

IST detector DB tables request

1. Geometry DB tables

These translation + rotation tables are similar to the ones for SSD/PXL and so on. They can be either ideal geometry or including corrections. They are to be stored in Geometry db domain.

We are not sure how frequent will they need to be changed, maybe on 100 days level.

The table type will be \$STAR/StDb/idl/Survey.idl size: 184

Total size for 169 entries (1 + 24 + 144) is about 30.4K.

Several comment lines are added in the file.

```
// IST
// Id = 0 for ist to global
// Id = ladder [1-24] for ladder to ist (global)
// Id = (ladder-1)*6 + sensor for sensor to ladder
// ladder[1-24], sensor[1-6]
```

2. Calibration DB tables

Two types of DB table will be stored in Calibration db domain, one is called istPedNoise for pedestal/rms noise/common mode noise, and the other is called istGain for gain of each channel.

We are not sure how frequent will they need to be changed, maybe on per day or week level.

(1) istPedNoise

The table type will be \$STAR/StDb/idl/istPedNoise.idl size: 15424

There are 864 APV chips for whole IST detector readout, and each chip contains 128 channels over 15 sampling time bins. Therefore, total size for the 864 entries is about 12.7M.

```
/* istPedNoise.idl
*
* Table: istPedNoise
*
* description: IST detector channel pedestal, rms noise and common mode noise
*
* APV chip: 128 channels, 15 sampling time bins
*/
struct istPedNoise {
    unsigned short istChipId; /* chip Id: 1-864 */
    float pedestal[15][128]; /* pedestal in ADC counts */
    float rmsNoise[15][128]; /* rms noise in ADC counts */
}
```

```
    float cmNoise[15];          /* cm noise in ADC counts */
};
```

(2) istGain

The table type will be \$STAR/StDb/idl/istGain.idl size: 516
Total size for 864 entries is 435.375K.

```
/* istGain.idl
*
* Table: istGain
*
* description: IST detector channel gain
*
* APV chip: 128 channels
*/
struct istGain {
    unsigned short istChipId; /* chip Id: 1-864 */
    float gain[128];         /* gain in GeV/ADC counts */
};
```

The idl files can be found at RCF

/star/u/ypwang/disk02/istOfflineChain/istOfflineChain/DB/StDb/idl

Currently Yaping Wang is the person who need to insert the data

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