

Interactive plot

Interactive Silicon Test DB Monitor

Data Base

From Kai-Yu's presentation May 6, 2020

- During the parameters test, I found sometimes the few channel result is like the probe floating, but when I check the pad the probe already touch to the pad. In this situation, usually repeat measurement few times could back to normal result.
- I write another program to overwrite the single channel result, but need add comment to describe this value is upgraded and why we re-measure it.
- To put HAMAMATSU inspection and visual inspection, I prefer to create different tables to save data, because the structure is different. Therefore, the data base will have one table to save HAMAMATSU inspection and another table to save visual inspection.
- Still study how to link the database to web page and plot the curve on website.
 - For plot: Highcharts, jFree Charts, Google Charts API...

➤ Schemas :

- Tables : Sensor_ID_NCU
- Columns : key_ID

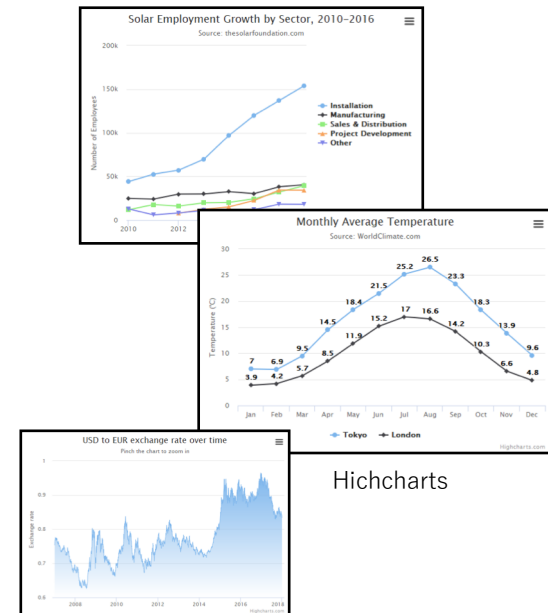
Chip
Channel
Capacitance

- Tables : Sensor_ID_HAMAMATSU
- Columns : Volt

C

- Tables : Visual_Inspection
- Columns : Sensor_ID
Comment
Photo_link

Interactive JavaScript charts on the web



Hichcharts

2020/5/6

8

Saving each image files on the web will end up with too many images. Digging out a plot of interest from thousands images doesn't sound smart. Creating plot of interest from root file may be a smarter way to go.

JSROOT

An Interactive plotting tool runs on your browser

Specify a root file location

Address of jsroot:

- <https://root.cern.ch/js/>
- <https://sphenix-intra.sdcc.bnl.gov/jsroot/index.htm>

