

Introduction of the new 3D print laboratory and the 3DPrinterOS cloud

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CONTENT

- **Introduction**
- **Hardware equipment**
- **Software equipment**
- **3D print manual**
- **Rules and principles**
- **Timeplan**
- **(Interactive presentation of the 3DPrinterOS cloud)**

INTRODUCTION

Room:

A3/513

Access:

Student/Employee Card

Contact person:

Ing. Petr Krejčířík, A3/501



HARDWARE EQUIPMENT

8x Ultimaker 3

Parameter	Value
Print head	Dual extrusion with swappable printcores
Build Volume	215 x 215 x 200 mm
Layer resolution	Up to 20 micron
Build speed	< 24 mm ³ /s
Nozzle temperature	20 – 280 °C
Accuracy X; Y; Z	12,5; 12,5; 2,5 microns
Filament diameter	2,85 mm
Monitoring	Live camera
Build plate levelling	Active levelling



HARDWARE EQUIPMENT

Ultimaker 3 vs Prusa I3 MK3

Parameter	Ultimaker 3	Prusa I3 MK3
Print head	Dual extrusion with swappable printcores	Single extrusion printcore
Build Volume	215 x 215 x 200 mm	210 x 210 x 250 mm
Layer resolution	Up to 20 micron	Up to 50 microns
Build speed	< 24 mm ³ /s	< 200 mm/s
Nozzle temperature	20 – 280 °C	20 – 280 °C
Accuracy X; Y; Z	12,5; 12,5; 2,5 microns	10; 10; 5 microns
Filament diameter	2,85 mm	1,75 mm
Monitoring	Live camera	-
Build plate levelling	Active leveling	Active leveling

HARDWARE EQUIPMENT

Supported materials:

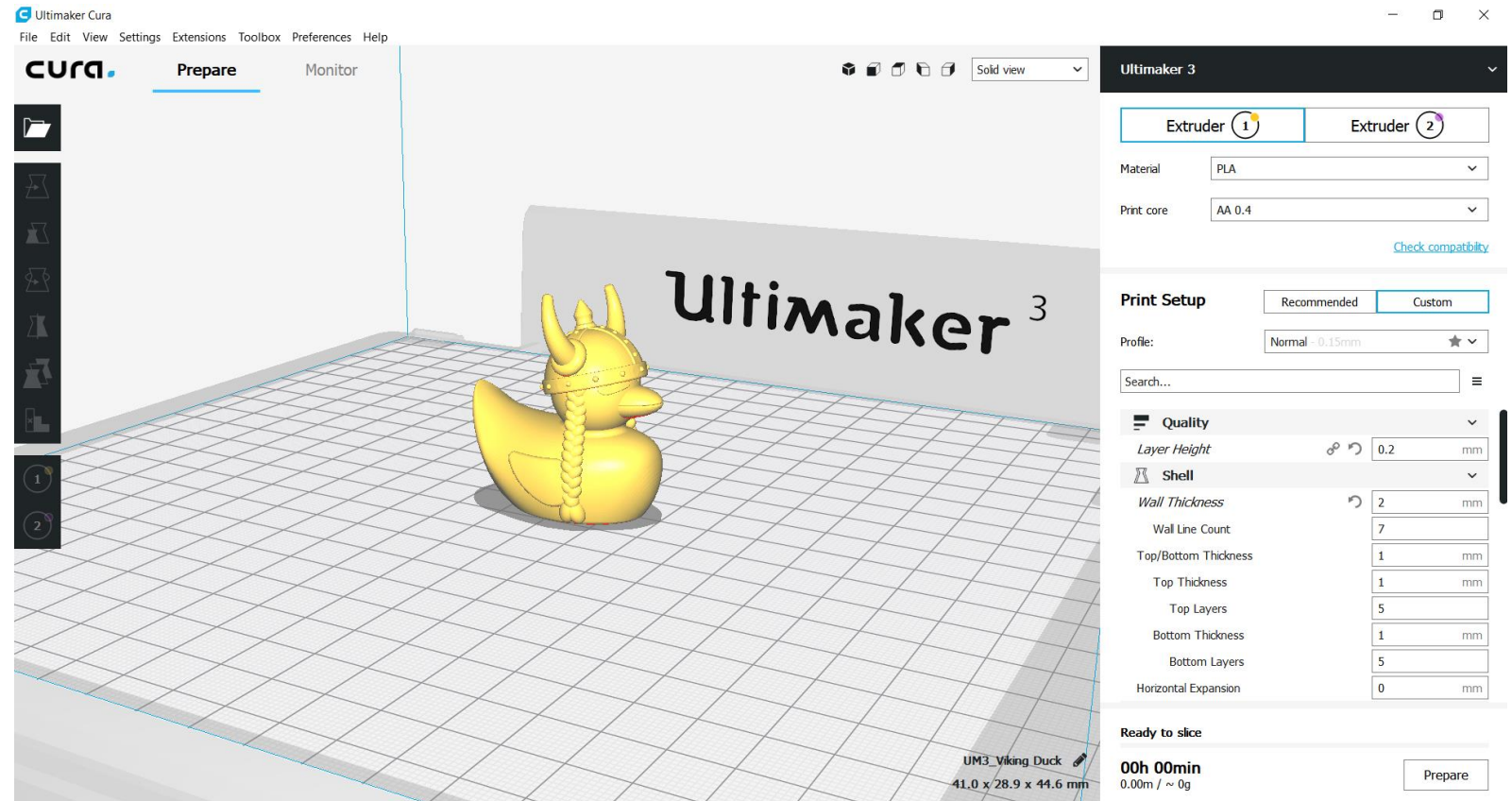
- PLA, ABS, Nylon, CPE, CPE+, PC, TPU 95A, PP, PVA, Breakaway
- Filament diameter: 2,85 mm



