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# ST Interactive monitor

## What's this?

ST interactive monitor is digital map of ST, allowing to analyze properties of different channels in the same time. It takes a set of histograms of some variable (for example, it can be hit residual) for each sector and map them such, that you can interactively look at these histograms. Also, you can color your ST map accordingly to some function of these histograms (for example, mean or sigma of distribution).

## Hands on

In order to run interactive monitor on your machine just follow instructions from git: [ST interactive map](#)

## How to run it?

After you installed all code from git repository, type

```
python runInteractiveMap.py
```

and open web page in your browser (Firefox and Safari are 100% supported, but you may have problems with Chrome)

## How to upload my data?

At this moment, interactive map support three ways of data uploading:

- nTuple. Simply put your tuple with histograms to data/ folder. Structure of nTuple is not important - interactive map will automatically browse your tuple, searching for all histograms named as \_ (Example: "Residual\_TTbXRegionBSector20"). After you put you nTuple to data/ folder, open runInteractivMap.py script and save the path to your ntuple as a variable:

```
ntuple = 'data/STTrackMonitor-2012.root'  
Add_NTuple(ntuple, it_d, tt_d,histos)
```

- .pkl histogram collection. In this case, pickle file should contain dictionary {:,...}. Put you .pkl file to data/ folder and uncomment lines:

```
# Add data in .pkl format  
# Preferred naming of histogram is following <HistoName>_<SectorName>  
pickle_file = 'data/TT_Efficiency_Per_Run.pkl'  
hist_name = 'Efficiency_time_dependence'  
#If histograms are for tt:  
Add_Pkl(tt_d, pickle_file, hist_name,histos)  
#If histograms are for it:  
Add_Pkl(it_d, pickle_file, hist_name,histos)
```

- Just collection of precompiled plots. Simply put your plots to static/preloaded\_pictures folder. Name convention is \_.. After you put your plots to the folder, show the path to them in runInteractiveMap.py:

```
folder_with_plots = 'preloaded_pictures'  
Add_Folder(folder_with_plots, it_d, tt_d,histos)
```

## How to apply my color schema?

Go to engine/histo\_drawing and open DefineHistogram.py Here you can add your own function as it is already done for mean:

```
def hist_mean(hist):
    return hist.GetMean()
```

It should take histogram and return a number. After it, add your function to the list of properties:

```
dic = {"plot": "plots/"+histname+".png", "init_properties": {}, "properties": {'mean': hist_mean(hist)
, 'sigma': hist_sigma(hist)
, '<Your coloring schema name>': <your
}}}
```

## How mask dead sector?

Open runInteractiveMap.py and add name of dead sector to the line:

```
#Mask sectors
#Add sectors you want to mask to the dead_sector list
dead_sector = ['IT1BottomX2Sector7', 'IT3TopX1Sector7']
for d_s in dead_sector:
    mask_sector(it_d, tt_d, d_s)
```

## I have a problem/suggestion!

I'm glad to help: [ilya.komarov@epflNOSPAMPLEASE.ch](mailto:ilya.komarov@epflNOSPAMPLEASE.ch)

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