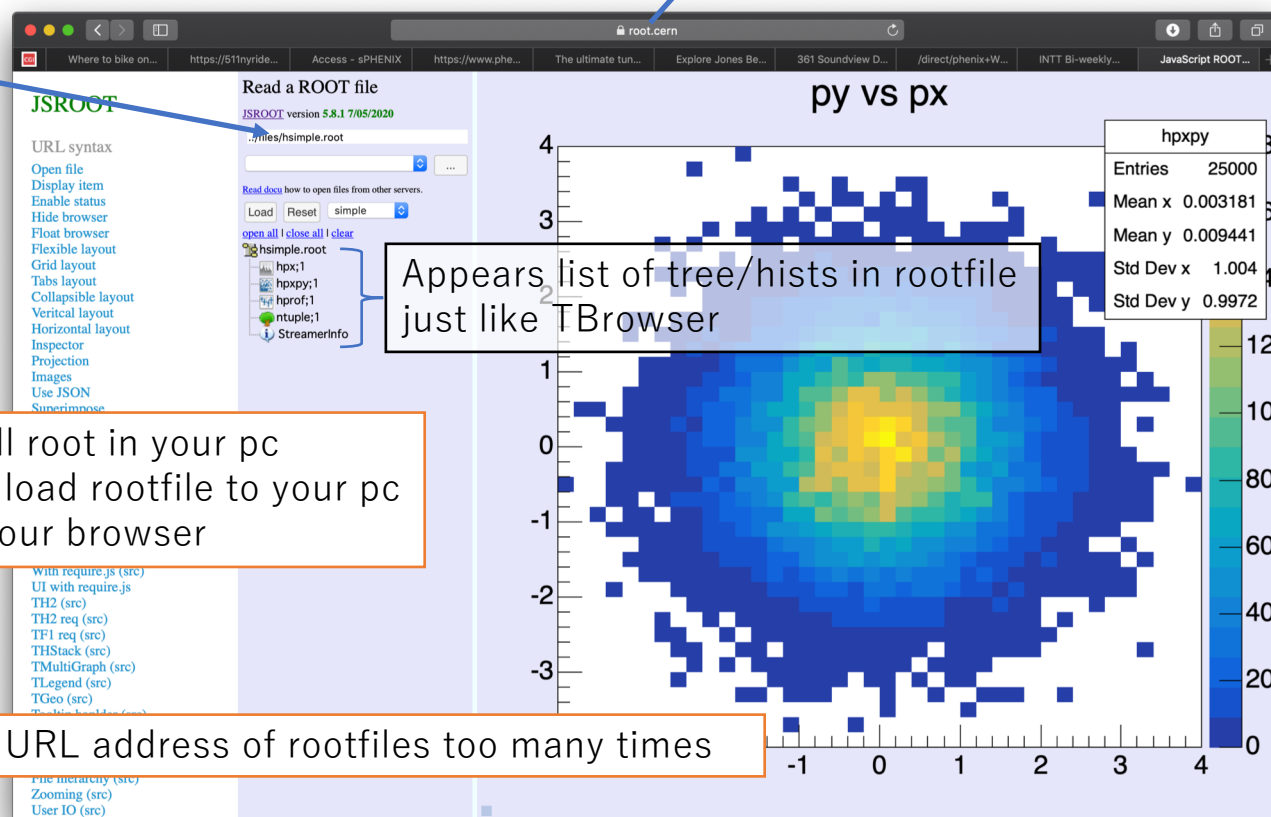
Jsroot is even supported by sphenix



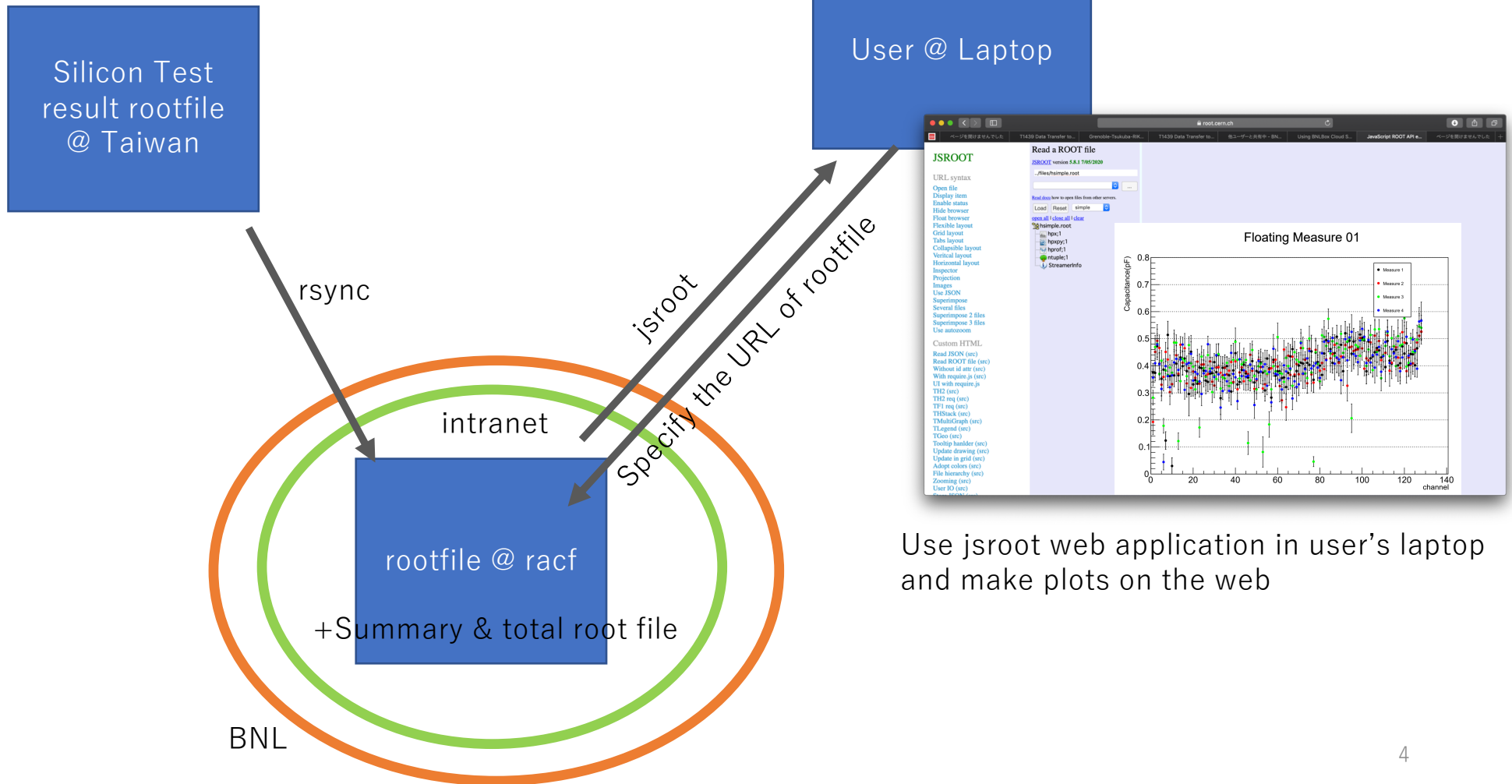
- You don't have to install root in your pc
- You don't have to download rootfile to your pc
- Everything is done on your browser



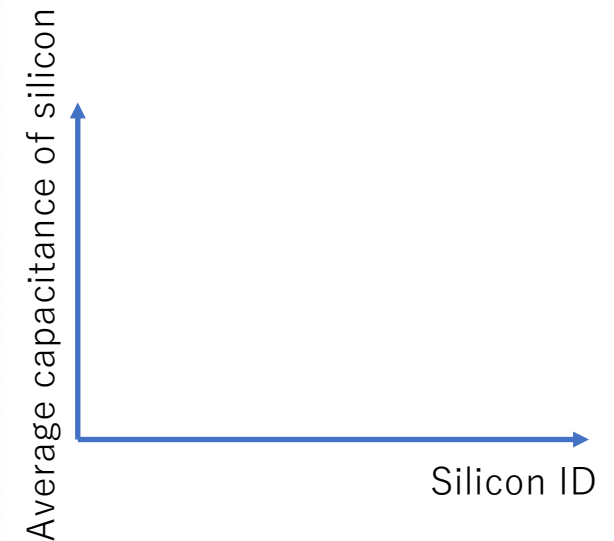
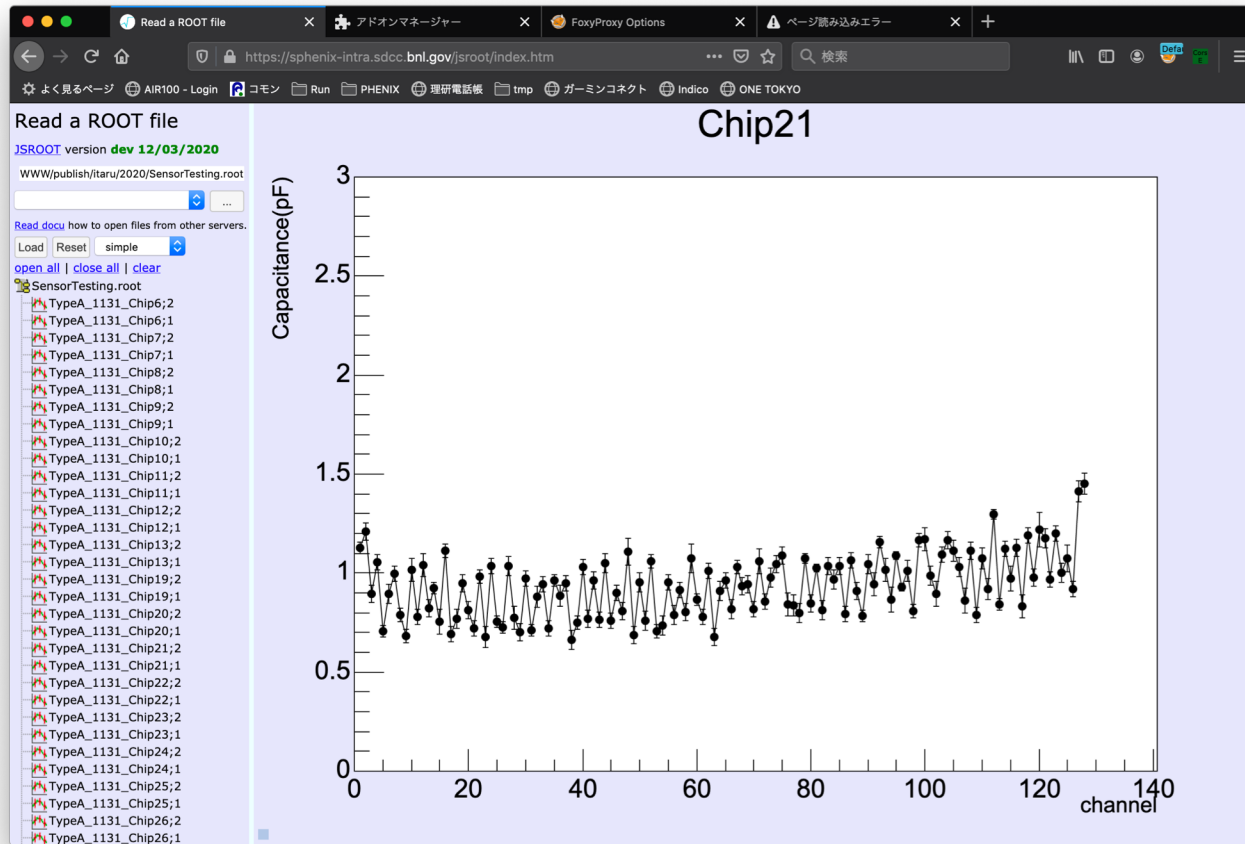
- Not efficient to specify URL address of rootfiles too many times



