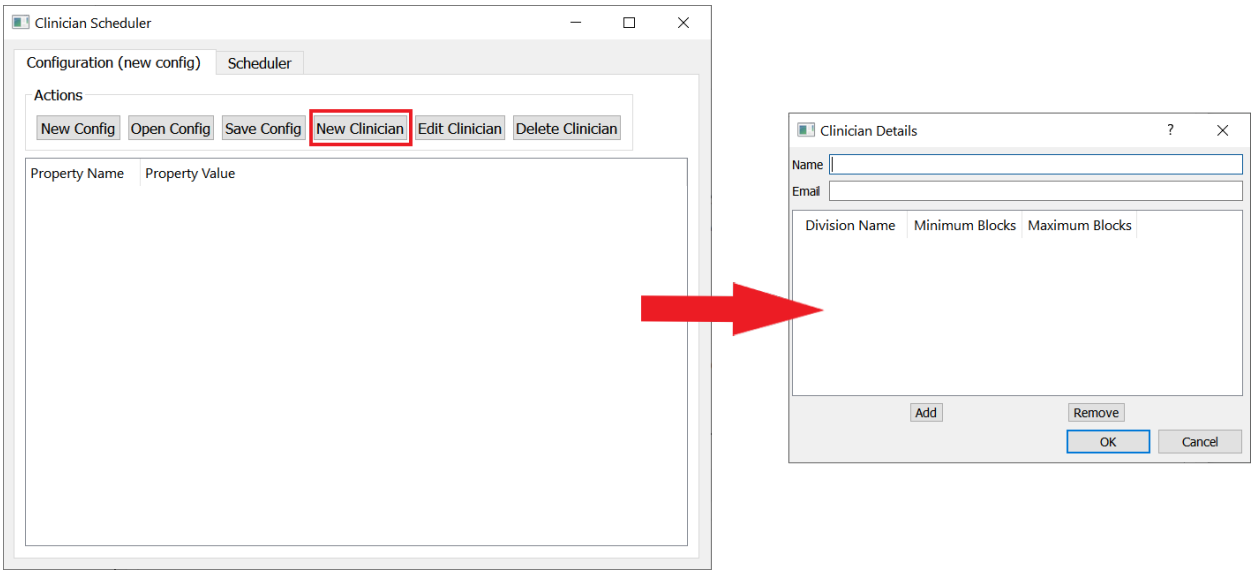
1.3 Loading a configuration file

If you would like to open a previously created configuration file, simply click on *Open Config*, navigate to the location of the file, and select it.



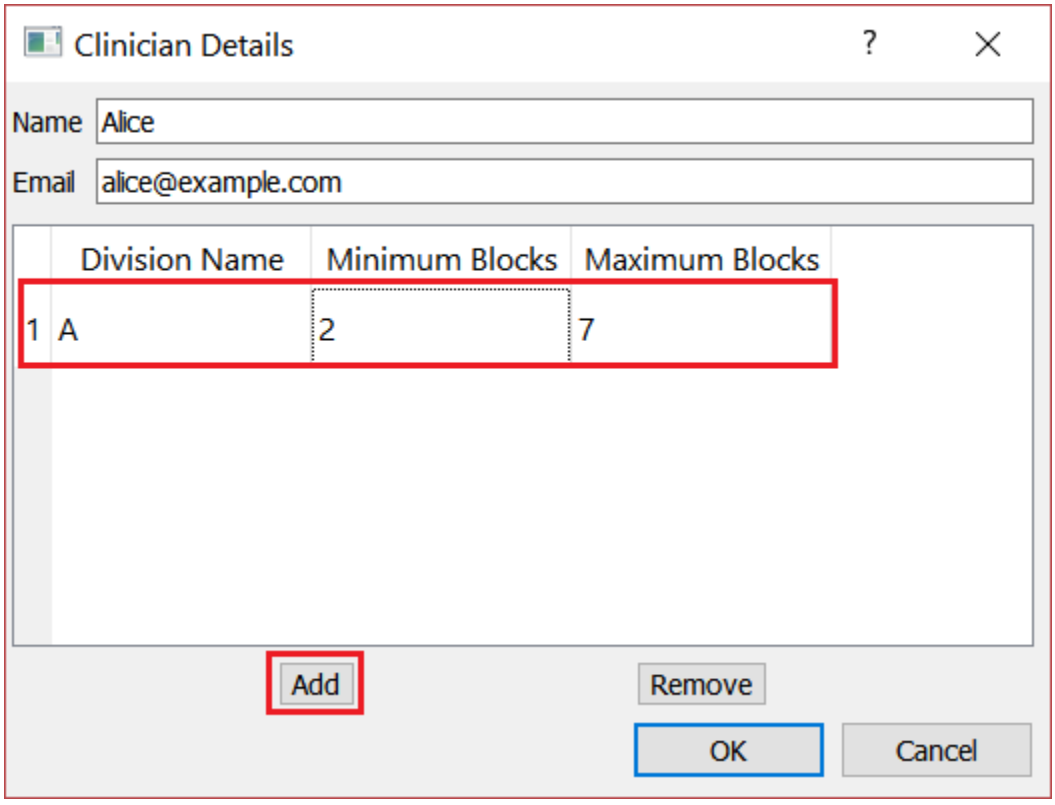
1.4 Adding a new clinician

1. From the configuration tab, click *New Clinician*. You should see a form for supplying clinician details.

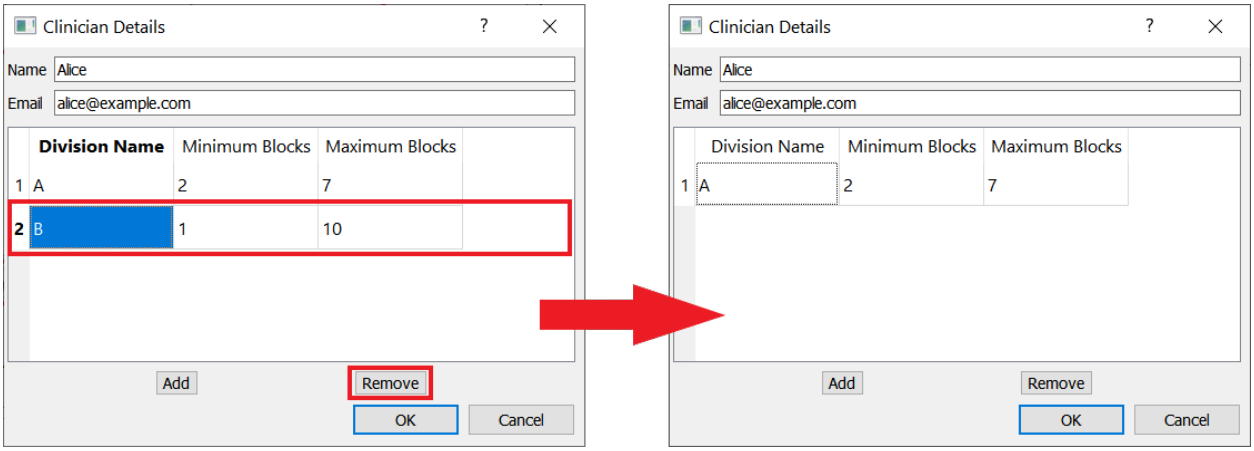


2. Fill out the name, email (optional), and divisions that the clinician will be covering. To add a division you can click on *Add* and a new row will be added to the table which you can fill out. You can set the minimum and maximum number of blocks that a clinician can work in a given division.

