DOM Process Information and the Production Database

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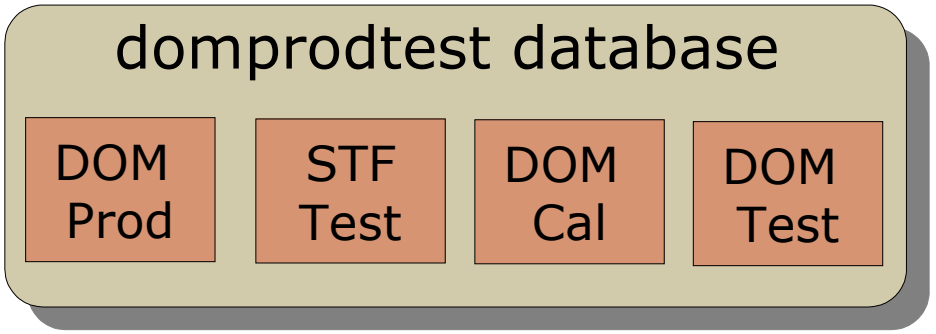
- Database Overview
- DOM Production Information
- User Interfaces
- Technical Details

Database Overview

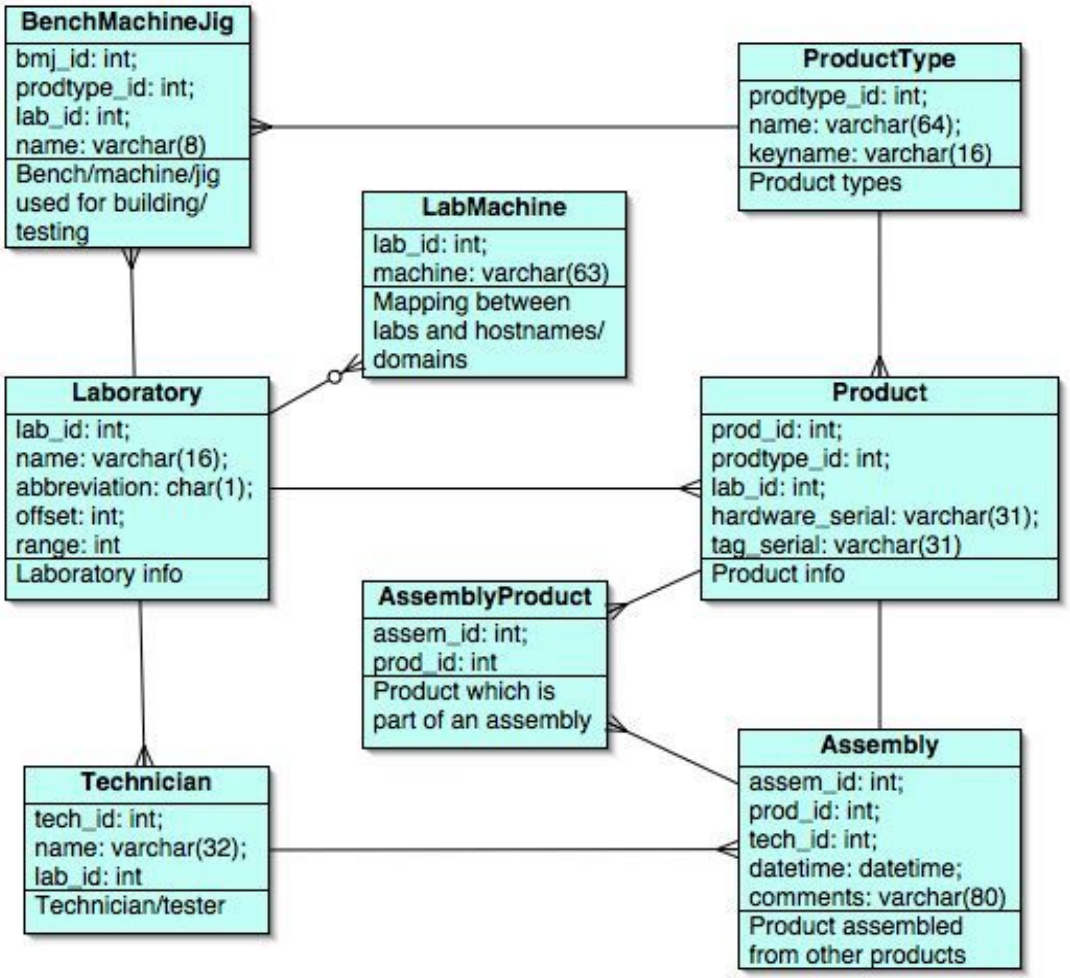
- DOM production database
  - Production information
  - STF test information and results
  - DOMCalibration results
    - Contain all DOM settings
  - DOM Test results



