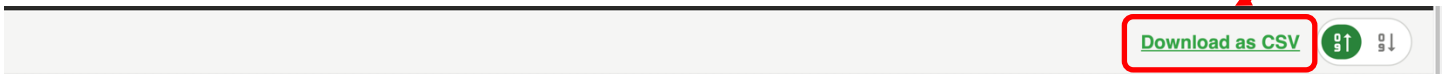


User Guide for Sample Reduction at GP-SANS

1. Download Run Numbers from OnCat

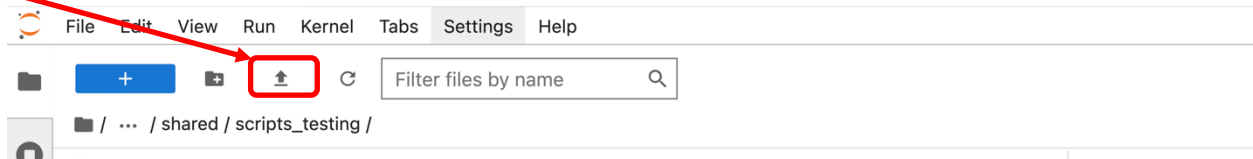
On OnCat webpage (oncat.ornl.gov), download .csv table from all the runs of the experiment

Login → Browse → at HFIR select CG-2 GP SANS → go into your IPTS number → Runs → **Download as CSV** (upper right corner)



2. Upload OnCat file to Jupyter Notebook

Import to: Jupyter.sns.gov into your IPTS shared folder



3. User Input in Script

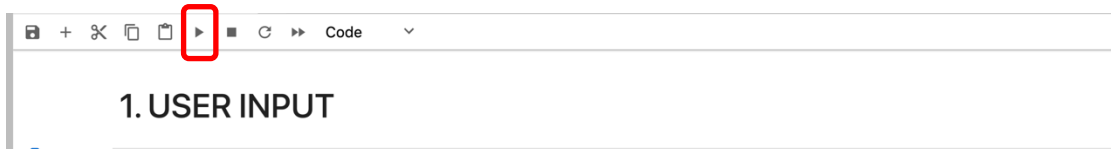
1. USER INPUT

```
#####Rearrange the catalog table#####  
  
import os  
import pandas as pd  
import numpy as np  
import ipywidgets as widgets  
from ipywidgets import Layout  
from IPython.display import display, clear_output  
from IPython.core.getipython import get_ipython  
import nbformat  
  
ipts_number      = 33700  
notebook_name    = 'gpsans_reduction_3_config-adjusting-Q-KJB-direct_beam.ipynb'  
oncat_file       = 'HFIR-CG2-IPTS-33700-runs-cycle-508.csv'  
thickness        = '0.1'  
Empty_Cell       = 'MT helma'  
Open_Beam        = 'Air'  
  
# IPTS Number of user experiment  
# Jupyter notebook name  
# OnCat file name  
# Sample thickness  
# Name of Empty Cell  
# Name of Direct Beam
```

Change/Adjust the following entries:

- IPTS-Number
- Name of Jupyter Script
- Name of OnCat File
- Adjust Sample Thickness
- Adjust Name of: Empty Cell and Direct Beam

