Software that brings together the ideas and techniques of **TameFlow Kanban** and **TameFlow Scrum**, **Agile/Scrum**, **Critical Chain Project management**, **TOC** and **LEAN** in one integrated solution

LYNX LOAD FACTOR SCHEDULING – CRITICAL PATH

Classical Project Management 2.0

LYNX by a-dato

LYNX TameFlow

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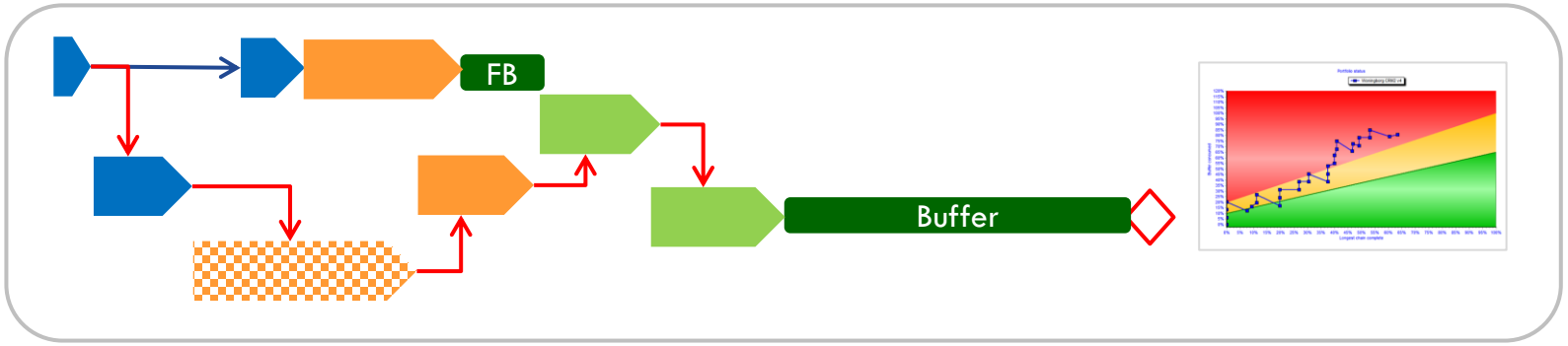
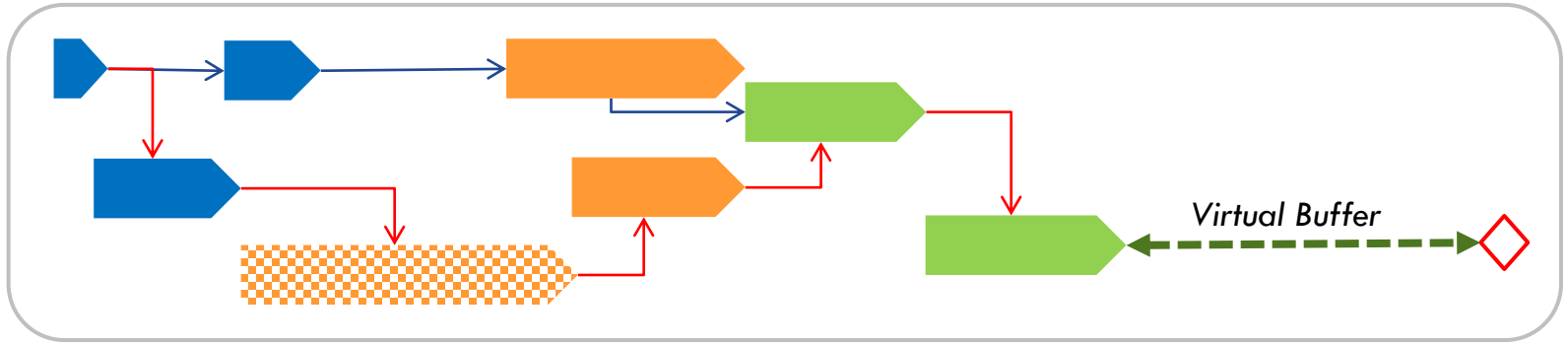
LYNX Scheduling Engines

(forward and/or backward scheduling options)

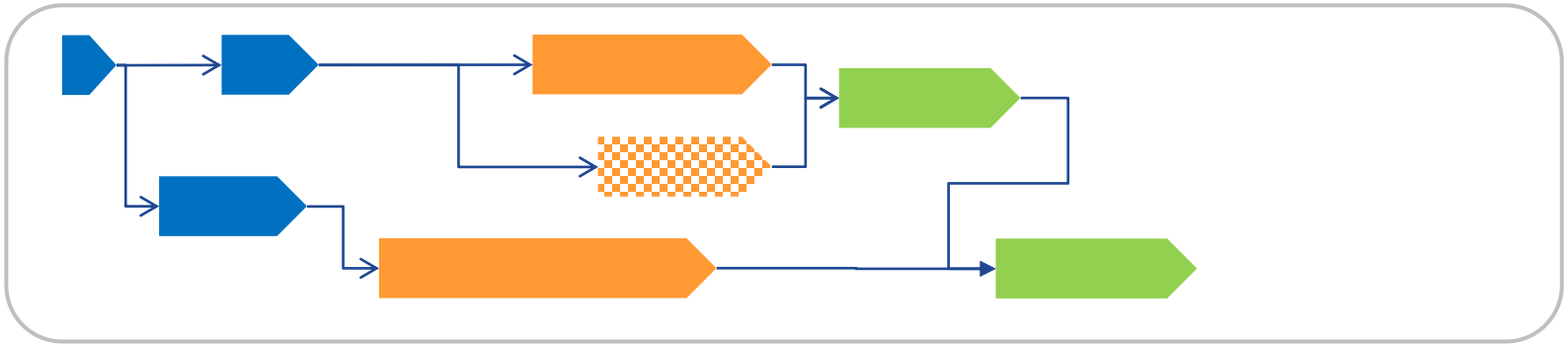


Critical Chain Scheduling
Buffer Management
Critical Chain Engine



Classical Project Management 2.0

Critical Path / Standard
Virtual Buffer Management
Load Factor Engine



Manual Scheduling
Manual Positioning of Tasks

LYNX Scheduling Engines
Implementation Options

- **LYNX Critical Chain Engine**
  - Detection of the critical chain
  - Buffer Management
  - Task-Time Reduction
  - Progress charts

- **LYNX Load-Factor Engine**
  - Simplified Buffer Management
    - Concept of virtual buffers
  - Automatic multi-project scheduling, based on:
    - Business priority (strategic)
    - Operational priority
  - Priorities based on 2 dimensions:
    - Available time (“float”)
    - Available Capacity given Resource Requirements

Operational Priorities based on Buffer-Consumption

Load-Factor© Operational Priorities

Classical Project Management 2.0

A. CCPM Only / **B.** Load-Factor Scheduling Only / **C.** Combination of CCPM and LFS

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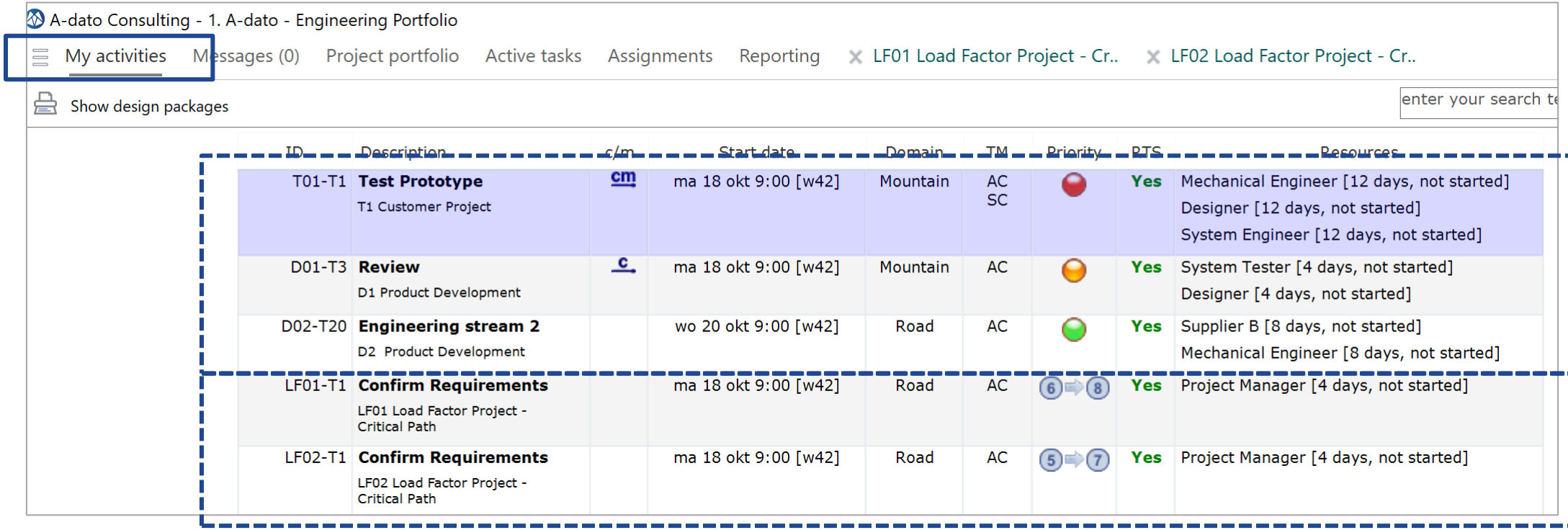
Combined:

My activities Task List with both CCPM and Load Factor Projects and tasks



ID	Description	c/m	Start date	Domain	TM	Priority	RTS	Resources
T01-T1	**Test Prototype** T1 Customer Project	cm	ma 18 okt 9:00 [w42]	Mountain	AC SC		Yes	Mechanical Engineer [12 days, not started] Designer [12 days, not started] System Engineer [12 days, not started]
D01-T3	**Review** D1 Product Development	c	ma 18 okt 9:00 [w42]	Mountain	AC		Yes	System Tester [4 days, not started] Designer [4 days, not started]
D02-T20	**Engineering stream 2** D2 Product Development		wo 20 okt 9:00 [w42]	Road	AC		Yes	Supplier B [8 days, not started] Mechanical Engineer [8 days, not started]
LF01-T1	**Confirm Requirements** LF01 Load Factor Project - Critical Path		ma 18 okt 9:00 [w42]	Road	AC	6 8	Yes	Project Manager [4 days, not started]
LF02-T1	**Confirm Requirements** LF02 Load Factor Project - Critical Path		ma 18 okt 9:00 [w42]	Road	AC	5 7	Yes	Project Manager [4 days, not started]

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When to consider Load-Factor Scheduling?