SOFTWARE EQUIPMENT

Ultimaker CURA

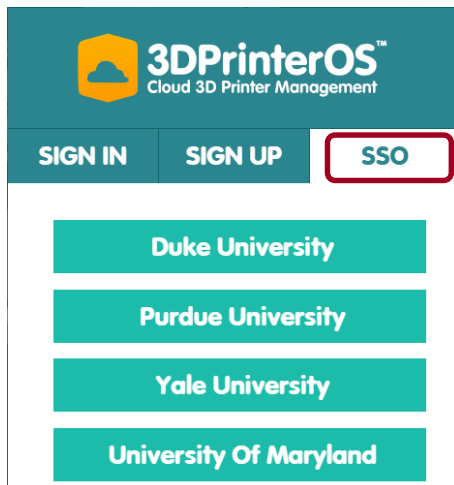
- Offline slicer
- Print setup
 - *Basic (Recommended)*
 - *Custom*
- Estimated print time
- Material consumption



SOFTWARE EQUIPMENT

3DPrinterOS Cloud

- <http://cloud.3dprinter.com>
- Several 3D print tools and applications in one cloud environment
- Sign-in with VUTlogin and VUTpassword



Georgia Institute of Technology
Durham Academy
University of Delaware
Brno University Of Technology

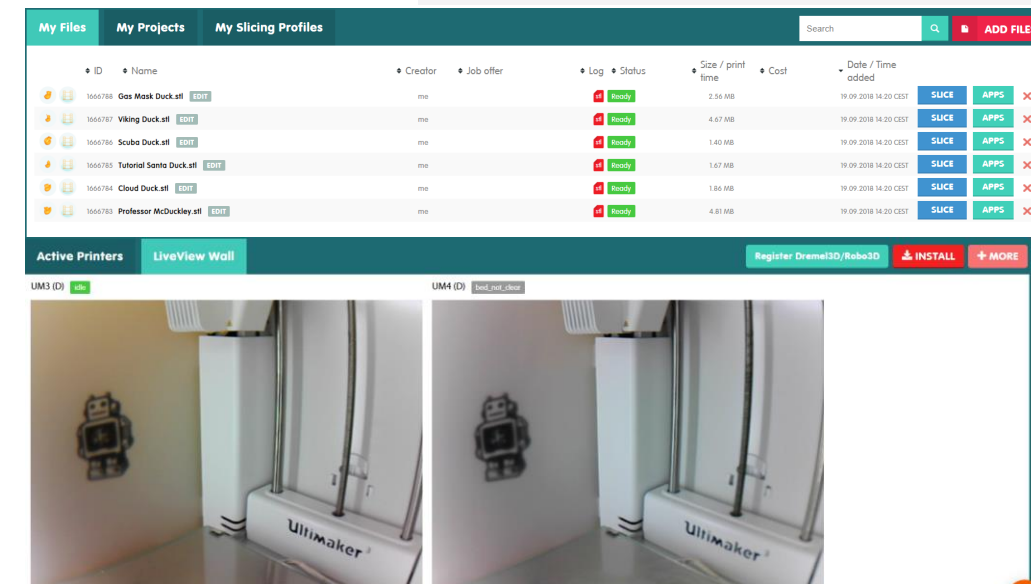
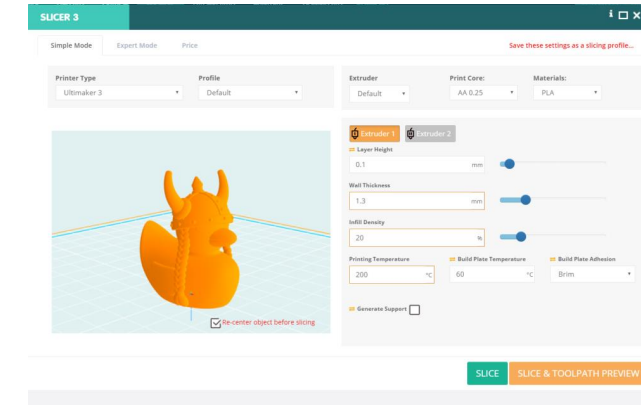
Přihlášení do externí aplikace

VUT login nebo osobní číslo:

