



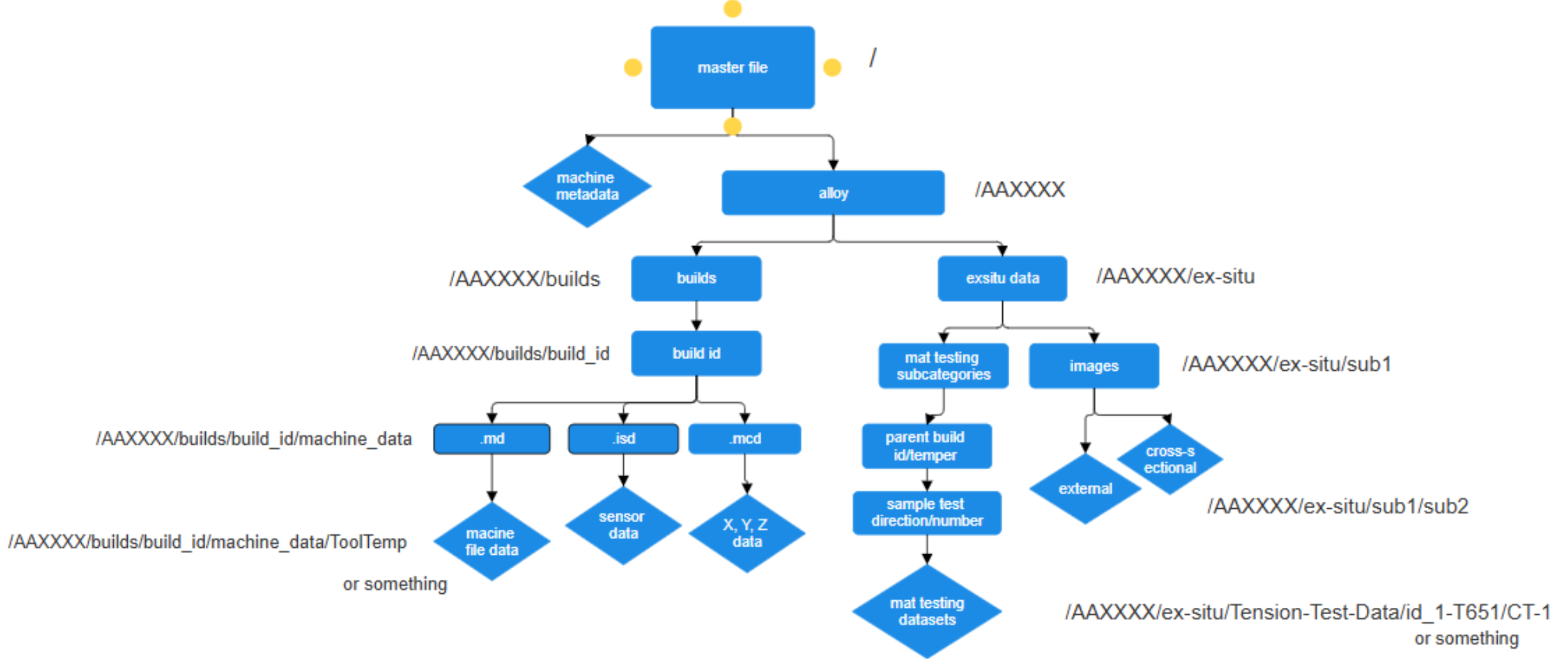
# PDP Database Documentation

+  
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The background is a light gray color. It features decorative elements: in the top-left corner, there are several concentric, wavy lines in a light purple color, with a white circle partially visible behind them. In the bottom-right corner, there are similar wavy lines in a darker red-purple color, with a white circle partially visible behind them.