Silicon QA Test Data Monitoring

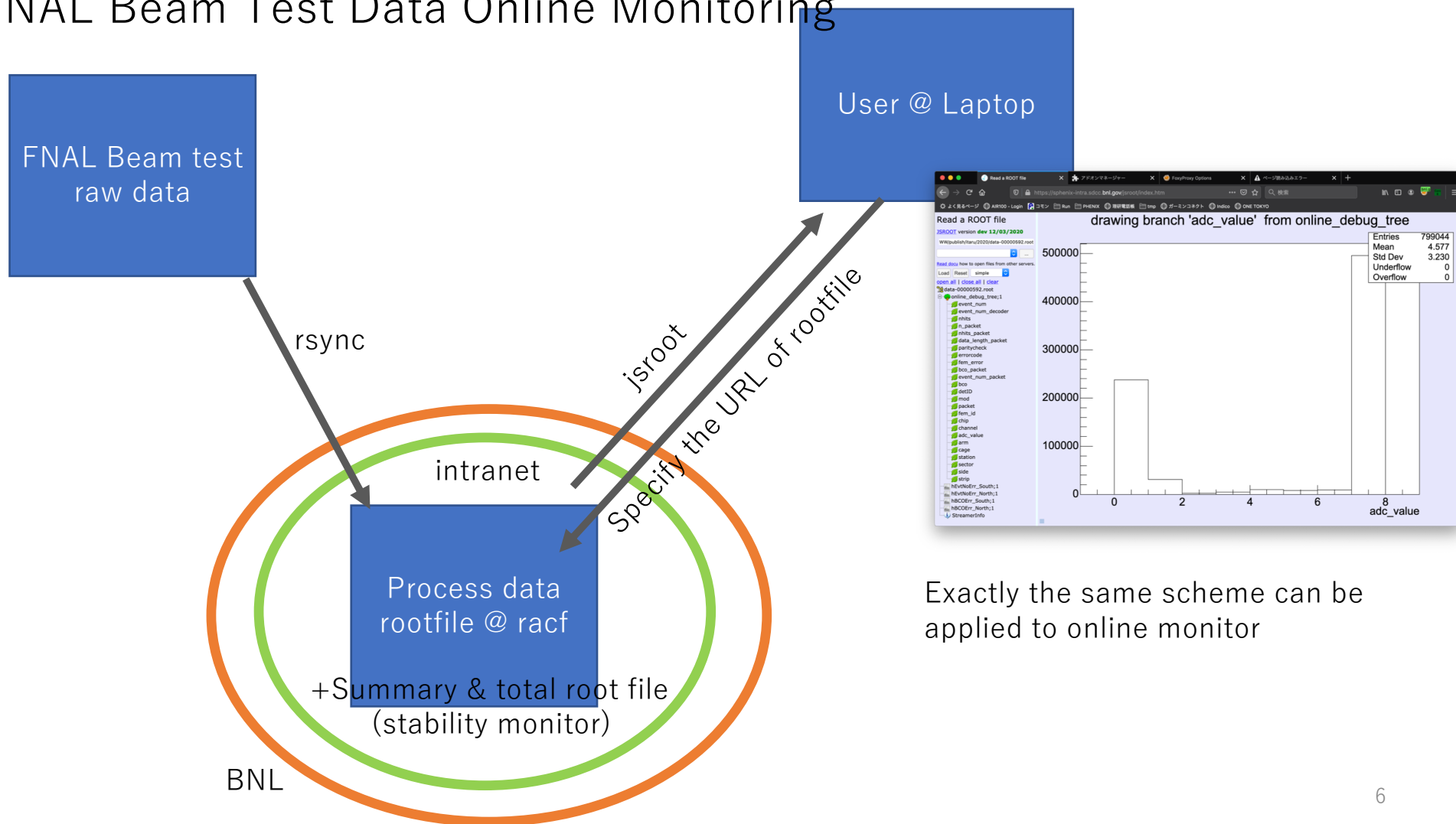


Use jsroot web application in user's laptop and make plots on the web



Milan develops macro for “summary and all” rootfile in racf, which contains average capacitance of chip/silicon sensors, leakage current, etc. These are useful to judge the quality fluctuation between sensors.

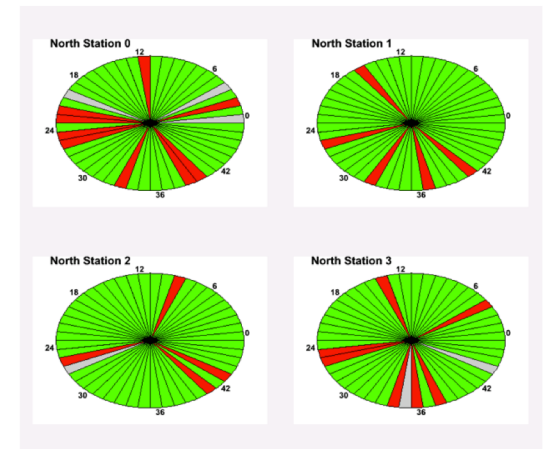
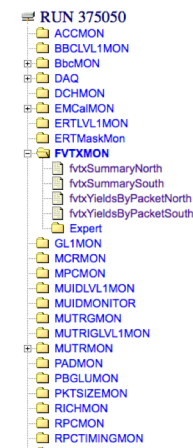
FNAL Beam Test Data Online Monitoring



Exactly the same scheme can be applied to online monitor

Online Monitor for the beam test

- Raw variables, such as ADC, multiplicity, hit maps, etc.
- We are not gonna develop fancy online monitor image which allows non-expert shift crews to judge abnormally. (not worthy for the *one time* beam test).
- Instead, somewhat interactive plotting scheme is rather suitable for the beam test.
- **The key is to build the scheme of the real online monitor.**
- Developer should keep in mind to design the monitor to be prototype library of the online monitor. Try to avoid branch out as much as possible.