- FAT database
  - DOM settings for various test scripts
    - ✖ Will be moved to the production database
  - Analysis scratch pad (only used by scripts, no user input)
  - ✖ No official use of this database in future
- Global data storage
  - Each production site utilizes its own database
  - Databases will be regularly synchronized in the near future

DOM Production Information

- Database is capable of storing the complete DOM Process Traveler Information
- No production information, except mainboard and DOM name inserted last year
- Missing: working and convenient user interface for inserting and browsing DOM production information
- Interfaces will be available for this year's production until end of April



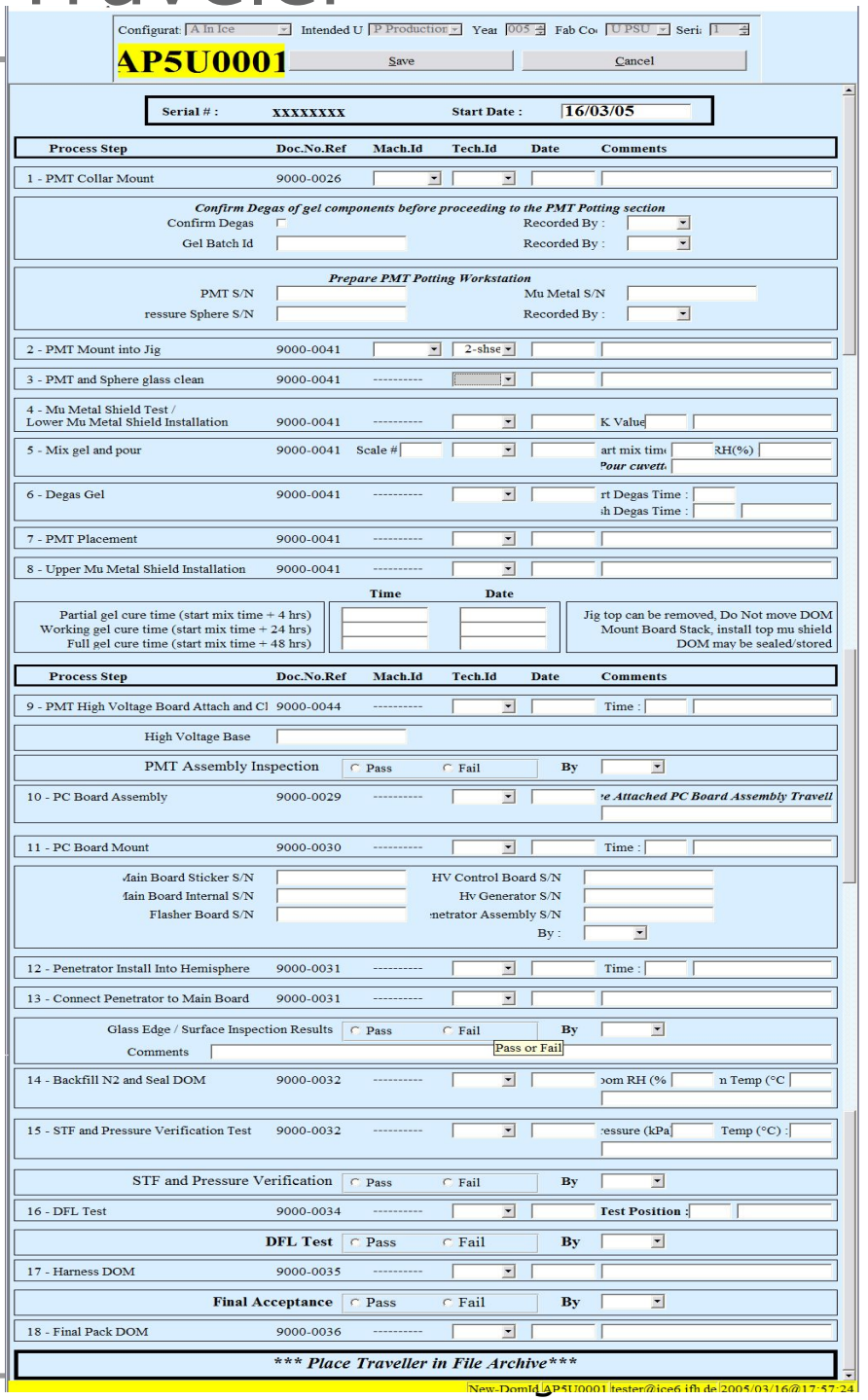
Remark: In this overview the tables used for storing the production step information are not shown

Database User Interfaces

- Informations are lost in the database or won't even be inserted without a user interface appropriate to the users' abilities
- Web Interface to browse the production information
  - It provides the user with the following potentials:
    - Browse and search existing DOMs
    - Display detailed DOM information (all Travelers)
    - Generate overviews about the production status
- DomPt is intended for inserting the Process Traveler information into the database with a graphical user interface
  - It deals at least with the following use cases:
    - Insert new Travelers
    - Add a second, third... Traveler to an existing Traveler
    - Update the latest Traveler (**only the latest**)
      - eg. DOM TP4Y0061 has two Travelers because it was repotted and the Flasher Board was exchanged, DomPt will only provide an interface to update the second Process Traveler information

