Advanced Resource Allocation Using Microsoft Excel

Introduction

As previously mentioned in the previous article of how we can manage resources and start the resource allocation process with Primavera P6 Software. In this article, we will present a different process while allocating resources using Microsoft Excel.

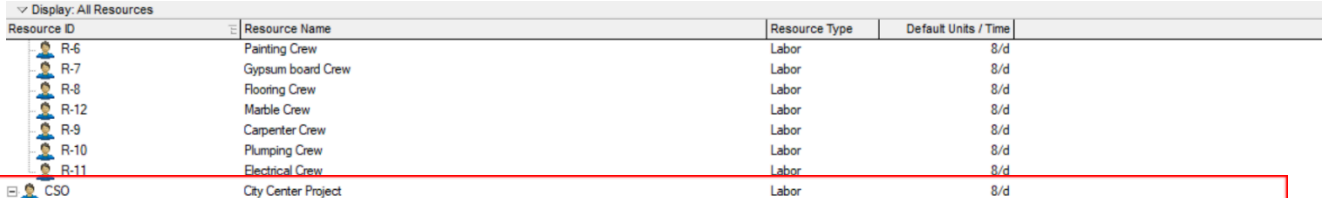
How Microsoft Excel Can Make the Resource Allocation Process Easier

The previous method can take a longer time when having so many resources that require allocation to the schedule. By using Excel in the process, you can assign a lot of resources in no time.

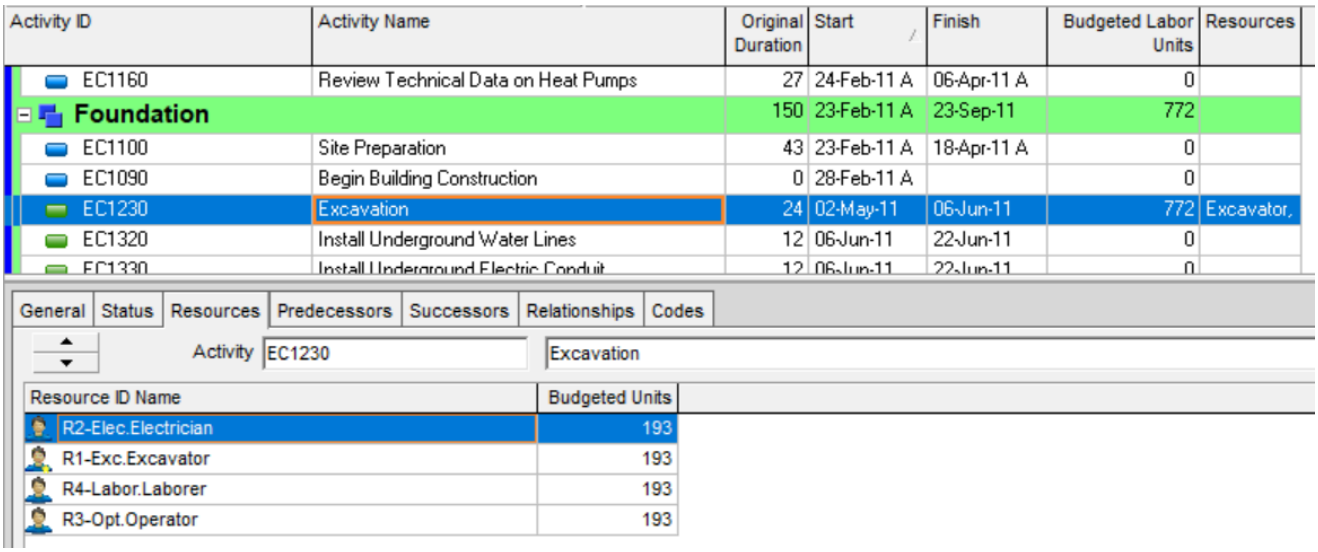
1. Let us first open an Excel sheet and add the following columns:
    - Activity ID: this column lists the Activity IDs of the activities we want to allocate resources for.
    - Activity Name: This includes the names of the activities that will be assigned.
    - Resource ID: this column will include the IDs of the resources we will add.
    - Budget Units: This column lists the budget hours for each resource.

Activity ID	Activity Name	Resource ID	Budgeted Units
EC1230	Excavation	R1-Exc	80
EC1330	Install Underground Electric Conduit	R2-Elec	60
EC1340	Form/Pour Concrete Footings	R3-Opt	50
EC1350	Concrete Foundation Walls	R3-Opt	50
EC1360	Form and Pour Slab	R3-Opt	50
EC1370	Backfill and Compact Walls	R1-Exc	80
EC1430	Concrete First Floor	R3-Opt	100
EC1460	Erect Stairwell and Elevator Walls	R4-Labor	140
EC1470	Concrete Basement Slab	R3-Opt	130
EC1480	Concrete Second Floor	R3-Opt	130
EC1640	Install Wiring and Cable	R2-Elec	55
Total			925

2. Go to Primavera p6 and open the schedule to create the above resources similar to the resource dictionary built previously.

