

Using the Engineering Data Portal

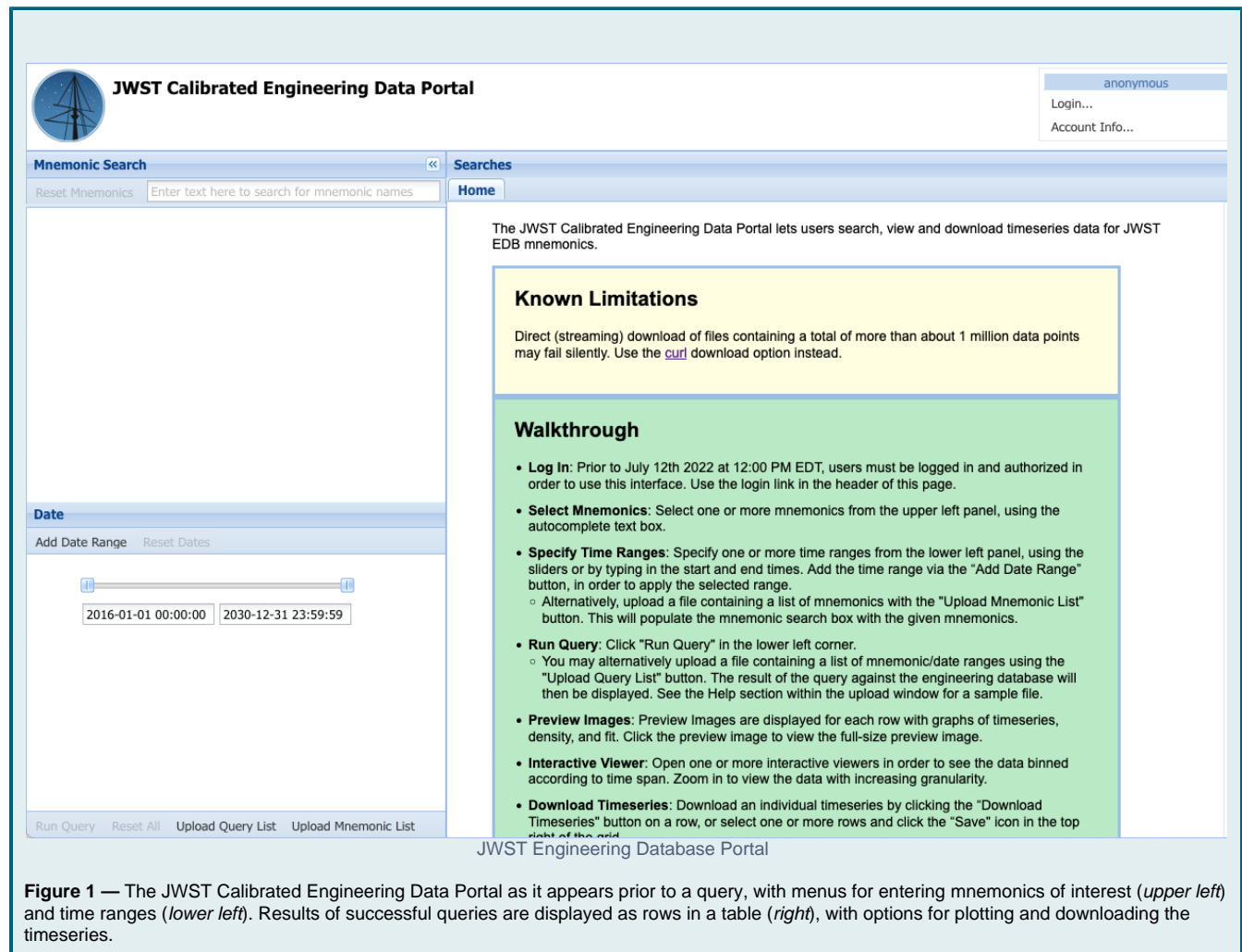
Data from thousands of monitors on JWST are collected and stored in an Engineering Database as timeseries, and are identified by mnemonics as described in the article on [Engineering Data](#). This article describes how to access those data through the Calibrated Engineering Data Portal.

