Asset criticality — which assets matter most if they fail

Menu: CMMS ▸ Assets… ▸ the group Criticality assessment (ACR)

Part 1 — What the function does

What it calculates. Asset criticality ranking (ACR) rates each asset by the consequence of its failure and how likely the failure is, in a way that is repeatable and recorded. You score five consequences of a failure - Safety, Environment, Production (loss × hours to restore), Quality and Repair cost - from 1 to 5, the likelihood L from 1 to 5, and optionally the detectability D from 1 to 5. ReliaEn calculates:

Result	How ReliaEn sets it
Consequence C	The highest of the five consequence scores, with the dimension that sets it
Class A, B or C	The cell of the criticality matrix at likelihood L and consequence C
Score 0 to 100	60·(C−1)/4 + 30·(L−1)/4 + 10·(D−1)/4, rounded half up; it ranks assets inside a class
Priority	1 for class A, 3 for class B, 5 for class C; a work order on the asset takes the more urgent of its own priority and this one

From which data. Only what you type into the group Criticality assessment (ACR) of CMMS ▸ Assets…. Every Assess stores a new assessment; the earlier ones are kept.

When an engineer uses it. To rate every asset maintained when it is installed, after a serious failure or a design change, and when its review date comes. CMMS ▸ Criticality Register… then lists all assets by class and score.

When not to use it.

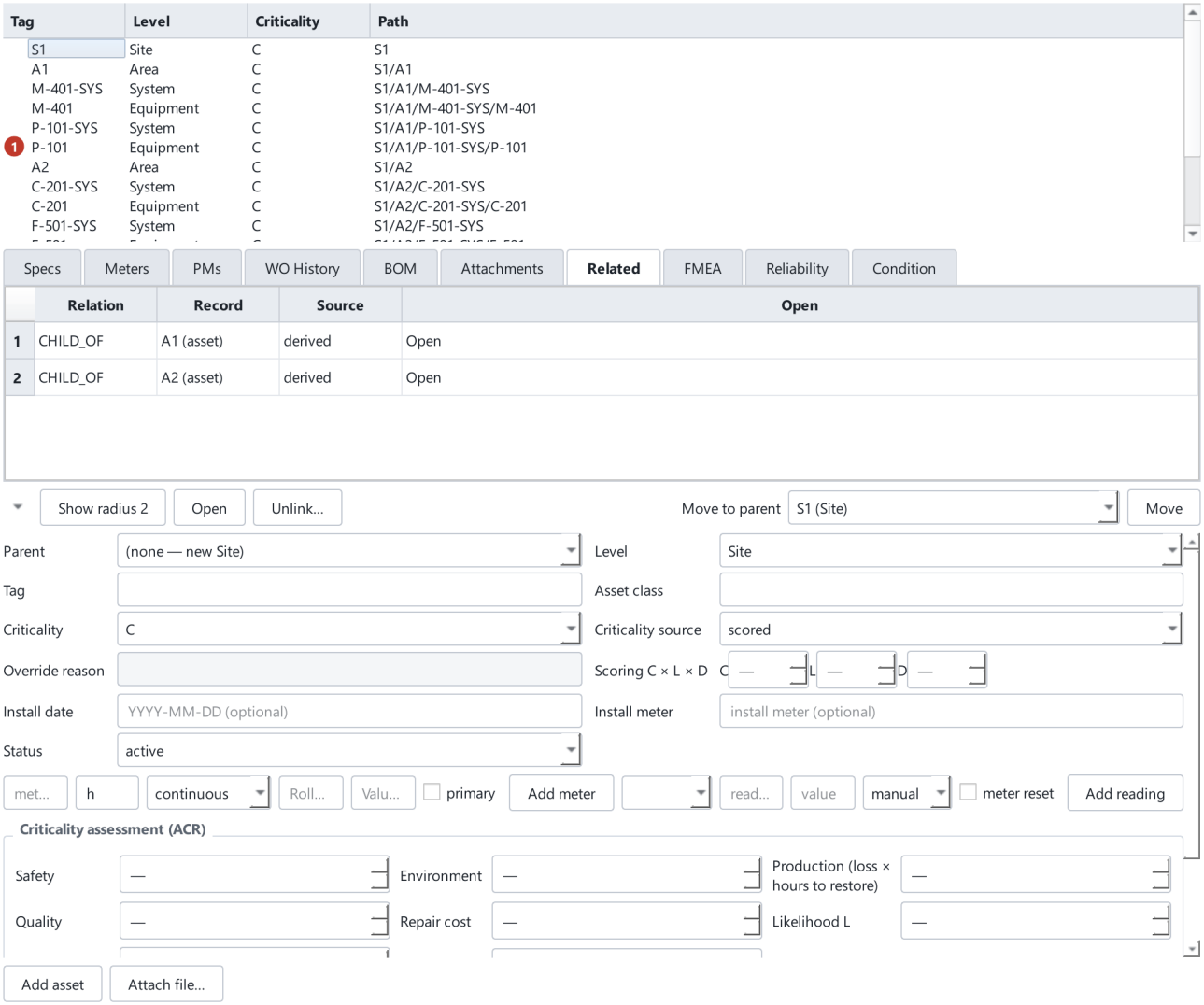
Situation	Use instead
The criticality of each failure mode of a design or a process, not of the asset	System ▸ FMEA / Criticality… or System ▸ FMEA Study…
The asset's failure history turned into a Weibull fit	The Reliability tab of CMMS ▸ Assets… (chapter 6.17)