As alternative to, or next to Critical Chain

- Operational profile and Project Characteristics:
  - Many (smaller) projects with a higher due-date tolerance and/or a very dynamic pipeline
  - Project structure(s) typically do not allow to identify a connected critical chain. There are time gaps and phases with “breaks” in between
  - Priority system for regular work and individual tasks (e.g. services, support, maintenance)
  - If you want to apply automatic multi-project scheduling and resource assignments

- Implementation Considerations
  - Easier point of entry, for companies who are used to the traditional Microsoft Project world
  - Scope of the implementation is focusing on portfolio Scenario Planning

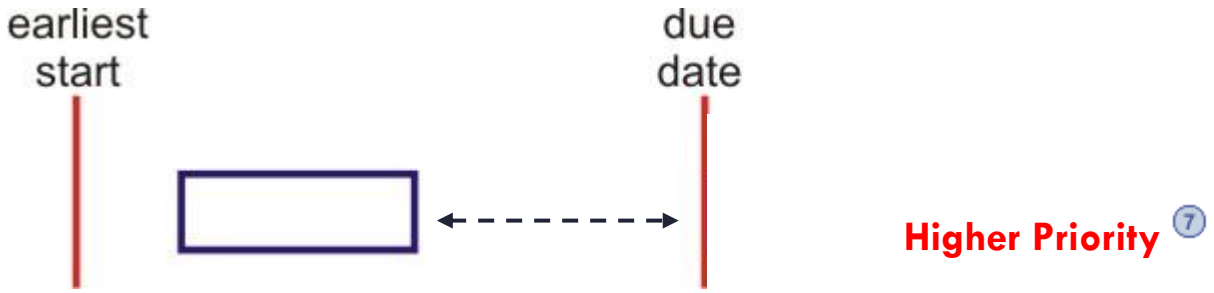
- Can you do both? → YES!
  - Consider to combine CCPM with Load-Factor scheduling

Load-Factor Scheduling Input

Available Time offset to a due-date or deadline

- Some tasks have a long timeframe:

- Some tasks have a small timeframe:



Load-Factor Scheduling Input

Considering Skill Availability as well!

- Some Skills have a low availability:

Higher Priority ⑦

- Other Skills have plenty availability:

Lower Priority ③

The power of Buffer Management

Simulations

Strategy	Setup	1st project cmpl.	1st project late	#Completed	#Late	hrs. overdue	#Red	%Yellow
Start date	5% +MT	21.14:00	26.15:00	21	15	3410	35	52%
Start date	5% -MT	20.12:00	22.09:00	29	15	2679	27	63%
Due date	5% +MT	21.9:00	21.14:00	20	15	2709	36	53%
Due date	5% -MT	16.14:00	36.11:00	41	12	846	14	83%
LYNX	5% -MT	17.9:00	141.12:00	50	1	2	0	97%

Buffer Management outperforms any other sequencing strategy!

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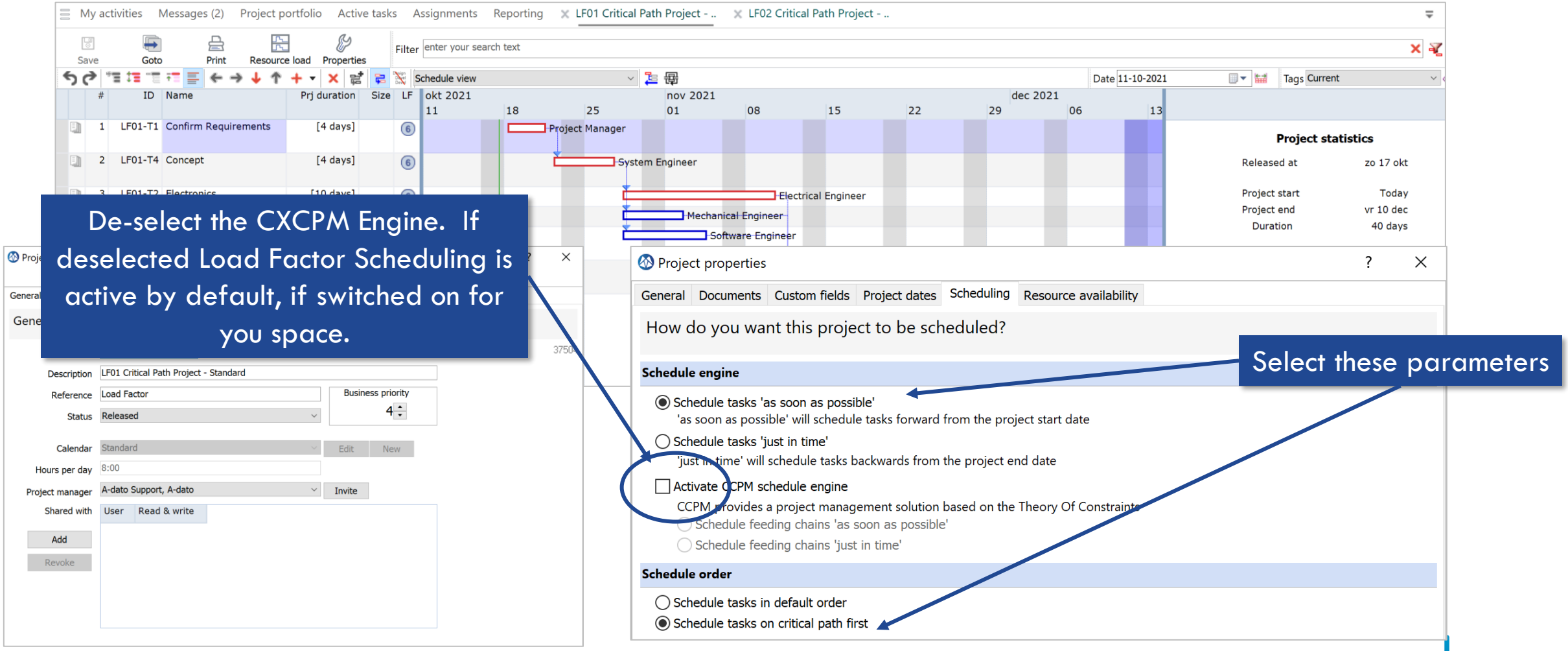
Add a Critical Path Project

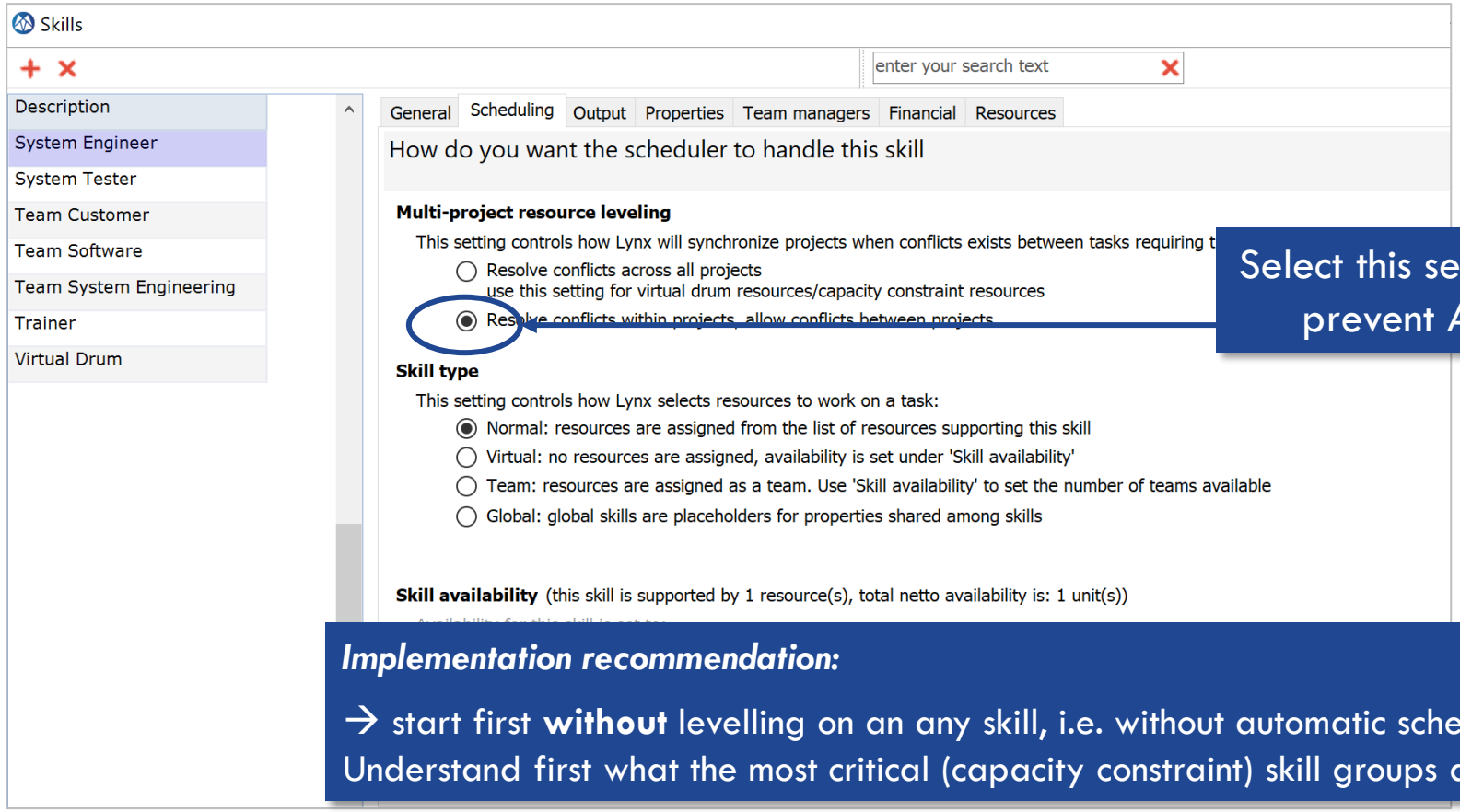
Load Factor Schedule Engine

Project Configuration



Skill Settings

Automatic Load Balancing – Across Projects



Select this setting for all Skills (initially), to prevent Automatic Load Balancing.