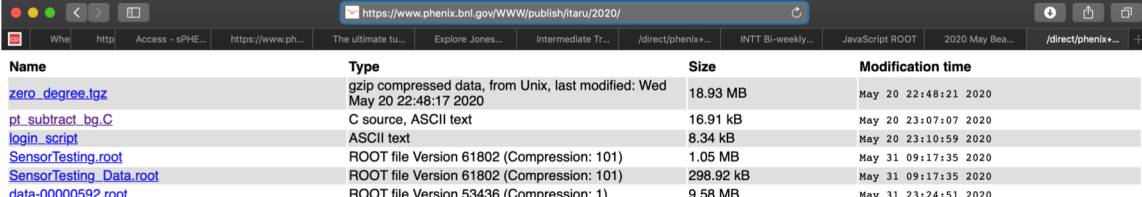


FVTX Online monitor

User's Setup

User's Setup

Following two setup needed depends on where servers are



The screenshot shows a web browser window with the address bar displaying <https://www.phenix.bnl.gov/WWW/publish/itaru/2020/>. The browser tabs include 'Whe...', 'http', 'Access - sPHE...', 'https://www.ph...', 'The ultimate tu...', 'Explore Jones...', 'Intermediate Tr...', '/direct/phenix+...', 'INTT Bi-weekly...', 'JavaScript ROOT', '2020 May Bea...', and '/direct/phenix+...'. The main content area displays a directory listing table with columns for Name, Type, Size, and Modification time.

Name	Type	Size	Modification time
zero_degree.tgz	gzip compressed data, from Unix, last modified: Wed May 20 22:48:17 2020	18.93 MB	May 20 22:48:21 2020
pt_subtract_bg.C	C source, ASCII text	16.91 kB	May 20 23:07:07 2020
login_script	ASCII text	8.34 kB	May 20 23:10:59 2020
SensorTesting.root	ROOT file Version 61802 (Compression: 101)	1.05 MB	May 31 09:17:35 2020
SensorTesting_Data.root	ROOT file Version 61802 (Compression: 101)	298.92 kB	May 31 09:17:35 2020
data-00000592.root	ROOT file Version 53436 (Compression: 1)	9.58 MB	May 31 23:24:51 2020

A) CORS Security Setting

- jsroot : <https://root.cern.ch/js/>
- rootfile in public access { <https://www.phenix.bnl.gov/WWW/publish/itaru/2020/SensorTesting.root>
https://www.phenix.bnl.gov/WWW/publish/itaru/2020/SensorTesting_Data.root
<https://www.phenix.bnl.gov/WWW/publish/itaru/2020/data-00000592.root> (beam test)

B) Proxy Setting

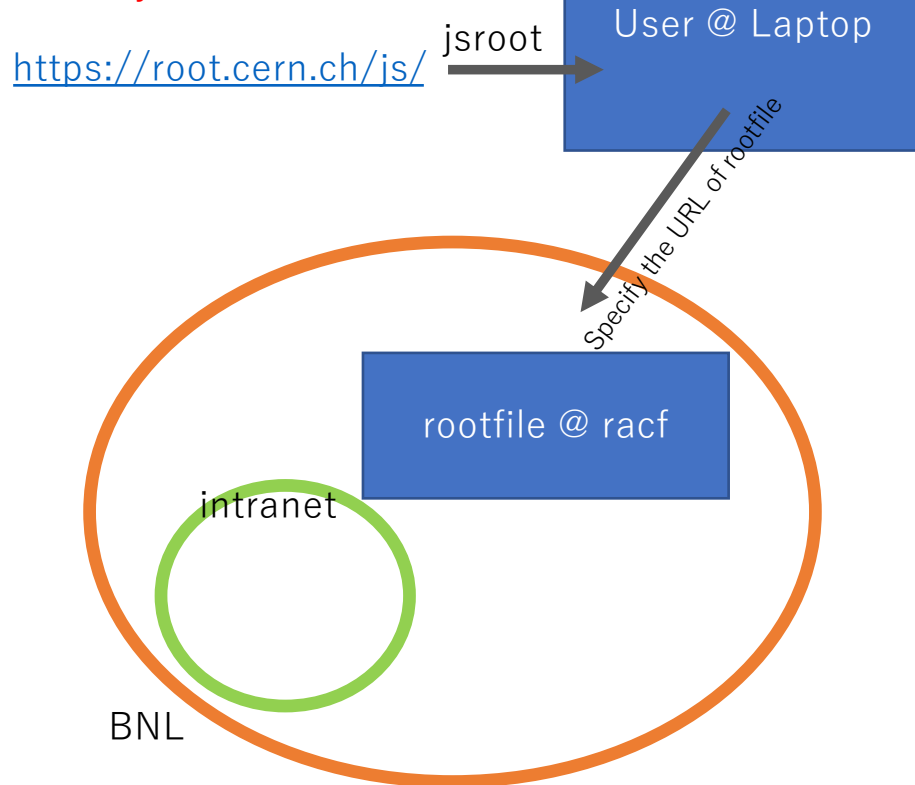
- jsroot : <https://sphenix-intra.sdcc.bnl.gov/jsroot/index.htm>
- rootfile in intranet area in BNL