# Workflow and structure

# Hardcoded structure with addresses

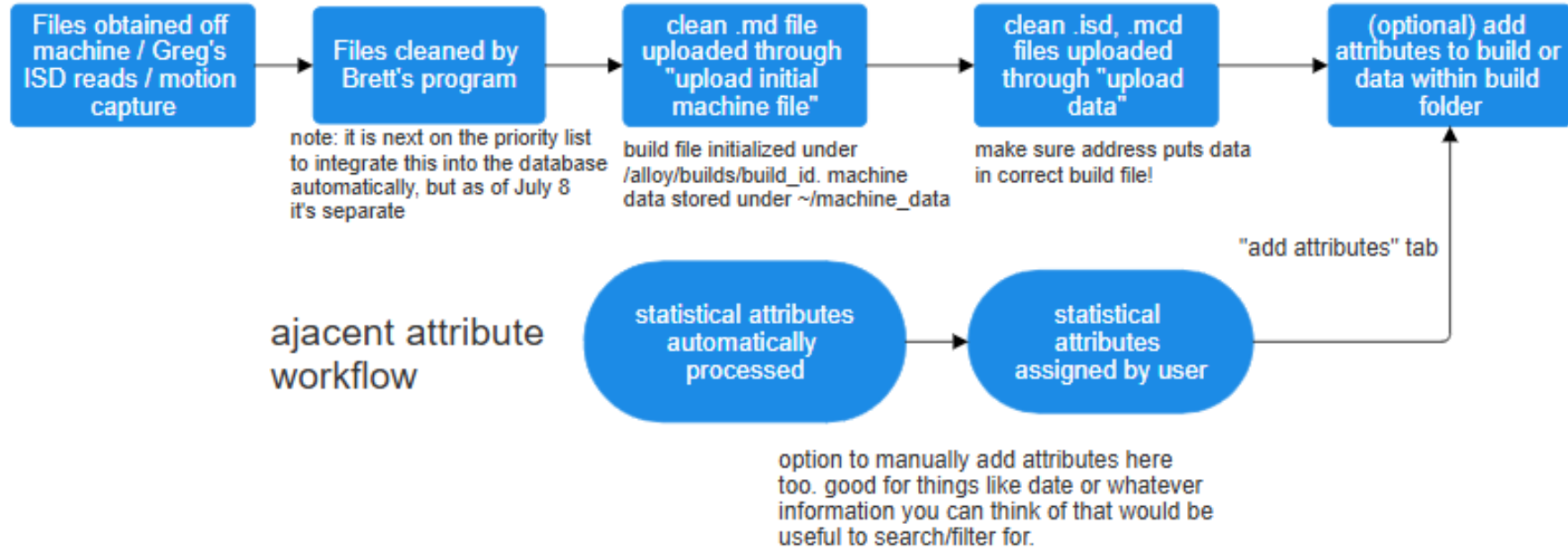


This structure is as flexible as you want it to be – this is just what I’ve hardcoded and what you’re guaranteed to see. Any file can be moved or stored anywhere you can imagine, but convention is super important to make sure things are still searchable.

Addresses are formatted how you see in the examples. Anything outside of this formatting will break!

Never use a forward slash in a name of a group or dataset.

## Example Workflow (build upload)



Browse database Upload initial machine file Upload data Add attributes Edit database Search specific attributes Graph interface Analyze data Admin

### Upload data

Note: machine file for each build should be uploaded under the tab 'Upload initial machine file', not here. This is an all-purpose data processor.

Ex-situ or build data?

☒ Build data

☐ Ex-situ data (csv, build)

☐ Ex-situ data (individual)

Confirm

Input address and name:

/AA7075/builds/example\_id

insitu\_data

Submit

Example - upload data tab (initial machine file tab is self explanatory)

# General considerations

- + Use "Browse database" section to get addresses if you need to type something in a box. This will help you not make typos. Click through dropdown menus as they appear and use green copy button to get addresses.

Browse database

Upload initial machine file

Upload data

Add attributes

Edit database

Search specific attributes

Graph interface

Analyze data

Admin

- + Buttons you click don't have built-in feedback, only messages which pop up when clicked. Please don't spam click the buttons, click them once and wait for a message or response from the program. Especially in the case of the graphing interface you will have to be patient (until I optimize the logic to make it faster).
- + The database is protected behind Microsoft Azure's authentication system - without an @astroa.org email, nobody can access the contents of the database without a guest link (slide 17).