Implementation recommendation:

→ start first **without** levelling on an any skill, i.e. without automatic scheduling. Understand first what the most critical (capacity constraint) skill groups are

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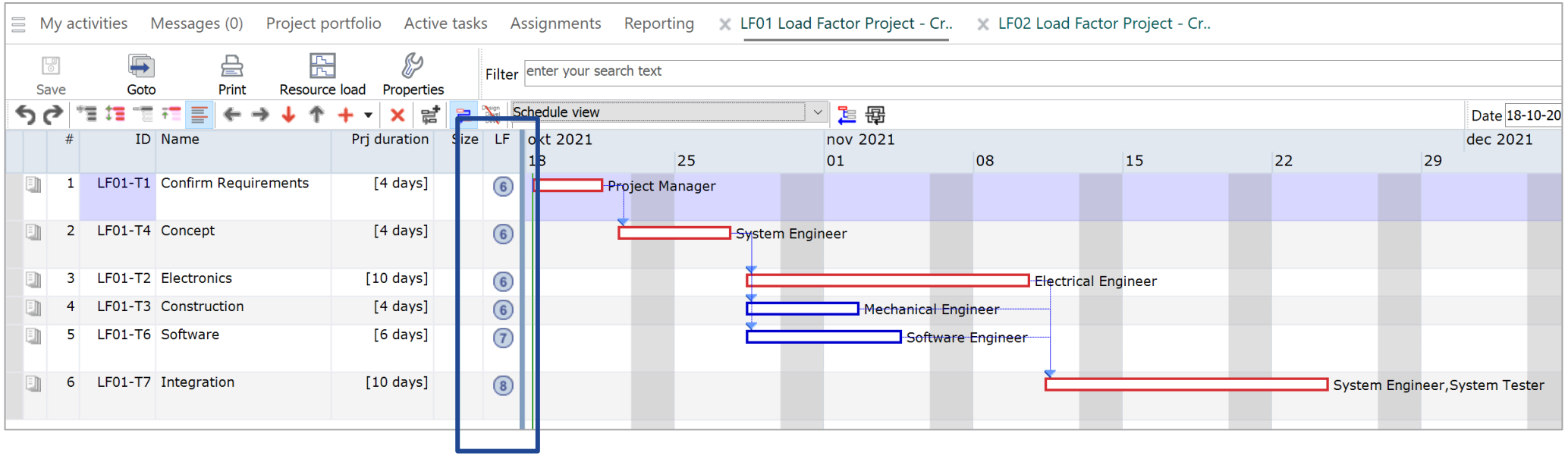
Check if Load Factor Scheduling is switched on..



Set the Project Status to released and verify of you see the LF column with the LF priority numbers

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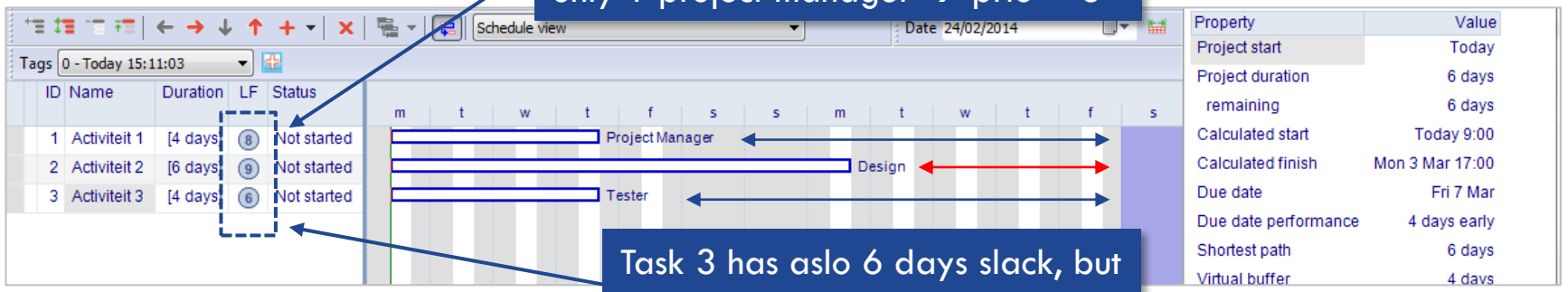
The priority mechanism

Understanding priorities in the Load-Factor mode

Priorities driven by timeframe and availability

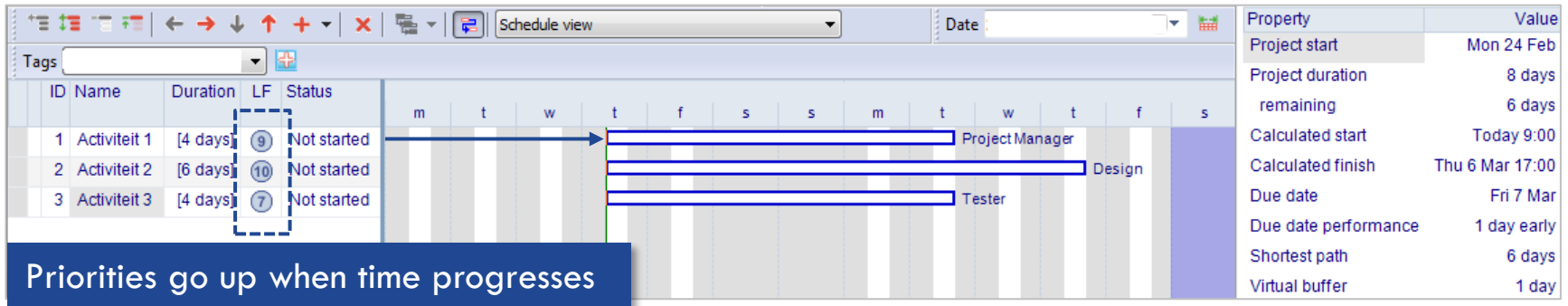
Task 1 has 6 days slack, and there is only 1 project manager → prio = 8



Task 3 has aslo 6 days slack, but there are 2 testers → prio = 6

In this example there are:

- 2 Testers
- 1 Project Manager



Priorities go up when time progresses and ETTC is unchanged.

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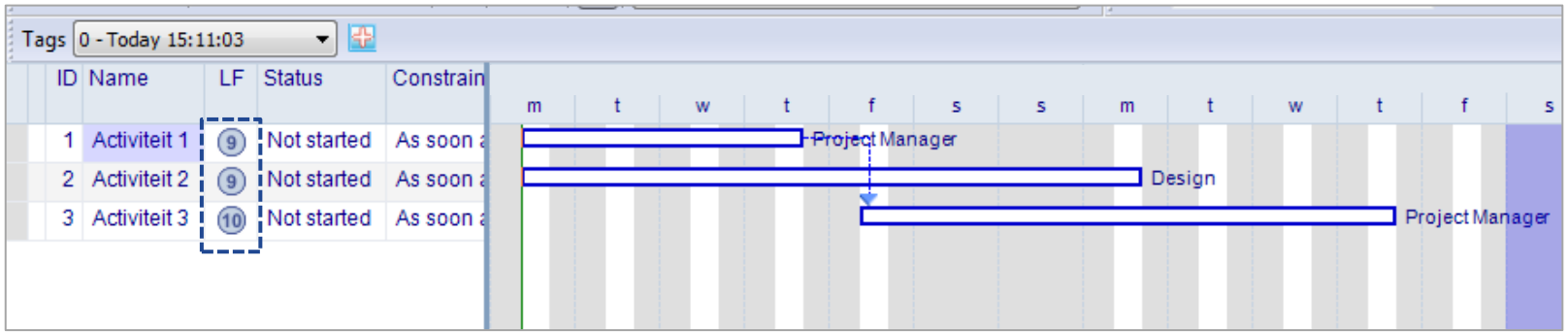
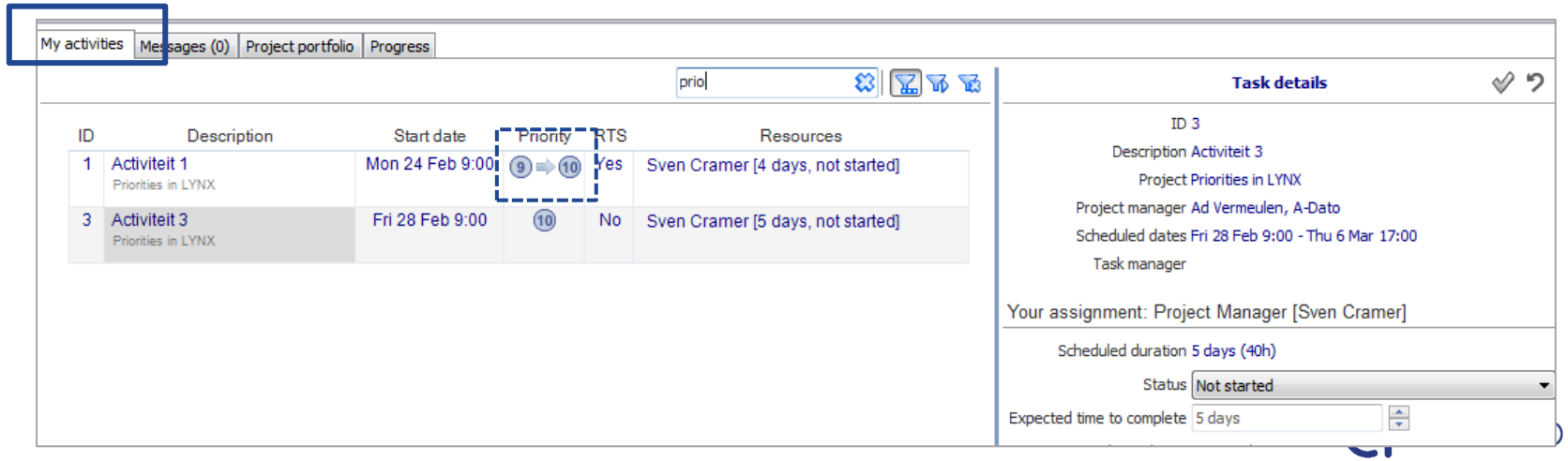
The highest priority in the chain counts