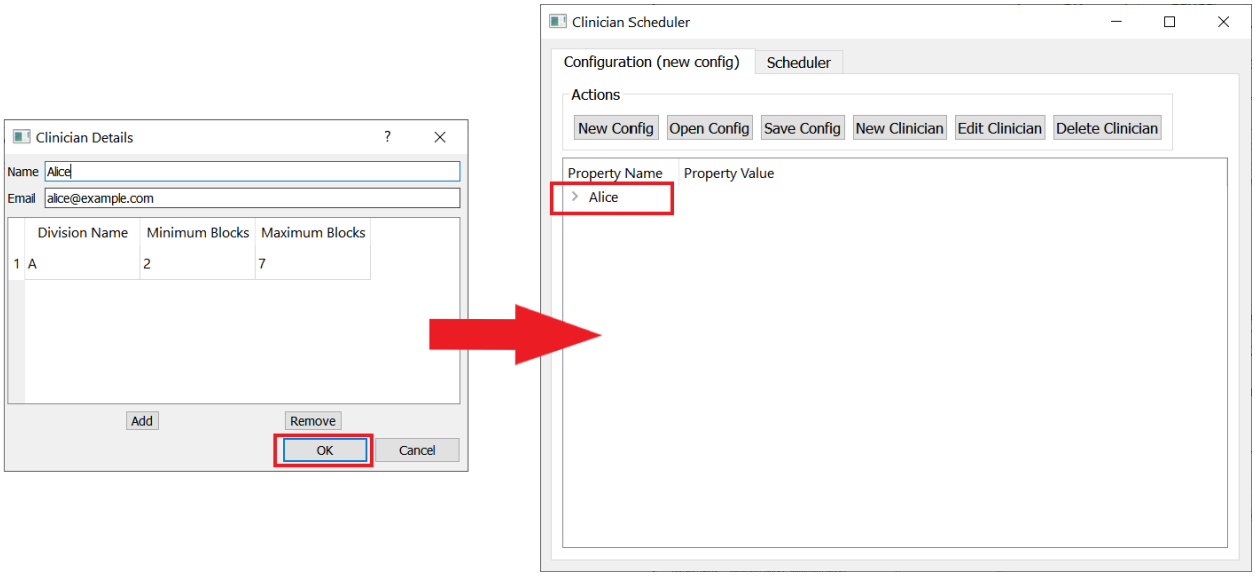
Note: A single block corresponds to two weeks.



3. To delete a row from the table, select the row and then click *Remove*.

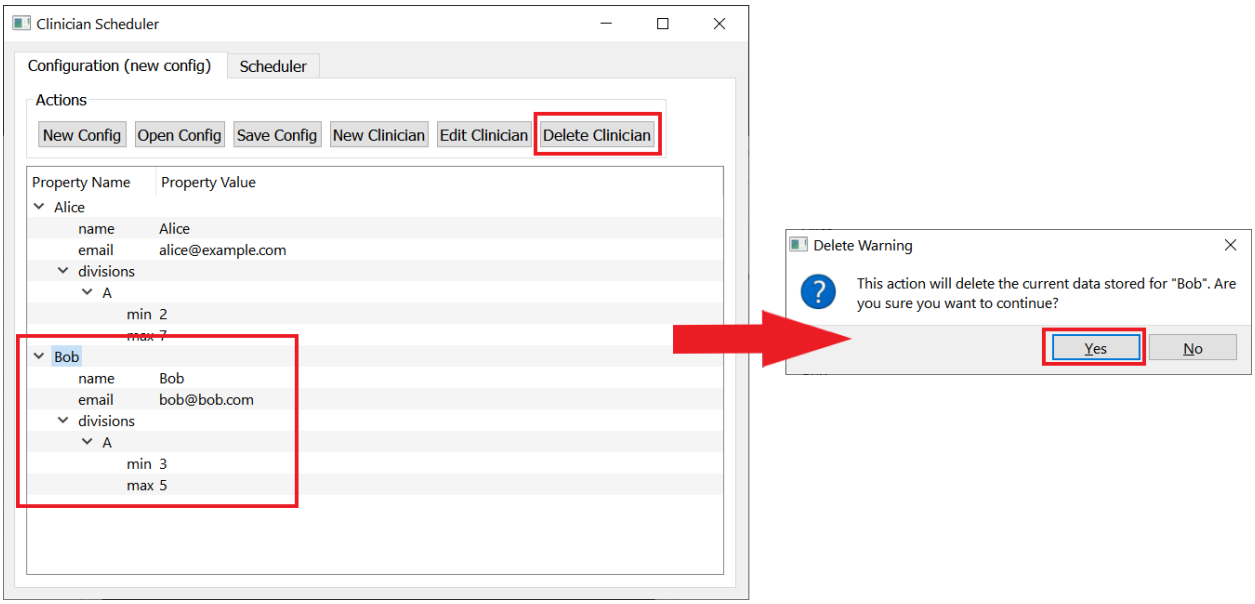


4. When you are finished entering the data for the clinician, click *Ok*. You should now see a new entry in the main table for that clinician.



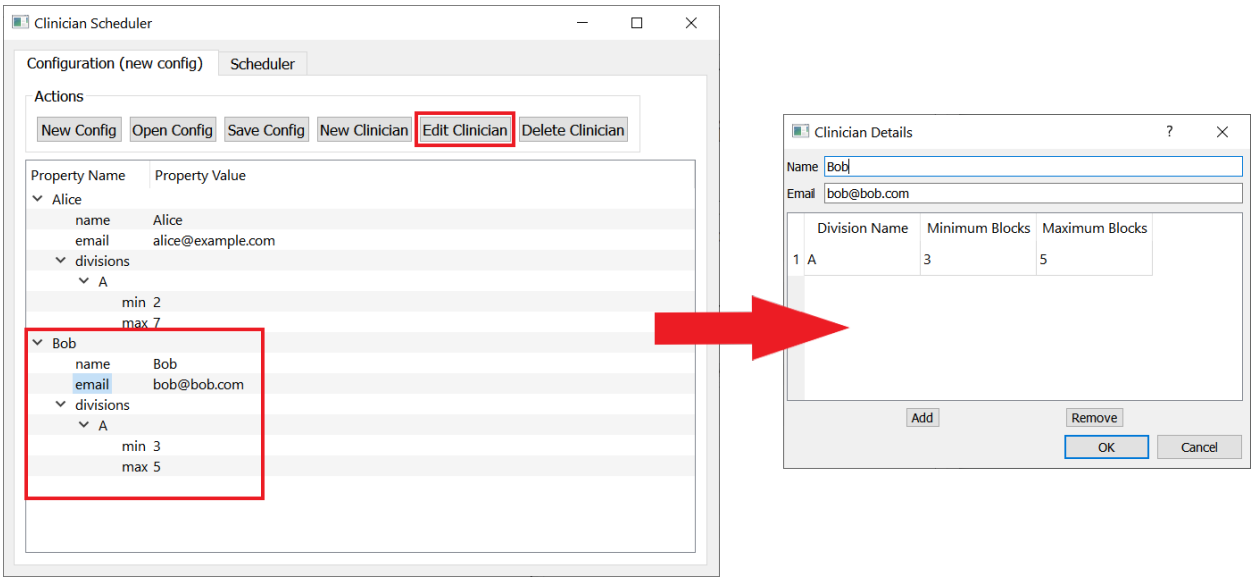
1.5 Deleting an existing clinician

To delete an existing clinician, simply select a row corresponding to the clinician in the table and click on *Delete Clinician*.



1.6 Editing an existing clinician

To edit the information of a clinician, select a row corresponding to the clinician in the table and click on *Edit Clinician*. You should see a dialog window where you can change the information. For more details on how to enter data in the edit dialog, see *Adding a new clinician*.



