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Jesper Hanberg, Henrik Nyholt, Thøger Eskildsen

A flexible equipment process datalog and sample tracking system

## Process Data Logging



Cleanroom process data logging ...





#### **Outline**

- Instead we want ...
- Process Data Log System
  - User experience
  - Staff interface
  - Behind the scene
- Outlook





#### We want ...

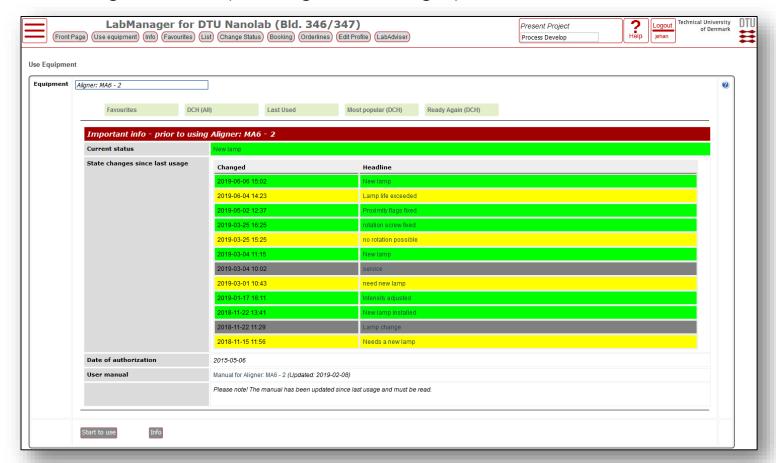
- Automatic link between tool usage and log data
- Users to have concurrent access to log data
- Easy configurable fields for different tools
- Users to be reminded of entering and saving log data
- Users to be limited to edit/save their own data
- Different input field formats (numbers, text, lists, ...)
- Possibility to charge for expensive materials based on consumption
- Etc...





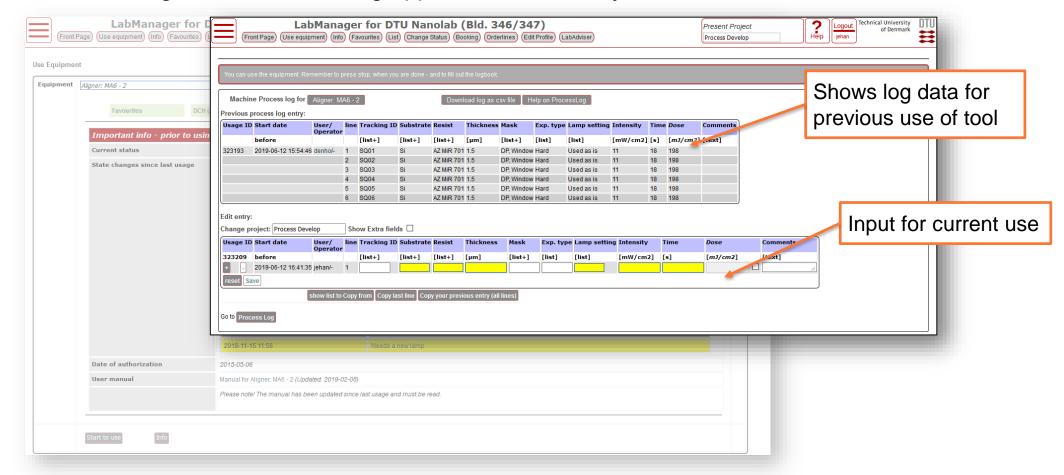


Login screen (existing LabManager)