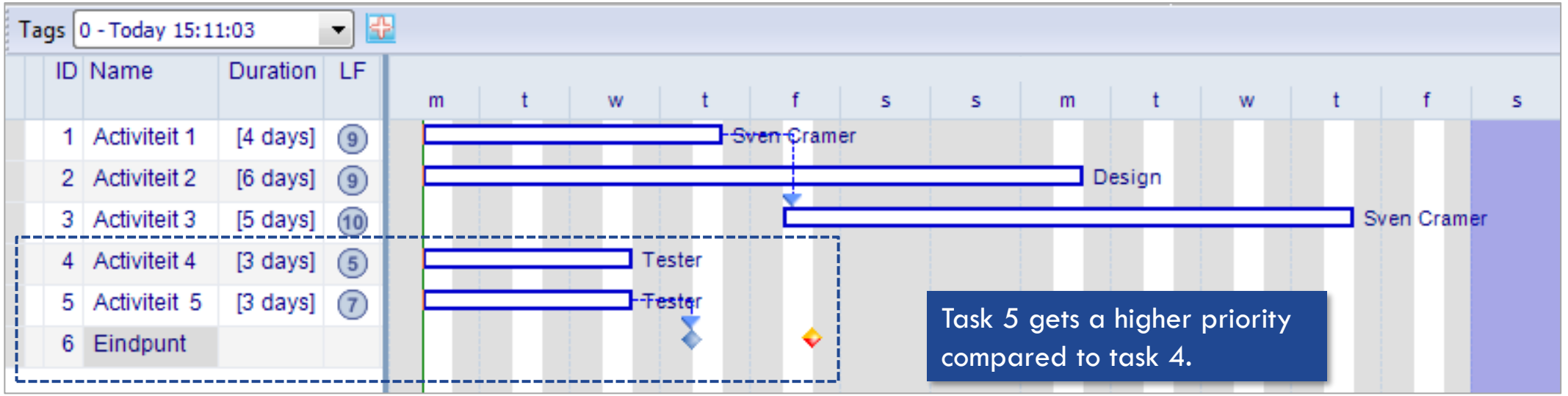
My activities



Task 1 is leading to task 3. Task 1 "inherits" priority of task 3.



Effect of an intermediate end-point (milestone)



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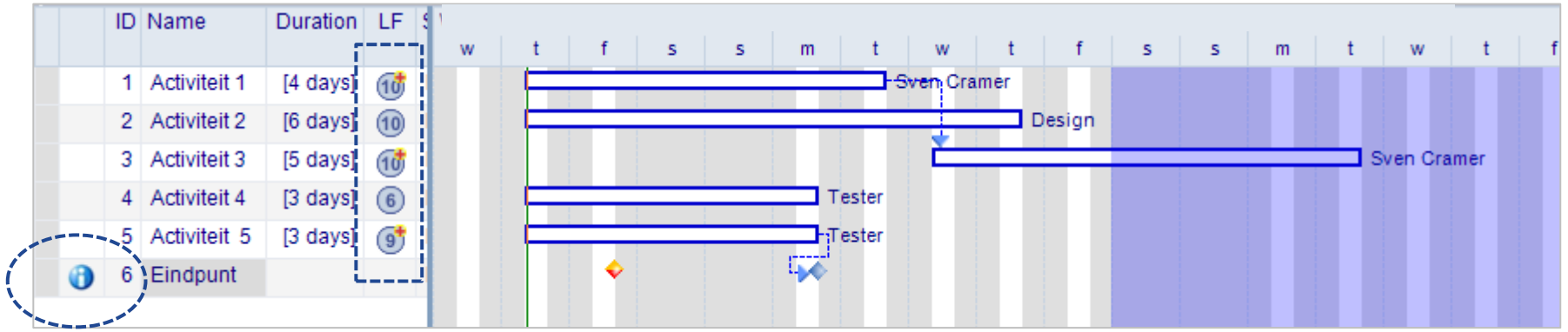
When it doesn’t fit anymore



The red + indicators tell the chain does’t fit anymore.

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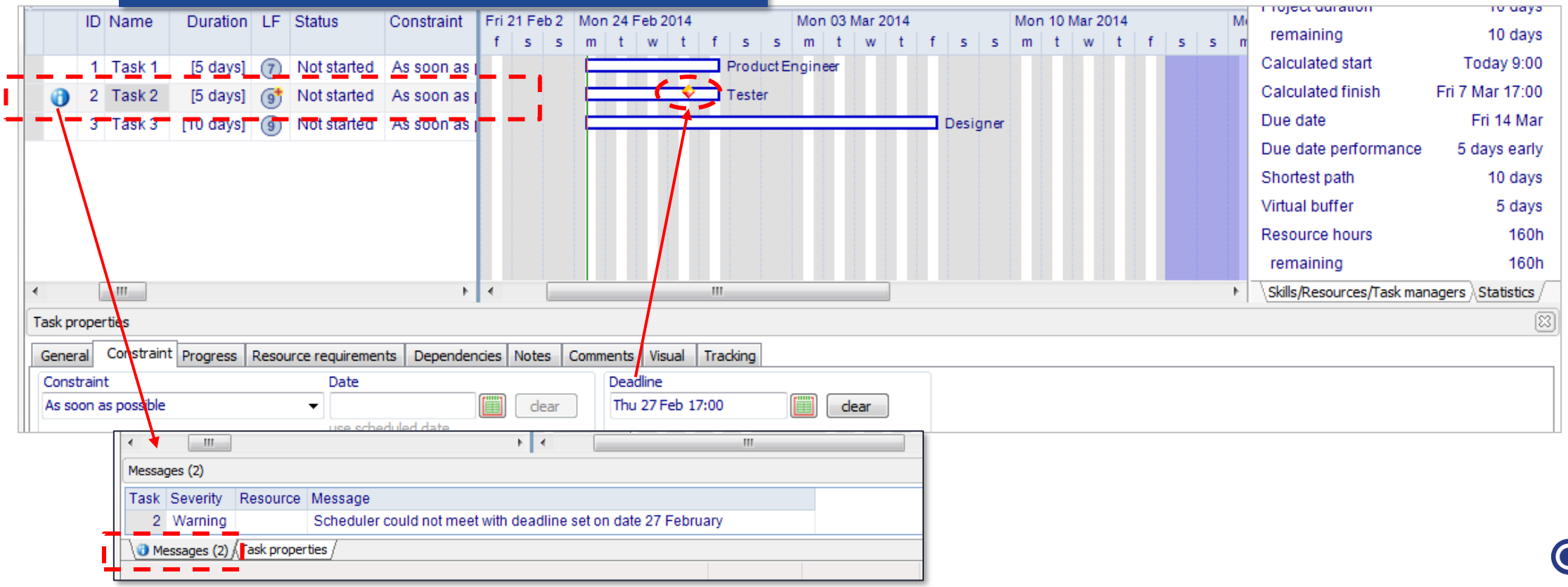
Tasks marked + due to deadlines or constraints

The project has virtual buffer available, but a deadline is not achievable for a sub-chain in the project

Tasks 2 priority is marked with + because it doesn't fit anymore between current date/time and the deadline. LYNX is populating a message.

