

Campaign Manager

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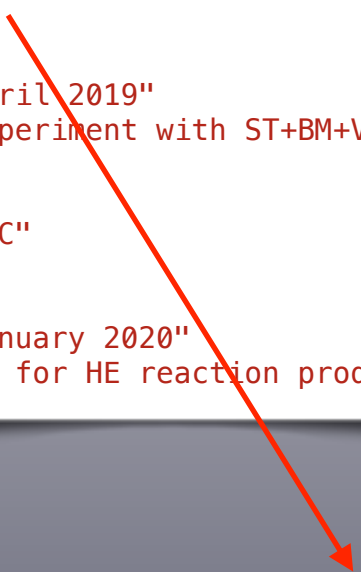
Master File

• Structure: ./cammaps/FOOT_cam.map

```
// List of Campaigns
CamNumber: 0
CamName: ""
CamForceSync: 0
CamDataMC: 1
CamDate: ""
CamSum: "Test using standard input files"

CamNumber: 1
CamName: "GSI"
CamForceSync: 1
CamDataMC: 0
CamDate: "5-8 April 2019"
CamSum: "Test experiment with ST+BM+VTX+TW..."

CamNumber: 2
CamName: "HE_MC"
CamForceSync: 0
CamDataMC: 1
CamDate: "5-8 January 2020"
CamSum: "MC data for HE reaction produced by FLUKA"
```



- Campaign name with associated id
- Force sync flag*
- MC data flag
- Date of data taking or production
- Summary of the campaign

* Force sync btw detectors present in FootGlobal.par and campaign file (campaign is master)

➔ e.g.: load campaign file in ./cammaps/GSI.cam when option: *-exp GSI*

File (i)

• Real data structure: ./cammaps/GSI.cam

```
// Campaign file
CamName: "GSI"
RunNumber: 2210-2212; 2238-2242; 2251-2254
NumberDevices: 6

DetectorName: "FOOT"
NumberFiles: 1
"./geomaps/FOOT_geo.map": 2210; 2251

DetectorName: "ST"
NumberFiles: 4
"./geomaps/TASTdetector.map": -1
"./config/TASTdetector.cfg": -1
"./config/WDChannelMap.txt": -1
"./config/WDTimeCalibration/tcalib": 2210; 2251

DetectorName: "BM"
NumberFiles: 3
"./geomaps/TABMdetector.map": -1
"./config/TABMdetector.cfg": -1
"./config/T0_beammonitor.cfg": 2210; 2251

DetectorName: "TG"
NumberFiles: 1
"./geomaps/TAGdetector.map": -1

DetectorName: "VT"
NumberFiles: 2
"./geomaps/TAVTdetector.map": -1
"./config/TAVTdetector.cfg": -1
```

```
DetectorName: "TW"
NumberFiles: 2
"./geomaps/TATWdetector.map": -1
"./config/TATWChannelMap.xml": -1
```

- Campaign name with associated run
 - Detector name with associated file number and name
 - Name following with the corresponding run number validity (-1 no dependence)
- ➔ File should not be modified (unless for error correction)

➔ e.g.: config/GSI/T0_beammonitor_2210.cfg (works also for folders)

File (ia)

• Run dependency: (as example)

```
// Campaign file
CamName: "GSI"
RunNumber: 2210-2212; 2238-2242; 2251-2254
NumberDevices: 6

. . .

DetectorName: "BM"
NumberFiles: 3
"./geomaps/TABMdetector.map": -1
"./config/TABMdetector.cfg": -1
"./config/T0_beammonitor.cfg": 2210; 2251
. . .
```

- Config file `./config/T0_beammonitor_2210.cfg` for BM is valid for runs 2210-2212 and 2238-2242
- Config file `./config/T0_beammonitor_2251.cfg` for BM is valid for runs 2251-2254

File (ii)

