DNV·GL

Generating a channel from a Bladed time history

1 GENERATE INPUT FILE

Create a tab delimited file containing columns of all of the measured signals you would like to add to Bladed.

You can copy and paste from excel directly into a ".txt" document. The first row needs to contain the headers and the measured data follows on in row 2.



Ensure that all of the data has the same time step. A column of the time is not actually required – only the measured signals that need to be added to Bladed and the associated time step.

2 MANUAL PREPARATION OF ASCII FILE

To create a channel in Bladed from the data columns in your ASCII input file:

1. Select data viewer > channel 1 > prepare ASCII file

L Data for Viewing: Graph channel 1	
c:\users\davlan\desktop\ask\exercise\day3\loa	ad-calcs\test\ascii-file
Run Name: 📃 🔀 🛛 Refresh	Path:
ascii2.txt	🚽 🔄 davlan 🔺
Data Group: i 🔀	desktop
wfwef	ask Calexercise
	(⊂aday3 📃
	Calcs
	test
	ascinite
	Drive:
	C: [SYSTEM]
	Prepare T-MON file
	Prepare ASCII file

2. Navigate to thee input ".txt" file

٦ ا	Prepare	Ascii File						
	Location of	esktop\ask\ex	ercise\dt					
	Descriptio	on of data in	n file	sample	sample measured signal			
	Number of header lines in file			5	-			
	Time step			0.05	S			
5 channels found in line 6 of data file								
	Channe	el	Char	inel Descr	iption	(Units	
	1	rotor s	peed			rpm		
	2	gener	ator torque			MNm		
	3	pitch a	angle			deg		
	4	wind s	peed			m/s	m/s	
	5	electri	cal power			MW		
First 6 lines of data file:								
	Rotor spe	ed [rpm]	Generator	rtorque [N	/Nm]	Blade 1 pitc	hangle [deg]	
	19.7912	0.007618	1.41E-04 1.20E-04	10.1144	1.33608			
	19.7907	0.007549	1.01E-04	10.03	1.32352			
	19.7997	0.007508	8.57E-05	10.0034	1.31597			
	19.8097	0.007502	7.25E-05	10.0331	1.31555			
,						OK	Cancel	

- 3. Define the channel name
- 4. Define the number of heading in the file
- 5. Define the time step for the variables
- 6. Define the channel description and units
- 7. Select "OK"
- 8. Wait for message...



- 9. Plot measured signals are normal...
 - a. File is generated in the same folder as txt input file.

L Data for Viewing	: Graph channel 1		_ 🗆 🗙
c:\users\davlan\des	sktop\ask\exercise\day3\load-calcs	\test\ascii-file	•
Run Name: 🗉	Refresh	Path:	
ascii2.txt		🚽 🔄 davlan	
Data Group:	Izel	🚽 🔁 desktop	
sample measured	signal	ask .	
		exercise	
			=
		- test	
		ascii-file	-
		Drive:	
		C: [SYSTEM]	–
		Prepare T-MO	N file
		Prepare ASC	lfile
Variables:		-	
Rotor speed Generator torque		rad/s Nm	
Pitch Angle		rad	
wind speed		m/s	
Electrical power		W	
Independent Vari	iables: (double-click to change) <u>Select value</u>	:
Time	X-Axis		
		/[
View Messages	Further Info	OK	Cancel

10. Repeat for remaining input files

3 AUTOMATED PREPARATION OF ASCII FILE

Once the process is complete you will notice that two files are generated in the folder alongside the original ASCII input file.

<u>File E</u> dit <u>V</u> iew <u>T</u> ools <u>H</u> elp		
Organize 🔹 🔊 Open 👻 Share with 👻 E-mail	New folder	:= • 🗌 📀
🚖 Favorites	Name	Date modified
📃 Desktop	ascii.txt	18/12/2014 17:00
🔰 Downloads	ascii.txt.\$TE	18/12/2014 17:55
s Recent Places	ascii.txt.%00	18/12/2014 17:55
My Documents	ascii-sample.xls	18/12/2014 14:34

The "*.\$TE" file is blank but the "*.%00" file contains the headers for the input ".txt" file. The format of the "*.%00" file is quite easy to understand and after a repeating the process manually a few times you could easily replicate the header files rather than using the Bladed interface. The "*.%00" is what Bladed uses to interpret the ASCII input file you provide.

Below is the input file from a sample:

```
ascii.txt.%00 - Notepad
 <u>File Edit Format View H</u>elp
 FILE
               ascii.txt
 ACCESS
               S
 FORM
               F
 RECL
               0
 FORMAT
              n/a
FORMAL WAS
HEADREC 5
CONTENT 'ASCII_DATAFILE'
DIMENS 2|
DIMENS 5 1996
GENLAB 'sample-ascii-file'
VARIAB 'rotor speed' 'generator torque' 'pitch angle' 'wind speed' 'power
VARUNIT A/T FL A L/T P
VARSCALE .1047197 1000000 .0174532 1 1000000
AXISLAB 'Time'
AXIUNIT T
AXIMETH 2
 AXIMETH 2
 MIN
                 0
              .05
0
STEP
NVARS
  •
                                                                Ш
```

It is a good idea to repeat the manual process a few times so that you can understand all of the necessary inputs in the "*.%00" file and then create your own script to make these header files for a series of input ".txt" files. You should then be able to automate the whole process making hundreds of measured time histories available for processing in Bladed very quickly.