The background is a light gray color. In the top-left corner, there is a white circle partially cut off by the edge, with several dashed purple lines flowing downwards and to the right from it. In the bottom-right corner, there is another white circle partially cut off, with several dashed purple lines flowing upwards and to the left from it. A solid dark red line also flows from the bottom-right towards the center.

# Function guides

# Ex-situ data upload

## Upload data

Note: machine file for each build should be uploaded under the tab 'Upload initial machine file', not here. This is an all-purpose data processor.

### Ex-situ or build data?

- ☐ Build data
- ☒ Ex-situ data (csv, bulk)
- ☐ Ex-situ data (individual)

Confirm

### Upload ex-situ CSV

Note: Attributes and location for this data will be automatically processed. Make sure file formatting is standardized.

Upload data from computer:

Select Files

Upload

Bulk csv data upload – hardcoded for ex-situ testing table CSV doc formatting pictured Below. Creates a dataset for each row of each table

Header																			
Build ID	Name_1																		
Build Alloy	7050																		
Build Temp	T651																		
Test Temp	T62																		
Tension Test Data																			
X coordina	Y coordina	Z coordina	Test directi	test numbe	UTS (KSI)	TYS (KSI)	Elongation	UTS (Mpa)	TYS (Mpa)										
2	1	2	BD	1	73.624	64.864	7	508	447										
3	1	3	BD	2	69.657	64.4	5	480	444										
4	1	4	BD	3	59.718	59.656	2	412	411										
5	1	5	CT	4	74.092	66.025	6	511	455										
1	2	1	CT	5	56.432	54.605	1	389	376										
2	2	2	CT	6	64.195	63.969	1	443	441										
1	0	1	LT	7	73.498	63.024	7	507	435										
0	2	0	LT	8	79.206	66.188	14	546	456										
1	0	0	L	9	75.161	66.084	5	518	456										
0	0	3	ST	10	73.216	66.82	5	505	461										
0	4	0	ST	11	65.417	64.382	1	451	444										
5	0	0	TD	12	60.56	59.266	1	418	409										
Fracture Toughness Results																			
X coordina	Y coordina	Z coordina	Test directi	Test numbe	Fracture toughness														
2	1	2	L-T	1	78														
3	1	3	T-L	1	100														
4	1	4	S-L	1	35														
Smooth Fatigue Results																			
X coordina	Y coordina	Z coordina	Test directi	Test numbe	Cycles to failure														
0	4	0	CT	1	87000														
5	0	0	CT	2	125000														
2	1	2	CT	3	200000														

No formatting on my screenshot but some formatting within this structure is fine. Structure of tables, etc is what matters



# Ex-situ data upload – other data

Note: machine file for each build should be uploaded under the

**Ex-situ or build data?**

☐ Build data

☐ Ex-situ data (csv, bulk)

☒ Ex-situ data (individual)

**Confirm**

Does exsitu data have coordinates?

☐ Yes

☒ No

**Confirm**

**Enter information for data**

Choose alloy

Select alloy ▼

Name for data

unique\_name

**Type of data?**

Type of data ▼

**Generate address**

This section is usable and what I recommend for any individual ex-situ upload

Note: machine file for each build should be uploaded under the tab 'Up

**Ex-situ or build data?**

☐ Build data

☐ Ex-situ data (csv, bulk)

☒ Ex-situ data (individual)

**Confirm**

Does exsitu data have coordinates?

