

Changing the Fan Curve in Star CCM+

Jack Devenish

Fan Curve Database

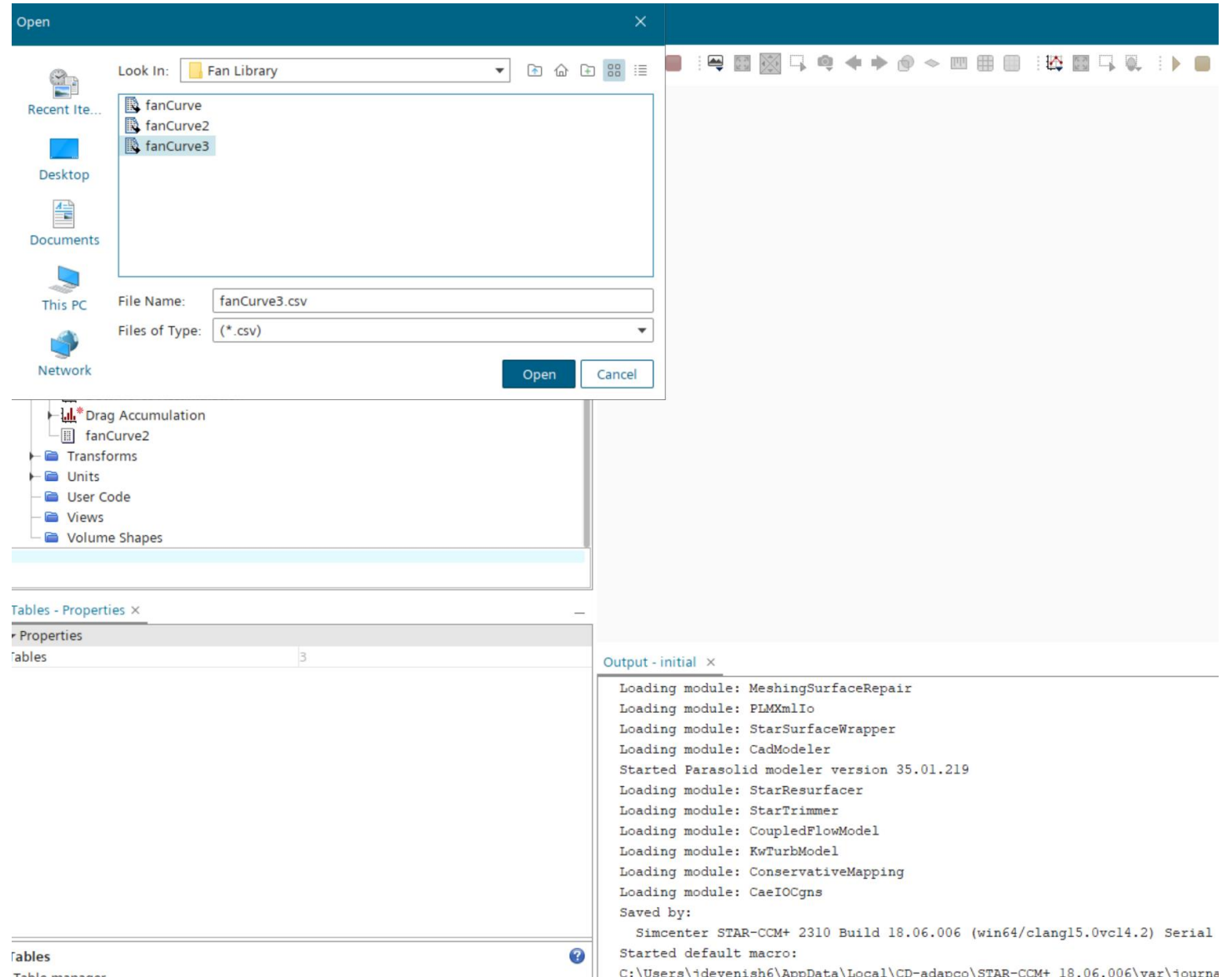
Add fan you found to fanCurveLibrary excel sheet (found [here](#)) in a similar fashion to the others. Include name of new .csv file that will contain the imported information.

VA75-A101-90A	Static pressure	Static pressure	Airflow	Current draw	Airflow	Static pressure	fanCurve2.csv	Volumetric Flow	Static Pressure
	Pa	mm H2O	m³/h	A	CFM	in H2O		m³/s	Pa
	0	0	700	4.3	413	0		0.194444444	0
	50	5	620	4.5	366	0.2		0.172222222	50
	75	7.5	580	4.6	342	0.3		0.161111111	75
	100	10	540	4.7	319	0.4		0.15	100
	125	12.5	500	4.9	295	0.5		0.138888889	125
	150	15	470	5	277	0.6		0.130555556	150
	175	17.5	420	5.1	248	0.7		0.116666667	175
	200	20	330	5.3	195	0.8		0.091666667	200
	250	25	200	5.7	118	1		0.055555556	250
	300	30	130	5.9	77	1.2		0.036111111	300
350	35	0	6.3	0	1.4	0	350		

VA15-AP70-/LL-39A	Static pressure	Static pressure	Airflow	Current draw	Airflow	Static pressure	fanCurve3.csv	Volumetric Flow	Static Pressure
	Pa	mm H20	m³/h	A	CFM	in H20		m³/s	Pa
	0	0	1870	10.5	1103	0		0.519444444	0
	50	5	1670	11.3	985	0.2		0.463888889	50
	100	10	1440	12	850	0.4		0.4	100
	150	15	1000	11.4	590	0.6		0.277777778	150
	200	20	720	12.4	425	0.8		0.2	200
	250	25	530	12.7	313	1		0.147222222	250
	300	30	390	13.2	230	1.2		0.108333333	300
	350	35	310	13.5	183	1.4		0.086111111	350
400	40	0	15.4	0	1.6	0	400		

Adding the Fan Curve to Star

(In star on the left panel)
Tools -> Tables -> New
Table -> File Table. Find the
.csv you just created and
hit open



Using the Fan Curve

Interfaces -> Fan Exit -> Physics Values -> Fan Curve Table. Select the new table you just imported. Always do a once over on the other physics values from an engineering perspective (e.g. operating speed may change from fan to fan, different motec settings). After this you should be good to run with a new fan!

The screenshot displays the STAR-CCM+ software interface. The top panel shows the 'Simulation' tree with the 'Fan Curve Table' selected under 'Physics Values'. The bottom panel shows the 'Fan Curve Table - Properties' dialog box with the following settings:

Properties	
Table	fanCurve2
Table: X	None
Units: X	Downforce Accumulation
Table: P	Drag Accumulation
Units: P	fanCurve2
Method	fanCurve3
Pressure Rise	Static to Static
Operating Rotation Rate	2000.0 radian/s
Data Rotation Rate	2000.0 radian/s

The bottom right panel shows the 'Output - initial' log with the following text:

```
Loading module: StarSurfaceWrapper
Loading module: CadModeler
Started Parasolid modeler version 35.01.219
Loading module: StarResurfacr
Loading module: StarTrimmer
Loading module: CoupledFlowModel
Loading module: KwTurbModel
Loading module: ConservativeMapping
Loading module: CaeIOGns
Saved by:
Simcenter STAR-CCM+ 2310 Build 18.06.006
Started default macro:
C:\Users\jdevenish6\AppData\Local\CD-adapco
Found 2 columns while importing table C:\U
Imported 9 rows for all columns.
```

Original instructions can be found here in

Slack: <https://gtmotorsports.slack.com/archives/C04NVUE2GRX/p1735511094039979>