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Calibrated Engineering Portal


The JWST Calibrated Engineering Portal, which is a web application for searching, visualizing, and retrieving engineering data, is illustrated in Fig. 1.



Navigating to the Engineering Portal

There are two ways to access the Calibrated Engineering Portal user interface:

- Navigate directly to the [Calibrated Engineering Portal](#)
- Execute a search for JWST data from the [MAST Discovery Portal](#):

- After a [successful search](#) with the Portal, click the EDB icon  in the **Actions** menu (see Fig. 2) to bring up the EDB Portal; this will enable you to search for engineering data for that observation. The EDB Portal will be pre-populated with the Date Range corresponding to the exposure duration of the science data.













		Actions	Observation T...	Mission
<input type="checkbox"/>	1	   ...	science	JWST
<input type="checkbox"/>	2	   ...	science	JWST
<input type="checkbox"/>	3	   ...	science	JWST
<input type="checkbox"/>	4	   ...	science	JWST

Figure 2 — The orange EDB link, seen here in the search results **Actions** menu of the [MAST Discovery Portal](#), will take users to the Calibrated Engineering Data Portal with the start/stop search range pre-populated from the associated Observation.

Search for Engineering Mnemonics

Engineering data are stored in the database as timeseries, and are identified by *mnemonics*; see the article on [Engineering Data](#) for details. There are a few means to execute a search; the options are described below.




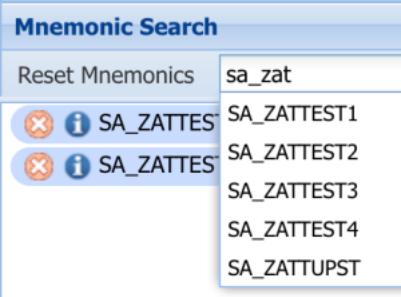
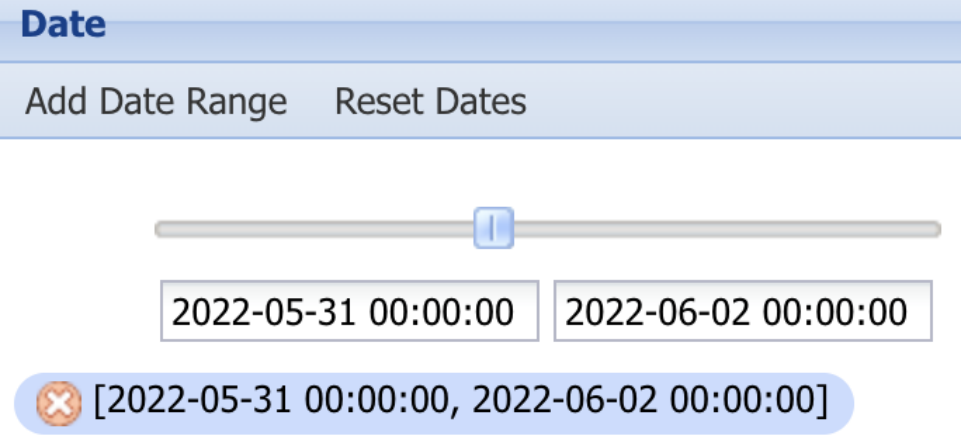
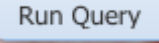
It is possible to download a time-series for multiple mnemonics programmatically using an API. See the tutorial [JWST Engineering Data Retrieval](#).

Construct and Execute a Query

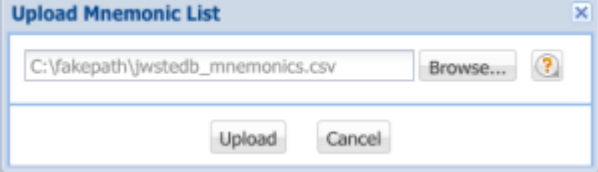
	Instruction	Notes
1	Navigate your browser to the JWST Calibrated Engineering Data Portal . You can also use a link from the search Portal for an individual observation.	 JWST Calibrated Engineering Data Portal