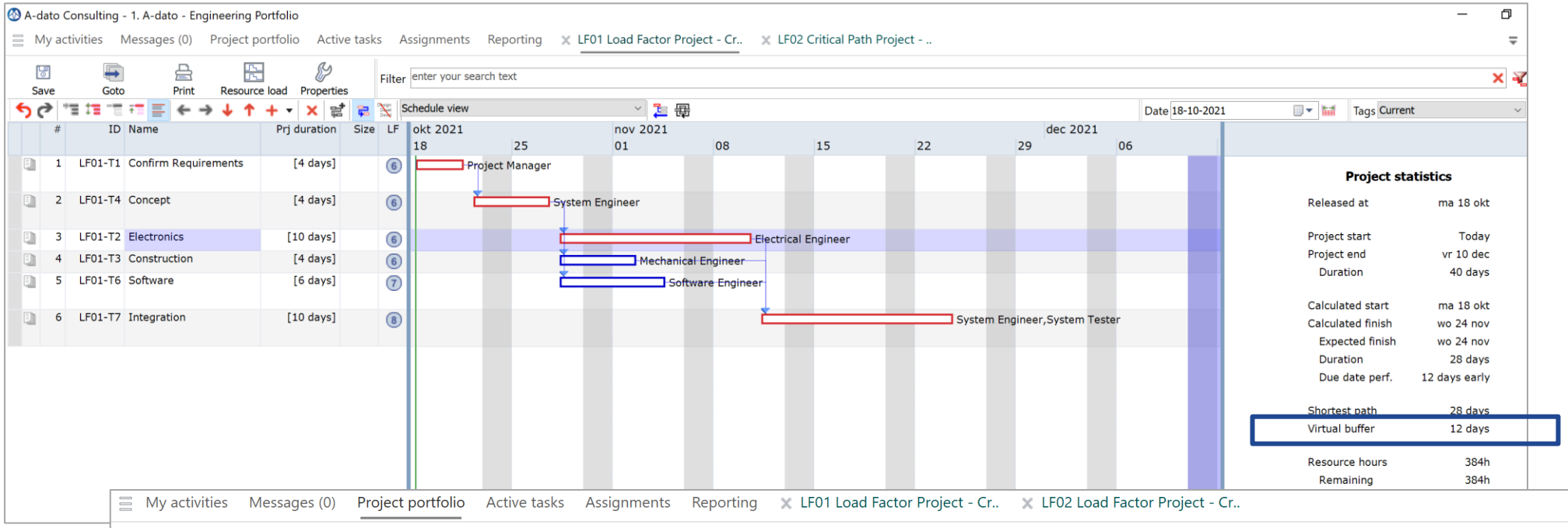


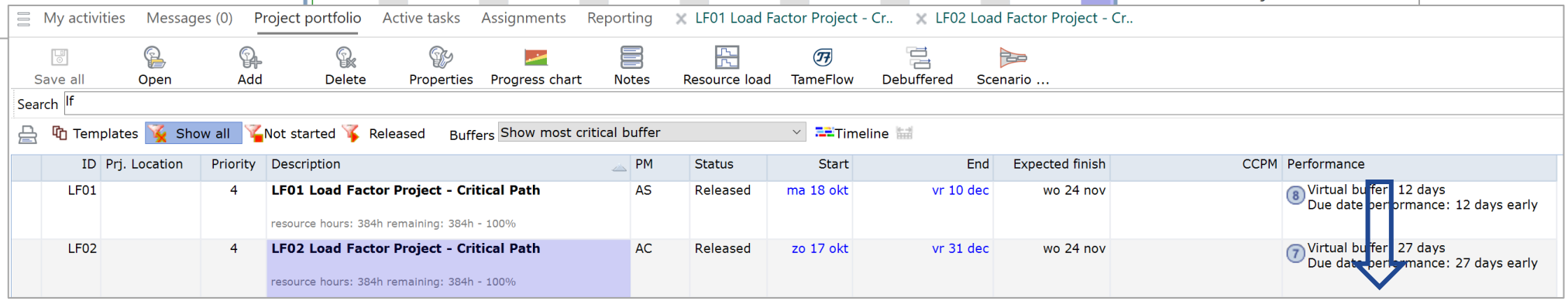
My activities / Active Tasks

Sequencing of Task based on Load Factor Priorities

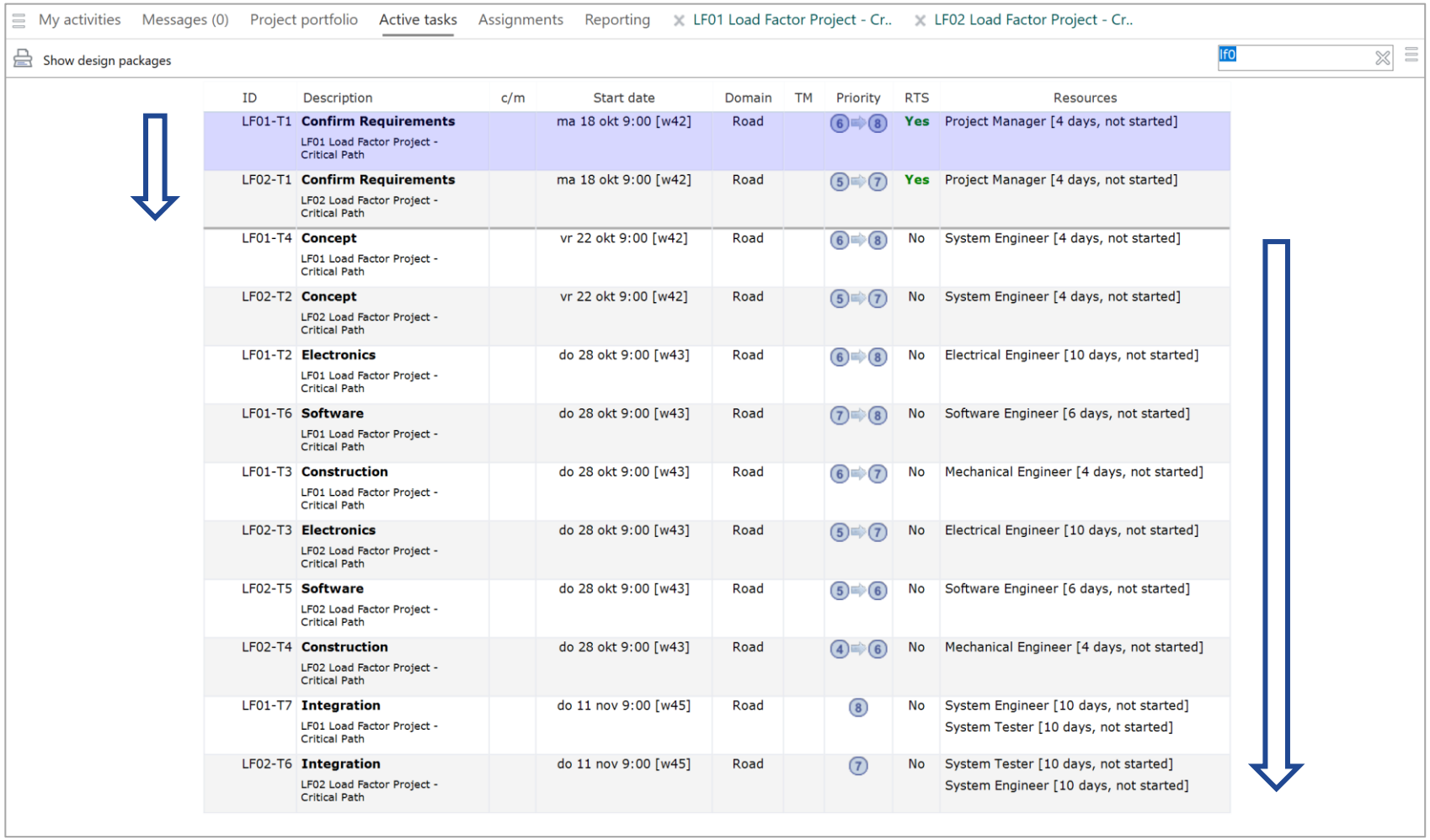
Example Projects

Sequence by Load-Factor





Active Tasks
(all tasks)



My activities | Messages (0) | Project portfolio | Active tasks | Assignments | Reporting | LF01 Load Factor Project - Cr.. | LF02 Load Factor Project - Cr..

Show design packages

ID	Description	c/m	Start date	Domain	TM	Priority	RTS	Resources
LF01-T1	**Confirm Requirements** LF01 Load Factor Project - Critical Path		ma 18 okt 9:00 [w42]	Road		6 ➡ 8	Yes	Project Manager [4 days, not started]
LF02-T1	**Confirm Requirements** LF02 Load Factor Project - Critical Path		ma 18 okt 9:00 [w42]	Road		5 ➡ 7	Yes	Project Manager [4 days, not started]
LF01-T4	**Concept** LF01 Load Factor Project - Critical Path		vr 22 okt 9:00 [w42]	Road		6 ➡ 8	No	System Engineer [4 days, not started]
LF02-T2	**Concept** LF02 Load Factor Project - Critical Path		vr 22 okt 9:00 [w42]	Road		5 ➡ 7	No	System Engineer [4 days, not started]
LF01-T2	**Electronics** LF01 Load Factor Project - Critical Path		do 28 okt 9:00 [w43]	Road		6 ➡ 8	No	Electrical Engineer [10 days, not started]
LF01-T6	**Software** LF01 Load Factor Project - Critical Path		do 28 okt 9:00 [w43]	Road		7 ➡ 8	No	Software Engineer [6 days, not started]
LF01-T3	**Construction** LF01 Load Factor Project - Critical Path		do 28 okt 9:00 [w43]	Road		6 ➡ 7	No	Mechanical Engineer [4 days, not started]
LF02-T3	**Electronics** LF02 Load Factor Project - Critical Path		do 28 okt 9:00 [w43]	Road		5 ➡ 7	No	Electrical Engineer [10 days, not started]
LF02-T5	**Software** LF02 Load Factor Project - Critical Path		do 28 okt 9:00 [w43]	Road		5 ➡ 6	No	Software Engineer [6 days, not started]
LF02-T4	**Construction** LF02 Load Factor Project - Critical Path		do 28 okt 9:00 [w43]	Road		4 ➡ 6	No	Mechanical Engineer [4 days, not started]
LF01-T7	**Integration** LF01 Load Factor Project - Critical Path		do 11 nov 9:00 [w45]	Road		8	No	System Engineer [10 days, not started] System Tester [10 days, not started]
LF02-T6	**Integration** LF02 Load Factor Project - Critical Path		do 11 nov 9:00 [w45]	Road		7	No	System Tester [10 days, not started] System Engineer [10 days, not started]