MC Structure: ./cammapp/HE_MC.cam

```
/ Campaign file
CamName: "HE_MC"
RunNumber: 1-3
NumberDevices: 9

DetectorName: "FOOT"
NumberFiles: 1
"./geomaps/FOOT_geo.map": -1

DetectorName: "ST"
NumberFiles: 5
"./geomaps/TASTdetector.map": -1
"./config/TASTdetector.cfg": -1
"./config/TATWChannelMap.xml": -1
"./config/WDChannelMap.txt": -1

DetectorName: "BM"
NumberFiles: 3
"./geomaps/TABMdetector.map": -1
"./config/TABMdetector.cfg": -1
"./config/T0_beammonitor.cfg": -1

DetectorName: "TG"
NumberFiles: 1
"./geomaps/TAGdetector.map": -1

DetectorName: "VT"
NumberFiles: 2
"./geomaps/TAVTdetector.map": -1
"./config/TAVTdetector.cfg": -1
```

```
DetectorName: "IT"
NumberFiles: 2
"./geomaps/TAITdetector.map": -1
"./config/TAITdetector.cfg": -1

DetectorName: "MSD"
NumberFiles: 1
"./geomaps/TAMSDdetector.map": -1

DetectorName: "TW"
NumberFiles: 1
"./geomaps/TATWdetector.map": -1

DetectorName: "CA"
NumberFiles: 1
"./geomaps/TACAdetector.map": -1
```

➔ For standard (e.g. MC) all detectors present.

➔ Campaign manager will return the name of the parameter files with the right name with respect to campaign and run number for a given detector.

Implementation (i)

• TAGcampaignManager:

```
class TAGcampaignManager : public TAGaction {
struct CamParameter_t : public TNamed {
    TString    Name;        // Campaign name
    Int_t      Number;     // Campaign number
    Bool_t     McFlag;     // Flag for MC data (0 for real data)
    TString    Date;       // Date of data taking or production
    TString    Summary;    // Summary of the campaign
};
TAGparTools*  fFileStream;
TAGcampaign* fCurCampaign;
Int_t         fCurCampaignNumber;
CamParameter_t fCamParameter[128];

public:
TAGcampaignManager(const TString exp = "");
virtual ~TAGcampaignManager();

Bool_t FromFile(TString ifile = "");

Int_t          GetCurrentCamNumber() const { return fCurCampaignNumber; }
CamParameter_t& GetCampaignPar(Int_t idx) { return fCamParameter[idx]; }
const TAGcampaign* GetCurCampaign()      { return fCurCampaign; }

const Char_t* GetCurGeoFile(const TString& detName, Int_t runNumber = -1);
const Char_t* GetCurConfFile(const TString& detName, Int_t runNumber = -1);
const Char_t* GetCurMapFile(const TString& detName, Int_t runNumber = -1);
const Char_t* GetCurCalFile(const TString& detName, Int_t runNumber = -1);
Bool_t        IsDetectorOn(const TString& detName)
};
```

➔ Handles all campaigns and gives back information about the current campaign set by “exp” argument

Implementation (ii)

• TAGcampaign:

```
class TAGcampaign : public TAGparTools {
public:
    TAGcampaign();
    virtual ~TAGcampaign();

    Bool_t         FromFile(TString ifile = "");
    const Char_t*   GetName() const { return fName.Data(); }
    const TArrayI& GetRunArray() const { return fRunArray; }
    Int_t           GetDevicesN() const { return fDevicesN; }

    const Char_t*   GetGeoFile(const TString& detName, Int_t runNumber);
    const Char_t*   GetConfFile(const TString& detName, Int_t runNumber);
    const Char_t*   GetMapFile(const TString& detName, Int_t runNumber);
    const Char_t*   GetCalFile(const TString& detName, Int_t runNumber);

    Bool_t          IsDetectorOn(const TString& detName);

    . .
    ClassDef(TAGcampaign,1)
};
```

➔ Campaign class, stores names of the parameter file for a given detector name and run number

Implementation (iii)

Printouts: masterfile (i)

```
Number of campaigns: 3
Campaign number: 0
Campaign name:
Force sync flag: 0
MC data flag: 1
Campaign period:
Campaign summary: Test using standard input files

Campaign number: 1
Campaign name: GSI
Force sync flag: 1
MC data flag: 0
Campaign period: 5-8 April 2019
Campaign summary: Test experiment with ST+BM+VTX+TW...

Campaign number: 2
Campaign name: HE_MC
Force sync flag: 0
MC data flag: 1
Campaign period: 5-8 January 2020
Campaign summary: MC data for HE reaction produced by FLUKA
```


Implementation (iv)