Method A: Dialog Boxes

	Instruction	Notes
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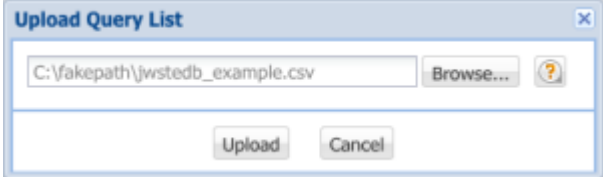
2a	<p>Enter an engineering mnemonic name into the Mnemonic Search dialog box on the upper-left. The mnemonic names will auto-complete as you type. Here are some example mnemonics:</p> <ul style="list-style-type: none"> SA_ZATTEST1 through 4: These are the parameters for the quaternion SA_ZRFGS2J11 through 33: These define the J-Frame SA_ZHGAUPST: this provides the status of the High-Gain Antenna (e.g., MOVING, FINISHED) <div style="border: 1px solid green; padding: 5px; margin-top: 10px;">  You may search for multiple mnemonics, and multiple date ranges, in a single query. </div>	 <p>Mnemonic search dialog box</p>
3a	<p>Using the sliders or the dialog boxes, select a date range that is applicable to the mnemonic. Then click the Add Date Range button. You may search over multiple time ranges at once.</p> <p>Note: The initial range of available values in the Start Time filter will be pre-populated if you navigated to the EDB interface by clicking the EDB icon in the Portal results grid of a prior search.</p>	 <p>Date range slider</p>
4	<p>Click the Run Query link at the bottom-left of the Portal window.</p>	 <p>Run query button</p>

Method B: Upload a Mnemonic List

	Instruction	Notes
2b	<p>Click Upload Mnemonic List button at the bottom of the search window. Then click the Browse button to enter the name of a .csv file containing a comma-separated list of mnemonic names.</p> <p>Note: the names must be in upper-case.</p>	 <p>Upload mnemonic list portal</p>
3b	<p>Follow instruction 3a to add a date range.</p>	

4	Click the Run Query link at the bottom-left of the Portal.	 Run query button
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Method C: Upload a Query List

	Instruction	Notes
2c	<p>Click Upload Query List button at the bottom of the search window. Then click the Browse button to enter the name of a .csv file containing row tuples. Each tuple must include a mnemonic name, and an initial and final date-time.</p> <p>Note: the format of the date-times must be compatible with Microsoft Excel date formats. This format includes two ISO-8601 variants:</p> <p>2022-06-11 17:28:19</p> <p>2022-06-11T17:28:19</p> <p>The search will commence once the query list is uploaded successfully.</p>	 Upload query list portal

Visualize Engineering Data

The results of a successful query will look something like this;

4 Total Rows

Filters

Clear Filters

Edit Filters...

Help...

Keyword/Text Filter

Filter All Columns

Mnemonic

Name

Quantity

SA_ZATTEST4

(1 of 1)

SA_ZATTEST3

(1 of 1)

SA_ZATTEST2

(1 of 1)

SA_ZATTEST1

(1 of 1)

List View

<div><div></div></div>		Actions	Mnemonic	Start Time	End Time	unit	Data Points
<div><div></div></div>	1	<div><div></div><div></div></div>	SA_ZATTEST1	2022-05-30 23:59:59	2022-06-02 00:00:00	None	804503
<div><div></div></div>	2	<div><div></div><div></div></div>	SA_ZATTEST2	2022-05-30 23:59:59	2022-06-02 00:00:00	None	804503
<div><div></div></div>	3	<div><div></div><div></div></div>	SA_ZATTEST3	2022-05-30 23:59:59	2022-06-02 00:00:00	None	804503
<div><div></div></div>	4	<div><div></div><div></div></div>	SA_ZATTEST4	2022-05-30 23:59:59	2022-06-02 00:00:00	None	804503

Successful EDB query

Note: The results grid by default also shows the **mnemonic search** panels to the left of the list view, which was collapsed in the above graphic.




Plot Range

The extracted engineering data cover a time range that is slightly larger than the Date Range interval specified in the search. This is to ensure that the data timeseries is not truncated by rounding in the date-time extraction.