CHAPTER

TWO

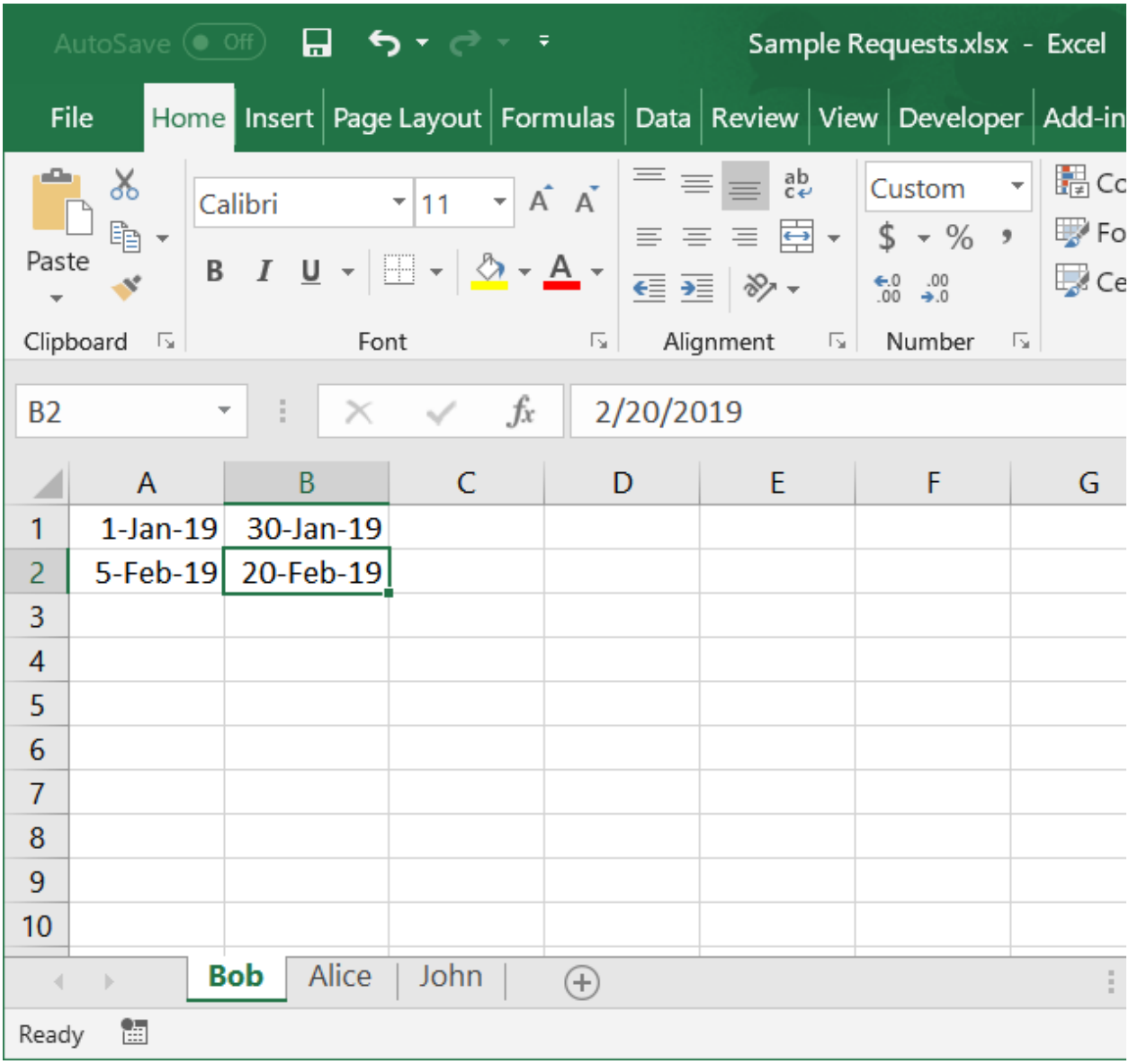
REQUESTS & HOLIDAY WEEKENDS

Clinician requests for time-off and the dates of holiday weekends are supplied using a pair of excel files.

2.1 Clinician Requests Excel File

The requests file should have a single sheet per clinician that is in the configuration file you created in *Clinician Configuration*. Inside each sheet, each request is entered on a separate row, containing the start and end date (inclusive) of the request.

Warning: Make sure each value in the Excel file is formatted as a date!

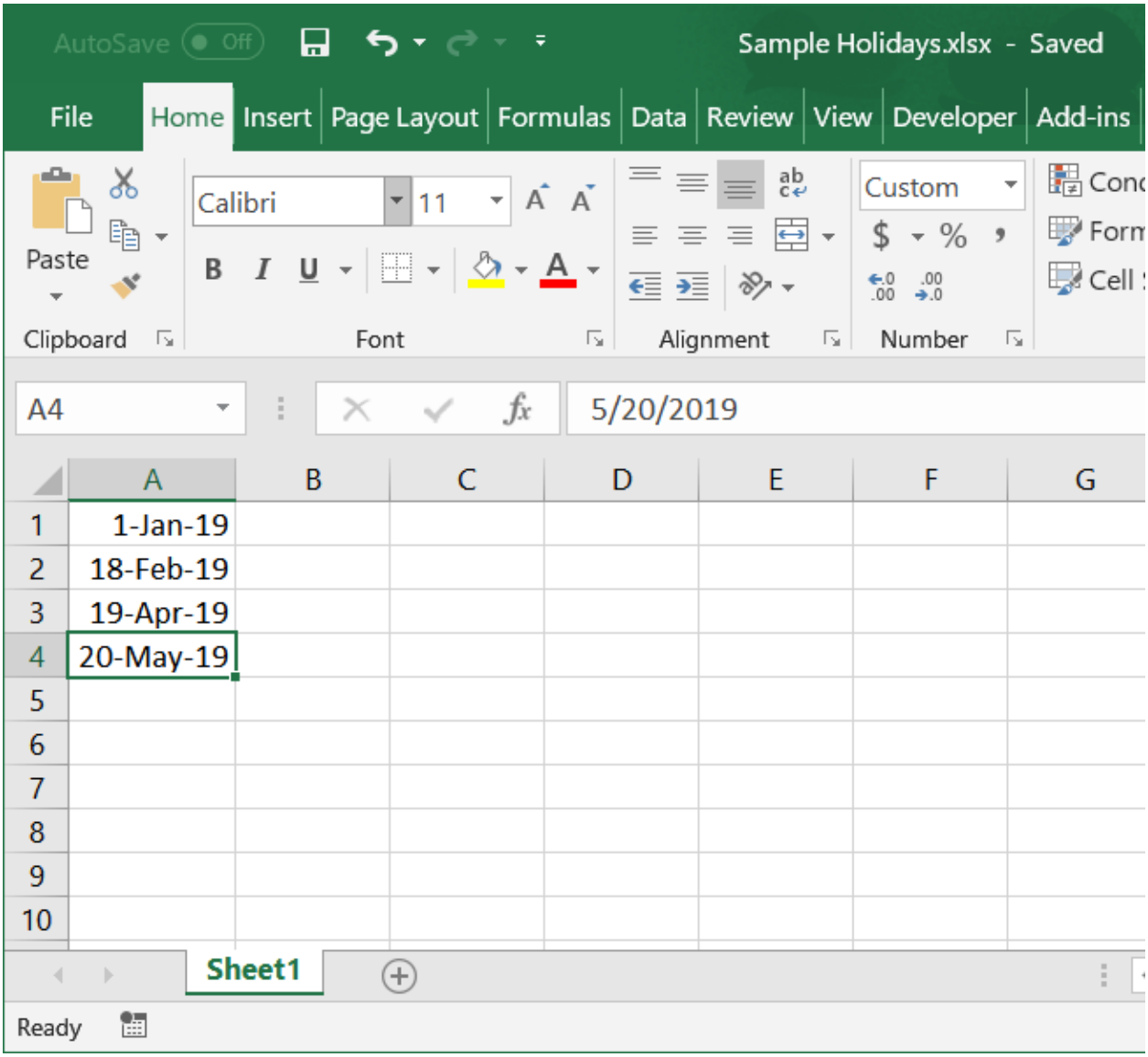


Note: To enter a request for a single day, use the same value for both start and end date.

2.2 Holiday Weekends Excel File

The holiday weekends file should have a single sheet with the dates of the holiday weekends, one in each row.