Printouts: GSI (ii)

```
Geometry files for GSI:
  Device name: BM with file: ./geomaps/TABMdetector.map
  Device name: FOOT with file: ./geomaps/FOOT_geo.map
  Device name: ST with file: ./geomaps/TASTdetector.map
  Device name: TG with file: ./geomaps/TAGdetector.map
  Device name: TW with file: ./geomaps/TATWdetector.map
  Device name: VT with file: ./geomaps/TAVTdetector.map
  Device name: BM Run number:-1
  Device name: FOOT Run number:2210 2251
  Device name: ST Run number:-1
  Device name: TG Run number:-1
  Device name: TW Run number:-1
  Device name: VT Run number:-1
Configuration files for GSI:
  Device name: BM with file: ./config/TABMdetector.cfg
  Device name: ST with file: ./config/TASTdetector.cfg
  Device name: VT with file: ./config/TAVTdetector.cfg
  Device name: BM Run number:-1
  Device name: ST Run number:-1
  Device name: VT Run number:-1
Mapping files for GSI:
  Device name: BM with file: ./config/TABMdetector.map
  Device name: TW with file: ./config/TATWChannelMap.xml
  Device name: BM Run number:-1
  Device name: TW Run number:-1
Calibration files for GSI:
  Device name: BM with file: ./config/T0_beammonitor.cfg
  Device name: ST with file: ./config/WDTimeCalibration/tcalib/
  Device name: BM Run number:2210 2251
  Device name: ST Run number:2210 2251
```

➔ printout option “all”: gives all files with the valid run numbers (-1 no dependency)

Reconstruction (i)

BaseReco (i):

```
class BaseReco : public TNamed // using TNamed for the in/out files
{
    . . .
protected:
    TAGcampaignManager* fCampaigner;
    Int_t                fRunNumber;
    . . .
};
```

```
//
void BaseReco::ReadParFiles()
{
    . . .
    if (GlobalPar::GetPar()->IncludeTG()) {
        fpParGeoG = new TAGparaDsc(TAGparGeo::GetDefParaName(), new TAGparGeo());
        TAGparGeo* parGeo = (TAGparGeo*)fpParGeoG->Object();

        TString parFileName = fCampaigner->GetCurGeoFile(TAGparGeo::GetBaseName(), fRunNumber);
        parGeo->FromFile(parFileName.Data());
    }
    . . .
}
```

- ➔ Campaign manager from detector name and the run number will compose the name of the different cfg, map, cal, geo files.
- ➔ Campaign manager not yet implemented in Reco

Reconstruction (ii)

BaseReco (ii):

```
class BaseReco : public TNamed // using TNamed for the in/out files
{
    . . .
public:
    // Set detector to be on respect to the given list
    void SetIncludes(const vector<TString>& list);
    . . .
};
```

```
//
void BaseReco::SetIncludes(const vector<TString>& list)
{
    for (vector<TString>::const_iterator it = list.begin(); it != list.end(); ++it) {
        TString str = *it;

        if (str.Contains(TADIparGeo::GetBaseName()))
            GlobalPar::GetPar()->IncludeDI(true);
        . . .
        if (str.Contains(TATWparGeo::GetBaseName()))
            GlobalPar::GetPar()->IncludeTW(true);

        if (str.Contains(TACAprGeo::GetBaseName()))
            GlobalPar::GetPar()->IncludeCA(true);
    }
}
```

➔ Set detector reco on from a list given (by campaign manager, if flag Sync on)

Local Reco executable

DecodeRaw(MC)

```
int main (int argc, char *argv[]) {  
    . . .  
    Int_t runNb = -1;  
    for (int i = 0; i < argc; i++){  
        . . .  
        if(strcmp(argv[i],"-run") == 0) { runNb = atoi(argv[++i]); } // Run Number  
    }  
    . . .  
    LocalReco* locRec = new LocalReco(exp, in, out);  
    . . .  
    if (runNb != -1)  
        locRec->BaseReco::SetRunNumber(runNb);  
    . . .  
}
```

➔ Add option for run number, if present, set it in local reco

Conclusions (i)

- This structure will allow to make the association btw configuration/geometry/calibration/mapping files with campaign name and run number
- ➔ Need to have a coherent extension for all the files:
 - *.map for geometry files in geom folder
 - *.map for mapping file in config folder
 - *.cfg for configuration files in config folder
 - *.cal for calibration files in config folder ➔ put in a dedicated folder ?
- ➔ not homogenous: e.g. .txt, .xml extension or calib file with .cfg extension, etc.... (folders are ok, should finish with a '/')

Conclusions (ii)

- ➔ Need different run numbers for a given campaign !
 - ➔ Need some cleaning of old files !
-
- Will ease the readability of the code if we stick on some convention
 - Campaign Manager manages all present detectors, GlobalPar allows to switch off/on given detectors during reconstruction (if flag force sync is off).