Part 2 — The example's input data

Setting. The reliability engineer REL-ENG assesses five assets of site S1, one after the other, and then area A2 itself.

Asset	Safety	Environment	Production	Quality	Repair cost	L	D
P-101	2	3	5	2	3	3	2
C-201	4	1	1	1	1	2	4
V-301	2	1	1	1	1	4	3
M-401	3	1	1	1	1	1	1
F-501	1	1	1	1	1	5	5
A2	1	1	1	1	1	1	—

Input	Value
File in the worked-example zip	6-Asset-Criticality/acr_plant.reliaen - site S1 with areas A1 and A2, the five assets and the not-yet-assessed X-999, each under its own system; nothing assessed yet

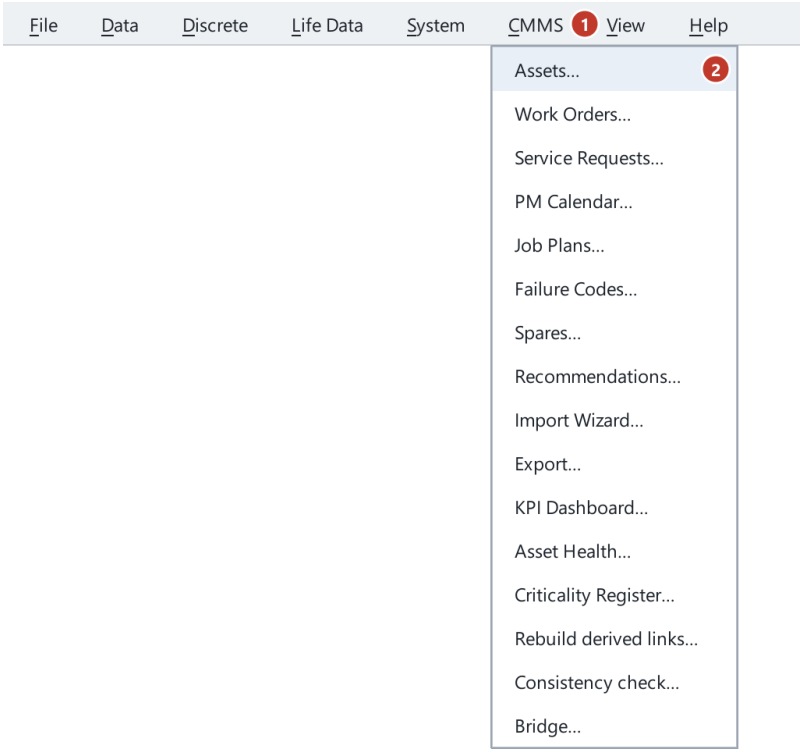


The example data: the asset tree as the window opens

- ① P-101: the first asset of the table, in the plant's asset tree.

