

MS Project Professional 2021

Tutorial #3 – Utilization of Resources, a walk-through example

CS 587 – Software Project Management

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An example

Assumptions and Constraints

1. Every review or inspection “meeting” task shall be carried by 5 engineers including ONE of the author(s)
2. Every review or inspection “preparation” task shall be carried by 4 engineers excluding the author(s)
3. Any “Rework” task can be executed by one or all authors of the original task
4. Project Plan shall be reviewed by at least ONE engineer from every technical area.
5. Risk mitigation and contingency plan shall be reviewed by at least ONE engineer from every technical area.
6. System Engineers are responsible for creating Analysis and Design artifacts

Consider the following assumptions...

- Allocate resources with 100% utilization
- Allocate resources with 25% utilization

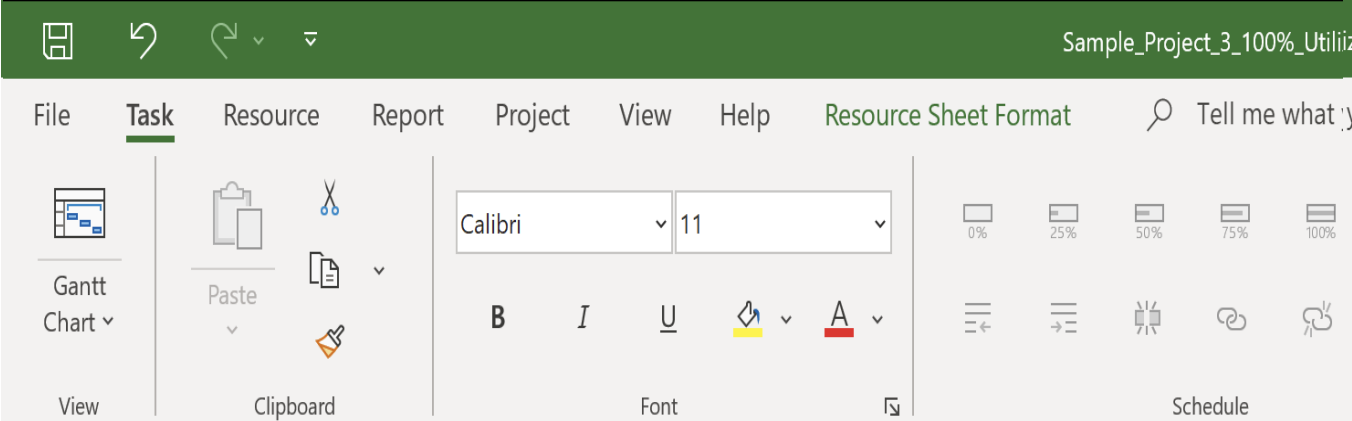


Steps for specifying the resource utilization

1. Create the resource
2. Assign the resource to the tasks
3. Specify the resource utilization (Max units)

Create the resource

- Go to the “resource sheet”
- Enter the resources
 - Resource Name
 - Type
 - Initials
 - Max units
 - the maximum percentage of units representing the maximum capacity for which a resource is available to accomplish any tasks during the current time period



Sample_Project_3_100%_Utiliz

File Task Resource Report Project View Help Resource Sheet Format Tell me what y

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B I U A

0% 25% 50% 75% 100%

View Clipboard Font Schedule

Start Jan 31, '22

Fri 1/28/22 Add tasks with c

	Resource Name	Type	Material	Initials	Group	Max.	Std. Rate
1	Requirements Engineer	Work		RE		100%	\$0.00/hr
2	Team Leader	Work		T		100%	\$0.00/hr
3	Project Manager	Work		P		100%	\$0.00/hr
4	System Engineer	Work		SE		100%	\$0.00/hr
5	Developer	Work		D		100%	\$0.00/hr