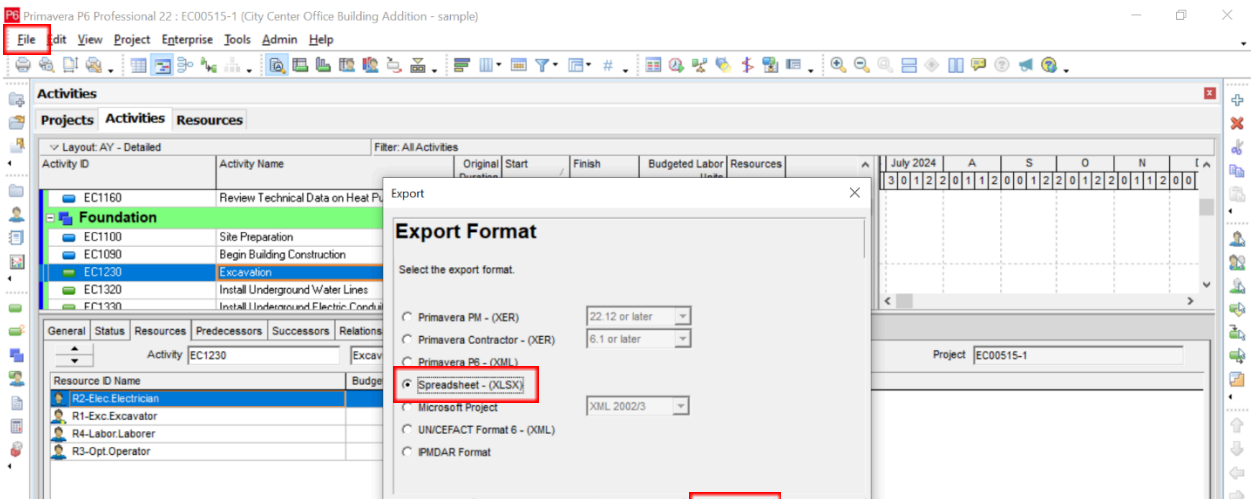


3. The next step is to assign these resources to just one activity on the list we have created. Let us choose EC1230 – Excavation.

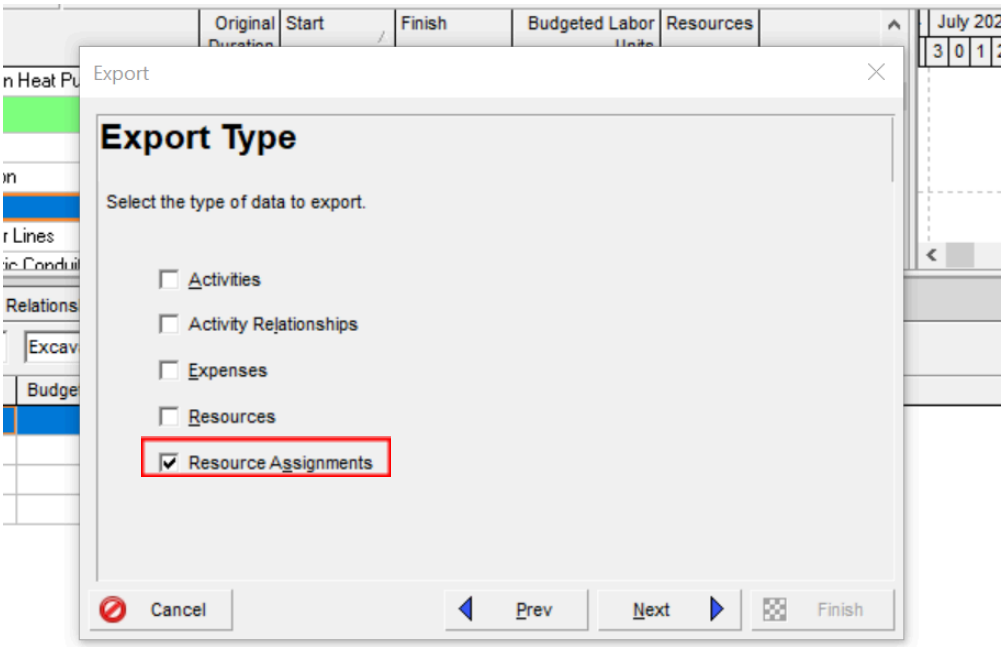


4. To link these resources to our activity list, let us export the resource assignments to Excel.

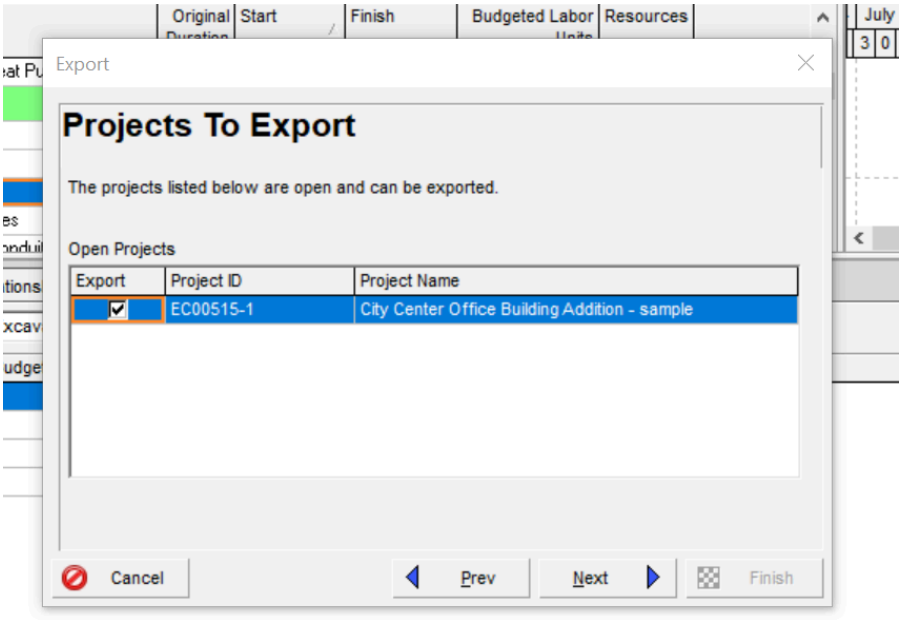
   i. Click on “File” and choose “Export.” Then click on “Spreadsheet – XLSX” and click Next.