Can be done step by step

Silicon QA Test Data Monitoring

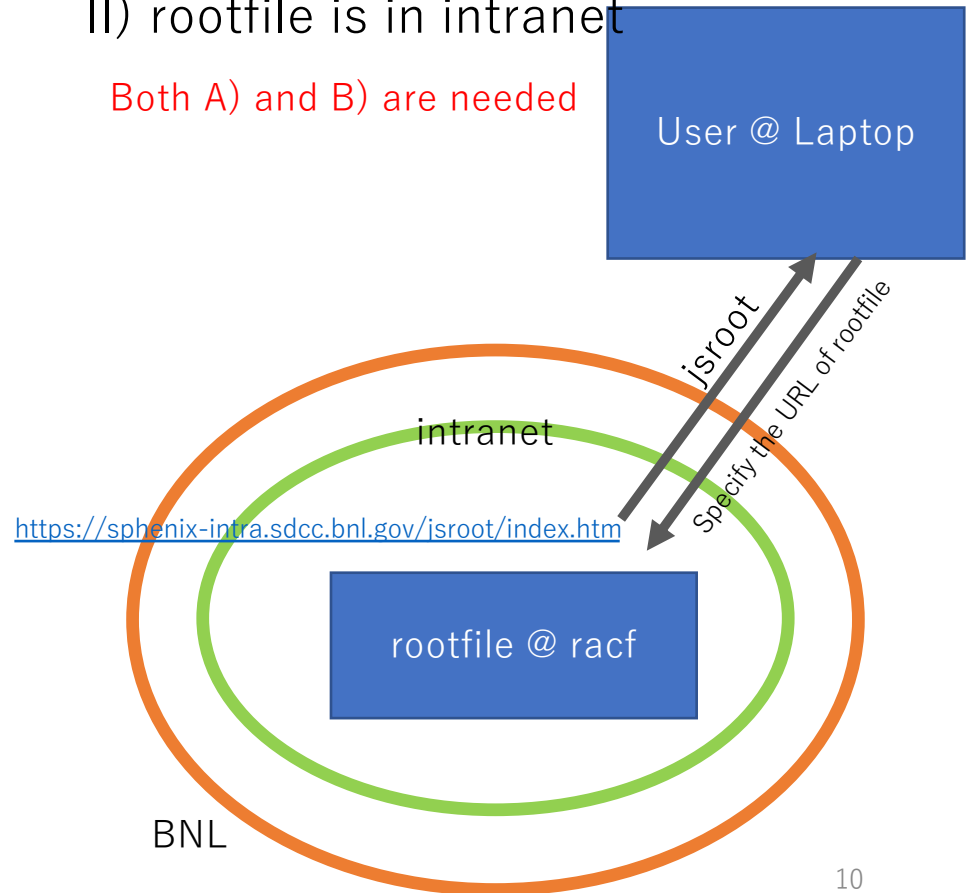
I) All public area

Only A) is needed



II) rootfile is in intranet

Both A) and B) are needed



CORS Setting

The screenshot shows a web browser window displaying a GitHub page. The page title is "Reading ROOT files from other servers". The content discusses the "Same-origin policy" and provides instructions on enabling CORS on an Apache web server by adding specific lines to the .htaccess file. A code block shows the following configuration:

```
<IfModule mod_headers.c>
<FilesMatch "\.root">
  Header set Access-Control-Allow-Origin "*"
  Header set Access-Control-Allow-Headers "range"
  Header set Access-Control-Expose-Headers "content-range,content-length,accept-ranges"
  Header set Access-Control-Allow-Methods "HEAD,GET"
</FilesMatch>
</IfModule>
```

Below the code, it mentions that more details can be found [here](#). It also provides an alternative solution: enabling CORS requests in the browser using the "CORS Everywhere" plugin for Firefox or the "Allow CORS" plugin for Chrome. The next solution is to install JSROOT on the server, which does not issue CORS requests. It suggests copying the top index.htm file from the JSROOT package and specifying the full path to JSRootCore.js in the script tag like:

```
<script type="text/javascript" src="https://root.cern/js/latest/scripts/JSRootCore.js?gui"></script>
```

It also notes that in the <div> element with "simpleGUI" id, one can specify many custom parameters allowed in the URL string.

Note this is
dead link

Try <https://chrome.google.com/webstore/detail/allow-cors-access-control/lhobafahddgcelffkeicbaginieeeif>