4. Run First Cell



5. Enter Information for Reducing one Sample (only once)

Leading to Q-range adjustment

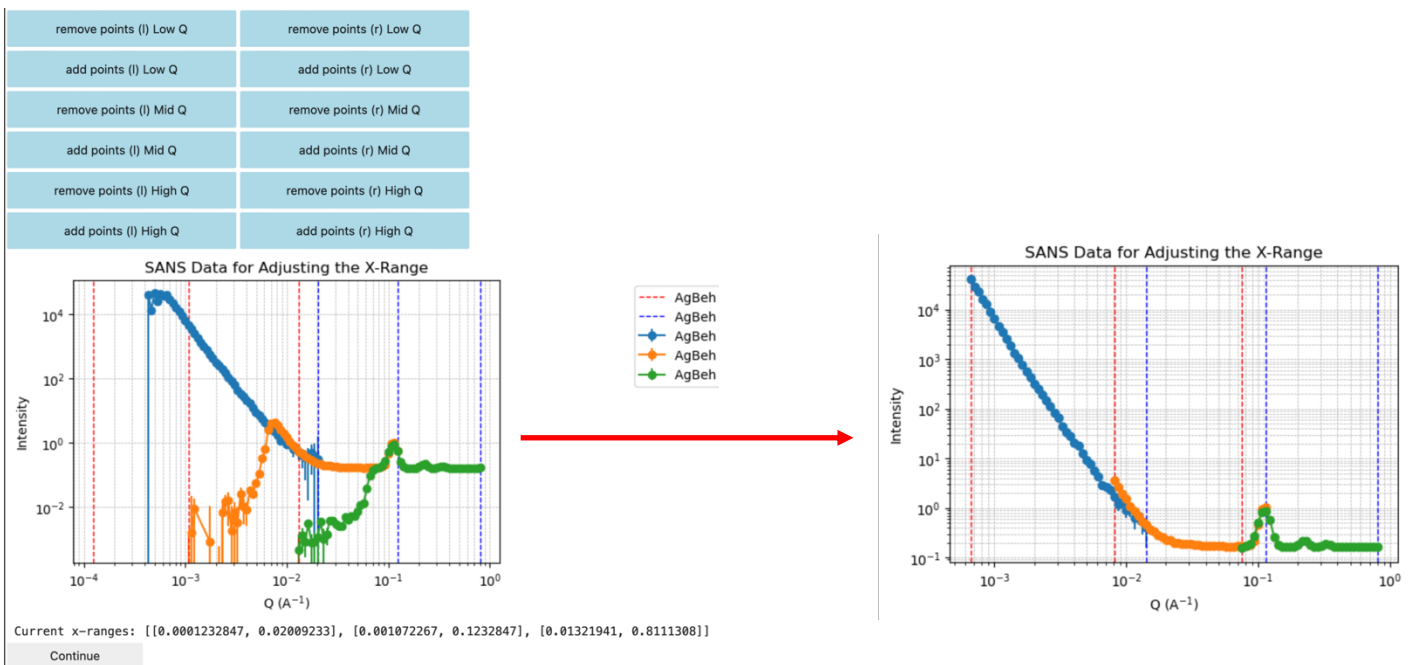
Folder:

	Title	Scatt@19.0m	Scatt@7.5m	Scatt@1.0m	Trans@7.5m
0	AgBeh new	106922	106901	106915	106908
2	D20	106921	106900	106914	106907
3	Glassy Carbon	106925	106904	106918	106911
4	H2O	106919	106898	106912	106905

Samples:

- Folder: Folder where reduced data will be stored -> SUBMIT
- Copy and Paste any sample you would like to adjust the Q-range on into the “Samples” field, hit SUBMIT, hit Q-range (This needs to be done only ONCE)

6. Adjusting Q-range



- Adjust the Q-range using the buttons to remove/add data points on left/right side for each Q-range
- Once satisfied, click CONTINUE (reduction of that sample proceeds)
- Determined Q-values will be saved in .csv file and will be reused for the final sample data reduction

7. Reducing Sample(s)

Folder:

	Title	Scatt@19.0m	Scatt@7.5m	Scatt@1.0m	Trans@7.5m
0	AgBeh new	106922	106901	106915	106908
2	D20	106921	106900	106914	106907
3	Glassy Carbon	106925	106904	106918	106911
4	H2O	106919	106898	106912	106905

Samples:

- Specify folder for the data to be stored -> SUBMIT
- Select the sample by typing in the sample name or choose Select All. Click the button (submit for one sample, Select All for all samples)
- Click REDUCE

Data reduction is running

How it works:

- OnCat run number table is sorted based on detector distance **descending for scattering and transmission**. (i.e., 19m, 7m, 1m) (Columns taken for transmission and beam center needs to be adjusted based on user setup)
- Given user **folder** will be created in the output directory (usually “shared” folder in IPTS folder)
- One selected sample is reduced first allowing to **adjust the Q-range**. This leads to the Q-range used for all the other samples. (creating own folder in directory “direct_beam_adjust_Q”)
- Q-values will be saved in .csv file and reused for the final data reduction
- **Samples** for reduction will be selected (either selected one or all samples)
- **Samples** will be reduced taking into account the adjusted Q-range
- Transmission folder contains transmission values in .csv format
- All the progress is popping up within the Jupyter script itself.

Changes made by and notes for the Instrument Scientist:

Changes:

- Changing columns for scattering and transmission depending on user set up
- Changing sensitivity file name to the current cycle at two spots in the script
- Changing blocked beam/dark current directory on two spots in the script

Both changes need to be done in the sections:

”reducing with DIRECT BEAM” and

“Continue reducing with DIRECT BEAM”

Notes:

- Each configuration requires own script. All scripts are stored in /CG2/shared directory and working. Can be copy and paste in user IPTS number

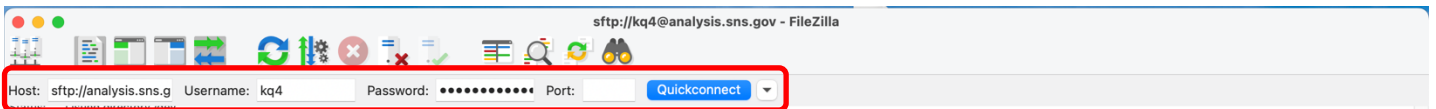
8. Exporting Data to Personal Laptop

Use any client for data transfer. This guide uses “FileZilla”, an open-source FTP (File Transport Protocol) client.