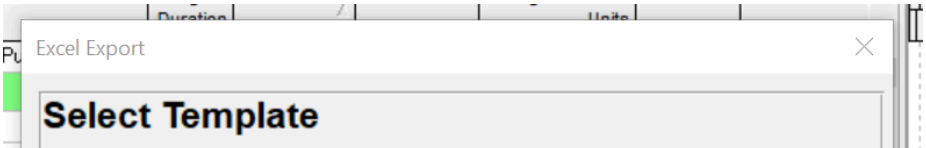
ii. Click on “Resource Assignments” and click on Next.



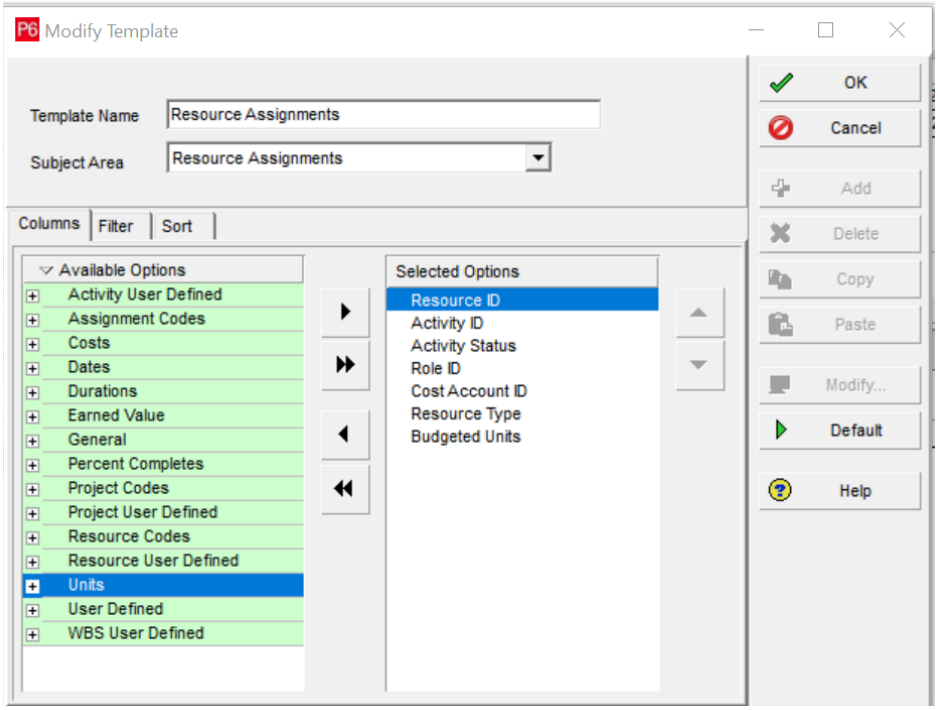
iii. Check the “Export Box” to export the project to Excel and click on Next.



iv. Click on “Add” to export the required columns for the Excel template.

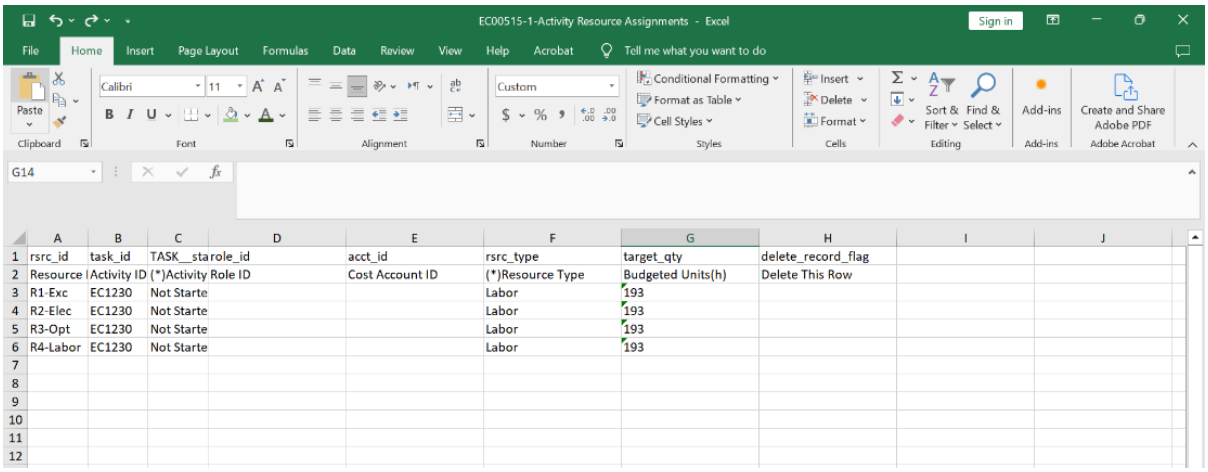


v. The below window will appear, choose these columns to be exported and click OK. (Activity ID, Activity Name, Resource ID, Role ID, Cost Account ID, Resource Type, and Budgeted Units)