VUTheslo

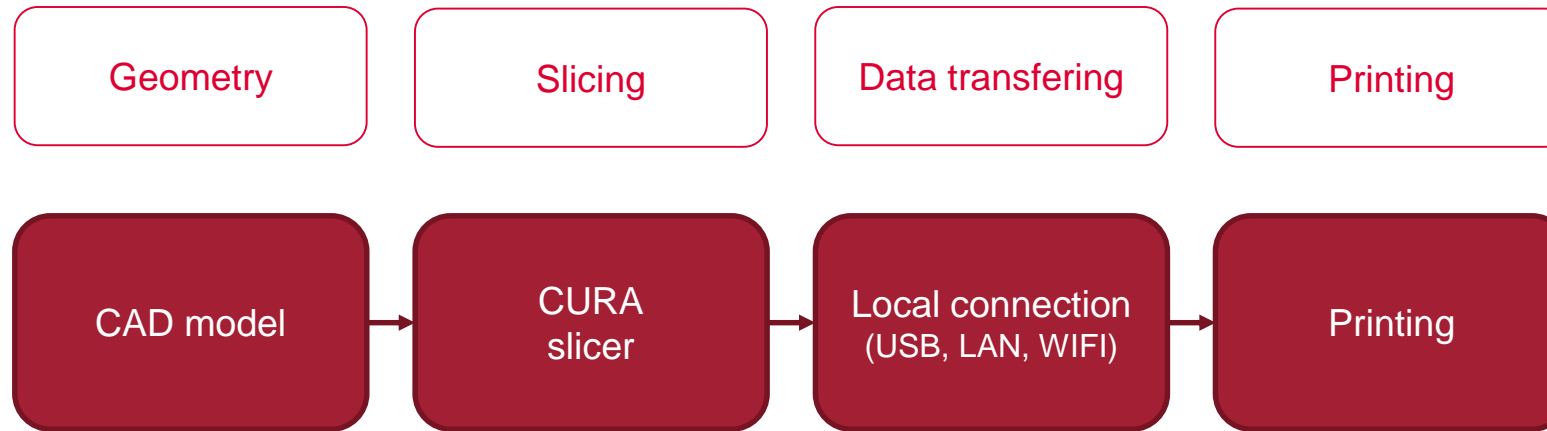
PŘIHLÁSIT SE

☐ Automaticky doplňovat přihlašovací jméno.

