Metadata Service

Use cases from SUIT:

The steps SUIT plan to access metaServ for information:

1. get a list of databases, SUIT will provide this list to users as database options to choose.
    a. See PDAC, LSST Data Select Project, currently have three options
2. Once user selects a database, SUIT will get a list of tables in this database for users to choose
    a. See PDAC, Select Project wise 00, currently there are 5 tables under Catalogs and 4 under Images
3. Once user selects the table to search, SUIT will get the list of columns for user to input search constraints
    a. See PDAC, the bottom section content changes as user selects different table

Details of information needed for each DB, table, column: (Please see the two attached files as examples.)

1. For each database, the following information is needed"
    - DB name,
    - type (engineering data, prompt data, release data, user generated data)
    - description,
    - possible link to the formal document about this DB
2. For each table, the following information will be needed:
    - Table name,
    - type (image metadata, catalog - source/forced source, EFD-related),
    - description,
    - possible link to the formal document about this table
3. For each column in a table, the following information will be needed:
    - UID (to identify columns that hold the primary position: ra and dec, filter band, unique objectID , image corners)
    - UType (extra info like the 4 corners of an image, ...),
    - Column name,
    - description,
    - (?) short description to display in tooltips,
    - unit,
    - data type
4. More information to facilitate a better user experience in UI design (this will need further discussion among SUIT and DAX teams)
    a. ? the name of multiepoch photometry table, which contains the single-exposure measurements for every deep detection, for example 'Science_Ccd_Exposure' for SDSS, 'allwise_p3as_mep' for WISE. This is assuming there is one such table per database/schema.
    b. when a table has unique objectID, what is the name of multi-epoch (forced photometry) table to get light curve queries for a unique objectID. This will enable the portal to provide a function linking the objectID to light curve data query directly.
    c. for deep coadd image meta data table, the name of the PVI meta data table so we can find the PVIs that were used to make the deep coadd image.
    d. ?relationship with columns in other table (objectID in object table to objectID in source table), unless this relationship can be determined using UCDs

The reason behind the requests for the information:

- SUIT needs to provide a capability for users to browse all the possible metadata so users can decide what they want to explore further.
- SUIT needs to display different UI depending on what user is interested in: catalogs, images, time series data, anything else.
- SUIT needs to overlay catalog sources and image footprints on a coverage image.
- SUIT needs to be able to display light curves of an object in various bands.

Security/data access concerns

Since all users will login to the system, the permission of access level will be controlled by User Authorization system.

Concerns about handling LSST data types in dbserv.

- We'd like to keep getting metadata with the result set from dbserv to be able to interpret the result set without an extra call needed. (Yes from DAX)
- Currently flag fields (bit type in db) is passed to us as string fields, ex. "b'\x00'". All int fields are passed as long. In general, I am concerned about custom python code, which converts mySQL types. (`https://github.com/lsst/dax_dbserv/blob/master/python/lsst/dax/dbserv/compat/fields.py`) (may have been fixed)
- MySQL gives a hint of the display width of the field. Can we carry it over? (No for now)
- When the result set is empty, we should still get the metadata. (Yes from DAX)