☒ Yes

☐ No

**Confirm**

**Alloy:**

Select alloy ▼

**Select coordinates corresponding to where sample was taken from:**

X coordinate ▼

Y coordinate ▼

Z coordinate ▼

**Type of data?**

Type of data ▼

Name for data

unique\_name

**Generate address**

The “coordinates” section was me going in a slightly misguided direction, but I’m leaving it for now. You probably shouldn’t use it honestly



# Adding attributes

[Browse database](#)[Upload initial machine file](#)[Upload data](#)[Add attributes](#)[Edit database](#)[Search specific attributes](#)[Graph interface](#)[Analyze data](#)[Admin](#)

## Add any attribute anywhere

Enter address to add attribute to:

Add new attribute:

Use the dropdown categories to select which attribute you want to add/edit so that you don't make typos. If the attribute you want to add isn't in the categories, just select "Manually add" from the first dropdown

# Attribute search (1)

[Browse database](#)[Upload initial machine file](#)[Upload data](#)[Add attributes](#)[Edit database](#)[Search specific attributes](#)[Graph interface](#)[Analyze data](#)[Admin](#)

## Search for items with specific attribute values

Choose attribute category:

- ☒ Auto-assigned (machine)  
☐ Exsitu attributes  
☐ Other attribute  
☐ View all attributes

Choose an attribute to search for:

Select

- ☐ Show all results  
☐ Only show groups

Lower bound?

0.00

Upper bound?

0.00

Exact value?

0.00

Non-numeric attribute value?

att

Search

“Choose attribute category” lets you scroll through dropdown menus of attributes that theoretically exist. You can search for others if you don’t want to scroll/can’t find one. Lower/Upper/Exact value are for numerical attributes.

# Attribute search (2)

Search

Found 1 results for FeedTrq\_min with the given filter conditions:

• Path: /AA7075/builds/line\_0.5\_2 | # attributes: 49

Select results to analyze:

☐/AA7075/builds/line\_0.5\_2

Show details

Save all for analysis

Set as benchmark for comparison

See which datasets match your filter results.

“Set as benchmark” lets you do conformance comparisons with whole builds. Can only send one result here

“Save all for analysis” lets you store as many builds as you want to compare to the benchmark you set

These comparisons are done in “Analyze data” tab

Select results to analyze:

☒/AA7075/builds/line\_0.5\_2

Show details

Save all for analysis

Set as benchmark for comparison

Metrics for line\_0.5\_2:

Metric	Min	Max	Avg
Actuator Force (lbs)	7	66	44
Feed Velocity (in/min)	0	13	9
Thermocouple 1 (deg C)	0	0	0
Thermocouple 2 (deg C)	23	26	24
Thermocouple 3 (deg C)	0	0	0
Thermocouple 4 (deg C)	29	160	137
PathVel	0	14	9
Spindle Power (W)	1627	6461	3898
SpinSP	0	385	352
Spindle Torque (ft-lb)	33	269	198
Spindle Speed (RPM)	74	350	137
Tool Temperature (deg C)	14	391	355
XTrq	-15	15	1
YTrq	-4	2	-1
ZTrq	-13	2	-9

Other Attributes:

• alloy: AA7075

• build\_id: line\_0.5\_2

• csv\_path: in\_situ\_line\_0.5\_7075\_2\_md.csv

• failed: false

View datasets within line\_0.5\_2

Output of “show details.” If you select a dataset from the dropdown you’ll see a line graph and table.

# Analyze data

[Browse database](#)[Upload initial machine file](#)[Upload data](#)[Add attributes](#)[Edit database](#)[Search specific attributes](#)[Graph interface](#)[Analyze data](#)[Admin](#)[Load storage](#)[Clear storage](#)

Benchmark data:

/AA7075/builds/ast\_nde\_rqi\_1

Comparison data:

- /AA7075/builds/racetrack\_0.5\_1

Stored plots:

No data

[Generate comparison summary](#)[Load graphs](#)

“load graphs” just loads stored graphs and displays. Labeling is broken so sometimes it might be difficult to tell the difference between graphs but I’ll fix it soon. Used if you want to look at graphs from different builds

Output of “generate comparison summary” - shows % difference and overall difference at the bottom. Also shows non-numerical atts as either “different” or “same”

alloy	Same
csv_path	Different
failed	Same
id	Different
Normalized difference: 92.3	