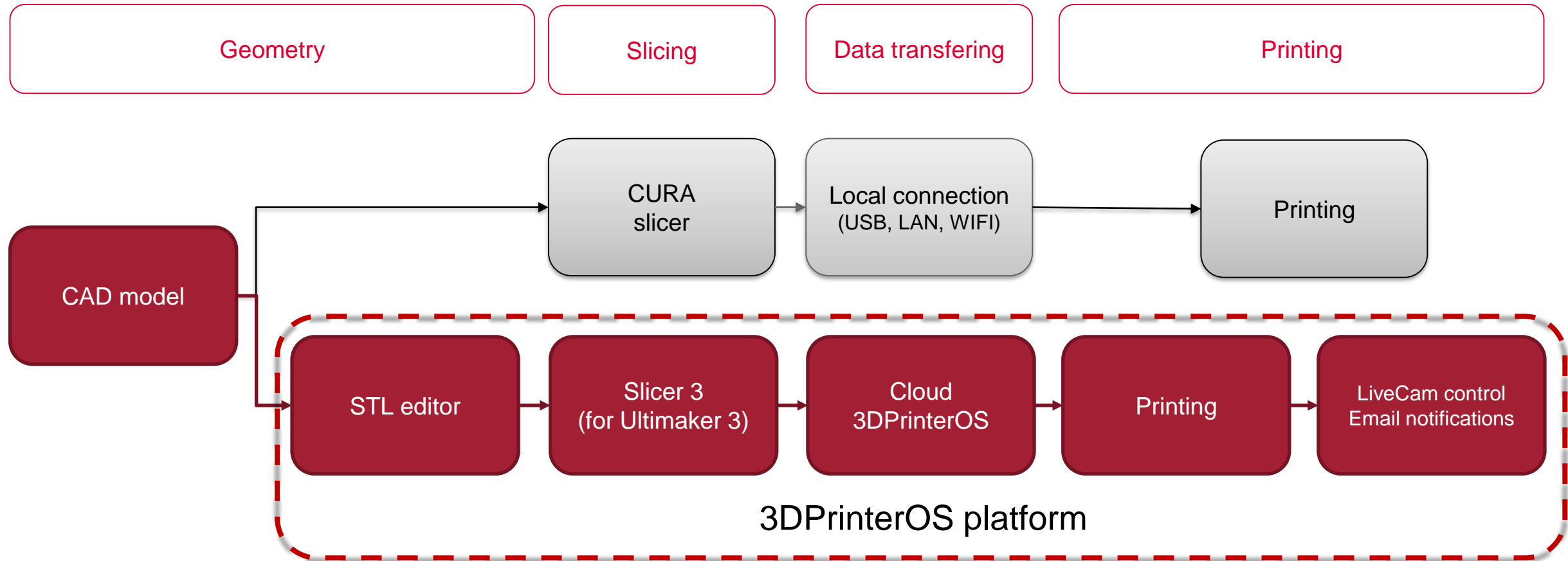


INTRODUCTION OF THE NEW RESEARCHERS

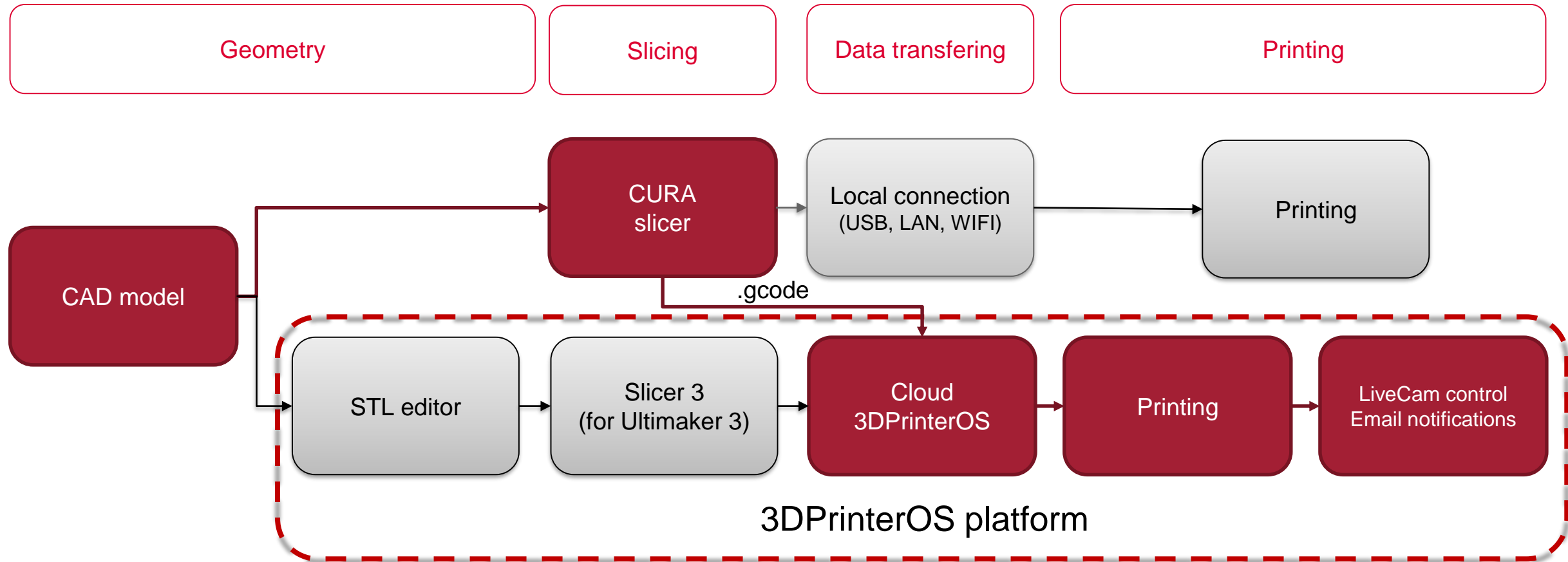