Server-A

JSROOT
rootfile

Server-A

JSROOT

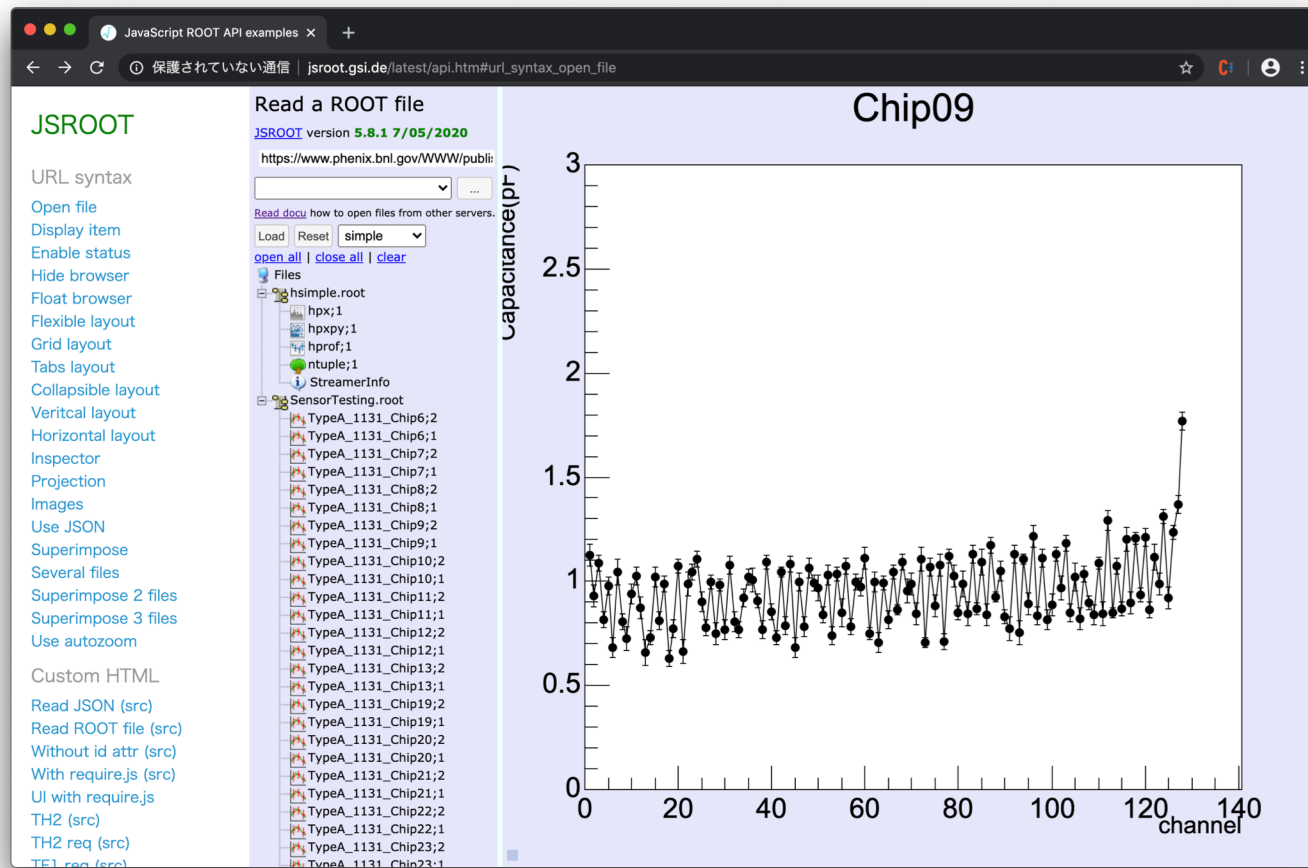
Server-B

rootfile

Security issue

<https://github.com/root-project/jsroot/blob/master/docs/JSROOT.md#reading-root-files-from-other-servers>¹¹

Case I)



Case II)

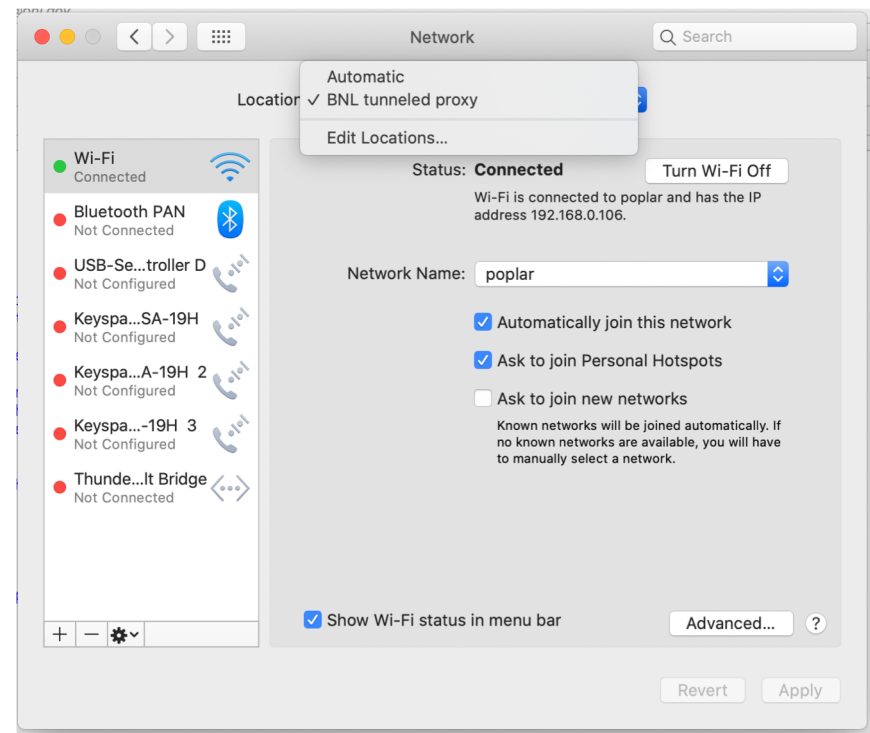
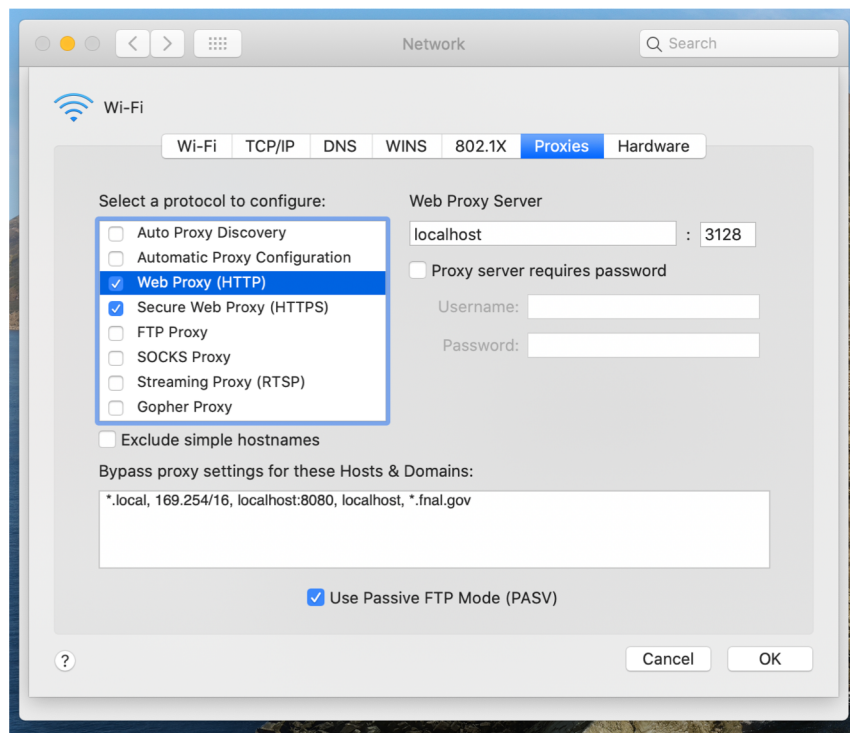
Most likely the case for beam test. Not sure if we bump into available disk space issue in the public space
You will need to set up something similar to access e-log during beam test any way.

- There are 3 STEPS in Proxy Setting
 1. ssh tunnel
 2. Proxy setup in network setting of your PC
 3. Proxy setup in your browser (FoxyProxy)