[ast\_nde\_rqi\_1] vs [racetrack\_0.5\_1]

Metric	% Difference
FeedTrq_avg	-40.4
FeedTrq_max	-7.1
FeedTrq_min	-36.3
FeedVel_avg	-69.8
FeedVel_max	-61.5
FeedVel_min	0
Ktype1_avg	0
Ktype1_max	0
Ktype1_min	0
Ktype2_avg	-48.8
Ktype2_max	-66
Ktype2_min	18.6
Ktype3_avg	100

# Edit database

[Browse database](#)[Upload initial machine file](#)[Upload data](#)[Add attributes](#)[Edit database](#)[Search specific attributes](#)[Graph interface](#)[Analyze data](#)[Admin](#)

## Edit database

[Create a folder](#) [Delete/move files](#)

### Initialize a folder

[IMPORTANT] Input desired location for group separated by / (i.e. /AAXXXX/builds/data1/something/etc)

File: /example/like/this

Input name of your folder:

A\_unique\_name

[Submit](#)

“create a folder” ui. Can create a folder to move something into. Probably won’t be used frequently because data upload auto-generates folders.

## Edit database

[Create a folder](#) [Delete/move files](#)

Address:

/

[Move](#) [Delete](#)

Can input address to edit a dataset or folder. Be careful with spelling – use browse database to get addresses

# Graph interface (1)

[Browse database](#)[Upload initial machine file](#)[Upload data](#)[Add attributes](#)[Edit database](#)[Search specific attributes](#)[Graph interface](#)[Analyze data](#)[Admin](#)

Do you want stacked or individual graphs?

☐ Stacked

☒ Individual

Confirm

Do you want stacked or individual graphs?

☐ Stacked

☒ Individual

Confirm

Input path to plottable data:

/AA7075/builds/ast\_nde\_rqi\_1/machine\_data

/AA7075/builds/ast\_nde\_rqi\_1/machine\_data validated.

Submit

Plot all valid columns from the file at this address?

