

Open model, upload past events

1. visit www.artis.la/V27/models/oilProduction.html
2. Ctrl+U, data-upload, with the exact input shown below

Upload

data type:

system:

Database

protocol:

server URL:

username:

password:

database:

table:

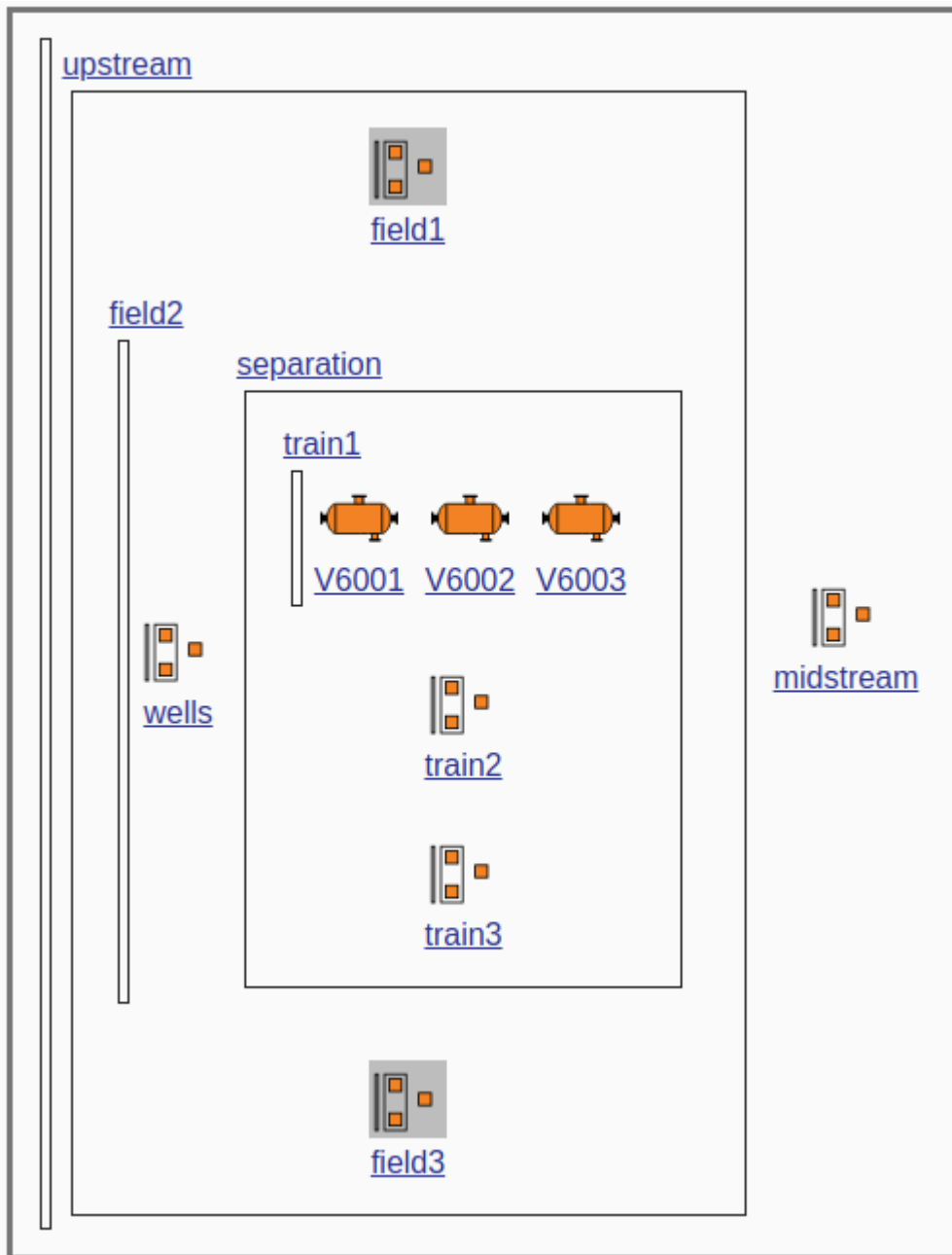
php folder:

adminer:

OK

3. Click on the OK button, Only Once, this connects to the sqlite database on the ARTIS server with a query to upload the events table from the database into the model

4. In the diagram, click on upstream - field2 - separation - train 1



The groups and items that are down at the current time, in this example that is on 5 Dec 2020 at 00:00, have a grey background.