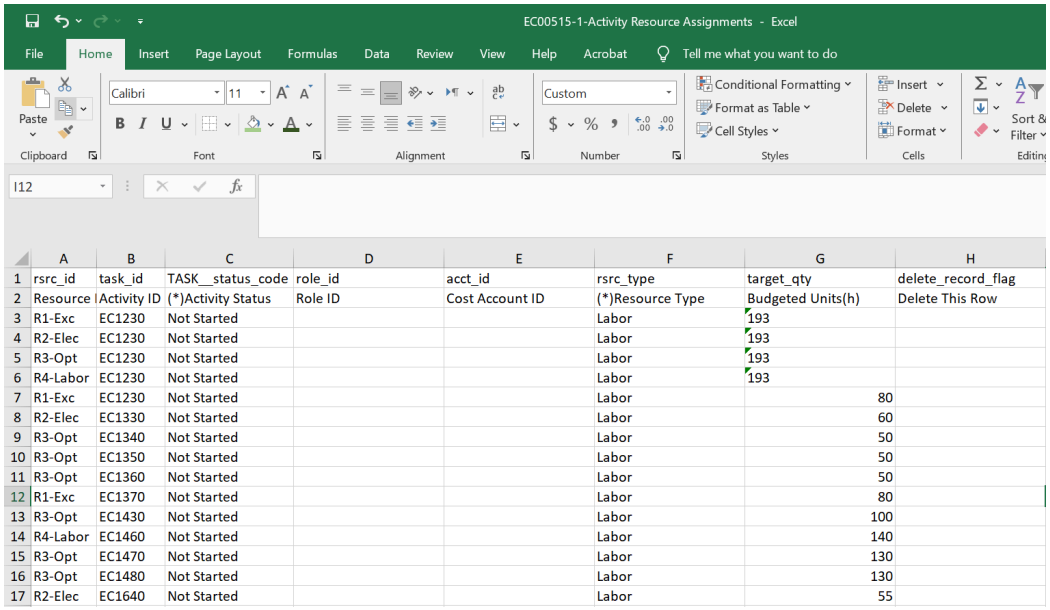
vi. Choose where you want to save your file and click finish.

5. Alright, let's open both Excel files; the one we created earlier and the one with the exported resource assignments. This is what the exported spreadsheet looks like:



	A	B	C	D	E	F	G	H	I	J
1	rsrc_id	task_id	TASK__sta	role_id	acct_id	rsrc_type	target_qty	delete_record_flag		
2	Resource I	Activity ID	(*)Activity	Role ID	Cost Account ID	(*)Resource Type	Budgeted Units(h)	Delete This Row		
3	R1-Exc	EC1230	Not Starte			Labor	193			
4	R2-Elec	EC1230	Not Starte			Labor	193			
5	R3-Opt	EC1230	Not Starte			Labor	193			
6	R4-Labor	EC1230	Not Starte			Labor	193			
7										
8										
9										
10										
11										
12										

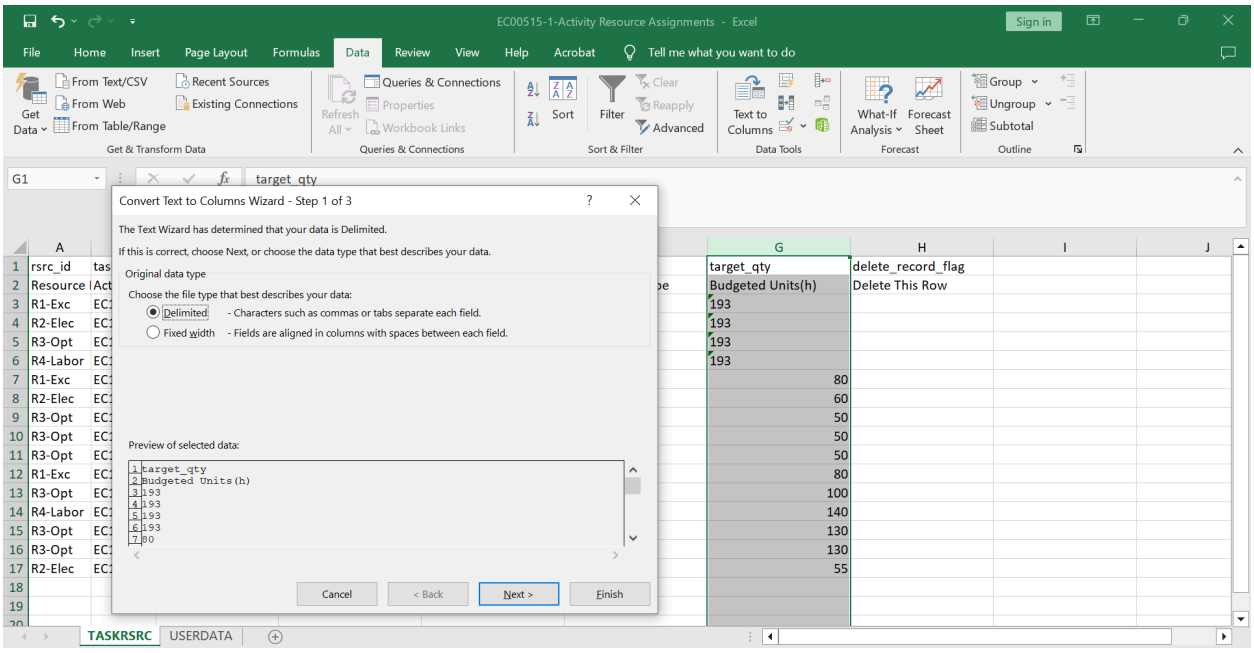
6. copy and paste the values created earlier in the sample sheet to the exported sheet. Fill down the activity status to have all activities “Not Started” and the Resource Type to “Labor”.