Assign the resource

Using the pull-down list

	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Add New Col
1		Project_100%_Resources	101.83 days	Mon 18/2/12	Tue 18/7/3			
2		Project Plan	5.5 days	Mon 18/2/12	Mon 18/2/19			
3		Write Plan	3 days	Mon 18/2/12	Wed 18/2/14		Project Manager 2	
4		Review Plan	2.5 days	Thu 18/2/15	Mon 18/2/19	3		
5		Preparation for Review	2.5 days	Thu 18/2/15	Mon 18/2/19	3		
6		Requirement	5.17 days	Mon 18/2/19	Mon 18/2/26	5		
7		Write Requirements	5.17 days	Mon 18/2/19	Mon 18/2/26	5		
8		Analysis	16.27 days	Mon 18/2/26	Tue 18/3/20	7		
9		Write Analysis Document	15.2 days	Mon 18/2/26	Mon 18/3/19	7		
10		Review Analysis Document	1.07 days	Mon 18/3/19	Tue 18/3/20	9		
11		Preparation for Review	1.07 days	Mon 18/3/19	Tue 18/3/20	9		
12		Design	20.17 days	Tue 18/3/20	Wed 18/4/18	11		
13		Write DD	18.57 days	Tue 18/3/20	Mon 18/4/16	11		
14		Review DD	1.6 days	Mon 18/4/16	Wed 18/4/18	13		
15		Preparation for Review	1.6 days	Mon 18/4/16	Wed 18/4/18	13		
16		Coding and Unit Testing	45 days	Wed 18/4/18	Wed 18/6/20	15		
17		Write Code	40 days	Wed 18/4/18	Wed 18/6/13	15		
18		Code Review	5 days	Wed 18/6/13	Wed 18/6/20	17		
19		Testing	9.73 days	Wed 18/6/20	Tue 18/7/3	18		
20		Write Test Plan	8.95 days	Wed 18/6/20	Tue 18/7/3	18		
21		Review Test Plan	0.78 days	Tue 18/7/3	Tue 18/7/3	20		
22		Preparation for Review	0.78 days	Tue 18/7/3	Tue 18/7/3	20		

☐ Documentation Engineer 12
☐ Documentation Engineer 14
☐ Documentation Engineer13
☐ Programmer 23
☐ Programmer 24
☐ Programmer 25
☐ Programmer/Software Engineer 23
☐ Programmer/Software Engineer 24
☐ Programmer12
☐ Programmer45
☒ Project Manager 2
☐ Requirement Engineer 9
☐ Requirement Engineer 12
☐ Requirement Engineer 13
☐ Requirement Engineer1
☐ Requirement Engineer2
☐ System Engineer 1
☐ System Engineer 3
☐ System Engineer 4
☐ System Engineer 5
☐ System Engineer 11
☐ System Engineer2
☐ Test Engineer 53
☐ Test Engineer 54
☐ Test Engineer 55
☐ Test Engineer 56
☐ Tester2

Requirement Engineer 12,
Programmer/Software

Using assign resources window

Assign Resources (Alt+F10)
Assign resources to the tasks in the project.

Assign Resources

Task: Write Plan
Resource list options

Resources from Project_100%_Resources.mpp

Resource Name	R/D	Units	Cost
<input checked="" type="checkbox"/> Project Manager 2		100%	\$0.00
<input type="checkbox"/> Documentation Engin			
<input type="checkbox"/> Documentation Engin			
<input type="checkbox"/> Documentation Engin			
<input type="checkbox"/> Programmer 23			
<input type="checkbox"/> Programmer 24			
<input type="checkbox"/> Programmer 25			
<input type="checkbox"/> Programmer/Software			
<input type="checkbox"/> Programmer/Software			
<input type="checkbox"/> Programmer12			

Hold down Ctrl and click to select multiple resources

Assign
Remove
Replace...
Graph
Close
Help

1		Project_100%_Resources	101.83 days		
2		Project Plan	5.5 days		
3		Write Plan	3 days		
4		Review Plan	2.5 days		
5		Preparation for Review	2.5 days		
6		Requirement	5.17 days		
7		Write Requirements	5.17 days		
8		Analysis	16.27 days		
9		Write Analysis Document	15.2 days		
10		Review Analysis	1.07 days	Mon 18/3/19	Tue 18/3/20 9

Specify the utilization

- Specify the max units in task sheet

The screenshot displays a project management interface with a task sheet and a 'Task Information' dialog box.

Task Sheet:

Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	WBS
1	Sample Project	13.75 days	Fri 1/28/22	Wed 2/16/22			1
2	Requirements	3.25 days	Fri 1/28/22	Wed 2/2/22			1.1
3	Requirement Definition and Analysis	3 days	Fri 1/28/22	Tue 2/1/22		Requirement Engineer 1	
4	Requirement Review	0.25 days	Wed 2/2/22	Wed 2/2/22	3	System Engineer 1, Developer, System Engineer 2, Tester 1	1.1.1.1
5	Analysis	2.25 days	Wed 2/2/22	Fri 2/4/22			1.2
6	Analysis Document	2 days	Wed 2/2/22	Fri 2/4/22	4	System Engineer 1, Developer, System Engineer 2	1.2.1
7	Analysis Review	0.25 days	Fri 2/4/22	Fri 2/4/22			2.2
8	Design	1.58 days	Fri 2/4/22	Tue 2/8/22			3
9	Design Document	1.33 days	Fri 2/4/22	Mon 2/7/22			3.1
10	Design Review	0.25 days	Mon 2/7/22	Tue 2/8/22			3.2
11	Coding	5 days	Tue 2/8/22	Tue 2/15/22			4
12	Implementation	4 days	Tue 2/8/22	Mon 2/14/22			4.1
13	Code Review	1 day	Mon 2/14/22	Tue 2/15/22			4.2
14	Testing	9.5 days	Wed 2/2/22	Tue 2/15/22			5
15	Write Test Plan	1 day	Wed 2/2/22	Thu 2/3/22			5.1
16	Execute Test Plan	0.67 days	Tue 2/15/22	Tue 2/15/22			5.2
17	Installation	1 day	Tue 2/15/22	Wed 2/16/22			6

Task Information Dialog Box:

General | Predecessors | **Resources** | Advanced | Notes | Custom Fields

Name: Analysis Document Duration: 2 days ☐ Estimated



Resources:

Resource Name	Assignment Owner	Units	Cost
System Engineer 1		100%	\$0.00
Developer		100%	\$0.00
System Engineer 2		100%	\$0.00

A red box highlights the 'Units' column in the resources table, and a red arrow points to it with the text 'Double click'.

Specify the utilization

- Specify the max units in resource sheet

		Resource Name ▼	Type ▼	Material ▼	Initials ▼	Group ▼	Max. ▼	Std. Rate ▼	Ovt. Rate ▼	Cost/Use ▼	Accrue ▼	Base ▼
1		Requirements Engineer	Work		RE		100% 	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
2		Team Leader	Work		T		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
3		Project Manager	Work		P		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
4		System Engineer	Work		SE		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
5		Developer	Work		D		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard

Example

- Max units = 100%


	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names
1		Sample Project	13.75 days	Fri 1/28/22	Wed 2/16/22		
2		Requirements	3.25 days	Fri 1/28/22	Wed 2/2/22		
3		Requirement Definition and Analysis	3 days	Fri 1/28/22	Tue 2/1/22		Requirement Engineer 1
4		Requirement Review	0.25 days	Wed 2/2/22	Wed 2/2/22	3	System Engineer 1,Developer,System Engineer 2,Tester 1
5		Analysis	2.25 days	Wed 2/2/22	Fri 2/4/22		
6		Analysis Document	2 days	Wed 2/2/22	Fri 2/4/22	4	System Engineer 1,Developer,System Engineer 2

- Max units = 25%


	Task Mode	Task Name	Predecessors	WBS	Duration	Start	Finish	Resource Names
1		Sample_Project		1	266 days	Fri 1/28/22	Fri 2/3/23	
2		Project Plan		1.1	52 days	Fri 1/28/22	Mon 4/11/22	
3		Write Plan		1.1.1	20 days	Fri 1/28/22	Thu 2/24/22	PM1[25%]
4		Review Plan	3	1.1.2	20 days	Fri 2/25/22	Thu 3/24/22	
5		Preparation for review	3	1.1.2.1	12 days	Fri 2/25/22	Mon 3/14/22	DE1[25%],PE1[25%],RE1[25%],SE1[25%],TE1[25%]
6		Review Meeting	5	1.1.2.2	8 days	Tue 3/15/22	Thu 3/24/22	DE1[25%],PE1[25%],RE1[25%],SE1[25%],TE1[25%],PM1[25%]

Example

- Max units = 100%

		Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt. Rate	Cost/Use	Accrue	Base
1		Requirements Engineer	Work		RE		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
2		Team Leader	Work		T		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
3		Project Manager	Work		P		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
4		System Engineer	Work		SE		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
5		Developer	Work		D		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
6		Tester	Work		T		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
7		Business Analyst	Work		B		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
8		Tester 1	Work		T1		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard

- Max units = 25%

		Resource Name	Type	Material	Initials	Group	Max.	Std. Rate	Ovt. Rate	Cost/Use	Accrue	Base Calendar	Co
1		Requirement Engineer1	Work		RE1		25%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard	
2		Requirement Engineer2	Work		RE2		25%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard	
3		Programmer 23	Work		P23		25%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard	
4		Programmer 24	Work		P24		25%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard	
5		Programmer 25	Work		P25		25%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard	
6		Programmer45	Work		P45		25%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard	