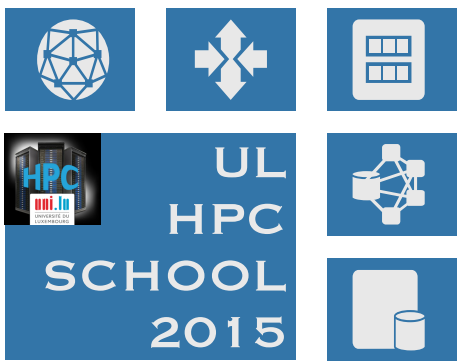

Extreme Computing Studio (XCS) Portal

Interactive & graphical sessions

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Summary

1. **Graphical sessions on UL HPC**
   - Two connection methods
   - X11 forwarding

2. **The XCS Portal**
   - Overview
   - Prerequisites
   - Applications integrated in XCS
   - A look at XCS

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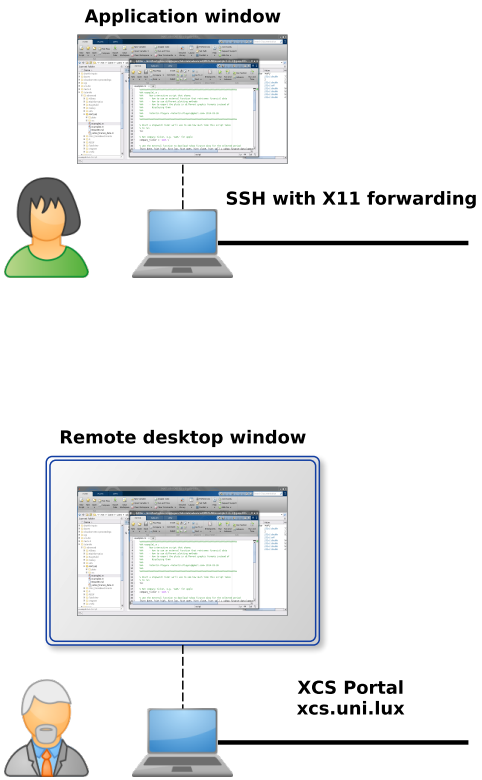
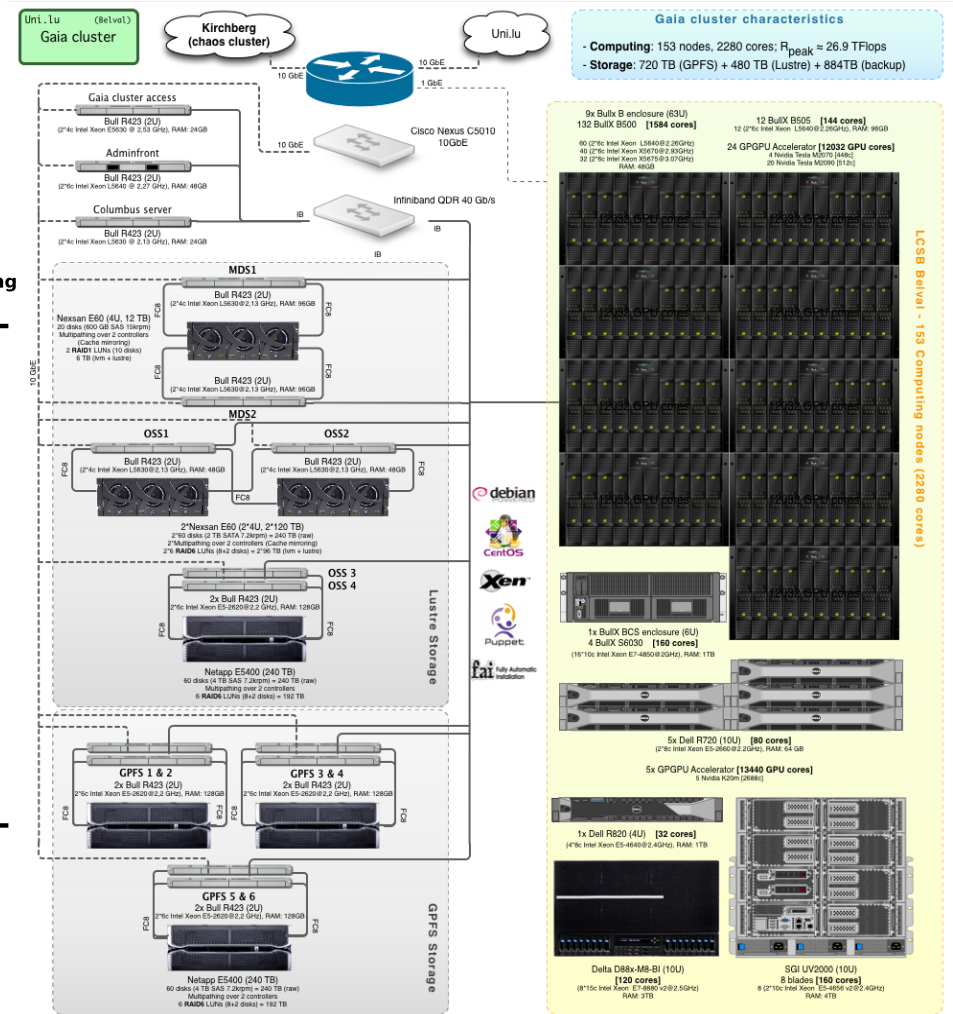
Using graphical interfaces on UL HPC





X11 forwarding

- On Windows
  - ↪ **Putty**: Category → Connection → SSH → X11 → Enable X11 forwarding (*check*)
  - ↪ VcXsrv: Windows X-server, to render locally the remote application

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Downsides

- Network connection interrupted → session crashes
- Rendering **slow** (no 3D acceleration) and **network intensive**

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Overview

- Web portal dedicated for visualisation sessions: xcs.uni.lux
  - ↪ available from inside the UL network and externally through UL VPN

- Portal features:
  - ↪ (limited) **data management** capabilities (browse/upload/download)
  - ↪ **submission of visualisation sessions** for pre-configured applications
  - ↪ **accessing** & **suspending** visualisation sessions
  - ↪ **sharing sessions** with other users

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Advantages

- Network connection interrupted → session survives
- Rendering on GPU nodes – **fast** (with 3D acceleration)
- Fluid on slow networks (intelligent compression)

Prerequisites

1. UL HPC account, you need your **password** to login on xcs.uni.lux
2. your account to be in the XCS group (for now, added on request)
3. TurboVNC: Virtual Network Computing application tuned for maximum performance and compression with 3D applications
4. to use a specific application through XCS, its profile needs to be defined by the HPC team

Current applications integrated in XCS

- MATLAB
  - ↪ High-level technical computing language and interactive environment for algorithm development, data visualization, data analysis, and numerical computation.
- RStudio
  - ↪ IDE for R, a programming language for statistical computing and graphics.

Current applications integrated in XCS

- SAS (Statistical Analysis System)
  - ↪ Advanced analytics, business intelligence, data management, and predictive analytics software.
- STATA
  - ↪ Complete, integrated statistical software package for data analysis, data management, and graphics.

Current applications integrated in XCS

- ABAQUS
  - ↪ Finite Element Analysis software for modeling, visualization and best-in-class implicit and explicit dynamics FEA.