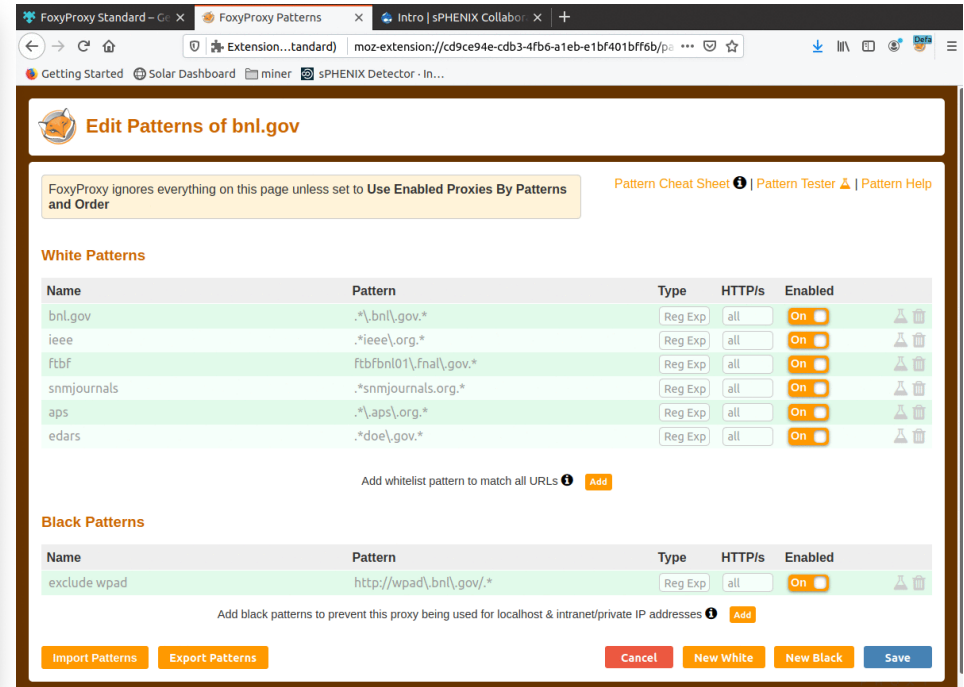
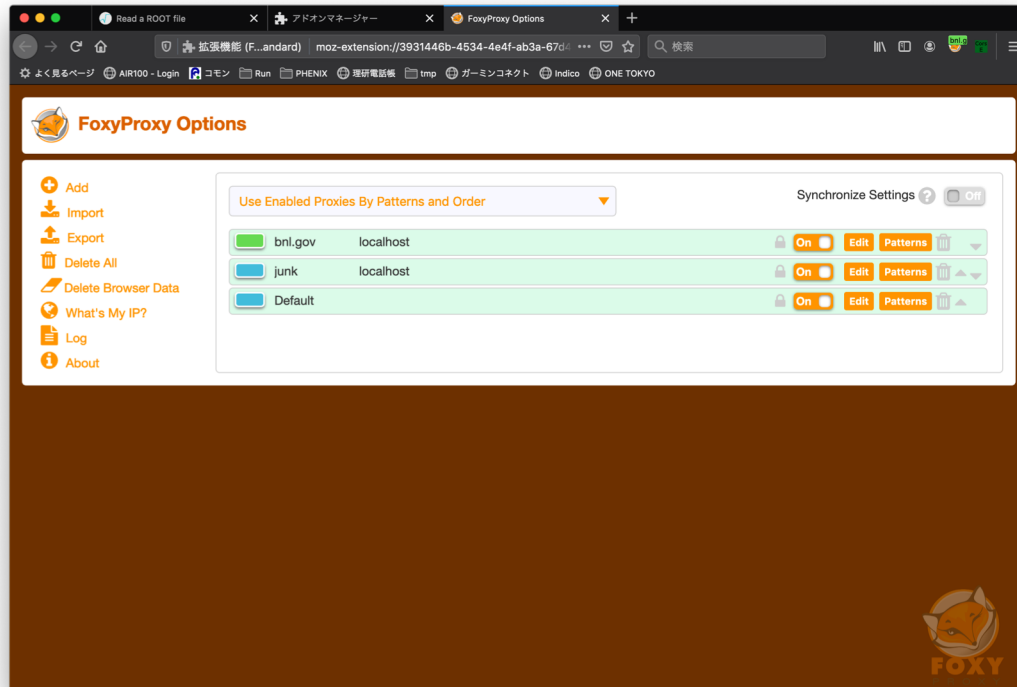
See Martin's instruction below

- https://www.phenix.bnl.gov/~purschke/ssh_tutorial.pdf
- https://www.phenix.bnl.gov/WWW/offline/wikioff/index.php/The_ultimate_tunnel_setup_for_internal-only_Web_access

Proxy Server Network Setting (Mac)