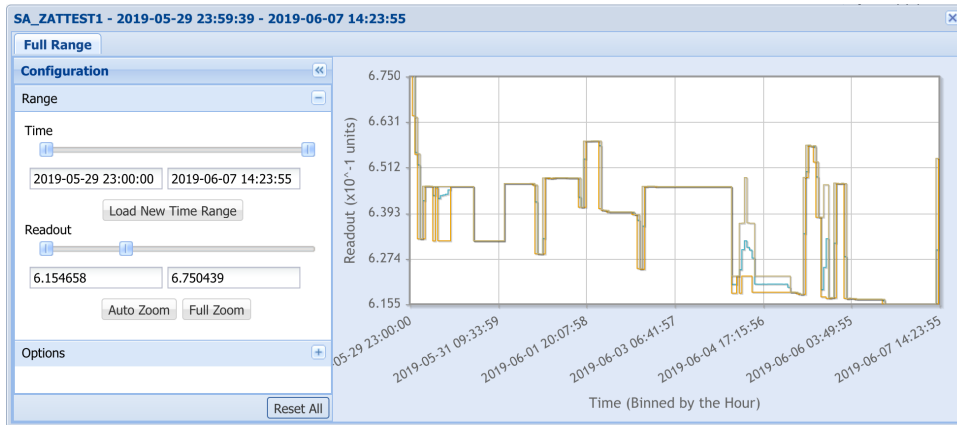


Time Sampling

The time sampling may be different for different mnemonics: some are sampled regularly and continuously, others are sampled when there is a change. This will require some care when comparing or correlating data from different mnemonics during analysis.


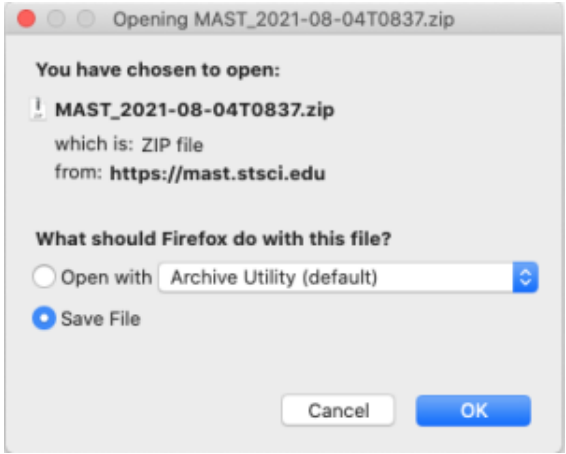

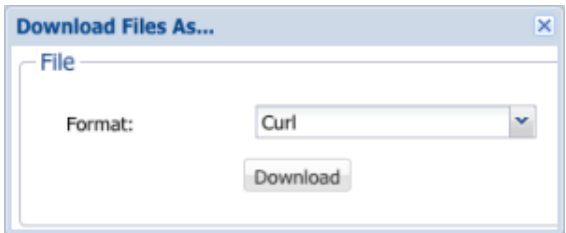
	Instruction	Notes
5	<p>Click the box for a mnemonic in the results grid, then click the plot icon to view an interactive plot.</p> <p>Note: Not all mnemonics data can be plotted, such as binary changes in state. The plot icon will not appear in these cases.</p>	 EDB plot icon

The plot will look something like this:



Retrieve Engineering Data

Engineering data will be delivered to the user as a set of one or more CSV files, one per mnemonic, containing time stamps (in MJD) and telemetry values.

	Instruction	Notes
6a	Click the file icon above the rows to retrieve the time-ordered data for all matched mnemonics, in csv format. Use the pop-up window to save the file to disk.	 <p>File icon</p>
7a	Click the Save File button in the pop-up window. The location where the file will appear on your system depends upon your browser settings.	 <p>Save file pop-up window</p>
6b	Click the checkbox at the beginning of one or more rows. Then click the file icon at the top right of the <i>List View</i> .	 <p>File icon</p>
7b	Select an option in the Format pull-down menu, then click the Download button. The options are: <ul style="list-style-type: none"> zip, tar, or tar.gz for streaming retrieval through your browser Curl to download a script to retrieve the files at a later time 	 <p>Download file window</p>



Very Large Files

Direct (streaming) download of very large files may fail silently. Select the Curl script download option to retrieve the file(s) in these cases.

For Further Reading...

- See the *JWST Engineering Data Retrieval* tutorial in [Using MAST APIs](#)
- [Engineering Data](#)