3D PRINT MANUAL – WITHOUT 3DPrinterOS



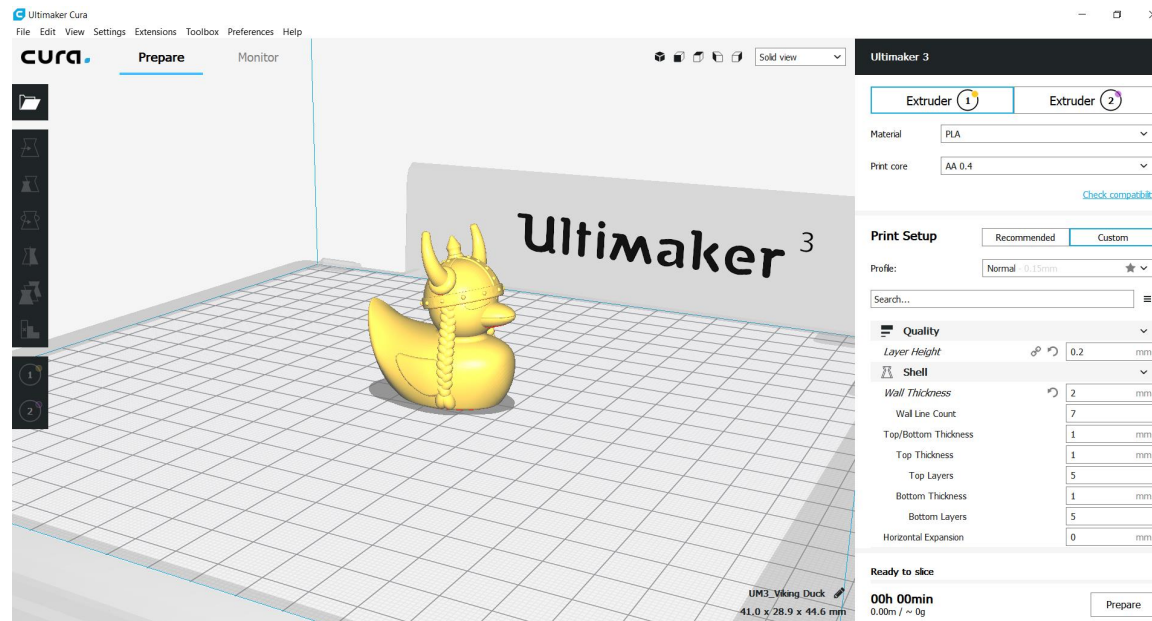
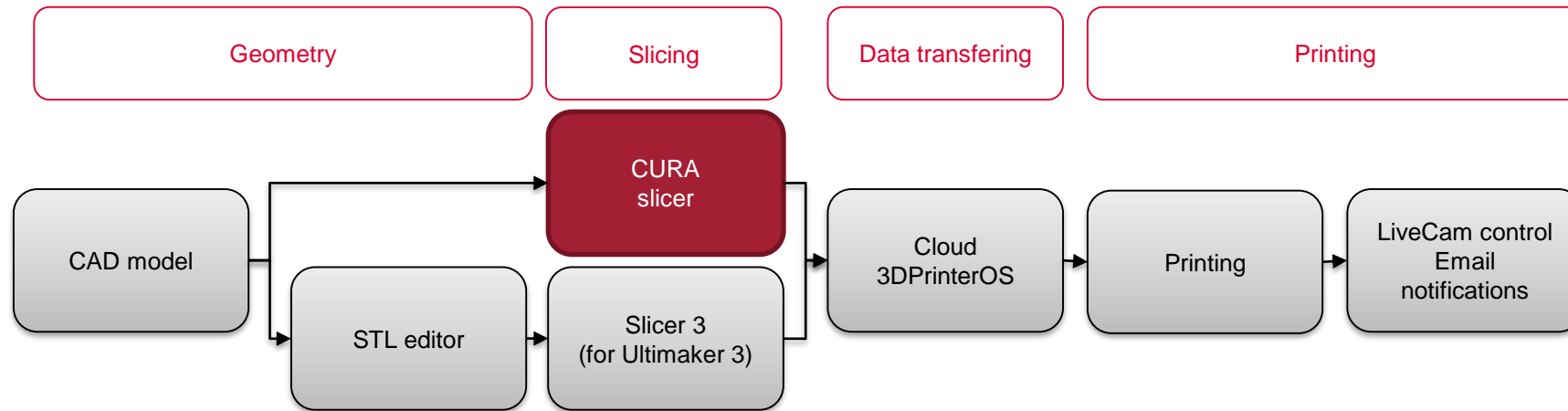
3D PRINT MANUAL – WITH 3DPrinterOS