Digital DOM Process Traveler

- DomPt application developed by Joseph Hanton (University Mons-Hainout, Belgium)
- User-friendly interface for inserting the Process Traveler information into the database
  - Nearly a one to one copy of the paper version of the Process Traveler
- This digital traveler has to be filled upon production
  - Safes work for the testers
    - No database preparation needed
  - Makes life-cycle of a DOM easier to track



WEB Interface to the Production Database

- Display of DOM Traveler information with enhanced possibilities, mainly searching and sorting
- Web interface is under development (Bernhard Voigt)
- Special features
  - Generate different overview tables, eg. Work In Progress (WIP) table
    - Import into Spreadsheet application (MS-Excel) is possible:
      - Copy & Paste
      - Download generated table as csv-file and import file in Excel
  - Track DOM testing information, eg. FAT number, test location (site, DFL station, DOMhub, DOR card)
  - Link to STF, DOMCal and DOMTest results (planned)

Technical Details

- Abolishment of the FAT database demands for:
  - Changing the following test scripts to extract the DOM tuning parameters from the DOM production database
    - Multimon
    - Steering file generator
    - Summary sheet generator
  - DOM assembly information is only available in the DOM production database
  - DOM parameter settings available from the calibration section of the production database
    - This requires that the calibration results are stored to the database
    - Existing Java application adds domcal xml files to the database
      - Find all different domcal files and execute[1]:

        ```
        java icecube.daq.domcal.app.SaveToDB domcal_file.xml
        ```
  - DOMCal application should be adapted to use the DOMCal database interface from Dave Glowacki

(1) Hagar Landsman did that for PSL data

Very Technical Details

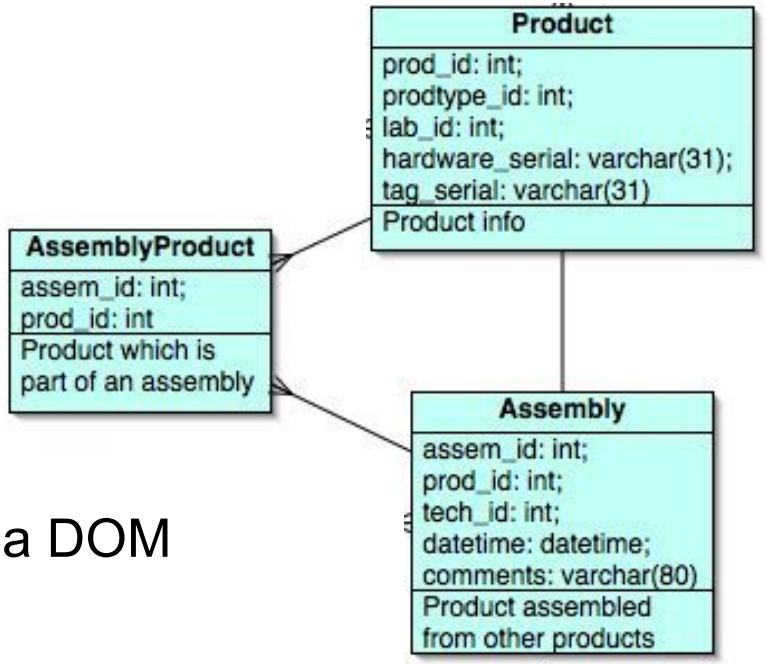
- DOM Assembly information tables:

  Product, Assembly, AssemblyProduct

- Be aware of different DOM versions – only take the latest assembly information to get the DOM that is related to a given mainboard ID

  - Example query to fetch the product ID of a DOM housing a given mainboard:

```
SELECT p1.prod_id FROM Product p1
INNER JOIN Assembly a ON a.prod_id = p1.prod_id
INNER JOIN AssemblyProduct ap ON ap.assem_id = a.assem_id
INNER JOIN Product p2 ON p2.prod_id = ap.prod_id
WHERE p2.hardware_serial = '$mbid'
ORDER BY a.datetime DESC
LIMIT 1;
```



- The same applies for the DOM calibration results with an additional temperature selection criteria

Conclusions & Outlook

- For this year's production the intended use of the DOM production database will be realized
- The complete DOM production information will be tracked in DOM production database
- Easy to use graphical user interfaces are under development and will be available by end of April
- Interfaces facilitate technicians and DOM testers to...
  - keep track on the DOM life-cycle
  - generate standard spreadsheet overviews
  - reduce redundant database preparation work
- Future plans are the integration of FAT results into the web interface