Fermilab

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Plans

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Geant 4 Validation repository weekly meeting

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```
CREATE TABLE Histogram2D (
    ID SERIAL PRIMARY KEY,
    name      text,
    xdes            VARCHAR(50),
    ydes            VARCHAR(50),
    zdes            VARCHAR(50),
    nbinsx          Integer,
    minx            real,
    maxx            real,
    bincenterx      real[],
    binwidthx       real[],
    nbinsy          Integer,
    miny            real,
    maxy            real,
    bincentery      real[],
    binwidthy       real[],
    binvalues       real[][],
    errorup         real[][],
    errorlow        real[][]
);
GRANT SELECT, UPDATE, INSERT, DELETE ON  Histogram2D TO g4valwriter;
GRANT SELECT ON  Histogram2D TO g4valreader;
```

```
INSERT INTO public.Histogram2D
(       name,
        xdes,
        ydes,
        zdes,
        nbinsx,
        minx,
        maxx,
        bincenterx,
        binwidthx,
        nbinsy,
        miny,
        maxy,
        bincentery,
        binwidthy,
        binvalues,
        errorup,
        errorlow)

VALUES ('test',
        'x-axis',
        'y-axis',
        'sigTot[mb]',
        3,
        0,
        3,
        '{0.5,1.5,2.5}',
        '{1.,1.,1.}',
        3,
        0,
        3,
       '{0.5,1.5,2.5}',
        '{1.,1.,1.}',
        '{{341,314,290},{342,312,292},{343,313,293}}',
        '{{441,414,390},{442,412,392},{443,413,393}}',
        '{{241,214,190},{242,212,192},{243,213,193}}'
);
```

Proposed short term work Plan

- Storage Solution:
  - Postgres: We can store everything we need in the Postgres database→ evolution of the current schema.
  - Tables map easily to simple data objects [float, strings, arrays ..] that can be expressed in any language (Java, C++, python)
  - Classes can be easily serialized into blobs → but not a feature we have to or really need to use.
- Proposal:
  - For now accept postgres as storage solution.
  - Finalize the schema and modify Java API accordingly
  - Provide C++ API mirroring Java API