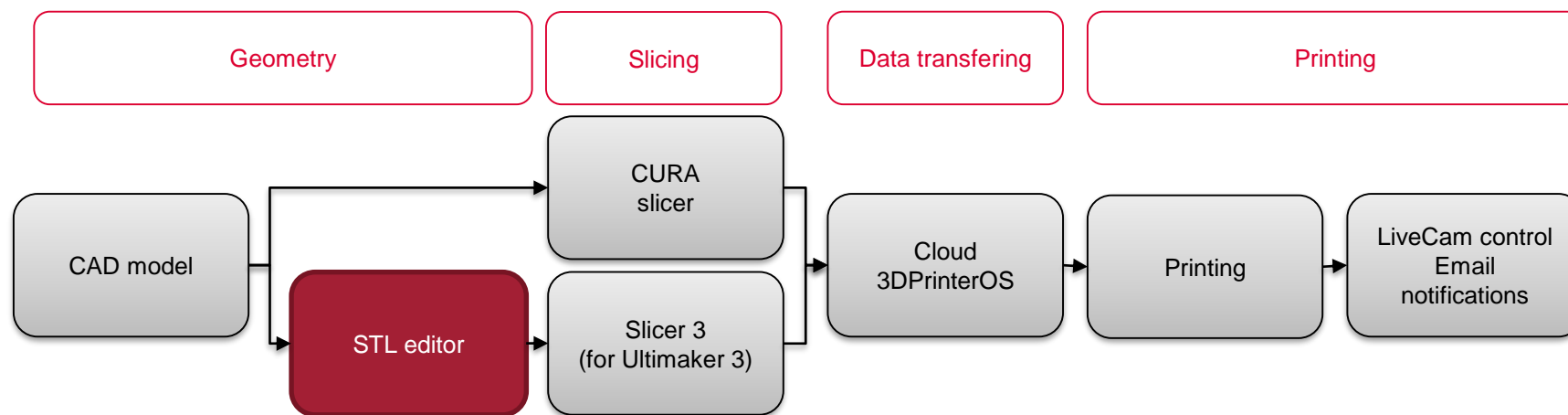
3D PRINT MANUAL – WITH 3DPrinterOS



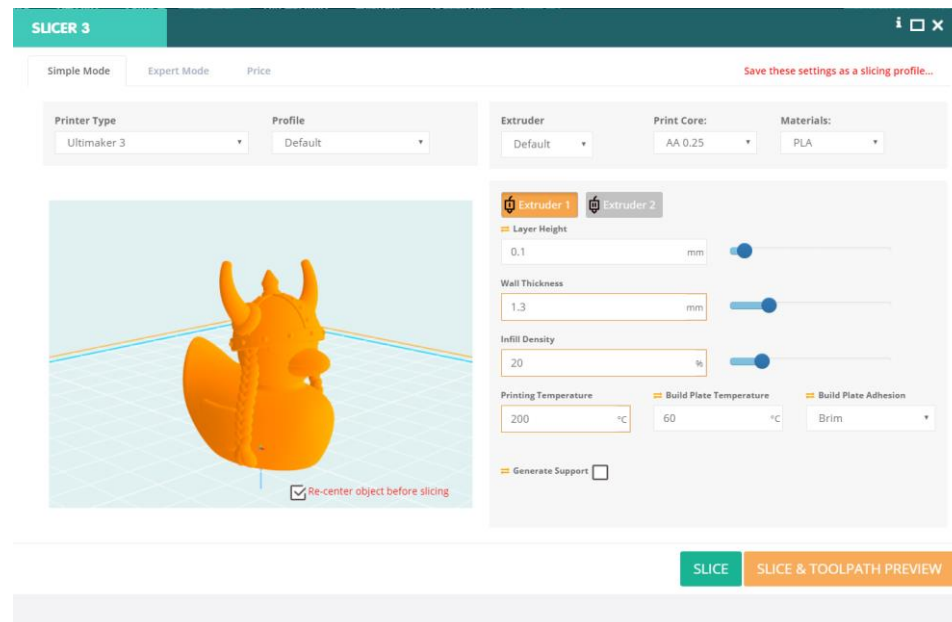
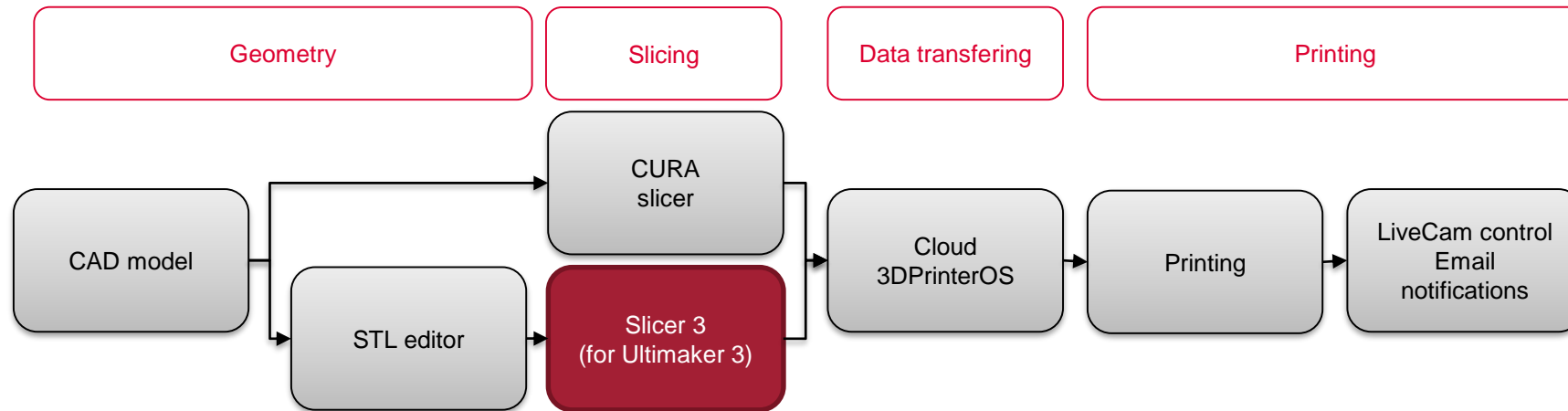
3D PRINT MANUAL – WITH 3DPrinterOS



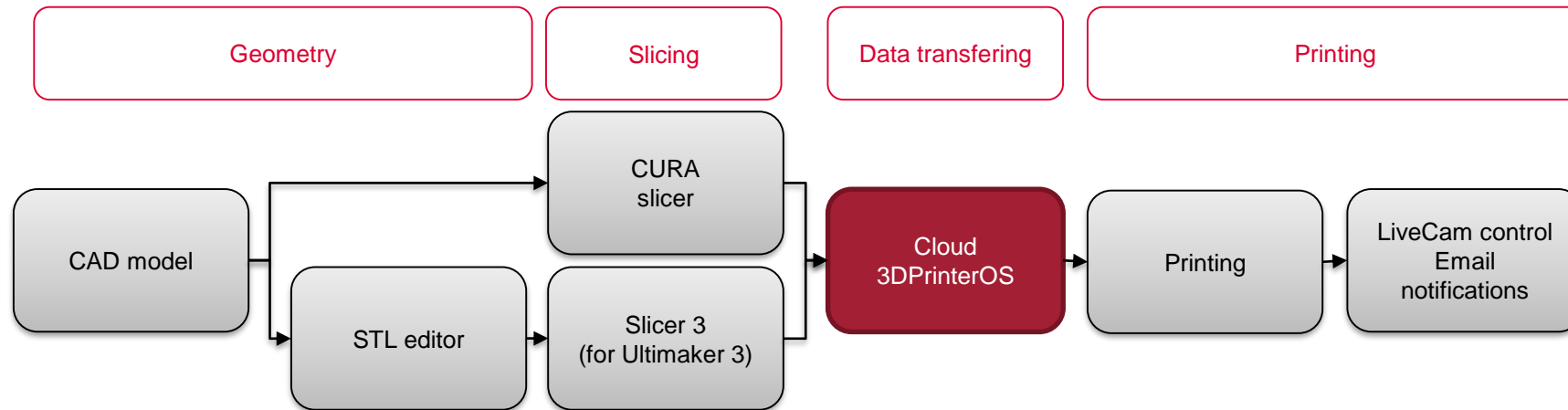
3D PRINT MANUAL – WITH 3DPrinterOS



3D PRINT MANUAL – WITH 3DPrinterOS



3D PRINT MANUAL – WITH 3DPrinterOS



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ADD FILES

ID	Name	Creator	Job offer	Log	Status	Size / print time	Cost	Date / Time added	
1666788	Gas Mask Duck.stl	me		stl	Ready	2.56 MB		19.09.2018 14:20 CEST	SLICE APPS X
1666787	Viking Duck.stl	me		stl	Ready	4.67 MB		19.09.2018 14:20 CEST	SLICE APPS X
1666786	Scuba Duck.stl	me		stl	Ready	1.40 MB		19.09.2018 14:20 CEST	SLICE APPS X
1666785	Tutorial Santa Duck.stl	me		stl	Ready	1.67 MB		19.09.2018 14:20 CEST	SLICE APPS X
1666784	Cloud Duck.stl	me		stl	Ready	1.86 MB		19.09.2018 14:20 CEST	SLICE APPS X
1666783	Professor McDuckley.stl	me		stl	Ready	4.81 MB		19.09.2018 14:20 CEST	SLICE APPS X