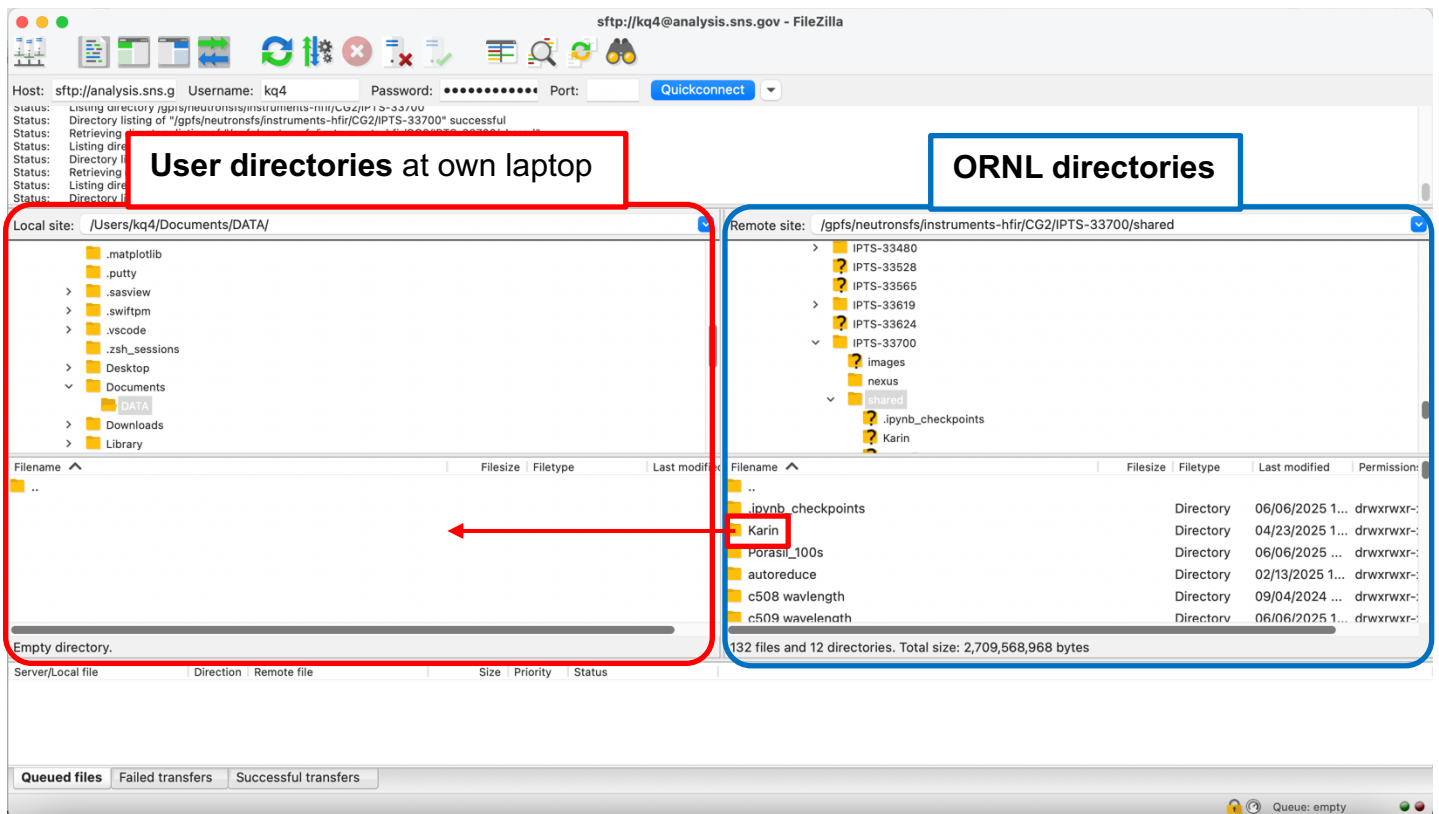
(FileZilla: <https://filezilla-project.org/download.php?type=client>)

Log in to FileZilla using:

- Host: analysis.sns.gov
- Username and password: The same as used for the user portal
- Port: 22



After successful connection to “Host”:



- In the ORNL directories, go to the “**shared**” folder in **YOUR experiment IPTS**:

/gpfs/neutronsfs/instruments-hfir/CG2/IPTS-.../shared

- Select the data to transfer and **drag and drop** them into the desired “user directory”