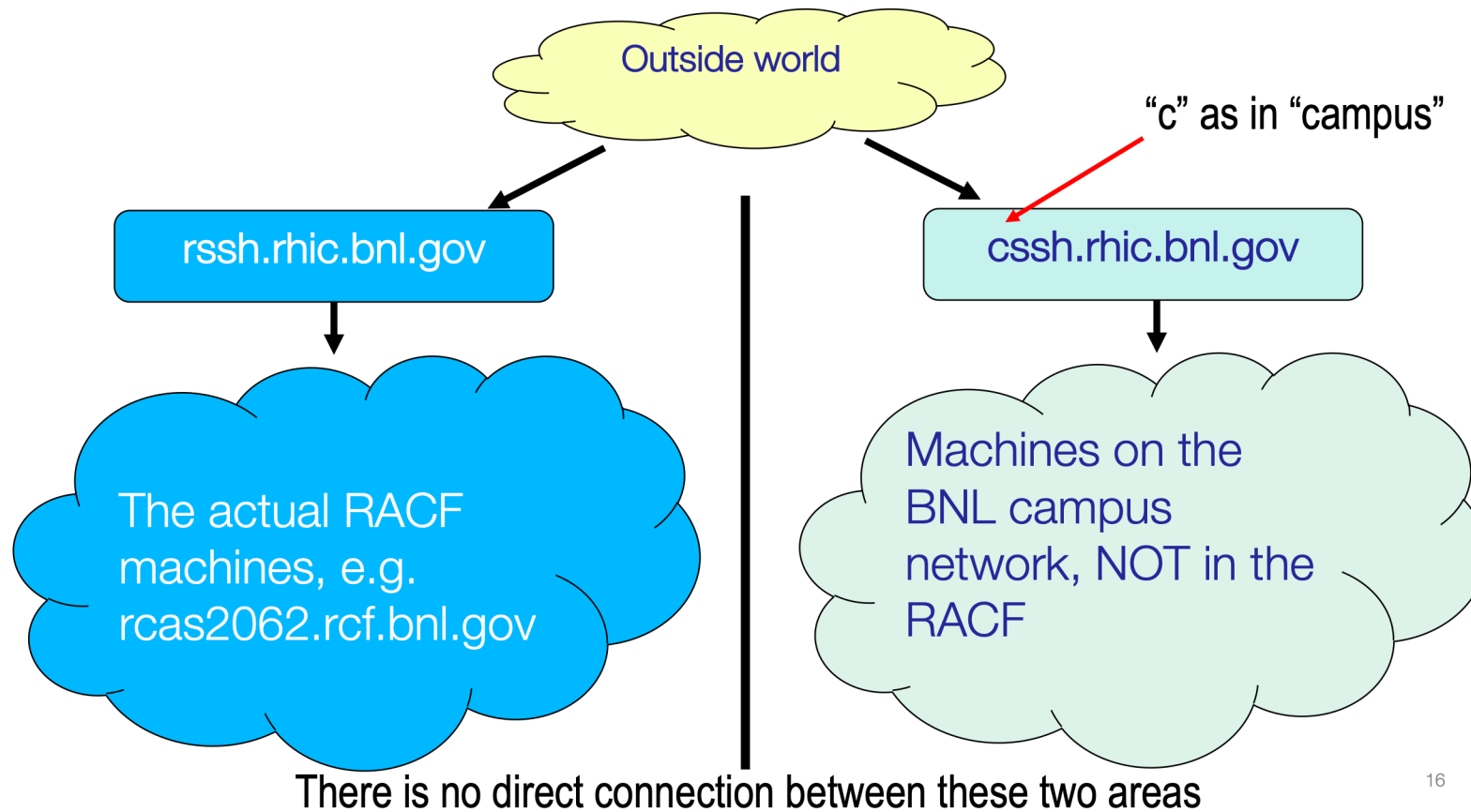


Importing FoxyProxy Ready Made Setting



Accessing the RACF gateways

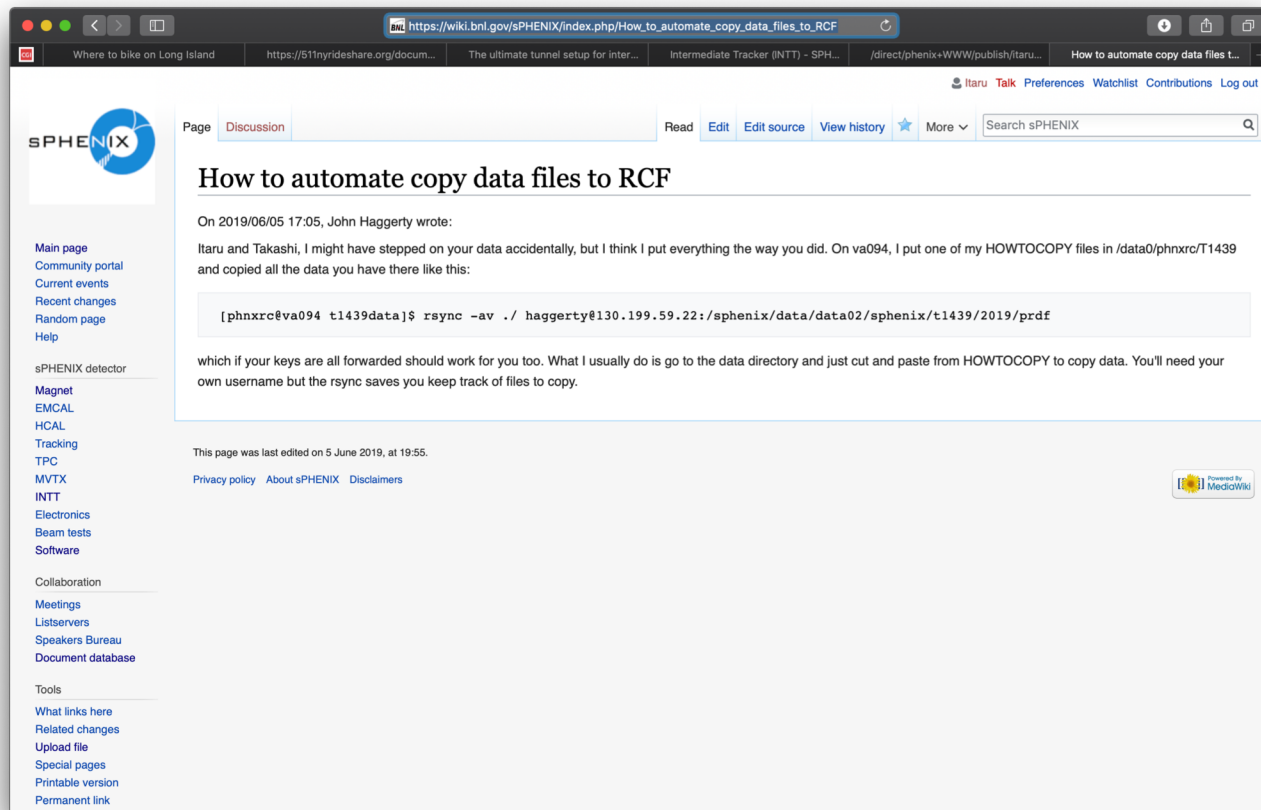
There are two sets of RACF gateways



Developer's Setup

rsync setup

https://wiki.bnl.gov/sPHENIX/index.php/How_to_automate_copy_data_files_to_RCF



The screenshot shows a web browser displaying the sPHENIX wiki page. The page title is "How to automate copy data files to RCF". The content includes a paragraph about a user named Itaru and a code block showing an rsync command. The left sidebar contains a navigation menu with links to various sPHENIX resources. The top of the page features a search bar and user navigation links.

sPHENIX

Page: [Discussion](#) | [Read](#) | [Edit](#) | [Edit source](#) | [View history](#) | [More](#) |

How to automate copy data files to RCF

On 2019/06/05 17:05, John Haggerty wrote:

Itaru and Takashi, I might have stepped on your data accidentally, but I think I put everything the way you did. On va094, I put one of my HOWTOCOPY files in /data0/phnxc/T1439 and copied all the data you have there like this:

```
[phnxc@va094 t1439data]$ rsync -av ./ haggerty@130.199.59.22:/sphenix/data/data02/sphenix/t1439/2019/prdf
```

which if your keys are all forwarded should work for you too. What I usually do is go to the data directory and just cut and paste from HOWTOCOPY to copy data. You'll need your own username but the rsync saves you keep track of files to copy.

This page was last edited on 5 June 2019, at 19:55.

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- Electronics
- Beam tests
- Software

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- Listservers
- Speakers Bureau
- Document database

Tools

- What links here
- Related changes
- Upload file
- Special pages
- Printable version
- Permanent link

Summary

- Developed scheme for silicon sensor test results monitoring including plotting application.
- Using JSROOT, the data can be kept in root format and plots of interest are made interactively by users to avoid confusion to find them from too many images.
- The scheme can be applied to the online monitor for coming beam test.
- The online monitor to be developed for the beam test should be designed to become a library of the real online monitor.