Warning: Make sure each value in the Excel file is formatted as a date!


AutoSave Off
Sample Holidays.xlsx - Saved
File
Home
Insert
Page Layout
Formulas
Data
Review
View
Developer
Add-ins
Paste
Calibri
11
Custom
Clipboard
Font
Alignment
Number
A4
5/20/2019
A
B
C
D
E
F
G
1 1-Jan-19
2 18-Feb-19
3 19-Apr-19
4 20-May-19
5
6
7
8
9
10
Sheet1
Ready

CHAPTER

THREE

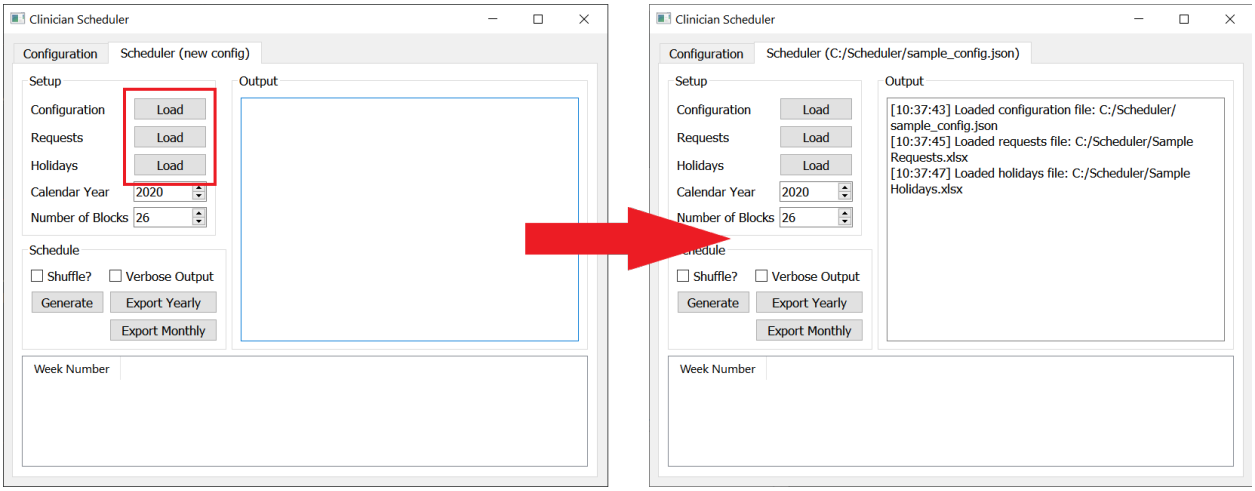
SCHEDULING

3.1 Generating a schedule

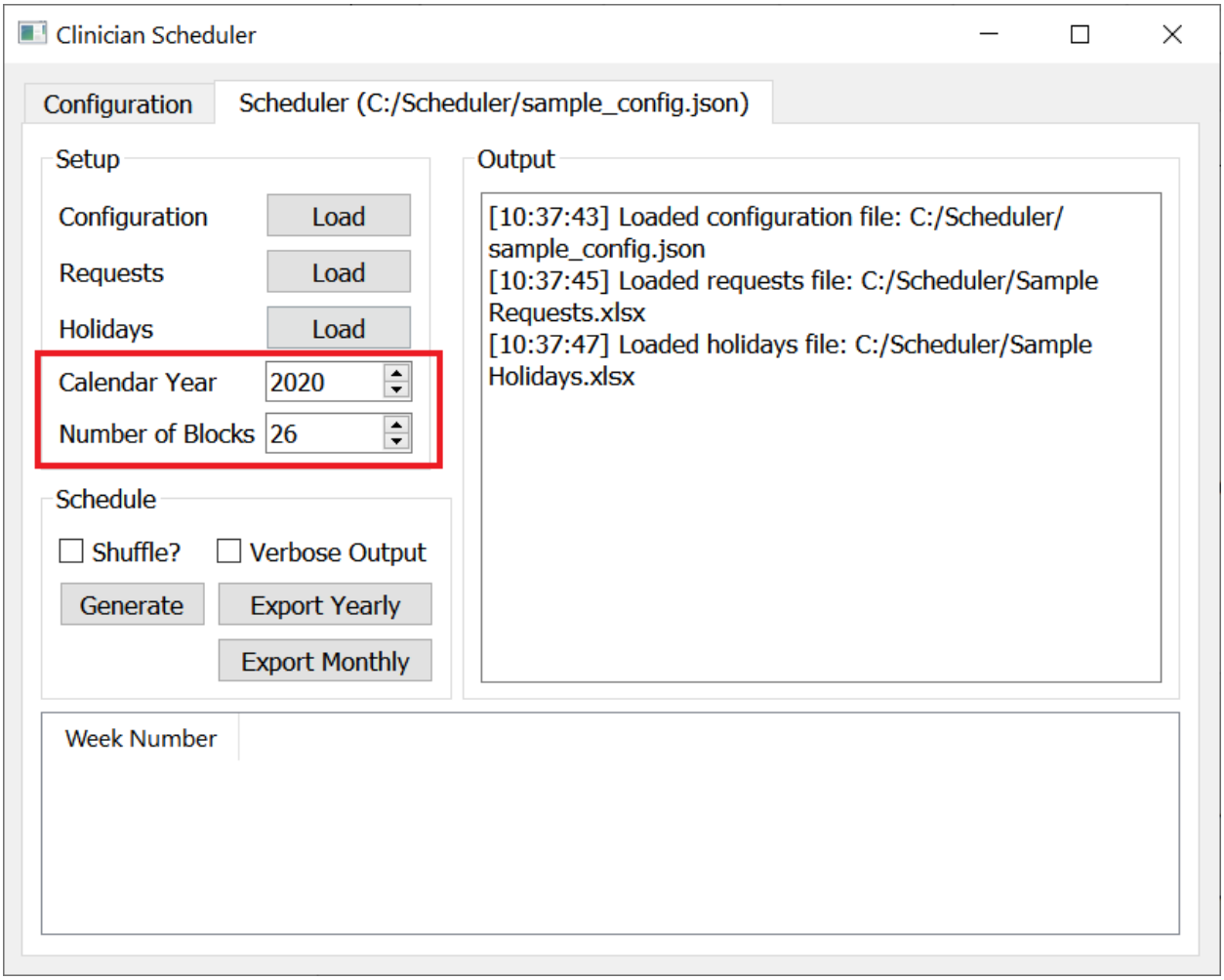
Once you have created a configuration file, you can switch over to the *Scheduler* tab of the application in order to generate a schedule.

1. Load the configuration, requests, and holidays files that you created earlier in *Clinician Configuration* and *Requests & Holiday Weekends*.