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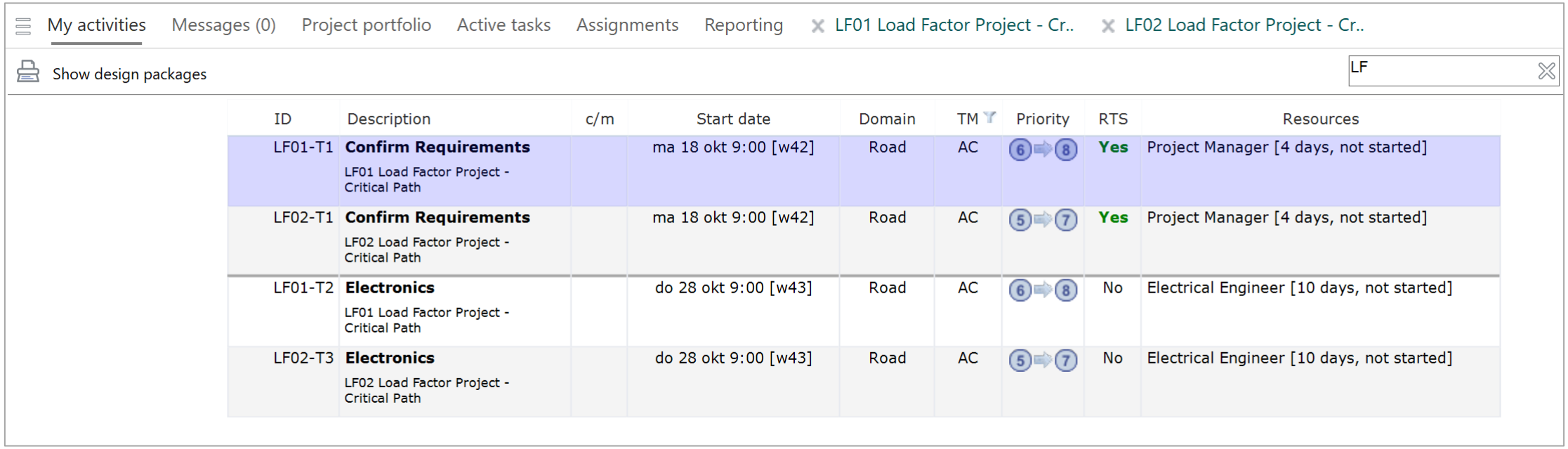
My activities

Task Manager = A-dato Consulting (AC)



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LF01-T1	**Confirm Requirements** LF01 Load Factor Project - Critical Path		ma 18 okt 9:00 [w42]	Road	AC	6 → 8	Yes	Project Manager [4 days, not started]
LF02-T1	**Confirm Requirements** LF02 Load Factor Project - Critical Path		ma 18 okt 9:00 [w42]	Road	AC	5 → 7	Yes	Project Manager [4 days, not started]
LF01-T2	**Electronics** LF01 Load Factor Project - Critical Path		do 28 okt 9:00 [w43]	Road	AC	6 → 8	No	Electrical Engineer [10 days, not started]
LF02-T3	**Electronics** LF02 Load Factor Project - Critical Path		do 28 okt 9:00 [w43]	Road	AC	5 → 7	No	Electrical Engineer [10 days, not started]

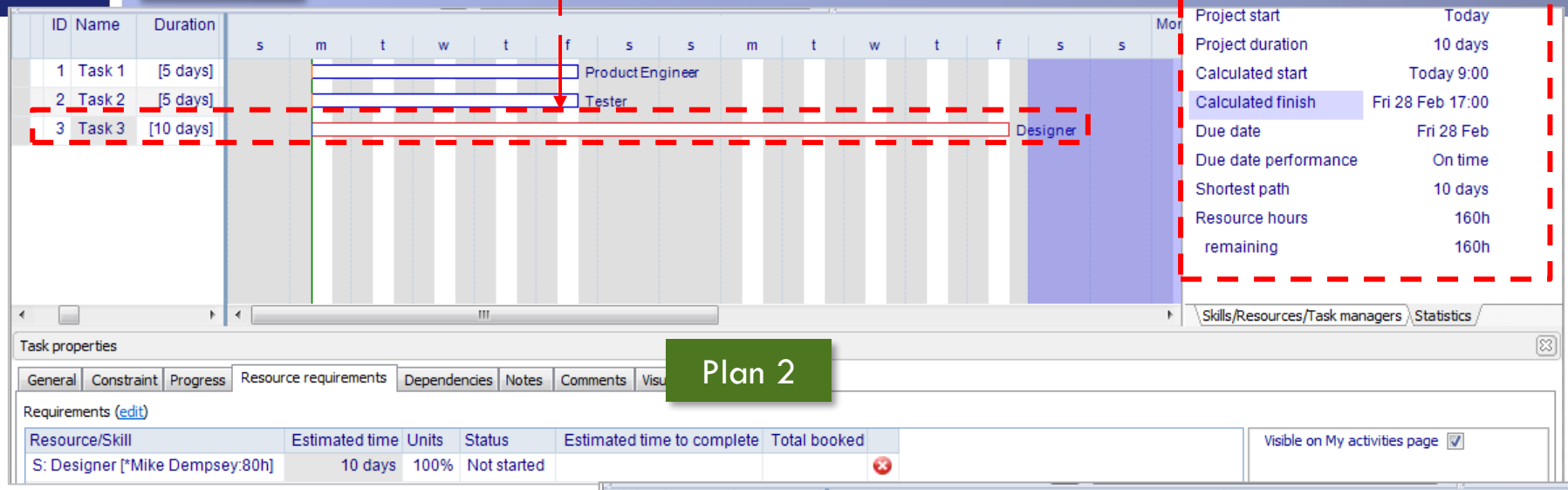
Buffer Management

With Load Factor Scheduling

Project Duration is the delta between the calculated start and calculated finish.

Task 3 has a duration of 10 days, and determines the project duration. As a result the calculated finish is at 28 February, equal to the Due Date (also 28 February)

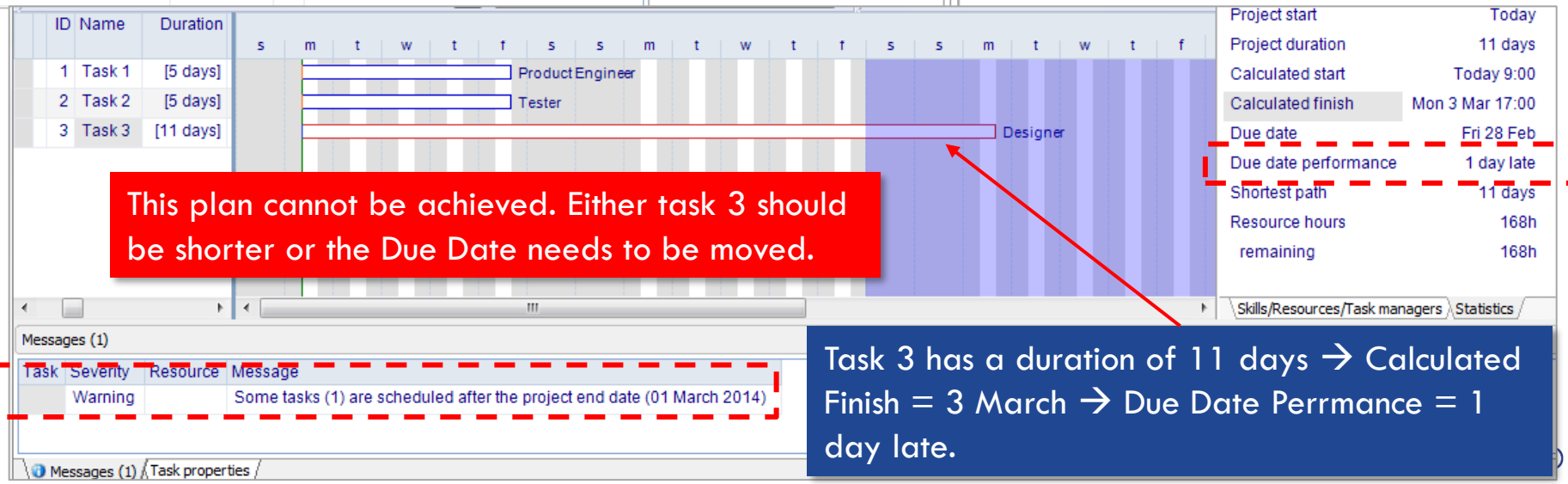
Plan 1



Due date performance = On-Time.

(Calculated Finish Date = Due Date)

Plan 2



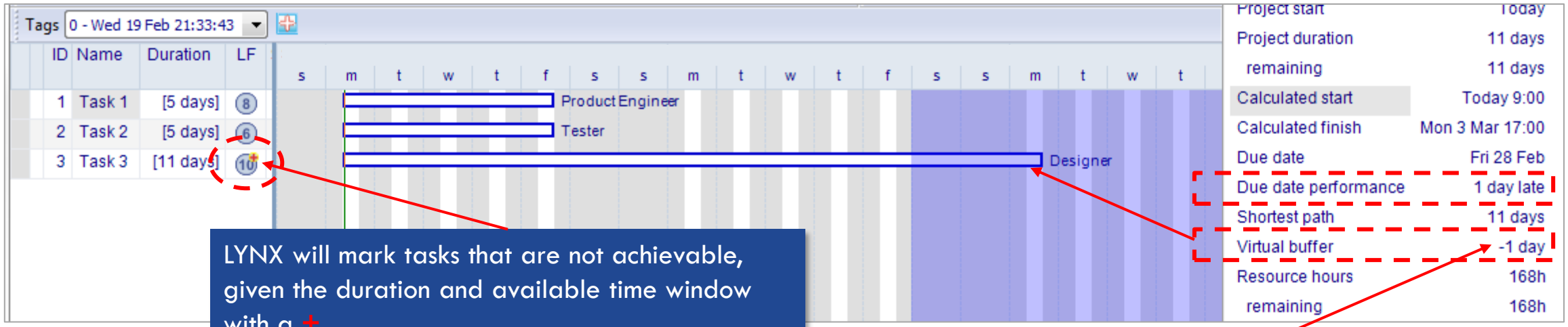
This plan cannot be achieved. Either task 3 should be shorter or the Due Date needs to be moved.

LYNX triggers a warning: tasks (= task 3) are scheduled after the project end-date.

Task 3 has a duration of 11 days → Calculated Finish = 3 March → Due Date Perrmance = 1 day late.

Plan 2

What happens if plan 2 is released?



LYNX will mark tasks that are not achievable, given the duration and available time window with a +.

A + means there is a planning conflict that needs to be resolved.

