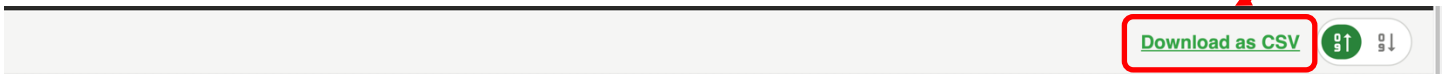


# User Guide for Sample Reduction at GP-SANS (Standard)

## 1. Download Run Numbers from OnCat

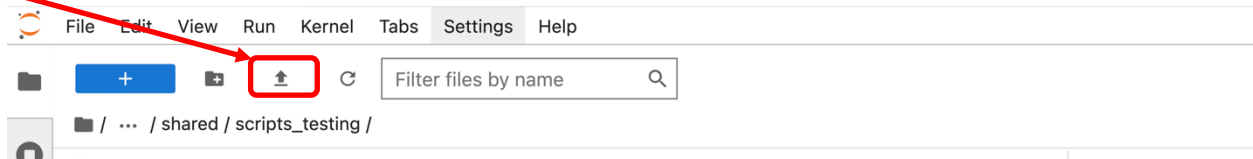
On OnCat webpage ([oncat.ornl.gov](http://oncat.ornl.gov)), download .csv table from all the runs of the experiment

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](http://Jupyter.sns.gov) into your IPTS shared folder



### 3. User Input in Script



```
1. USER INPUT

•[1]: #####Rearrange the catalog table#####

import os
import pandas as pd
import numpy as np
import ipywidgets as widgets
from IPython.display import display, clear_output

ipts_number = 33619 # User IPTS-Number
notebook_name = 'gpsans_reduction_3_config.ipynb' # Jupyter Script Name
oncat_file = 'HFIR-CG2-IPTS-33007-runs.csv' # OnCat File Name
thickness = '0.2' # Sample Thickness
Empty_Cell = 'empty cell' # Name of Empty Cell
Direct_Beam = 'air' # Name of Direct Beam
PorasilB = 'porosil' # Name of PorasilB

#####
```

Change/Adjust the following entries:

- IPTS-Number
- Name of Jupyter Script
- Name of OnCat File
- Adjust Sample Thickness
- Adjust Name of: Empty Cell, Direct Beam, and PorasilB (if applicable)

### 4. Run First Cell



## 5. Enter Information for Reducing PorasilB (only once)

Leading to Q-range adjustment and scaling factor

Folder: 

Submit

Title Scatt@19.0m Scatt@7.5m Scatt@1.0m Trans@7.5m  
 6 Porasil B 106920 106899 106913 106906  

reducing PorasilB

Title Scatt@19.0m Scatt@7.5m Scatt@1.0m Trans@7.5m  
 0 AgBeh new 106922 106901 106915 106908  
 2 D2O 106921 106900 106914 106907  
 3 Glassy Carbon 106925 106904 106918 106911  
 4 H2O 106919 106898 106912 106905  
 Samples:   

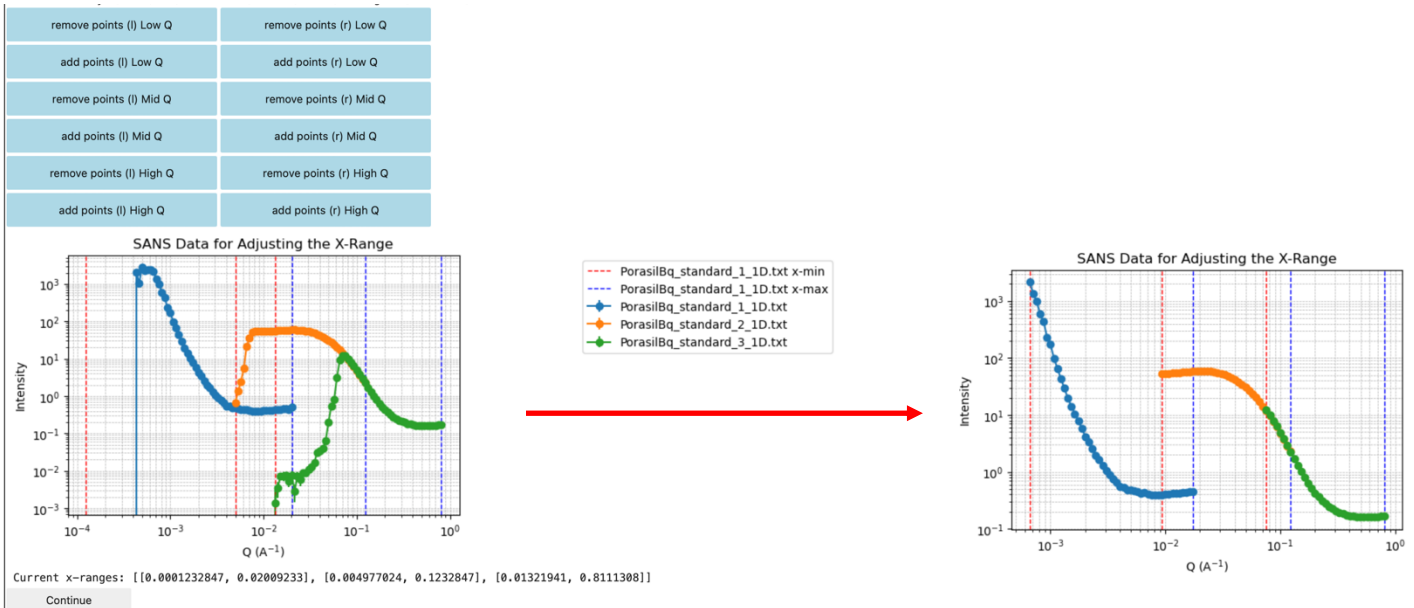
Submit

Select All

reduce

- Folder: Folder where reduced data will be stored -> SUBMIT
- REDUCE PORASILB (for the first run only)