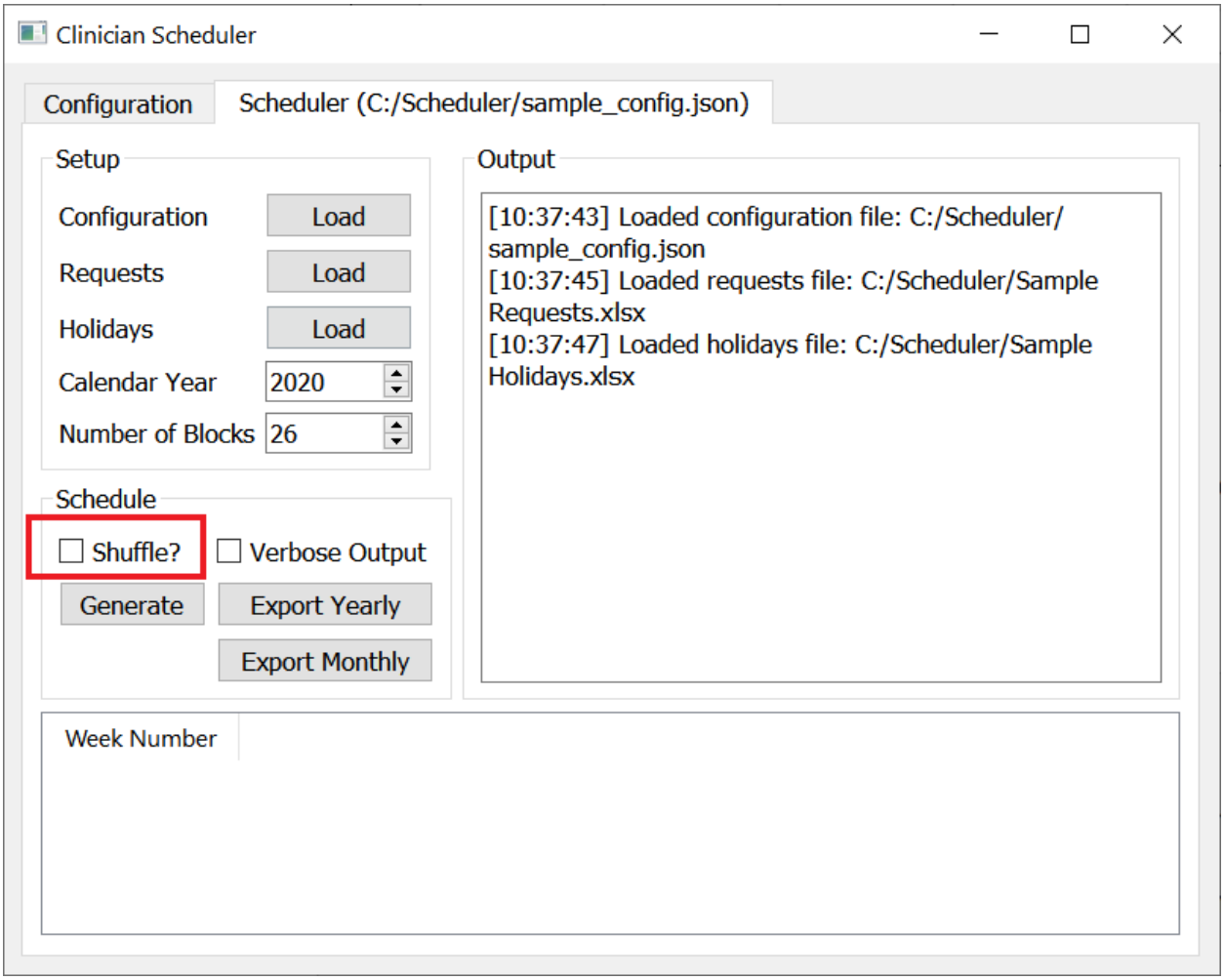
Note: You can be sure that everything loaded correctly by checking the output on the right.



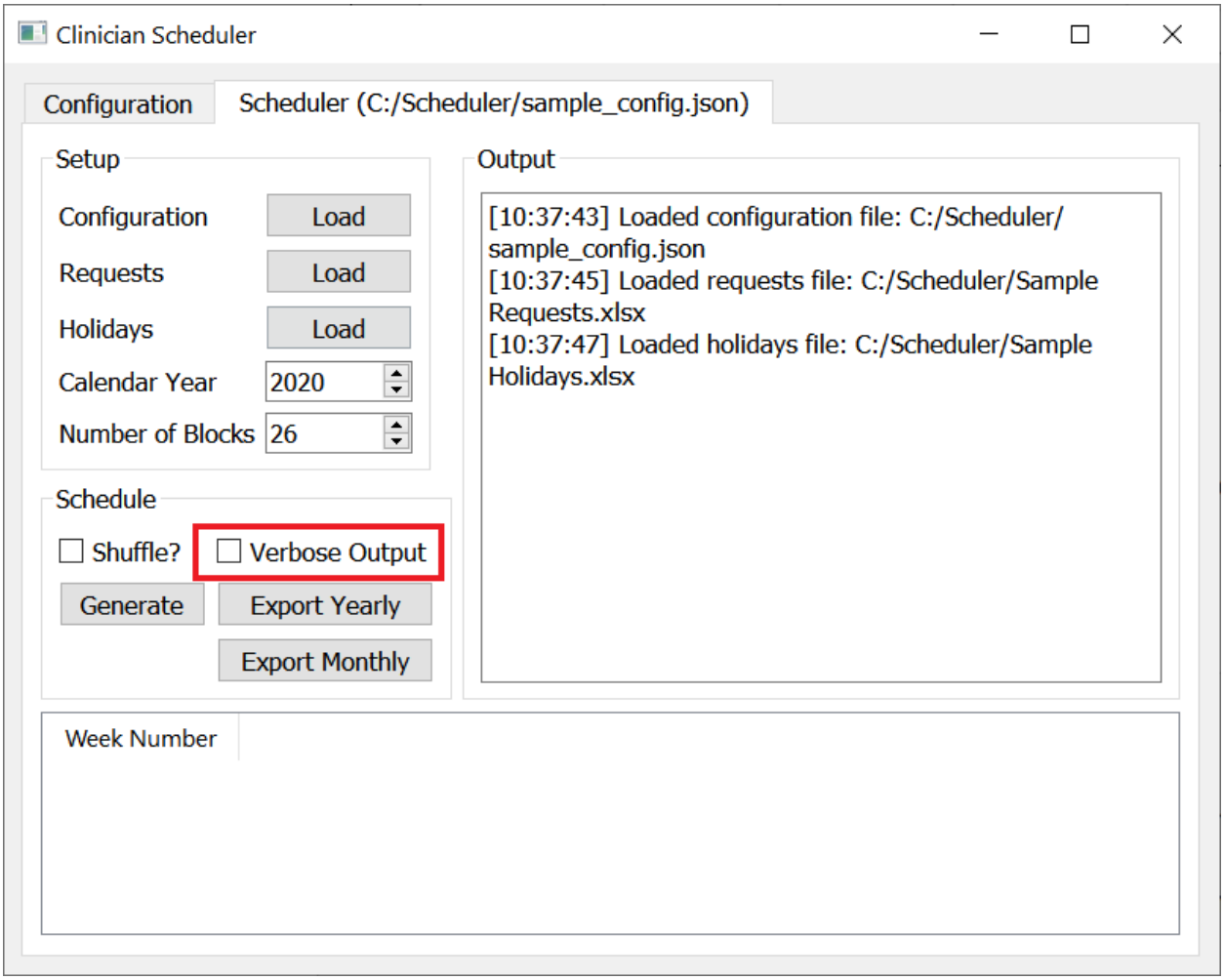
2. Set the starting calendar year for the schedule, as well as the number of 2-week blocks that you want the schedule to cover. By default, the calendar year is the upcoming year, and the number of blocks is 26, to cover a full year.



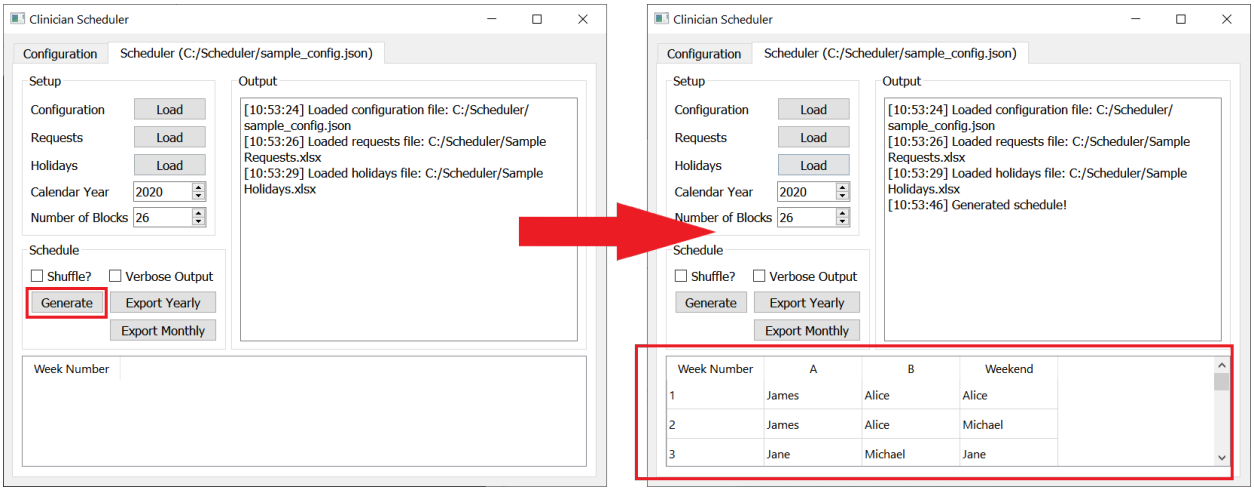
3. **(Optional)** Check the *Shuffle?* checkbox if you would like the scheduler to generate a slightly different schedule each time you click on *Generate*.