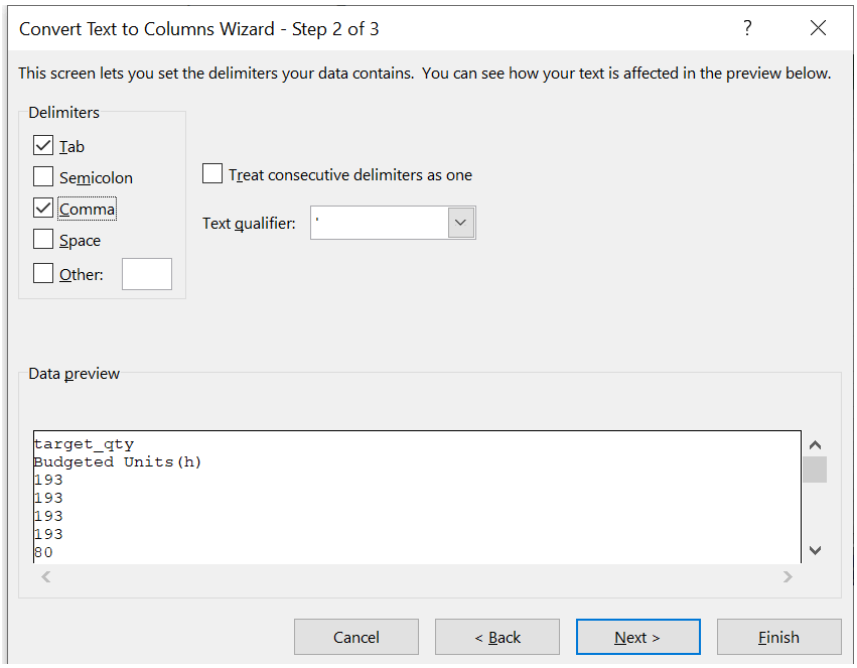
	A	B	C	D	E	F	G	H
1	rsrc_id	task_id	TASK__status_code	role_id	acct_id	rsrc_type	target_qty	delete_record_flag
2	Resource I	Activity ID	(*)Activity Status	Role ID	Cost Account ID	(*)Resource Type	Budgeted Units(h)	Delete This Row
3	R1-Exc	EC1230	Not Started			Labor	193	
4	R2-Elec	EC1230	Not Started			Labor	193	
5	R3-Opt	EC1230	Not Started			Labor	193	
6	R4-Labor	EC1230	Not Started			Labor	193	
7	R1-Exc	EC1230	Not Started			Labor	80	
8	R2-Elec	EC1330	Not Started			Labor	60	
9	R3-Opt	EC1340	Not Started			Labor	50	
10	R3-Opt	EC1350	Not Started			Labor	50	
11	R3-Opt	EC1360	Not Started			Labor	50	
12	R1-Exc	EC1370	Not Started			Labor	80	
13	R3-Opt	EC1430	Not Started			Labor	100	
14	R4-Labor	EC1460	Not Started			Labor	140	
15	R3-Opt	EC1470	Not Started			Labor	130	
16	R3-Opt	EC1480	Not Started			Labor	130	
17	R2-Elec	EC1640	Not Started			Labor	55	

7. The final step is to convert the Budget units column to “Text” as the primavera will not read the numbers. To fix this, we need to convert it to text format.

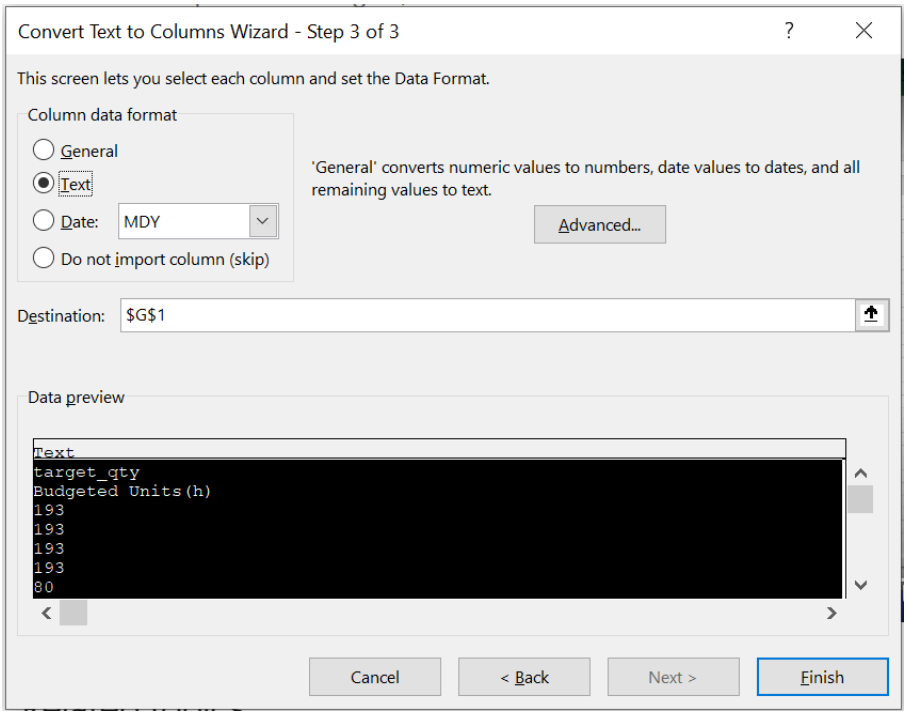
- Select the Budgeted Units column. Go to “Data” and click on “Text to Column.” Choose “Delimited” and click Next.