☐ Plot all

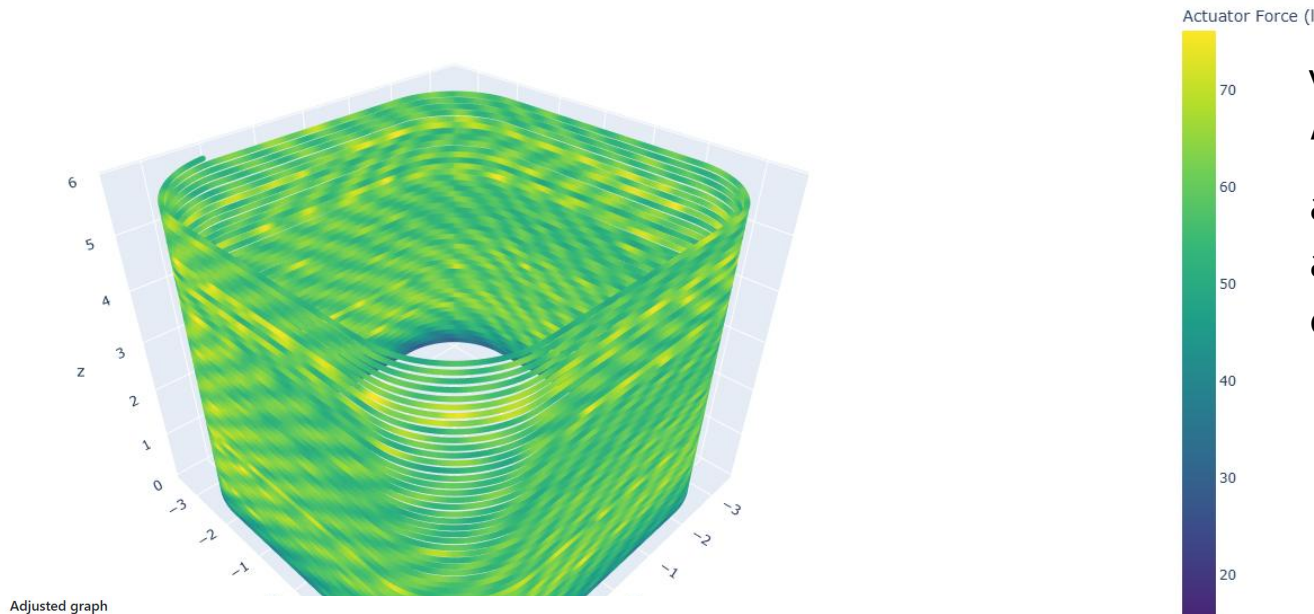
☒ Plot single dataset

Confirm

“Stacked” means you’ll be generating multiple 2D (metric vs. time) line plots on the same figure. Individual generates one graph per figure (but you have the option to generate many from the same dataset).

Here you choose single dataset or everything. “Plot all” generates all plots at once and gives you the option to select from checkboxes which ones to view at once (this is SLOW – don’t spam the button, just give the website a second!). “Plot single dataset” just does one at a time – for 3D plots (positional) this gives you more functionality because you can adjust the color scale.

# Graph interface (2)



Visualization of the 3D plot adjustor in "plot single dataset." If more detail is in a certain section of the gradient, you can adjust it and see more precise values at certain locations.

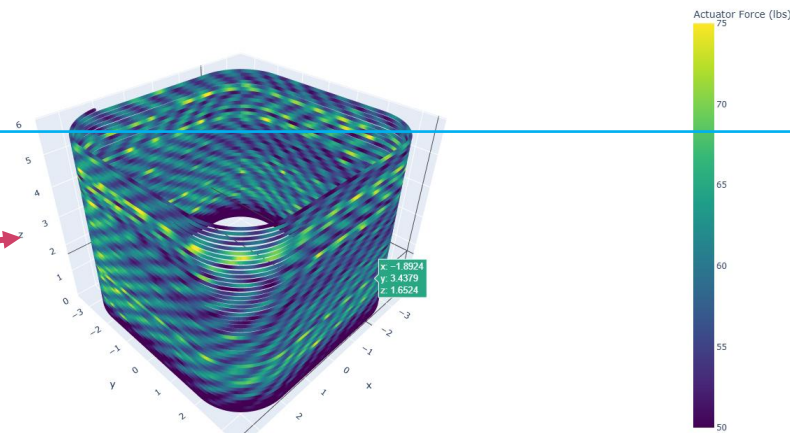
Store for analysis

Adjust color axis definitions?

Color scale min: 50

Color scale max: 75

Confirm



This "store for analysis" button lets you cache any graph you want and load it later in "Analyze data." For example, if you want to see a 3D plot of FeedTrq from 5 different builds, you can go through the graph interface and store each one, then load them all at once in the analysis tab.



# Graph interface (3)

Do you want stacked or individual graphs?

☒ Stacked  
☐ Individual

Confirm

Stacked graph generator

Addresses?

/AA7075/builds/racetrack\_0.5\_1/machine\_data/SpinTrq

Confirm

Clear selections

/AA7075/builds/racetrack\_0.5\_1/machine\_data/SpinTrq validated.

Stored addresses:

['SpinTrq']

Show graph

Stacked graph generating menu. Pretty self explanatory - you can just change one thing about the address you entered (i.e. build ID) and store datasets which will be loaded onto the same plot. "Clear selections" resets stored addresses.

Addresses?