4. **(Optional)** Check the *Verbose Output* checkbox if you would like to see detailed output on the right after the scheduler finishes generating the schedule.



5. Click on *Generate* to generate a schedule.



Warning: Depending on the amount of clinicians and requests provided, it may take some time to find an optimal schedule.

Warning: It is possible that the scheduler will not be able to come up with a schedule that satisfies your constraints. This can be a result of one or more of the following reasons:

- There are not enough clinicians to distribute evenly throughout the year
- The specified constraints are too restrictive
- The minimum and maximum number of blocks of clinicians are too restrictive

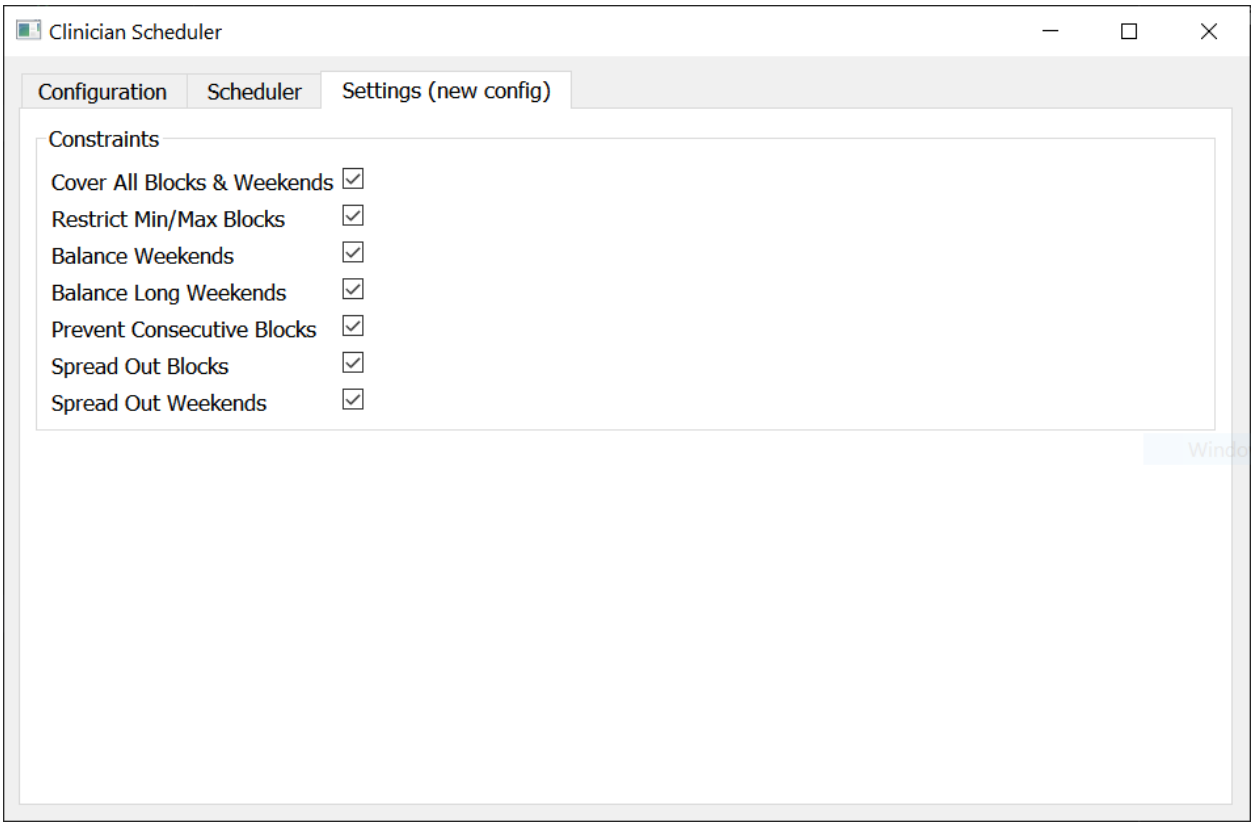
In these situations try the following:

1. Adjust the constraints in the *Settings* tab, starting from the most restrictive constraints. See *Changing settings*
2. Try changing the configuration file by adding new clinicians, or changing the min/max blocks of existing clinicians to allow for more flexibility. See *Clinician Configuration*

3.2 Changing settings

The *Settings* tab allows you to modify the constraints applied when generating a potential schedule.

In order to disable/enable a constraint, uncheck/check the corresponding checkbox and re-generate the schedule in the *Scheduler* tab (see *Generating a schedule*).



3.2.1 St. Michael's Hospital (SMH) Constraints

The following descriptions are specific to the SMH version of the scheduler (that is, the `scheduler-smh.exe` executable file)

Note: The following constraints are presented in order of restrictiveness, from least restrictive to most restrictive.

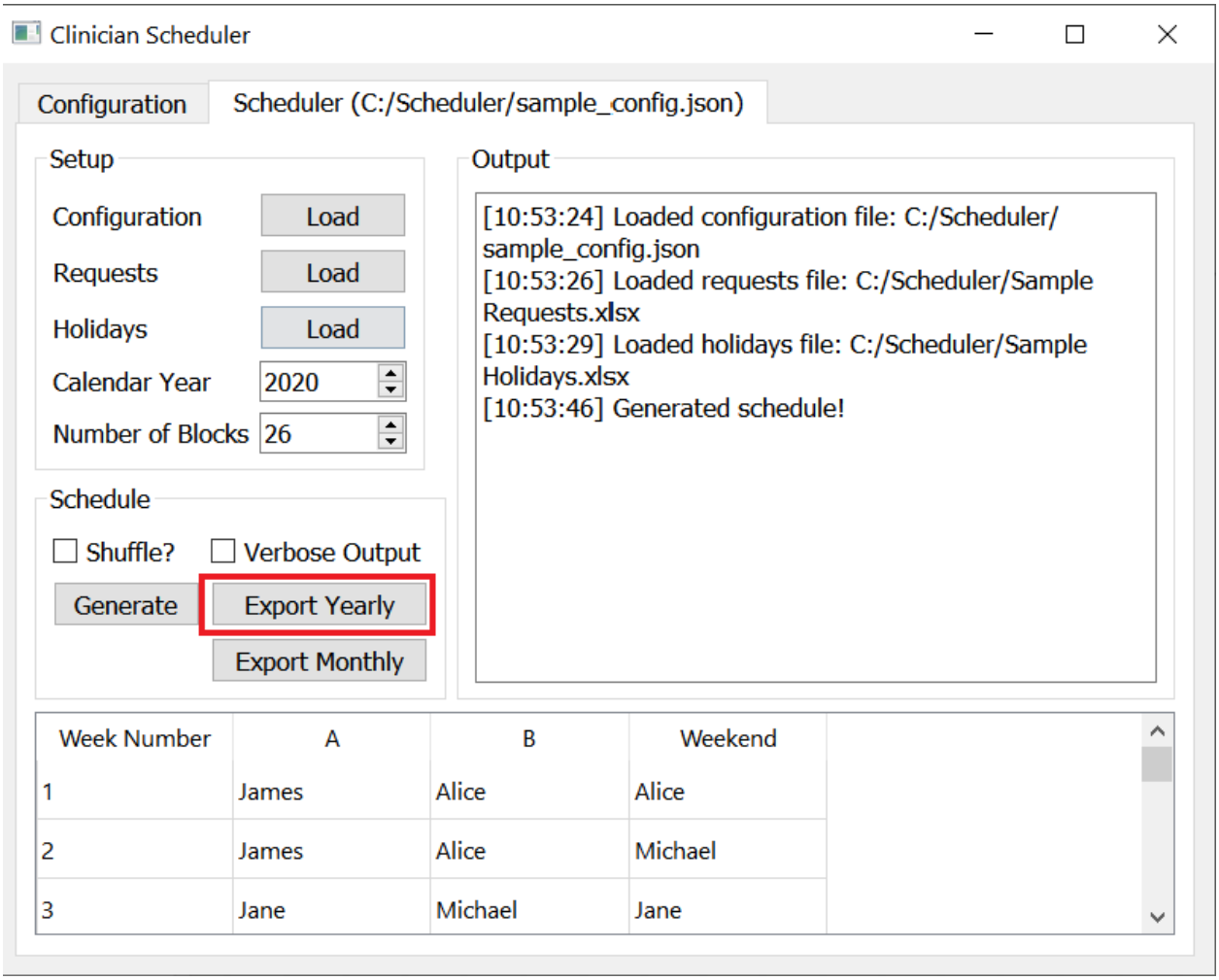
If you are struggling to generate a schedule, try disabling them, starting from the latter constraints.

- **Cover All Block & Weekends** This constraint enforces that a clinician is assigned to every block and weekend, in every department.
- **Restrict Min/Max Blocks** This constraint enforces that a clinician is assigned to a number of blocks no less than their specified minimum and no more than their specified maximum.
- **Balance Weekends** This constraint enforces that all clinicians are assigned to an approximately equal number of weekends
- **Balance Long Weekends** This constraint enforces that all clinicians are assigned to an approximately equal number of long (holiday) weekends
- **Prevent Consecutive Blocks** This constraint enforces that a clinician is not assigned to two consecutive blocks in a row
- **Spread Out Blocks** This constraint enforces that a clinician is not assigned to more than 2 blocks in every 5 consecutive blocks.
- **Spread Out Weekends** This constraints enforces that a clinician is not assigned to more than 1 block in every 4 consecutive blocks.

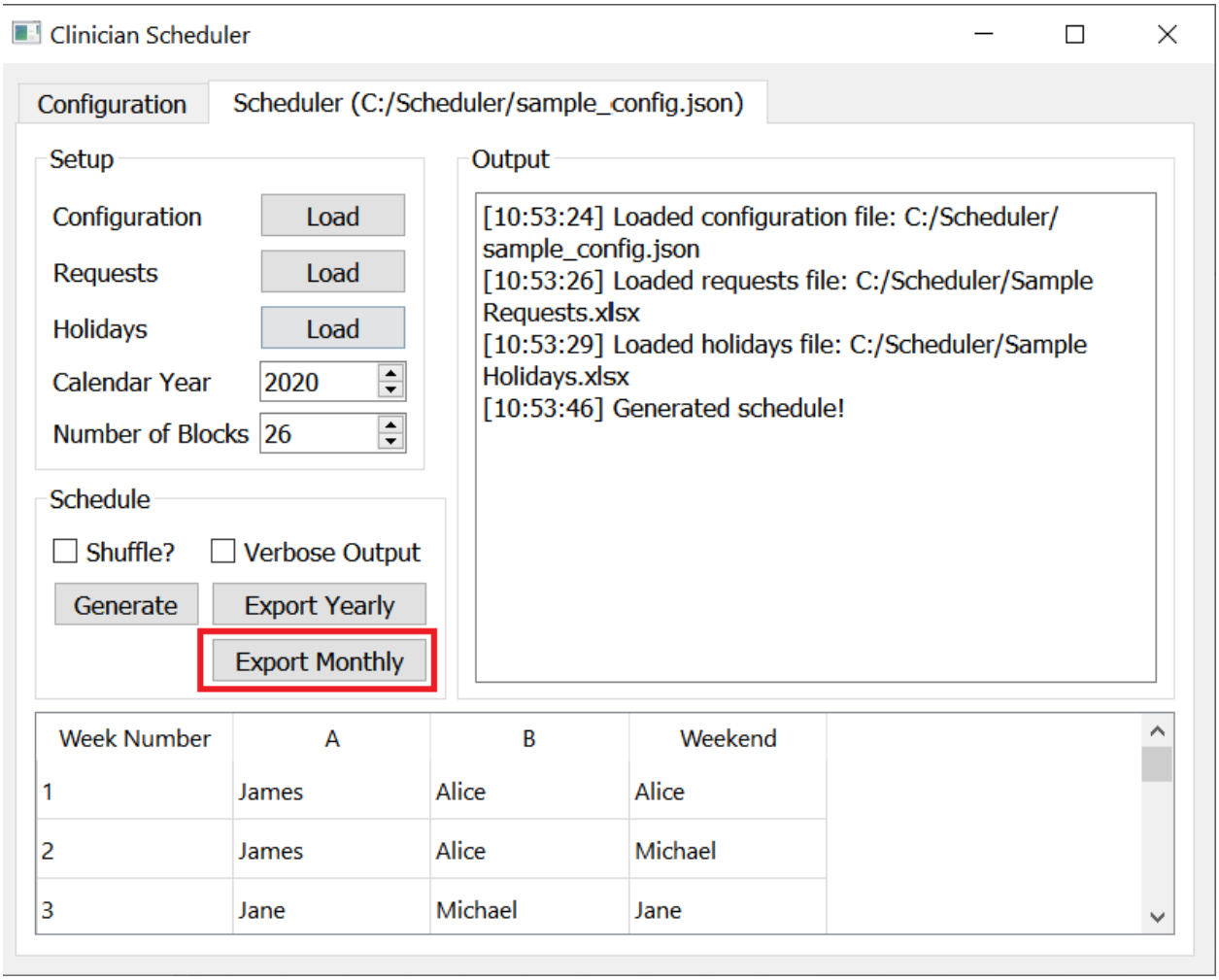
3.3 Exporting a schedule

If you are satisfied with the generated schedule, you can choose to export it as an Excel file. There are two Excel format options: *Yearly Export* and *Monthly Export*.

Selecting the *Yearly Export* option will generate an excel file with a single sheet, displaying the clinicians that are covering a particular division for a given week or weekend. It is very similar to the table output in the application itself.



Selecting the *Monthly Export* option will generate a more detailed breakdown of the schedule, with a separate sheet for every month, detailing which clinician covers which division on which day.