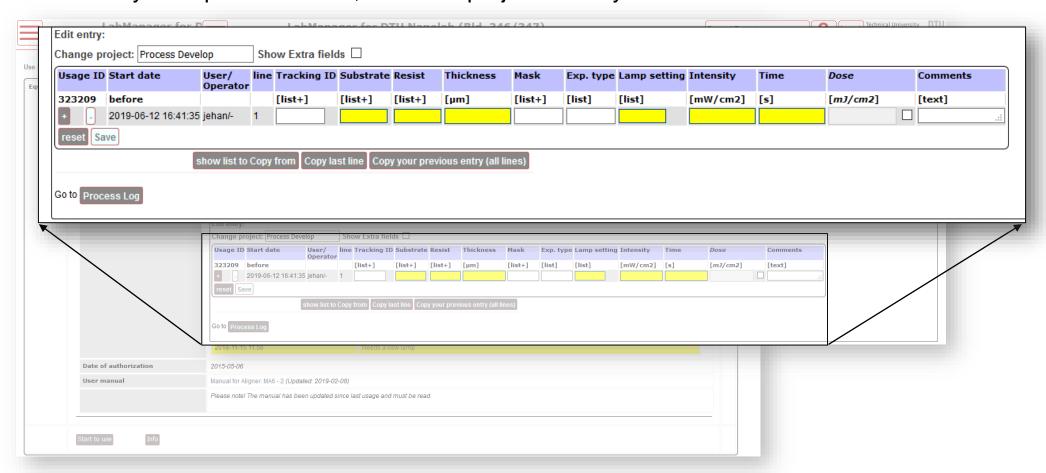
• After login: Process data log appears automatically ...



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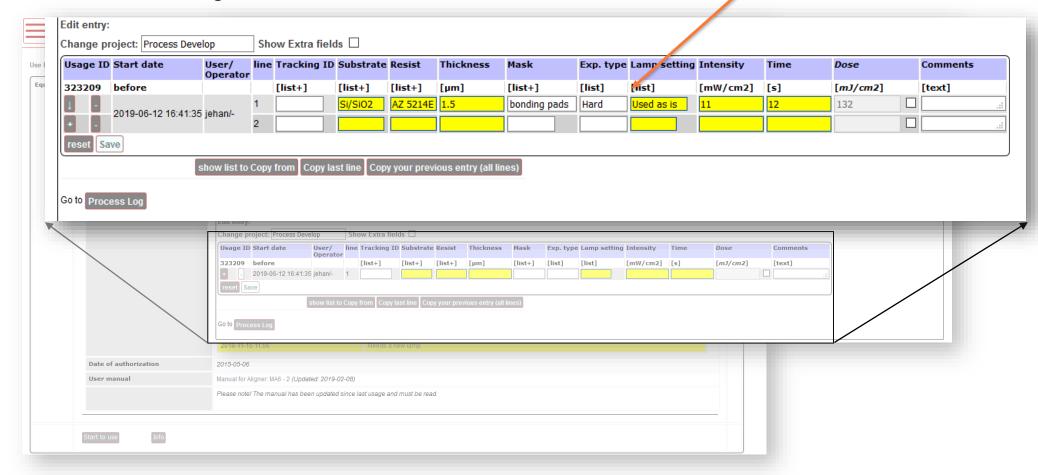
• Ready for input. Start time, user and project already set.





• User entering data: Now or after use.