A **negative Virtual Buffer** also points to a planning that cannot be achieved I the given project duration between start and due date.

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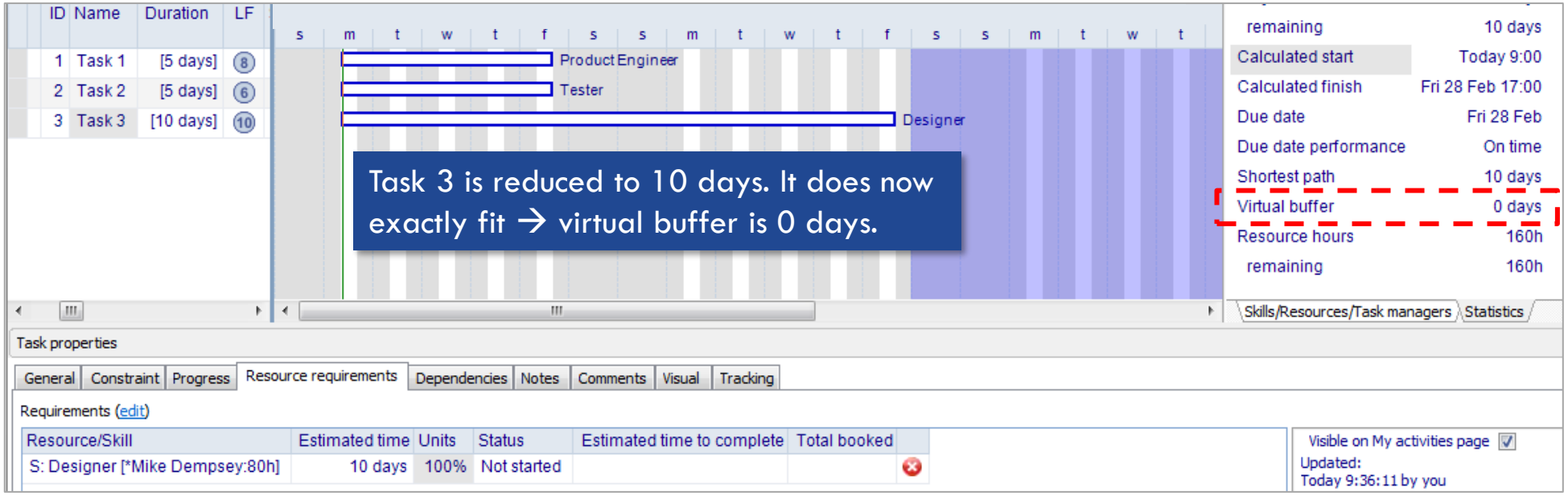
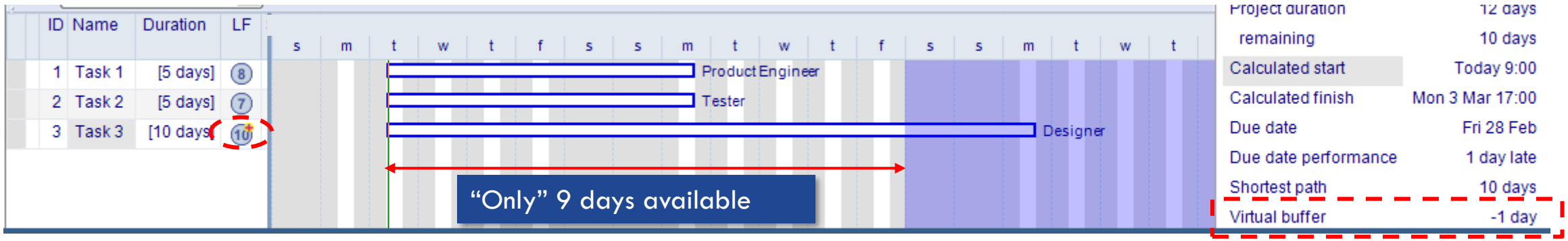
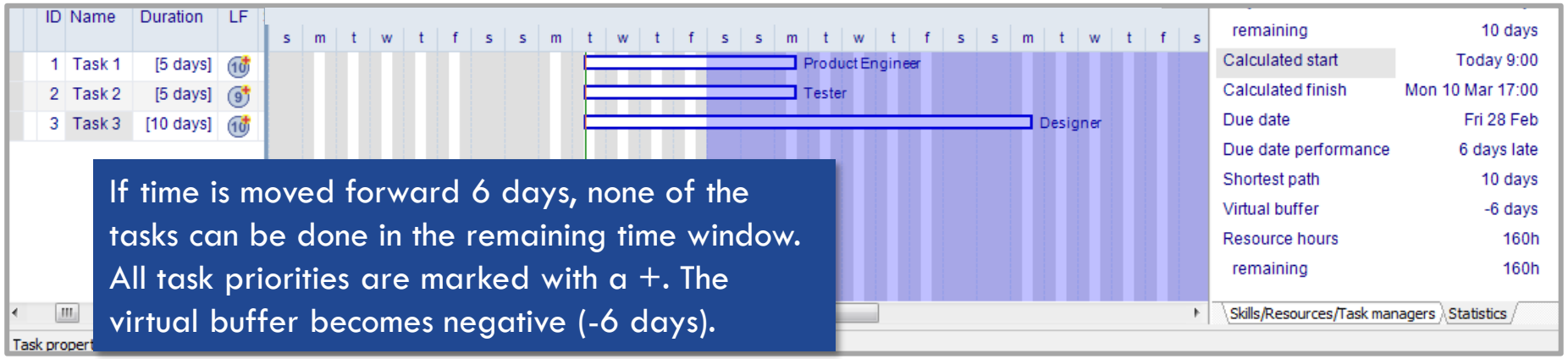
Virtual buffer in case it exactly fits



If time moved forward 1 day and no progress has been made, the same issue occurs. The plan becomes unachievable and the virtual buffer becomes **negative.**





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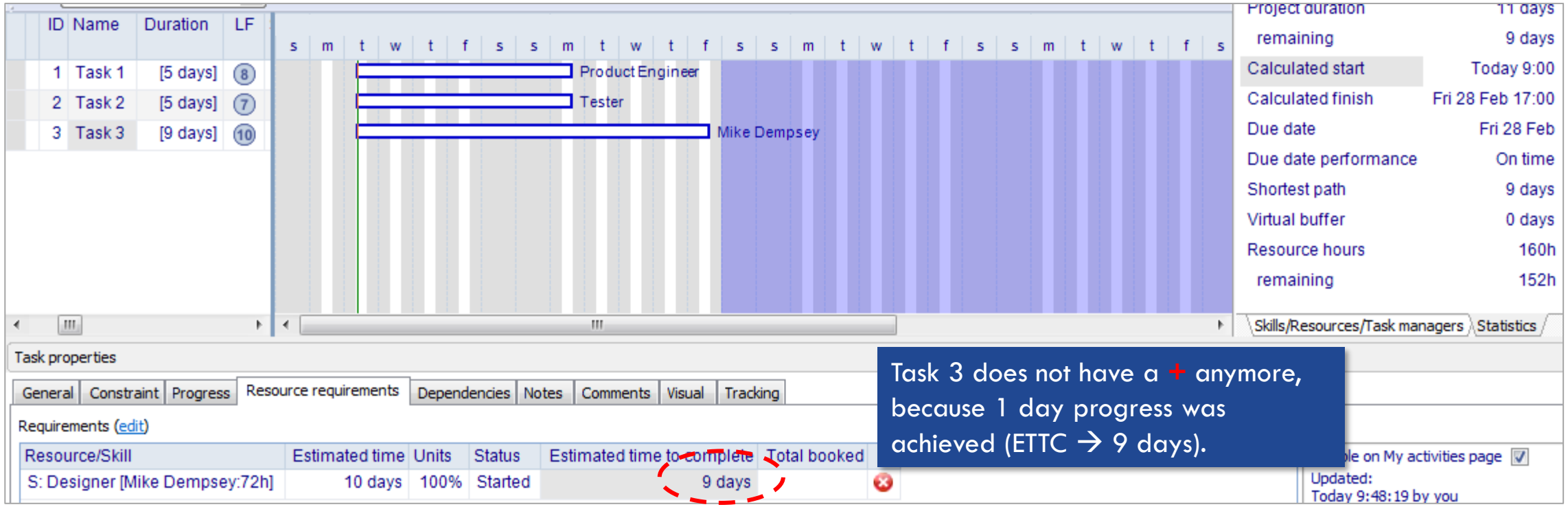
Negative Virtual buffers need to be solved. There are 2 solutions:

1. The plan itself needs to be correct. If a project is "Not Started" all tasks must be able to finish before the due date: Either the due-date need to be moved to a later date OR the plan itself needs to be shortened.
2. If a project is released – a negative Virtual buffer is often also the result of **NOT MAKING PROGRESS**. Work can take longer. However a common cause is also that there is **delay** in reporting progress on tasks. This is a responsibility of project managers and resources → frequently updating progress.



Task 3 does not have a + anymore, because 1 day progress was achieved (ETTC → 9 days).

