RHIC/AP/6
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C. Saltmarsh, T. Satogata, S. Peggs

Lattice information service for the RHIC project

The accelerator physics group has put in place a computer information service derived in the main from the lattice design data stored in the CCD Sybase relational database management system (rDBMS). For example, the lattice described in the database "rhic92r0p3" corresponds to revision 0.3 of the RHIC 92 lattice, as tracked through CCB protocols. These primary data describing the beam related aspects of the machine which, in principle, we are building are stored in database tables tuned to the needs of the beamline designers and the codes that they use. Translation to the needs of users in other parts of the RHIC project is not immediately evident, although the data are one of the prime sources driving the machine construction. Accordingly, we wish to provide data and access mechanisms suited to the different parts of the project. We have started by building data files and database tables containing surveying information, CAD drawing instructions, beam parameters and so on. Our aim is to provide access to these data and to guarantee that they reflect the best knowledge of the detailed machine definition at any given time - a definition that is reasonable to base construction decisions on. Because what data and tools are available will be changing we wish to encourage computer access rather than paper communication. For those who have no desire to become computer gurus, we will try to provide advice and utilities.

There are a number of ways to get at this information if you think it may be relevant, or if you wish to request something which is not yet there. Method (3) is the preferred one at the moment so we can build email lists and find out who needs what.

1. Call Todd Satogata x5452

2. Email salty@owl.rhic.bnl.gov
or satogata@owl.rhic.bnl.gov

3. Email accphys@owl.rhic.bnl.gov
ap-requests@owl.rhic.bnl.gov
ap-comments@owl.rhic.bnl.gov

Messages and replies to/from the last two addresses will be logged and made available to all users. The first address is for one-to-one correspondence.

4. Login as user "ap" to owl.rhic.bnl.gov, to get restricted (read only) access to all data which are stored in directory /usr/local/Holy_Lattice (see "Holy lattice data", below). This account will also have external ftp privileges, so data can be copied out for personal use. Be Careful! If you copy the data to a personal file and use it at a later date, it may have become stale. Check that the date or the version number of the Holy_Lattice file agrees with your file. Better still, don't keep private copies - read from the original.

5. Login to Sybase as user "accphys", using the appropriate official database. This assumes that you have access to Sybase through CCD; Sharon Spark at x4111 handles this.

The best thing to be sitting in front of is a networked machine that runs the X windowing system; an X-terminal, Mac, PC or workstation can all handle this with varying degrees of success and cash injection (about $200 for a PC or Mac). dxf viewers for PCs and Macs are commercially available, and such a viewer is currently being demonstrated on the zoo unix workstation domain. More awkward than X, but better than nothing, is using non-graphic network programs like Telnet or Versaterm. We'll do our best to provide data formatted for each interested party.

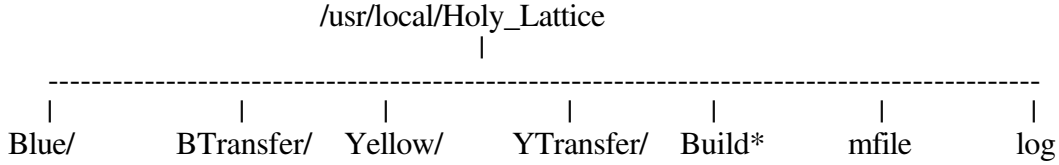
Holy lattice data

We have set up a 'holy lattice' structure in /usr/local. This is where those responsible for declaring 'this is the currently official lattice' shall leave all the commonly used files; then

1. The normal user doesn't have to ask what is the official lattice

2. That person does not have to know how to invoke dbsf, survey etc, etc

The file structure is as follows:



The following files are created within each directory:

<lattice-name>	<---- flat sds
<lattice-name>.dxf	<---- dxf file for AutoCad and dxf viewers
<lattice-name>List	<---- list sds for latview

```
Survey          <---- survey sds (RHIC survey frame coordinates)
Twiss           <---- twiss sds
end.top         <
plan.top        <---- topdrawer files
side.top        <
survey.asc
survey.log
three_d
twiss.asc
twiss.log
```

where <lattice-name> is the same as the directory name; ie one of Blue, Yellow, BTransfer or YTransfer.

It is the responsibility of the person maintaining each database to make sure these files are kept constantly up to date, so that an external user is guaranteed that the data are fresh. Steve Tepikian and Waldo Mackay are responsible for the collider lattice database "rhic92r0p3" and the transfer line database "ags_to_rhic", respectively. The files in the list are easy to maintain, since they are automatically generated or refreshed by typing:

```
cd /usr/local/Holy_Lattice
Build <database-name> <beamline>
```

For example,

```
Build ags_to_rhic a2blue
Build rhic92r0p3 blue
```

If you think that the list of files warranting automatic generation should be modified, please ask Todd to modify the "mfile" makefile in the top directory. You can reach him in one of the ways listed above.