Active PrintersLiveView Wall

Register Dremel3D/Robo3DINSTALL+ MORE

Finished jobs stay here for 24 hours only, go to [dashboard](#) to see full history

Ultimaker 4

os : Raspberry Pi

mac : 165166030901733c

Local IP:192.168.3.10

UM4 Ultimaker 3

bed_not_clear

U3

100 %

27.2 °C

27.5 °C

22.6 °C

LIVE VIEW

TOOLS

Date / Time	Filename	Printed by	Filament	Cost	Estimate/ real print time	Status	Logs(click to see)
15.10.2018 14:37 CEST	Prince Duck.gcode	koutecky@ime.vutbr.cz	13.09g	€0.00	01:41 / -	Aborted	Job ID:564168, Printer ID:50256

Ultimaker 3

os : Raspberry Pi

mac : 165166530840ac5

Local IP:192.168.3.24

UM3 Ultimaker 3

idle

U3

27.5 °C

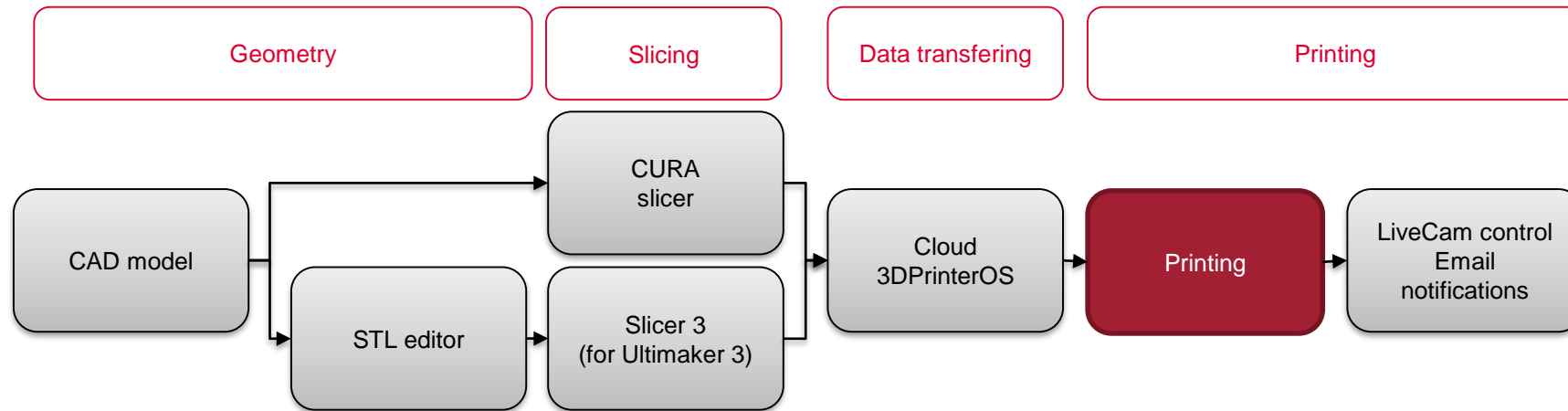
27.8 °C

23.1 °C

LIVE VIEW

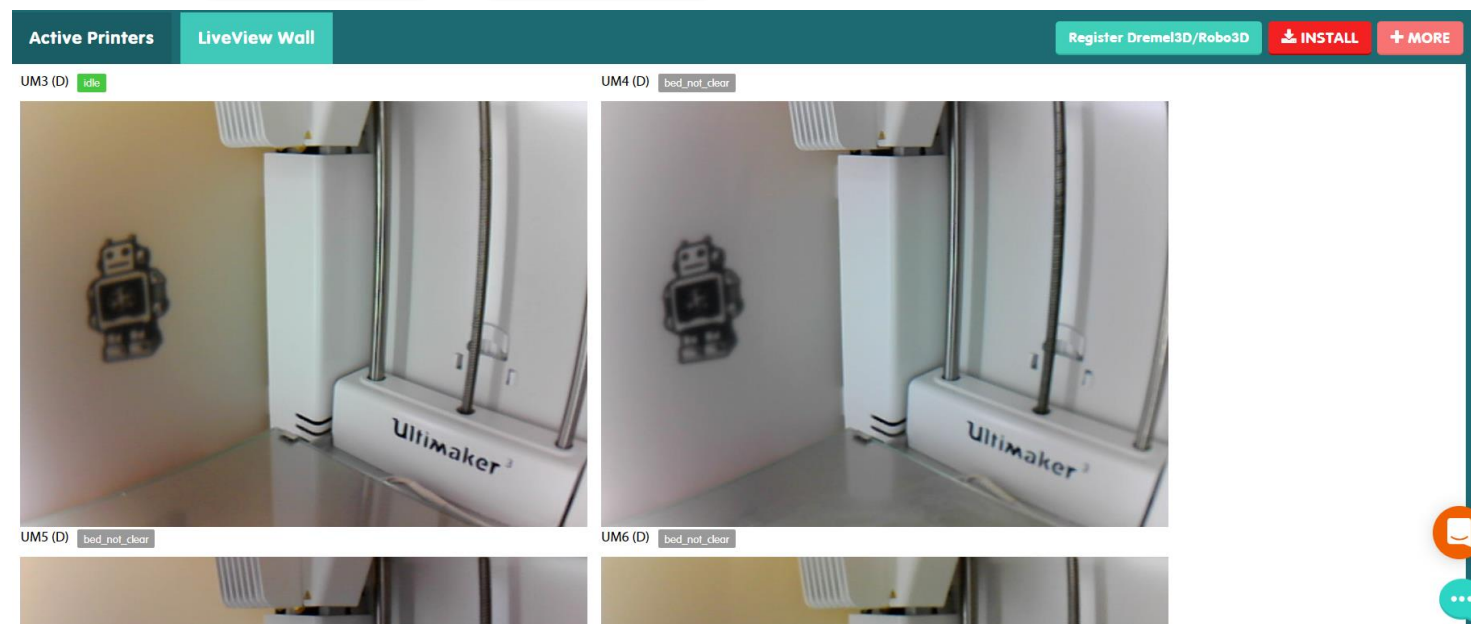
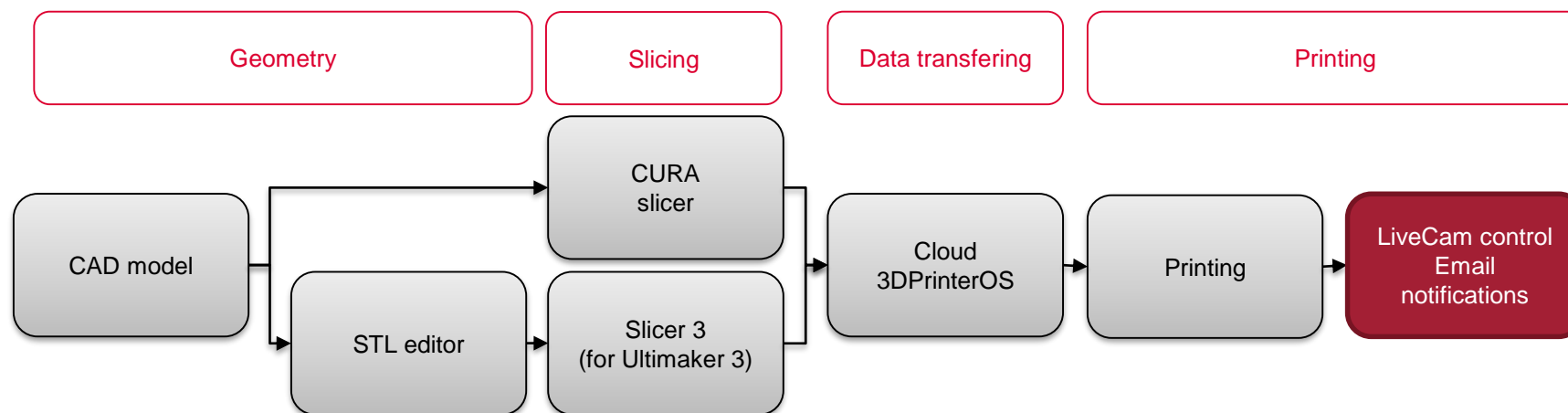
TOOLS

3D PRINT MANUAL – WITH 3DPrinterOS



Parameter	ABS	PLA
Nozzle temperature	220 °C – 275 °C	185 °C – 235 °C
Bed temperature	80 °C – 120 °C	20 °C – 60 °C
Build plate preparation (<i>Cleaning + ..</i>)	ABS Juice Dimafix spray	Glue stick Without preparation
First layer adhesion	Warping	Without problems

3D PRINT MANUAL – WITH 3DPrinterOS



RULES AND PRINCIPLES

- **ÚK Employees, Doctoral students, Master students (M-KSI, M-PDS)**
- Workgroups by Institute departments
- Students assigned to departments by diploma theses.
- Printed files for student projects (except Diploma thesis) must be named according to the template:

DEPT_FILENAME.SUFFIX

(e.g. RIAT_KONZOLA.gcode)

NECESSARY FOR FILTERING



RIAT
TRIBO
DIAG
PD

RULES AND PRINCIPLES

- **Printing tutorial almost completed and will be:**
 - Published on the Institute's website
 - Sent to all employees and students via email
 - Printed and placed in the 3D print laboratory
- **Operating rules will be placed in the lab**
 - Distribution and labelling printers for a given type of material (ABS / PLA)
 - Necessary to control start of the printing (especially with ABS filament)
 - Laboratory equipped with laptop for managing printing parameters

TIMEPLAN

- **Laboratory testing process**
 - From 17.10.2018 (limited amount of material)
 - Until December 2018 / January 2019
 - Reporting bugs and problems
- **Fully-featured operation**
 - From January 2019 (Summer semester)

THANK YOU FOR YOUR ATTENTION

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