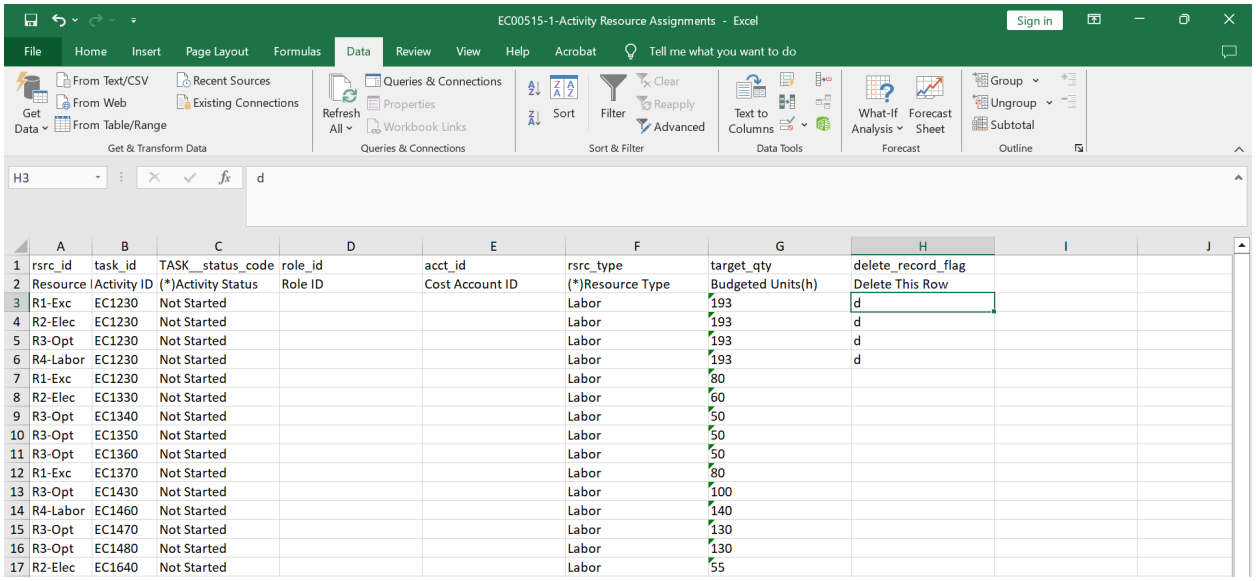
- Choose “Comma” and in the Text Qualifier also choose the apostrophe and click Next.



- Choose “Text” and Click Finish. Now all values are read in text format.



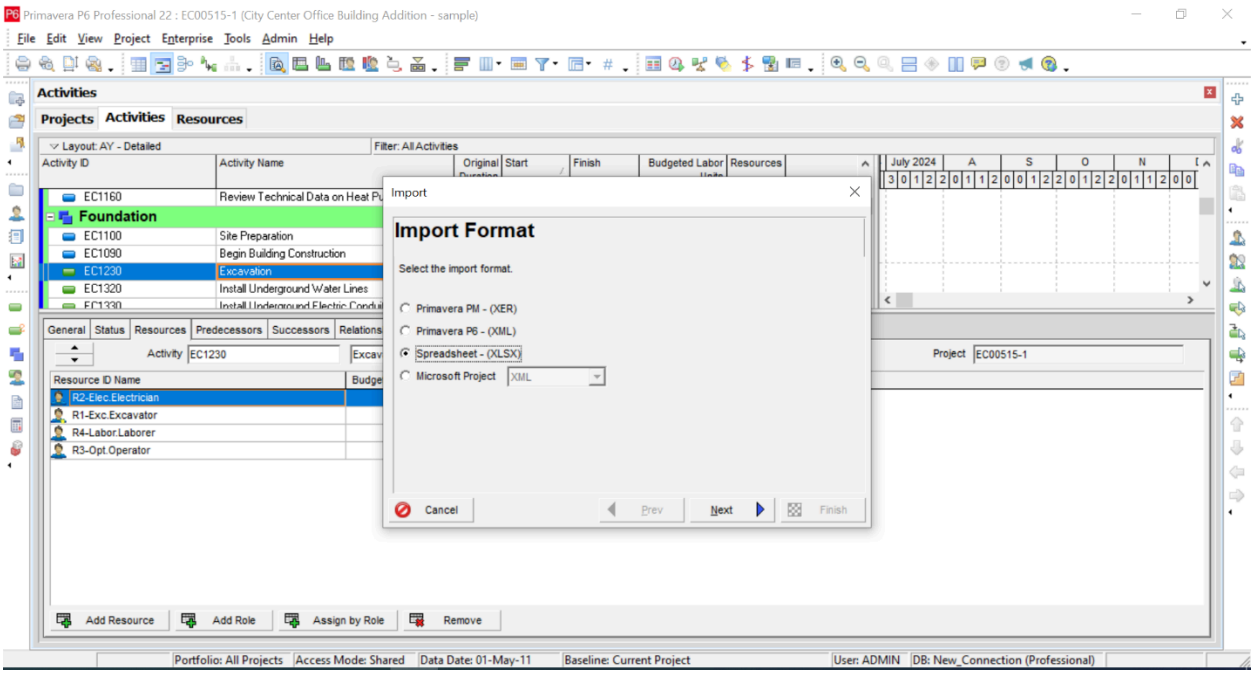
8. Now click type the letter “d” in Column H “delete this row” to delete the resource assignments on the Excavation activity in the first step. After that, save the file and close it.