Part 3 — How to use it, step by step

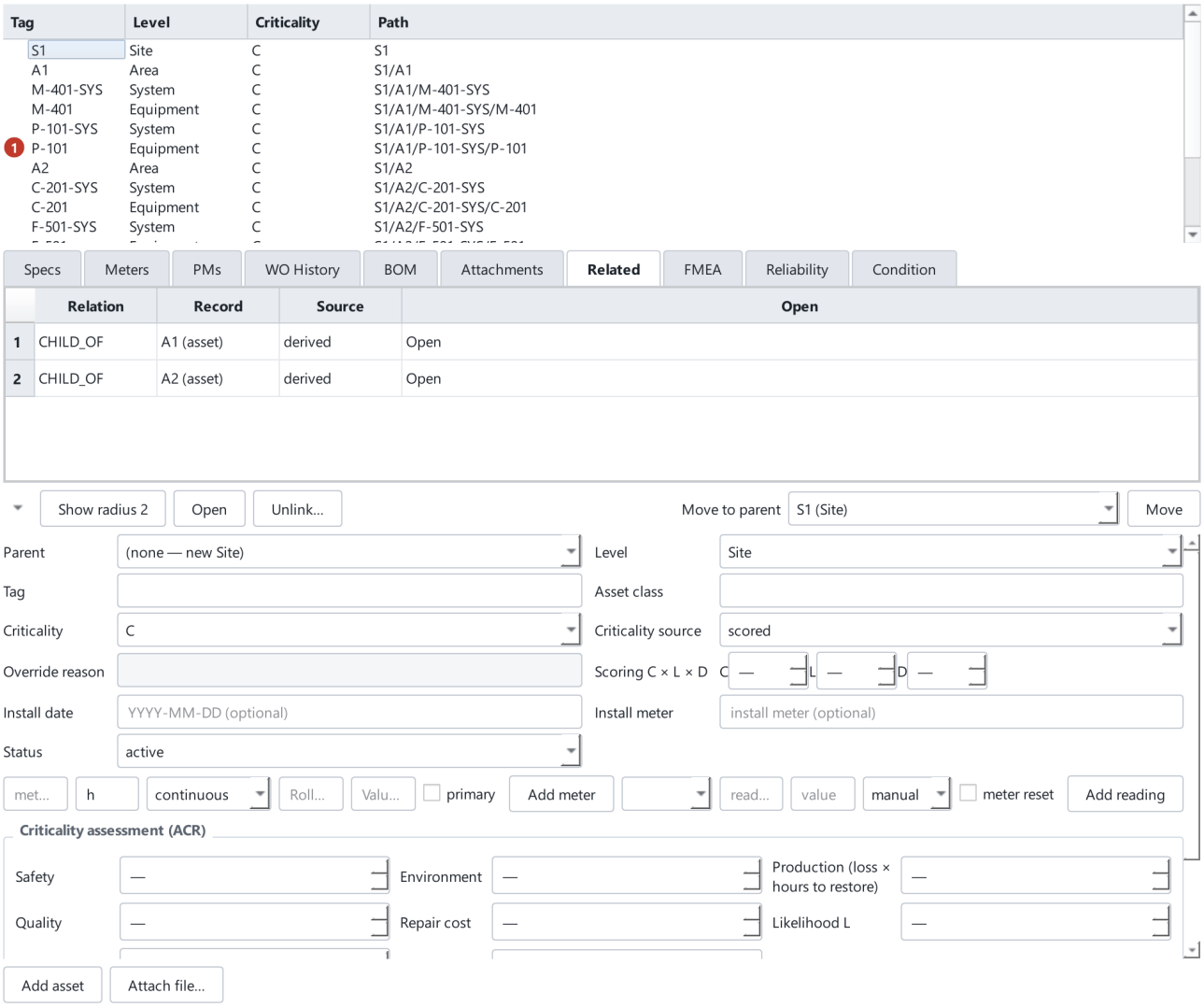
1. **Choose CMMS ▸ Assets…** in the menu bar. The first time in a session ReliaEn asks for the file in the box Open or create a CMMS file: choose your copy of acr_plant.reliaen. The window with the asset tree opens.