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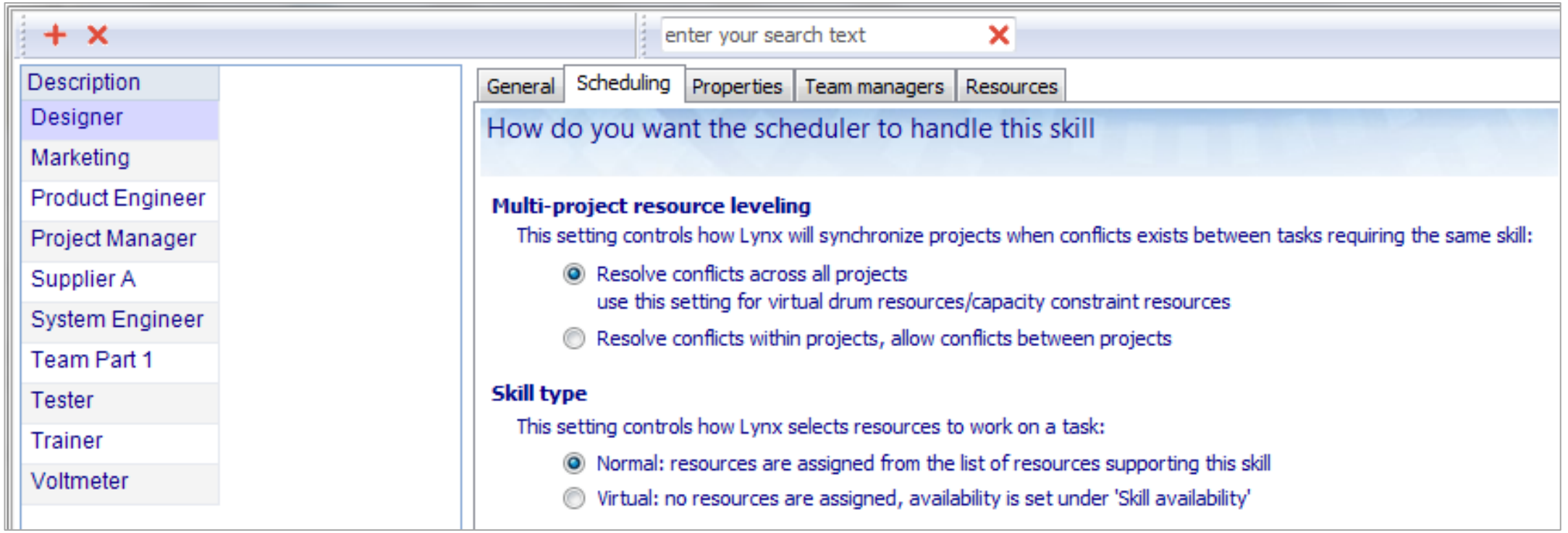
Automatic Multi-Project Scheduling

Resource Load Balancing across projects by Skill

Skill Settings for automatic scheduling

Choose "Resolve conflict across all projects" for 1 (or more) skill(s)

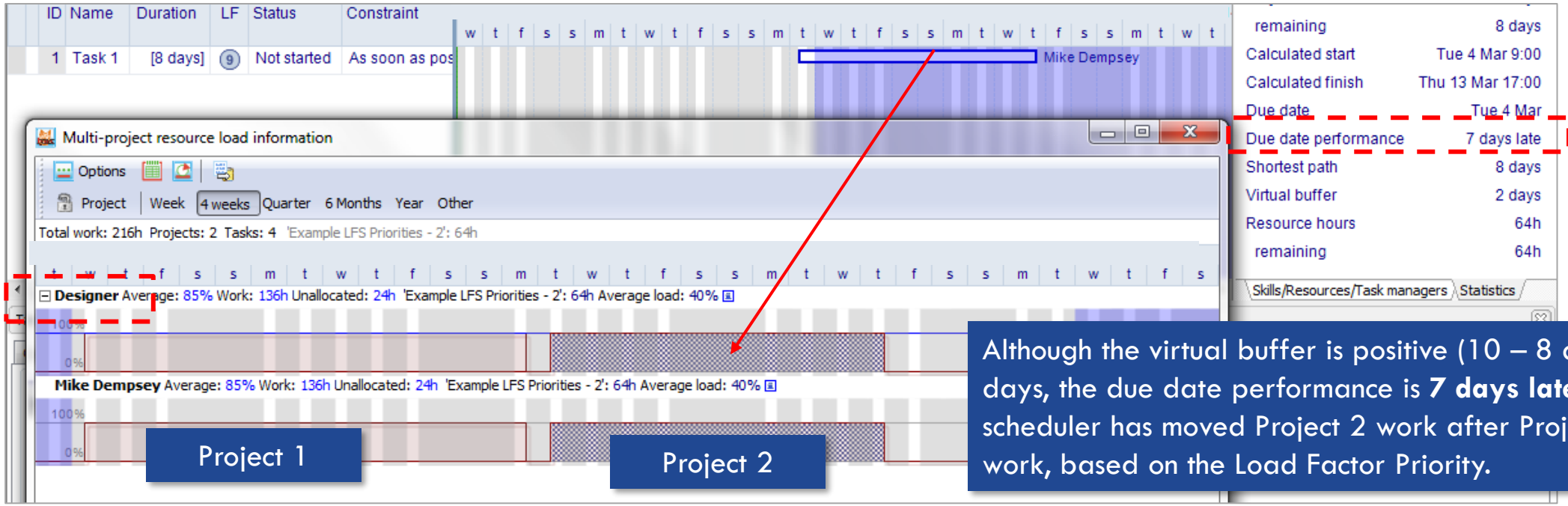


Implementation recommendation:

→ start first **without** levelling on an any skill, i.e. without automatic scheduling. Understand first what the most critical (capacity constraint) skill groups are

Automatic Multi Project Scheduling

Effect on the Due Date Performance – levelling on Designer Role



Although the virtual buffer is positive (10 – 8 days → 2 days, the due date performance is **7 days late.** The scheduler has moved Project 2 work after Project 1 design work, based on the Load Factor Priority.

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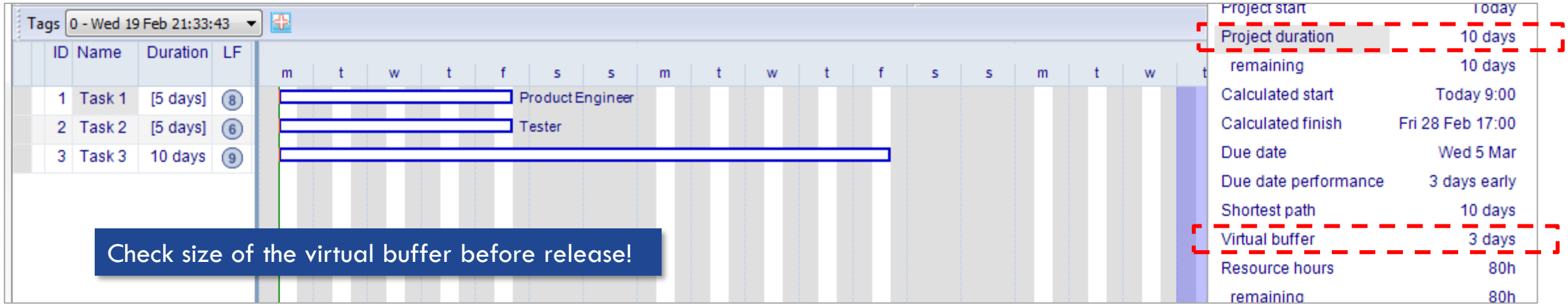
(Virtual) Buffer guidelines

Implement a buffer guideline

Always apply a virtual buffer, for example 20 % to 30 %



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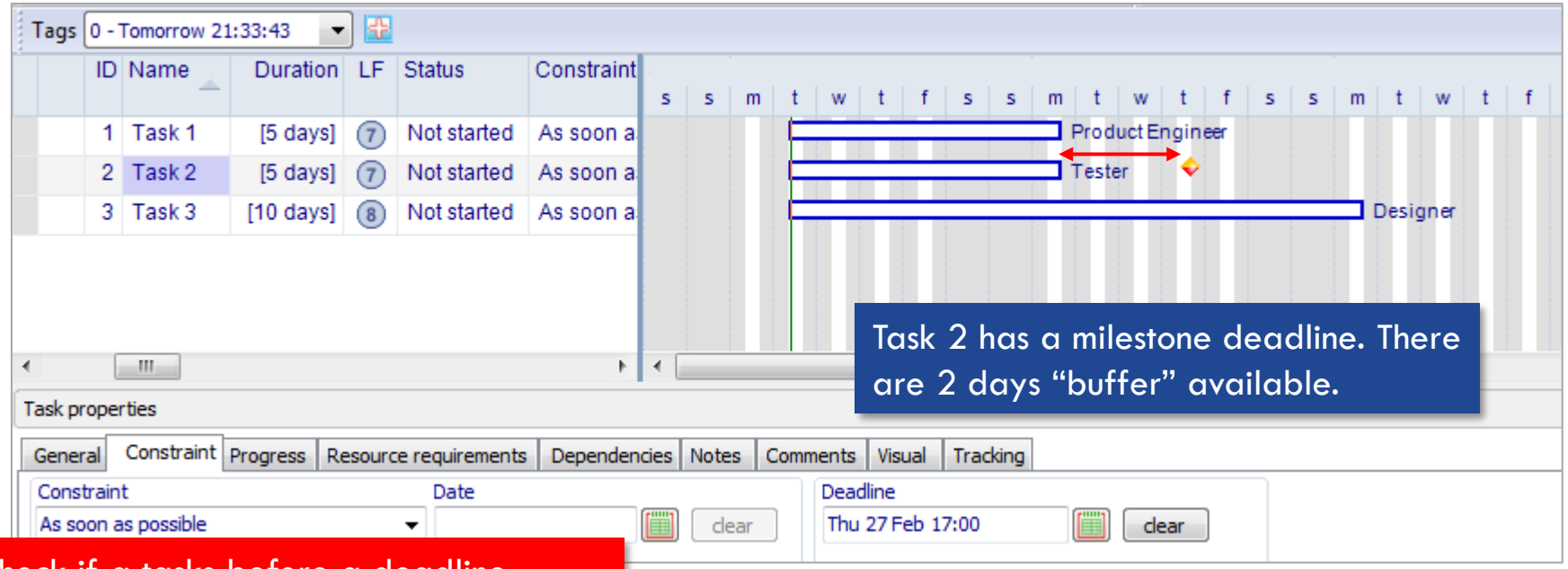
Allow “buffer” before a milestone deadline / constraint



Task 2 has a milestone deadline. There are 2 days “buffer” available.

Check if a tasks before a deadline (milestone) has enough space – also here the 30 % rule may be applied.

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