## 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 PorasilB proceeds and scaling factor will be determined)

## 7. Reducing Sample(s)

Start from the top again, but **skip** the PorasilB part

Folder:

	Title	Scatt@19.0m	Scatt@7.5m	Scatt@1.0m	Trans@7.5m
6	Porasil B	106920	106899	106913	106906

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)
- PorasilB is reduced first allowing to **adjust the Q-range**. This leads to the Q-range used for all the other samples and the scaling factor for absolute calibration.
- **Samples** for reduction will be selected
- **Samples** will be reduced taking into account the adjusted Q-range and the determined scaling factor
- Transmission folder contains transmission values in .csv format
- All the progress is popping up within the Jupyter script itself.

**Changes made by Instrument Scientist:**

- 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 STANDARD” and

“reducing Sample with Standard Calibration”

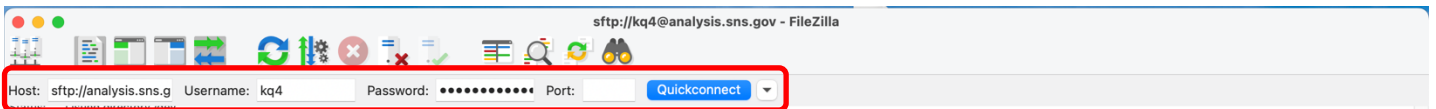
## 8. Exporting Data to Personal Laptop

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

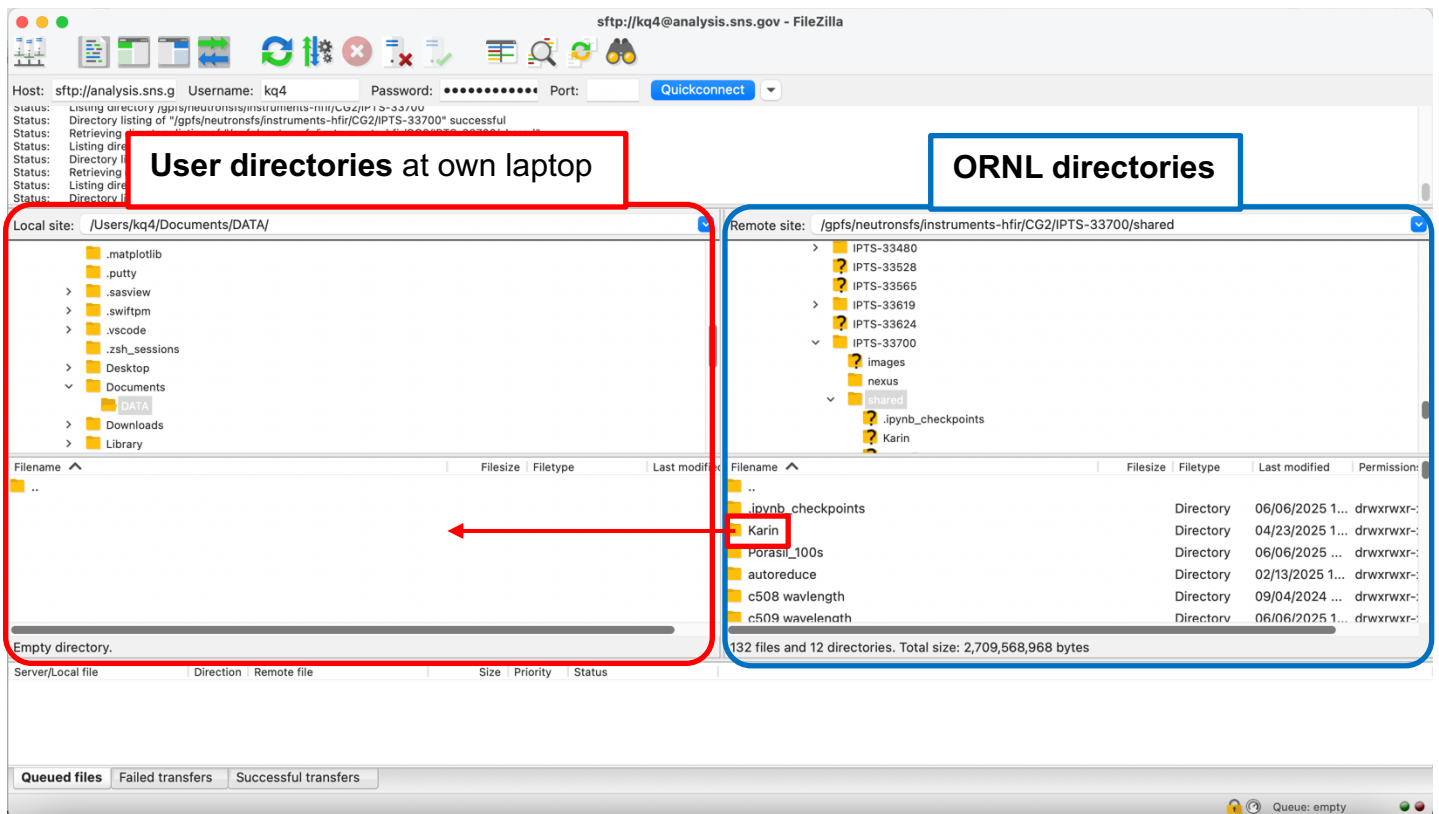
(FileZilla: <https://filezilla-project.org/download.php?type=client>)

### 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”