Step 1 — the menu path

- ① CMMS: the menu.
- ② Assets…: the entry to click.

2. ① **Click P-101** in the asset tree, then scroll the lower half of the window to the group Criticality assessment (ACR).



Step 2 — P-101 in the asset tree

- ① P-101: the asset to click.

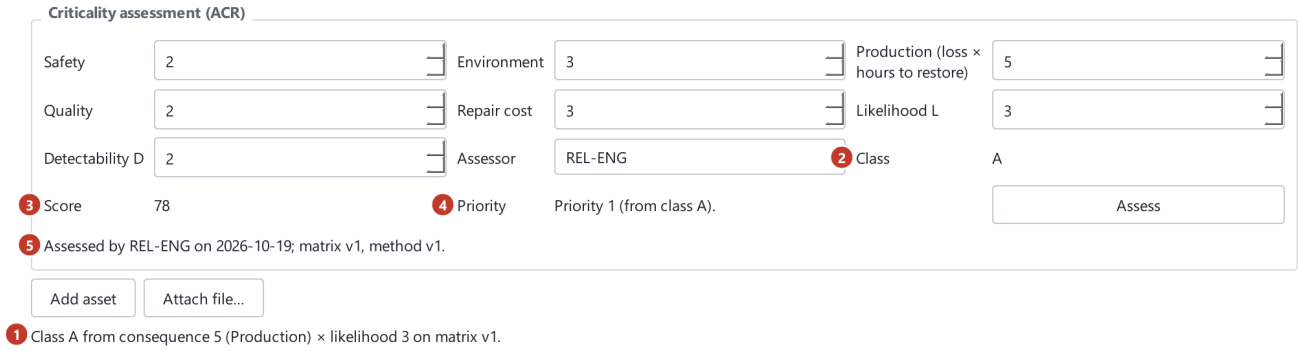
Steps 3 to 11 are marked ① to ⑨ in the picture:



Steps 3 to 11 — P-101's scores typed

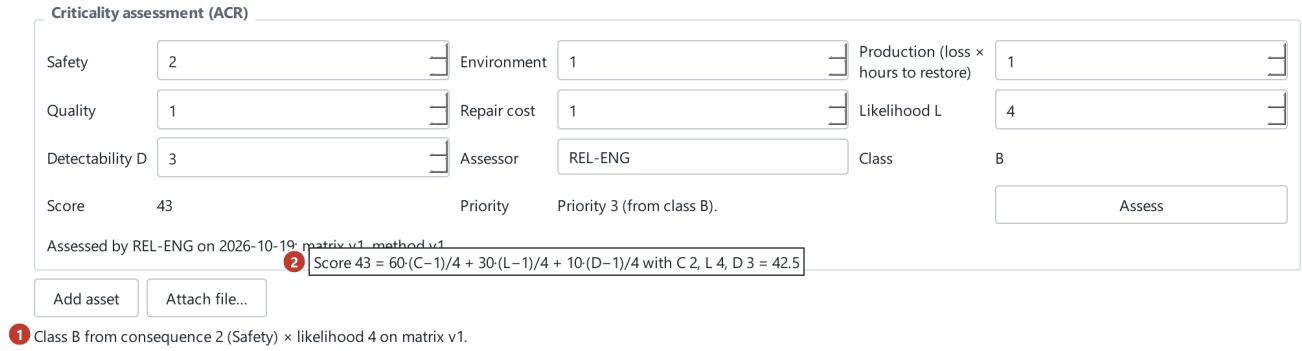
3. ① **Safety**: 2.
4. ② **Environment**: 3.
5. ③ **Production (loss × hours to restore)**: 5.
6. ④ **Quality**: 2.
7. ⑤ **Repair cost**: 3.
8. ⑥ **Likelihood L**: 3.
9. ⑦ **Detectability D**: 2.
10. ⑧ **Assessor**: REL-ENG.
11. ⑨ **Click Assess.** ReliaEn stores the assessment and shows the class, the score and the priority.
12. **Repeat steps 2 to 11** for C-201, V-301, M-401, F-501 and A2 with the values of the table in Part 2, each time ending with ⑨ Assess. A2's Detectability D stays —.