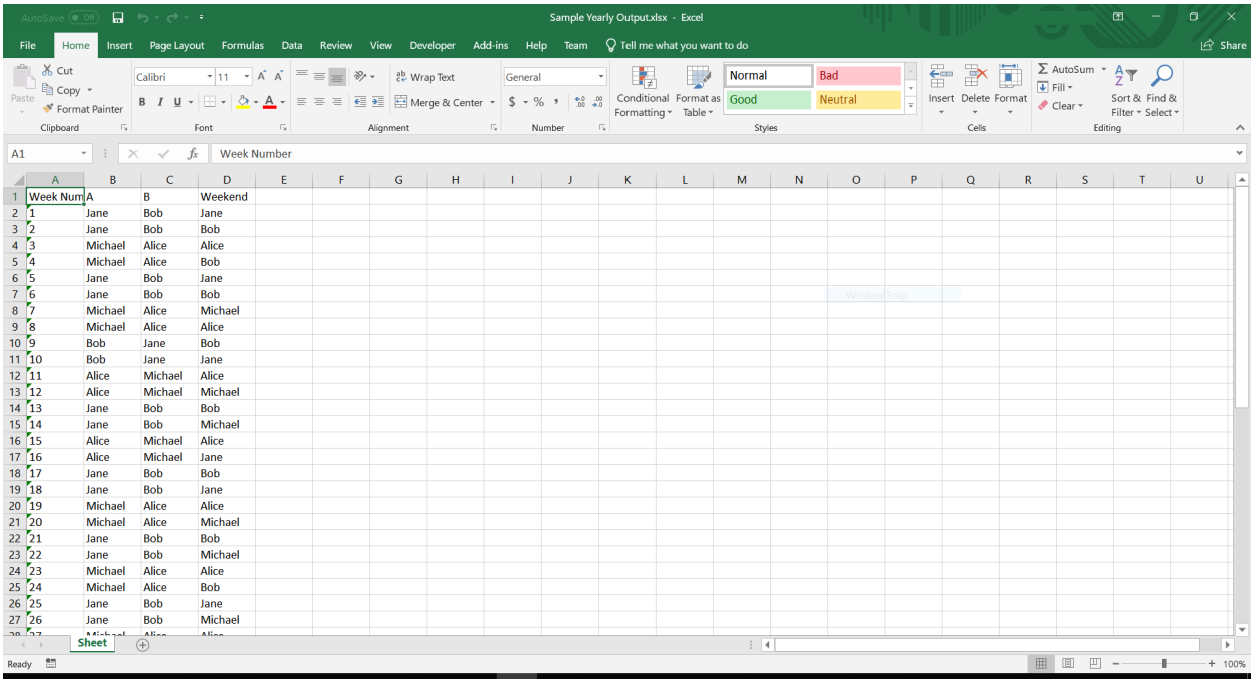

Clinician Scheduler
Configuration
Scheduler (C:/Scheduler/sample_config.json)
Setup
Configuration
Load
Requests
Load
Holidays
Load
Calendar Year
2020
Number of Blocks
26
Schedule
Shuffle?
Verbose Output
Generate
Export Yearly
Export Monthly
Output
[10:53:24] Loaded configuration file: C:/Scheduler/sample_config.json
[10:53:26] Loaded requests file: C:/Scheduler/Sample Requests.xlsx
[10:53:29] Loaded holidays file: C:/Scheduler/Sample Holidays.xlsx
[10:53:46] Generated schedule!
Week Number
A
B
Weekend
1
James
Alice
Alice
2
James
Alice
Michael
3
Jane
Michael
Jane

CHAPTER

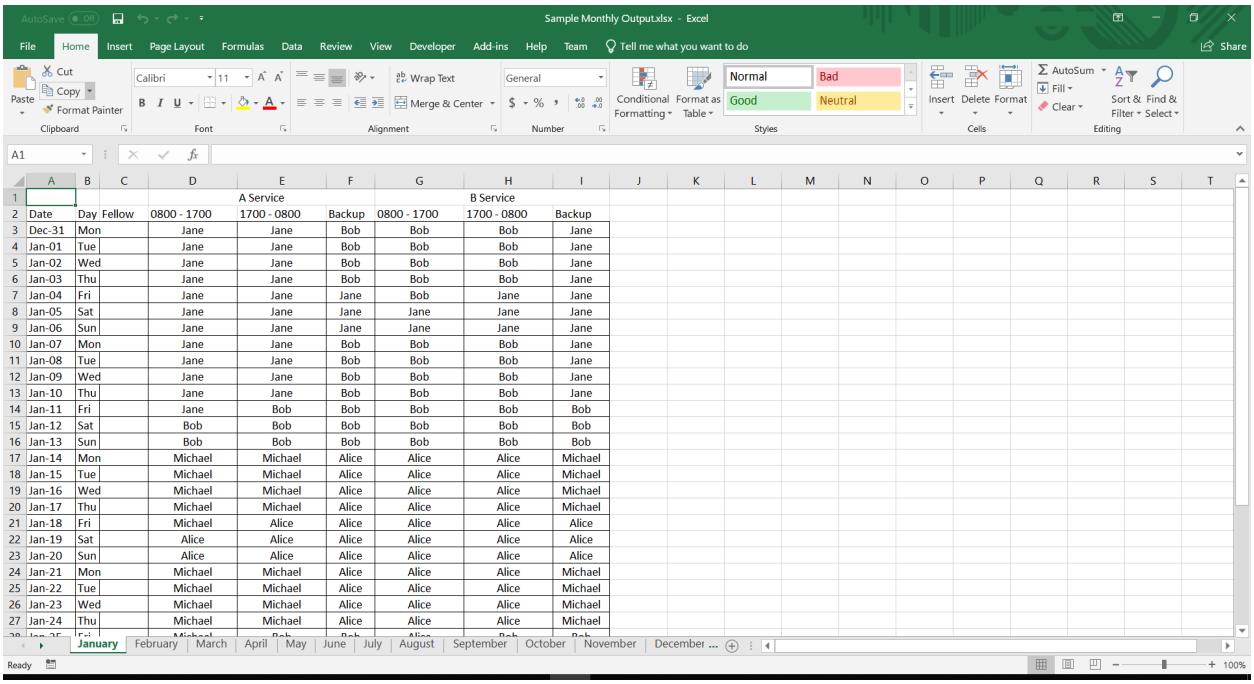
FOUR

SAMPLE OUTPUT

4.1 Yearly Excel Format



4.2 Monthly Excel Format



				A Service			B Service	
Date	Day	Fellow	0800 - 1700	1700 - 0800	Backup	0800 - 1700	1700 - 0800	Backup
Dec-31	Mon		Jane	Jane	Bob	Bob	Bob	Jane
Jan-01	Tue		Jane	Jane	Bob	Bob	Bob	Jane
Jan-02	Wed		Jane	Jane	Bob	Bob	Bob	Jane
Jan-03	Thu		Jane	Jane	Bob	Bob	Bob	Jane
Jan-04	Fri		Jane	Jane	Jane	Bob	Jane	Jane
Jan-05	Sat		Jane	Jane	Jane	Jane	Jane	Jane
Jan-06	Sun		Jane	Jane	Jane	Jane	Jane	Jane
Jan-07	Mon		Jane	Jane	Bob	Bob	Bob	Jane
Jan-08	Tue		Jane	Jane	Bob	Bob	Bob	Jane
Jan-09	Wed		Jane	Jane	Bob	Bob	Bob	Jane
Jan-10	Thu		Jane	Jane	Bob	Bob	Bob	Jane
Jan-11	Fri		Jane	Bob	Bob	Bob	Bob	Bob
Jan-12	Sat		Bob	Bob	Bob	Bob	Bob	Bob
Jan-13	Sun		Bob	Bob	Bob	Bob	Bob	Bob
Jan-14	Mon		Michael	Michael	Alice	Alice	Alice	Michael
Jan-15	Tue		Michael	Michael	Alice	Alice	Alice	Michael
Jan-16	Wed		Michael	Michael	Alice	Alice	Alice	Michael
Jan-17	Thu		Michael	Michael	Alice	Alice	Alice	Michael
Jan-18	Fri		Michael	Alice	Alice	Alice	Alice	Alice
Jan-19	Sat		Alice	Alice	Alice	Alice	Alice	Alice
Jan-20	Sun		Alice	Alice	Alice	Alice	Alice	Alice
Jan-21	Mon		Michael	Michael	Alice	Alice	Alice	Michael
Jan-22	Tue		Michael	Michael	Alice	Alice	Alice	Michael
Jan-23	Wed		Michael	Michael	Alice	Alice	Alice	Michael
Jan-24	Thu		Michael	Michael	Alice	Alice	Alice	Michael