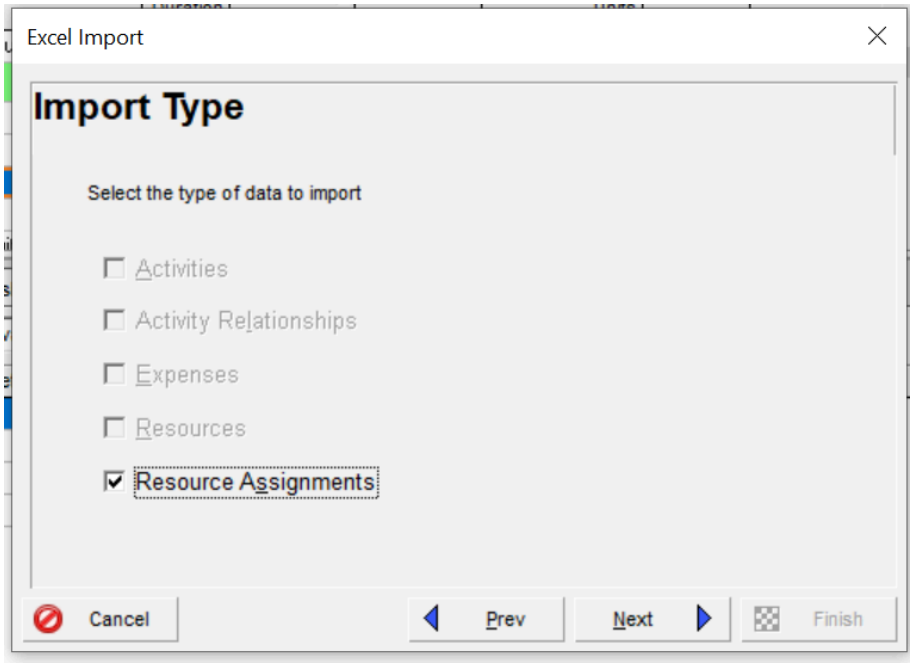
	A	B	C	D	E	F	G	H	I	J
1	rsrc_id	task_id	TASK__status_code	role_id	acct_id	rsrc_type	target_qty	delete_record_flag		
2	Resource I	Activity ID	(*)Activity Status	Role ID	Cost Account ID	(*)Resource Type	Budgeted Units(h)	Delete This Row		
3	R1-Exc	EC1230	Not Started			Labor	193	d		
4	R2-Elec	EC1230	Not Started			Labor	193	d		
5	R3-Opt	EC1230	Not Started			Labor	193	d		
6	R4-Labor	EC1230	Not Started			Labor	193	d		
7	R1-Exc	EC1230	Not Started			Labor	80			
8	R2-Elec	EC1330	Not Started			Labor	60			
9	R3-Opt	EC1340	Not Started			Labor	50			
10	R3-Opt	EC1350	Not Started			Labor	50			
11	R3-Opt	EC1360	Not Started			Labor	50			
12	R1-Exc	EC1370	Not Started			Labor	80			
13	R3-Opt	EC1430	Not Started			Labor	100			
14	R4-Labor	EC1460	Not Started			Labor	140			
15	R3-Opt	EC1470	Not Started			Labor	130			
16	R3-Opt	EC1480	Not Started			Labor	130			
17	R2-Elec	EC1640	Not Started			Labor	55			