Part 4 — The result, picture by picture



The group after Assess, P-101

- ① The message line: Class A from consequence 5 (Production) × likelihood 3 on matrix v1. The highest consequence is 5, first reached on Production (loss × hours to restore); row 3, column 5 of the delivered matrix reads A.
- ② Class: A.
- ③ Score: 78. The formula gives 77.5; the window shows it rounded half up.
- ④ Priority: Priority 1 (from class A). Work orders on this pump are raised to rank 1.
- ⑤ The record line: Assessed by REL-ENG on 2026-10-19; matrix v1, method v1. Who assessed, on which day, under which matrix and method versions.



The tip of Score, V-301

- ① The message line: Class B from consequence 2 (Safety) × likelihood 4 on matrix v1.
- ② The tip of Score, shown when the pointer rests on it: Score 43 = 60·(C−1)/4 + 30·(L−1)/4 + 10·(D−1)/4 with C 2, L 4, D 3 = 42.5. The formula gives 42.5, shown as 43.

	Tag	Level	Criticality	Path
	S1	Site	C	S1
	A1	Area	C	S1/A1
	M-401-SYS	System	C	S1/A1/M-401-SYS
1	M-401	Equipment	C (30)	S1/A1/M-401-SYS/M-401
	P-101-SYS	System	C	S1/A1/P-101-SYS
2	P-101	Equipment	A (78)	S1/A1/P-101-SYS/P-101
3	A2	Area	C (0)	S1/A2
	C-201-SYS	System	C	S1/A2/C-201-SYS
4	C-201	Equipment	B (60)	S1/A2/C-201-SYS/C-201
	F-501-SYS	System	C	S1/A2/F-501-SYS
5	F-501	Equipment	B (40)	S1/A2/F-501-SYS/F-501
	V-301-SYS	System	C	S1/A2/V-301-SYS
6	V-301	Equipment	B (43)	S1/A2/V-301-SYS/V-301
	X-999-SYS	System	C	S1/A2/X-999-SYS
7	X-999	Equipment	C	S1/A2/X-999-SYS/X-999

The asset tree after the six assessments

- ① M-401: C (30), from consequence 3 (Safety) × likelihood 1.
- ② P-101: A (78).
- ③ A2: C (0), from consequence 1 × likelihood 1: every score at its lowest gives 0.
- ④ C-201: B (60), from consequence 4 (Safety) × likelihood 2.
- ⑤ F-501: B (40), from consequence 1 (Safety) × likelihood 5: a harmless failure that happens often.
- ⑥ V-301: B (43).
- ⑦ X-999: a class letter with no score in brackets, as S1, A1 and the six systems: they have no assessment.

Part 5 — How to interpret the results

Which asset gets the top tier? P-101 is the one class-A asset of the five: give it the top maintenance strategy tier. Its consequence, not its likelihood, puts it there - a failure stops production (5) at a middling likelihood (3).

Why is the fan in class B? Not because a failure of F-501 hurts (1) but because it fails often (5). The class reads the matrix at L and C; a frequent harmless failure and a rare serious one can land in the same class.

How to order the work inside a class? By score: C-201 (60) before V-301 (43) before F-501 (40). When two assets of one class sit close in score, read the tip of Score: for V-301 and F-501 the likelihood, not the consequence, carries the score.

What comes next? CMMS ▸ Criticality Register... ranks all assets by class and score, rolls the class up the hierarchy, and lists the assets still to assess - here X-999, S1, A1 and the six systems. Assess again when the review date comes (the assessment day plus 12 periods of 30 days), after a serious failure, or when a design change alters a consequence.