- click on the V6001 icon, this shows the item form with the V6001 input

Item

name:

description:

unit: ▼

capacity: model unit

grace period: hour

side: production consumption

- click on the events button, this shows the event form and the event table of V6001, with 1 unplanned event

Event

component: ▼

downtime mode: ▼

type: ▼

from: until:

bypass capacity: %

reference:

Table

component	downtime mode	type	time down	time up	bypass capacity	reference
<input type="radio"/> component	mode	unplanned	01 Nov 2019 12:00	01 Dec 2019 12:00	0	

- click on the search button, this connects to the sqlite database on the ARTIS server with a query for the events of V6001



Session expired, please login again.

System	SQLite 3
Username	<input type="text"/>
Password	<input type="password"/>
Database	oilProduction.sqlite

Permanent login

- leave the username and password fields empty and click on the Login button, this opens a new browser tab with a view on the database table that shows the V6001 event

Select: events

Select data Show structure Alter table New item

Select Search

item first name	=	V6
item last name	=	001
(anywhere)	=	

Sort Limit 50 Text length 100 Action Select !

`SELECT *, "rowid" FROM "events" WHERE "item first name" = 'V6' AND "item last name" = '001' LIMIT 50 (0.000 s) Edit`

<input type="checkbox"/> Modify	item first name	item last name	component	downtime mode	type	time down	time up	bypass capacity	reference	owner
<input type="checkbox"/> edit	V6	001	component	mode	unplanned	01 Nov 2019 12:00	01 Dec 2019 12:00	0		NULL

Whole result 1 row Modify Selected (0) Export (1)

Import

- When you have seen this, you can close the new browser tab and revert to the model.

Report average lifetime and downtime for the observation period, 1 Nov 2019 - 5 Dec 2020

10. With the focus on the diagram, Ctrl+A, select all

11. Ctrl+R, run form (don't change any input)

Run

result: Capacity Frequency and Duration ▾

number of samples: 0 ▾

form: expected value probability density cumulative distribution

scale: kbbl/day percentage (%) stream day

perspective: unit ▾

format: csv ▾

Time horizon

current time: 05 Dec 2020 00:00

start date: 01 Nov 2019

number of intervals: 1

interval: 398 day ▾

OK

12. click on the OK button and then on the Submit button, wait for the results download to arrive (a few seconds)

13. save artis.csv in your download folder

14. open artis.csv to review the average lifetime and downtime of the units, based on the uploaded events only

- a. Column H shows the mean lifetime.
- b. Column J shows the mean downtime.
- c. Since the observation time is only a year, most units have seen only a few events. Only the wells have seen enough events to update their MTTF and MTTR.

Report the production availability for the observation period, 1 Nov 2019 - 5 Dec 2020