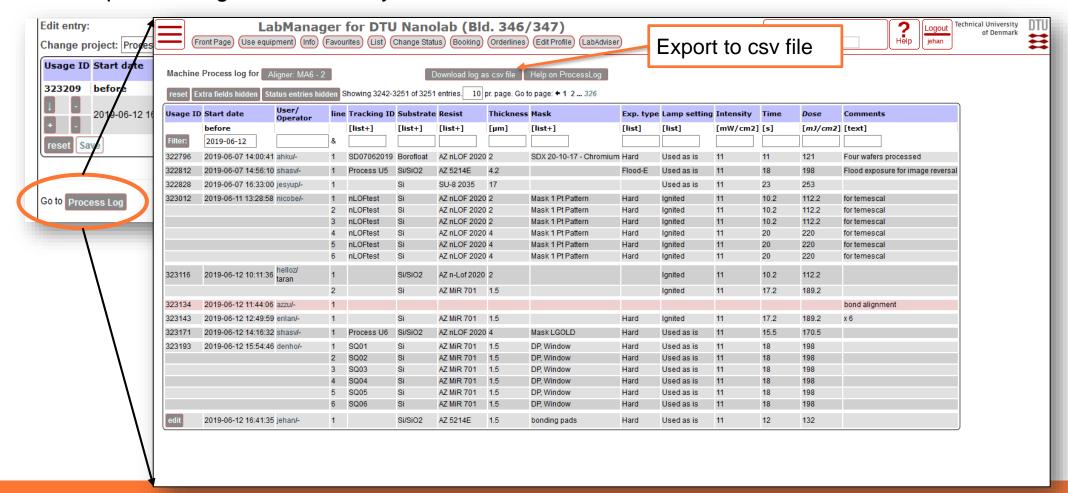
Data entered
New line added



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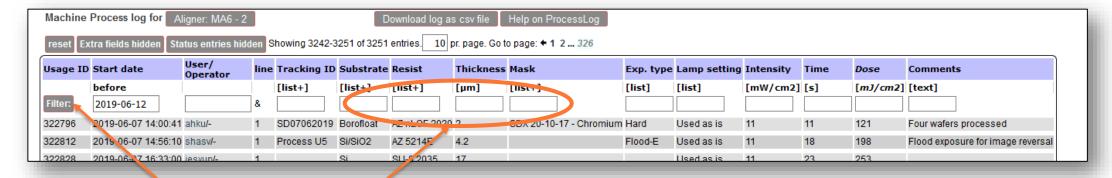
• Full process log available. Only users own data editable. Possible to download as csv-file.





#### **Searches**

Search/filtering possible in Process log table



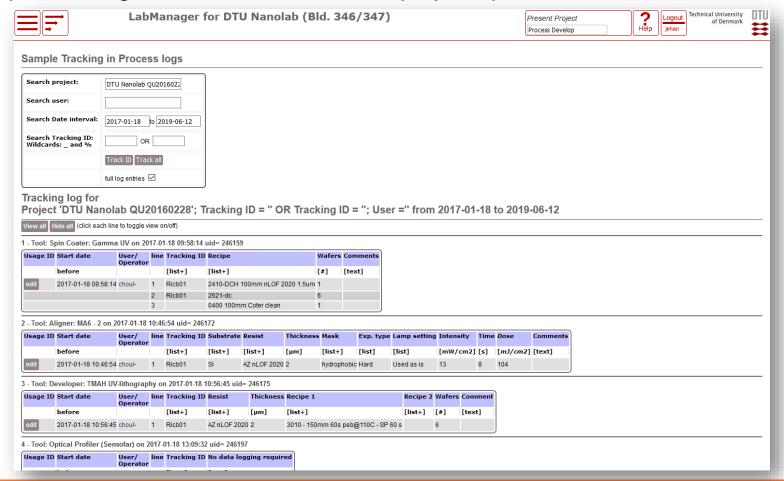
Filtering fields

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#### **Searches**

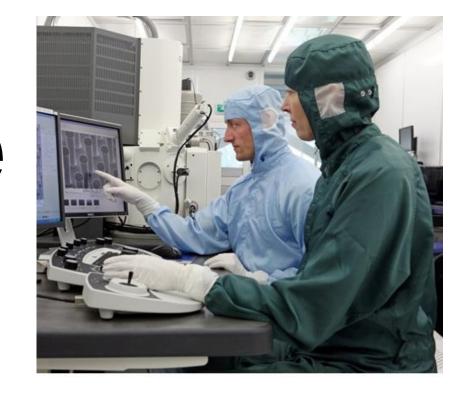
Sample tracking across different tools for projects possible



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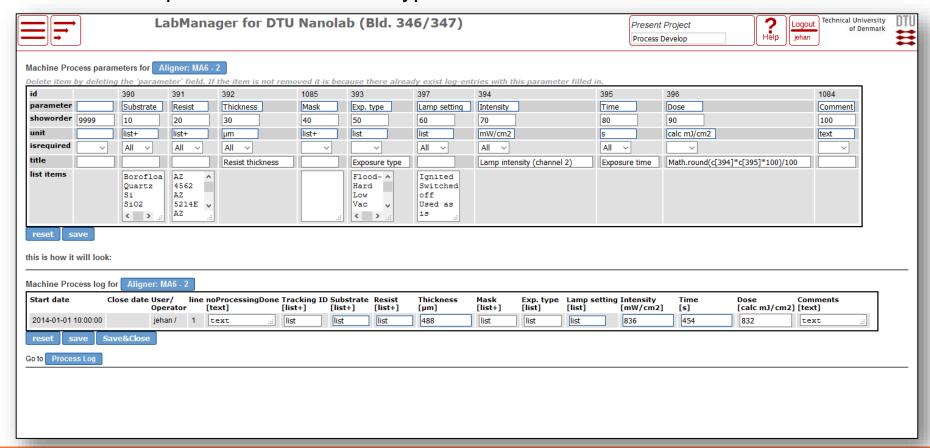
## Staff interface