9. Now, the next step is to import this file back to P6 to have the resources assigned to the required activities.

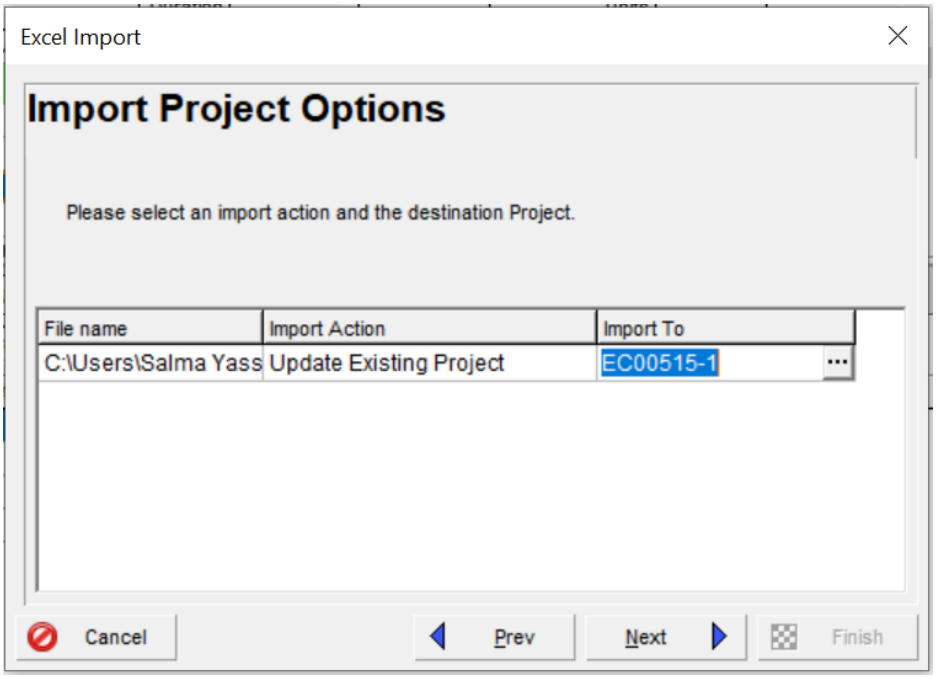
- Click on File and choose Import. Then choose “Spreadsheet – XLSX.”



- Select the file you saved to be imported and click Next.
- Click on “Resource Assignments” and click on Next.



- The last step is to update the project with the resource assignments and click Next.

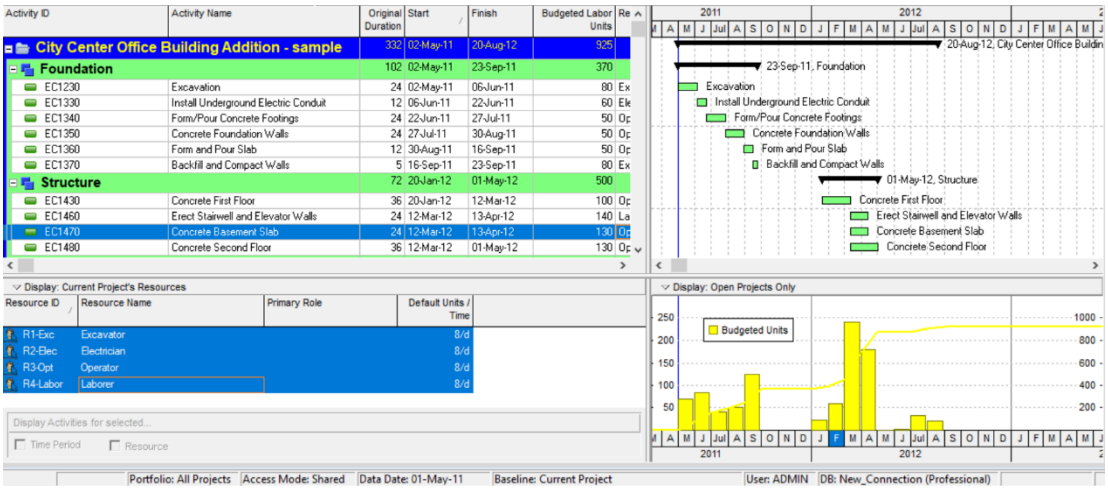


Finally, the resources you defined are assigned to the corresponding scheduled activities!

As expected, the Budgeted Units for these activities match the 925 hours created in the initial Excel file. The below figure shows a layout of these activities in p6.

Activity ID	Activity Name	Original Duration	Start	Finish	Budgeted Labor Units	Resources
City Center Office Building Addition - sample		332	02-May-11	20-Aug-12	925	
Foundation		102	02-May-11	23-Sep-11	370	
EC1230	Excavation	24	02-May-11	06-Jun-11	80	Excavator
EC1330	Install Underground Electric Conduit	12	06-Jun-11	22-Jun-11	60	Electrician
EC1340	Form/Pour Concrete Footings	24	22-Jun-11	27-Jul-11	50	Operator
EC1350	Concrete Foundation Walls	24	27-Jul-11	30-Aug-11	50	Operator
EC1360	Form and Pour Slab	12	30-Aug-11	16-Sep-11	50	Operator
EC1370	Backfill and Compact Walls	5	16-Sep-11	23-Sep-11	80	Excavator
Structure		72	20-Jan-12	01-May-12	500	
EC1430	Concrete First Floor	36	20-Jan-12	12-Mar-12	100	Operator
EC1460	Erect Stairwell and Elevator Walls	24	12-Mar-12	13-Apr-12	140	Laborer
EC1470	Concrete Basement Slab	24	12-Mar-12	13-Apr-12	130	Operator
EC1480	Concrete Second Floor	36	12-Mar-12	01-May-12	130	Operator
Mechanical/Electrical Systems		36	28-Jun-12	20-Aug-12	55	
Plumbing and Electrical		36	28-Jun-12	20-Aug-12	55	
EC1640	Install Wiring and Cable	36	28-Jun-12	20-Aug-12	55	Electrician

Also, you can create a resource graph showing the hourly distribution of these activities as previously described.



Conclusion

In conclusion, resource allocation using Microsoft Excel can save a lot of time of the process. You can now start managing as much resources as you can from small to large scale projects.

In the end, continuous monitoring and controlling of these resources is crucial to ensure the project stays on time and within budget. We will explore this further in the next article.