/AA7075/builds/ast\_nde\_rqi\_1/machine\_data/SpinTrq

Confirm

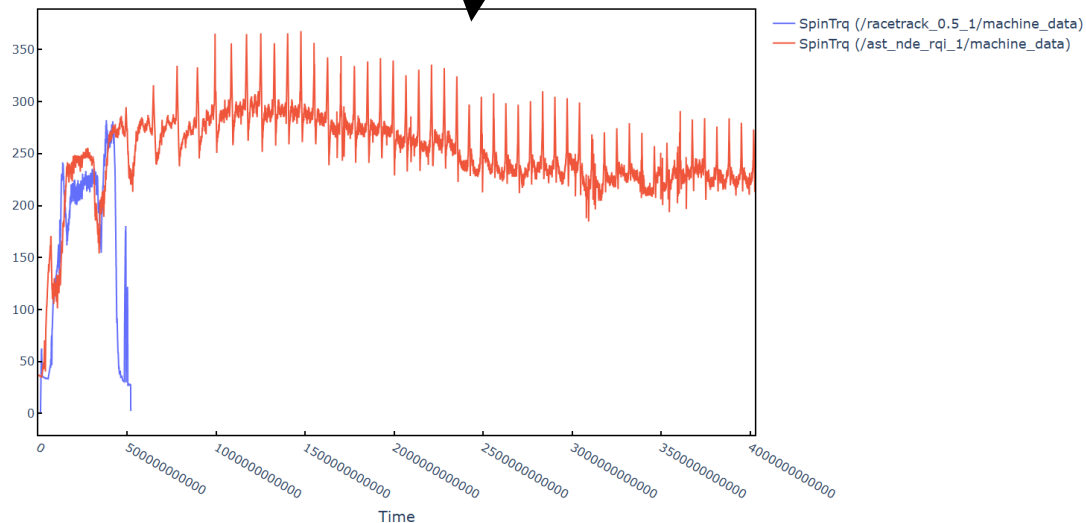
Clear selections

/AA7075/builds/ast\_nde\_rqi\_1/machine\_data/SpinTrq validated.

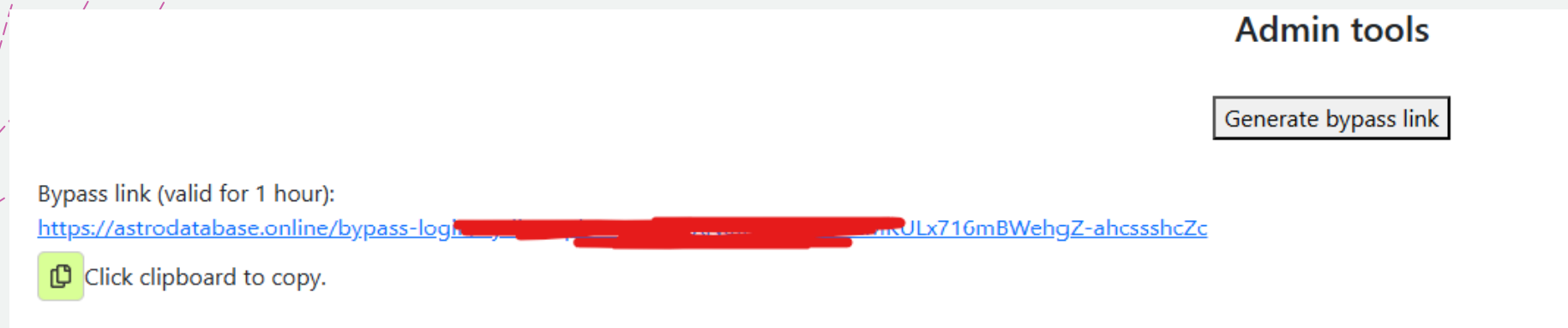
Stored addresses:

['SpinTrq', 'SpinTrq']


Show graph



# Admin function – guest link



Only non-guest users can use this tab. The link itself is clickable for one hour, but the guest's session is not limited, so be careful with who you give access to because as long as they don't refresh the tab they have access to the database. Each time the tab containing `astrodatabase.online` is refreshed a new login token is requested, though, and if an official `@astroa.org` one isn't cached a guest user either has to click on the link again or get a new one.

The background is a light gray color. It features decorative elements: a white circle in the top-left corner, a white semi-circle in the bottom-right corner, and several wavy lines. Some of these lines are solid red, while others are dashed red. The lines flow from the left side towards the right, creating a sense of movement.

This should have covered everything – let me know if you have any questions, suggestions, or if you broke something!