#### Staff interface to set-up

- Individual configurable for each tool
- Free choice of parameter name and type

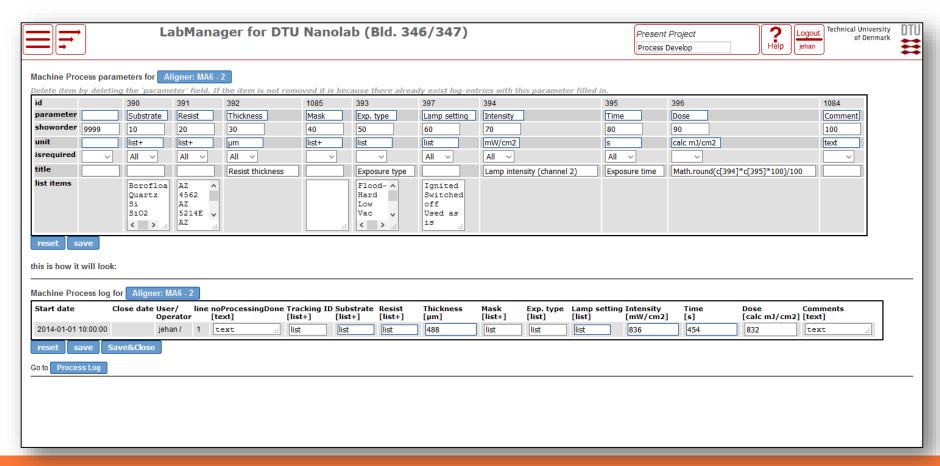


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#### Staff interface to set-up

• Types (unit):

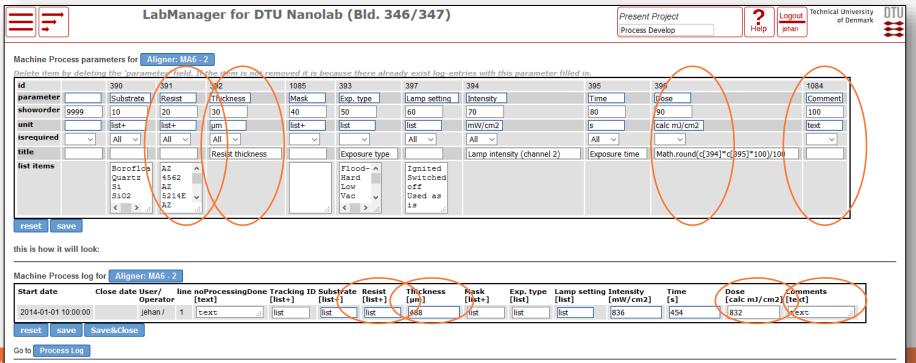


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#### Staff interface to set-up

- Types (unit):
  - Number: entered with their used unit: e.g. nm, Watt, mbar, ...
  - Text: multiline text fields
  - <u>List+</u>: Dropdown fields
  - Calc: calculated field based on data from previous line entry or current





### Behind the scenes



#### **Behind the scenes**

- LAMP server running DTU Nanolab LabManager system
- Process data log is an add-on to existing database
- Requires only three tables in database:

#### LAMP:

- Linux
- Apache
- MySQL
- PHP

Process log lines					
Logline_id	Line	Usage_id			
17	1	3456			
18	2	3456			
19	1	4356			

Tool parameters

Paran	neter_id	Tool_id	Parameter	Type	order
101 \		43	Substrate	list+	10
102		43	Resist	list	20
103		43	Thickness	μm	30
104		56	Recipe	text	

Process log DATA

ID	Logline_id	Parameter_id	Log data
3007	17	101	Si/SiO2
3008	17	102	AZ 5214E
3009	17	103	1.5
3010	19	104	Ti/Au



#### Outlook

- Automatic logging of data for tools
  - implemented on one tool where it works fine
- Alarm (e-mail) when a calculated field reach zero.
  - Can as an example be used for chemical baths when they need to be changed.
- We have ideas for more features, but not the time to implement 🕾



# Thank you