15. update the run form as shown below

Run

result: Available Capacity ▾

number of samples: 0 ▾

form: expected value probability density cumulative distribution

scale: kbbl/day percentage (%) stream day

perspective: diagram ▾

format: HTML ▾

Time horizon

current time: 05 Dec 2020 00:00

start date: 01 Nov 2019

number of intervals: 398

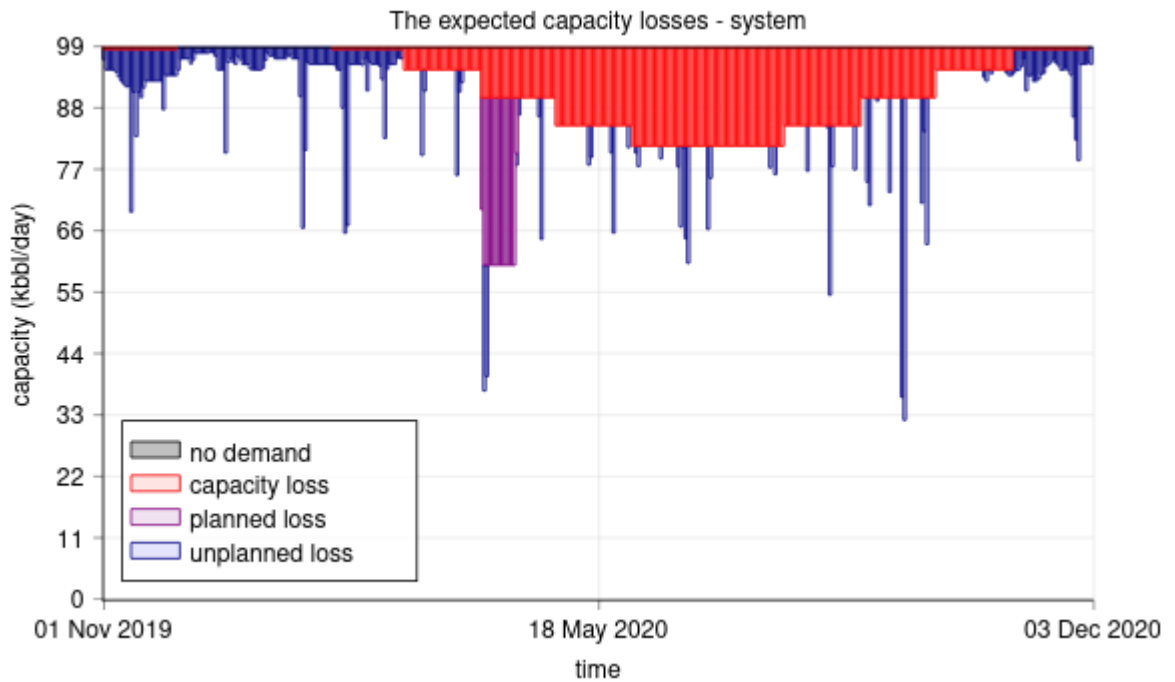
interval: 1 day ▾

OK

16. click on the OK button and then on the Submit button, wait for the results.zip download to arrive (a few seconds)

17. save results.zip in your download folder and unzip it

18. open results.html to see the impact of the seasonal capacity swings and the planned and unplanned events



Criticality ranking - system

state of loss	maximum capacity kbbbl/day	fraction of time	impact kbbbl/day	availability loss kbbbl/day	availability loss %
G11001	92.1	0.0322	30	1	1.0
V12001	92.1	0.00311	90	0.3	0.3
G11001	92.1	0.00706	32.9	0.2	0.3
+ (G11001 G12001)	92.1	0.00355	60	0.2	0.2
G12001	92.1	0.00441	32.3	0.1	0.2
+ (+ (well027 well018) well092)	92.1	0.0243	3	0.1	0.1
+ (well071 + (well031 + (well028 well029)))	92.1	0.0139	4	0.1	0.1
+ (⊥ (⊥ (V6002 V6001) V6003) well042)	92.1	0.014	4.7	0.1	0.1
+ (+ (⊥ (⊥ (V6002 V6001) V6003) well042) well090)	92.1	0.0185	5.7	0.1	0.1
+ (+ (⊥ (⊥ (V6002 V6001) V6003) + (well023 well018)) + (well090 well103))	92.1	0.00698	7.7	0.1	0.1
G10001	92.1	0.00424	27.1	0.1	0.1
G10001	92.1	0.00249	28.3	0.1	0.1
K10002	92.1	0.00213	28.3	0.1	0.1
D12001	92.1	0.0025	30	0.1	0.1
K10001	92.1	0.00241	30	0.1	0.1
K12003	92.1	0.00248	31.7	0.1	0.1
K11003	92.1	0.00182	32.9	0.1	0.1
⊥ (⊥ (V6002 V6001) V6003)	92.1	0.00185	32.9	0.1	0.1
⊥ (⊥ (V6002 V6001) V6003)	92.1	0.0129	3.7	0	0.1
K11003	92.1	0.00182	27.1	0	0.1
G12001	92.1	0.00161	30	0	0.1
G12001	92.1	0.00145	32.9	0	0.1

19. The criticality ranking shows

- a. The largest production availability loss is from the planned downtime of the G10001, G11001, G12001 gas turbines.
- b. The second largest impact arises from well downtime.
- c. Treater V12001 had an unplanned event of about 1 day.