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- VMD
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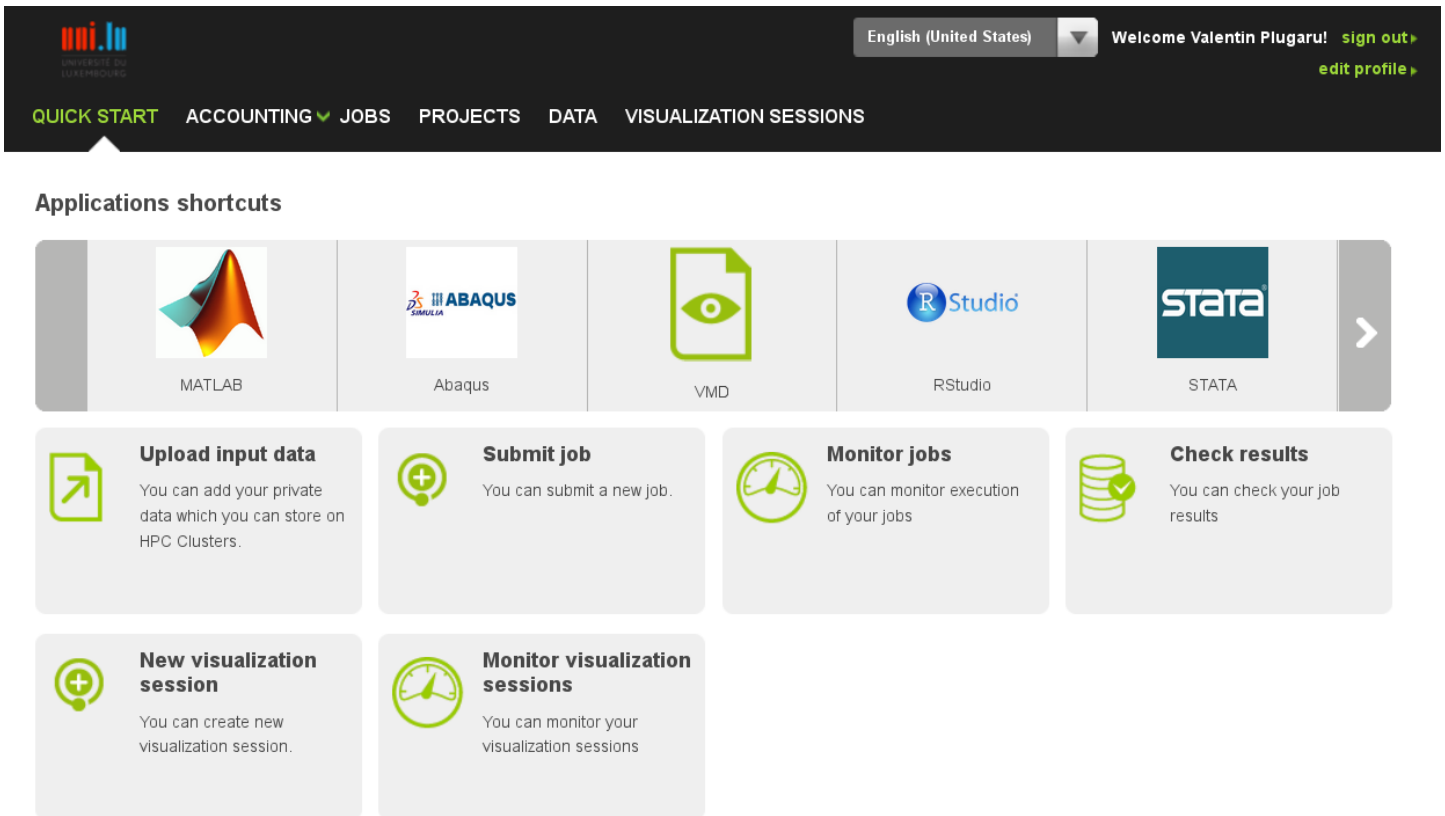
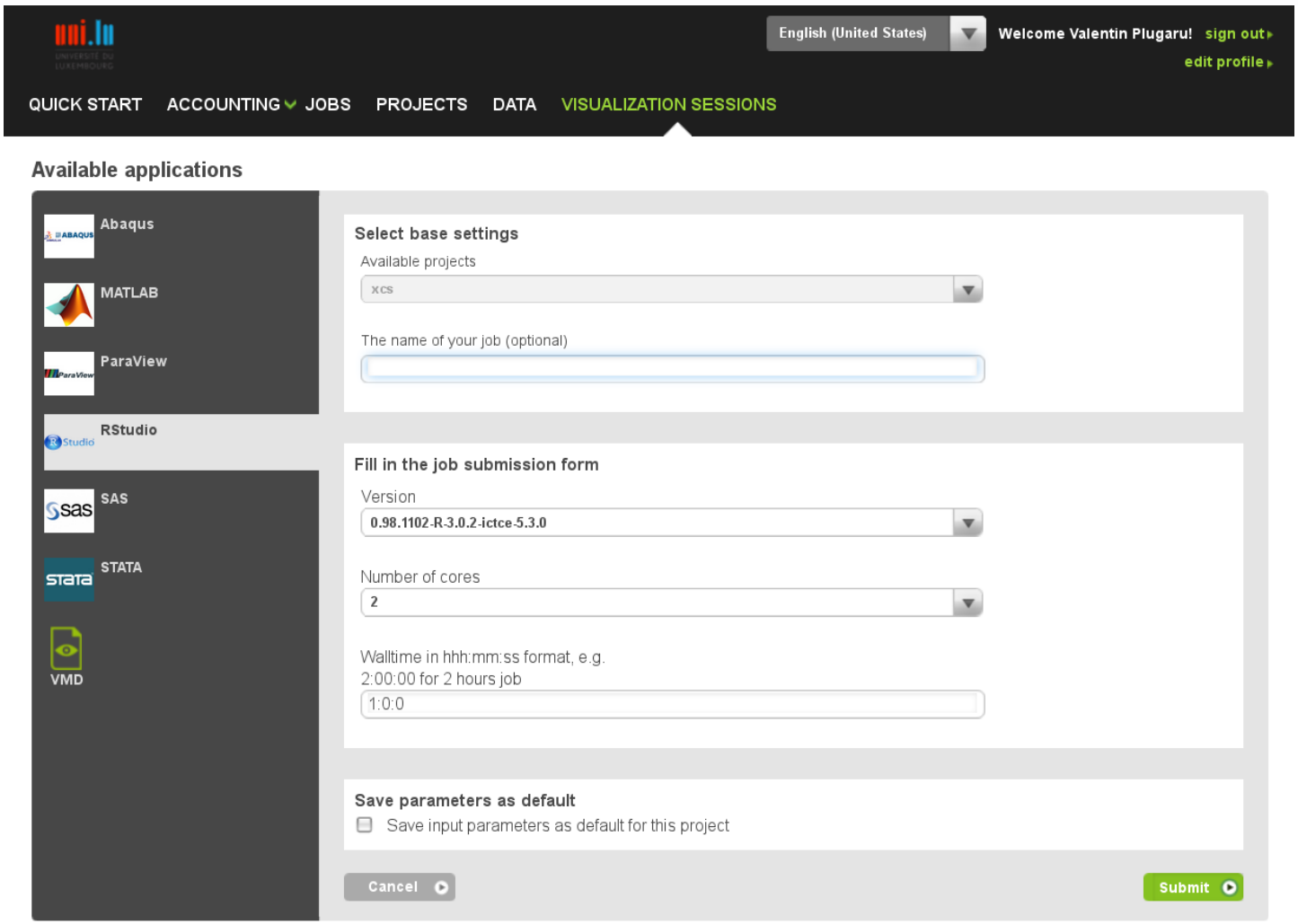
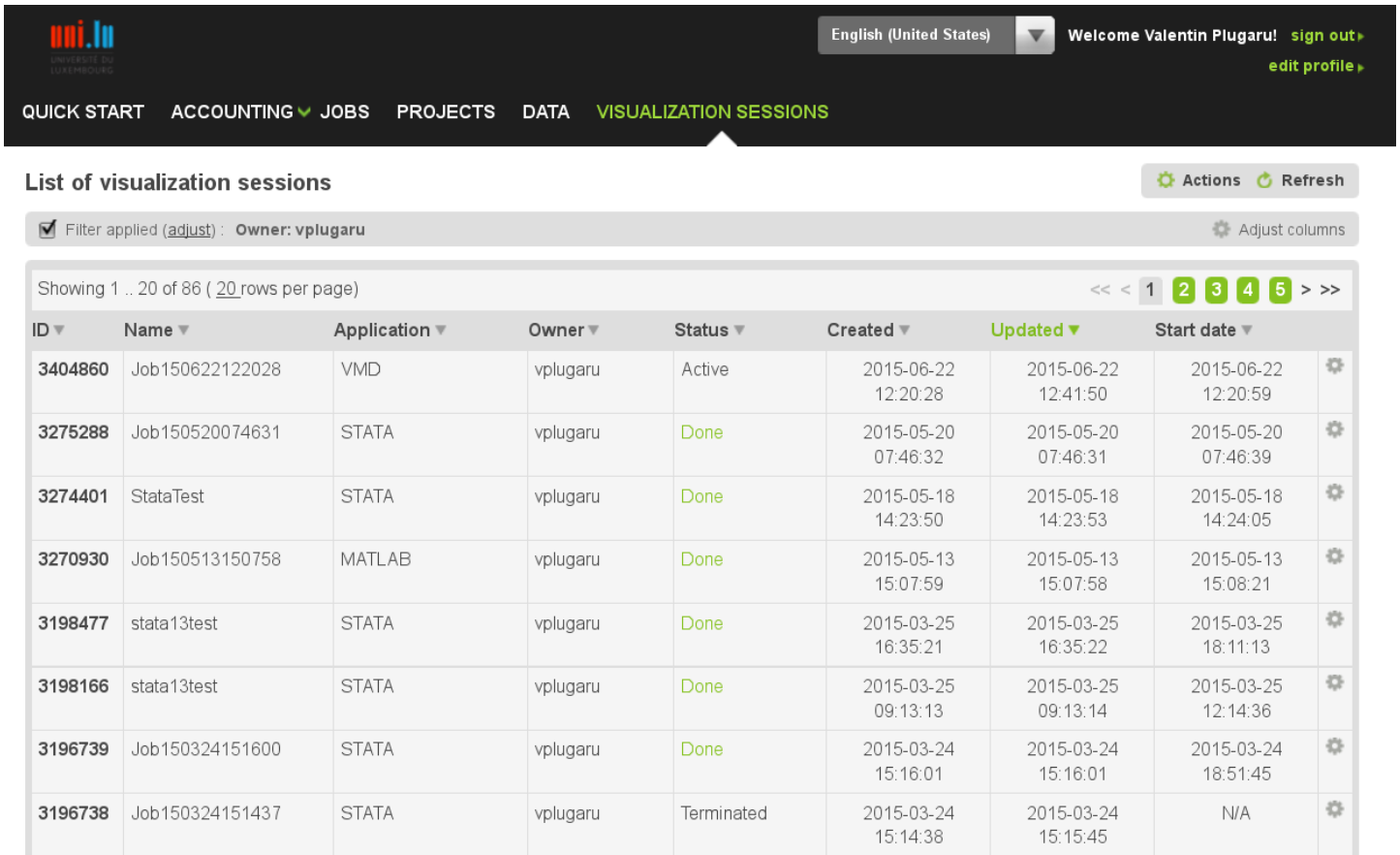
XCS Intro page



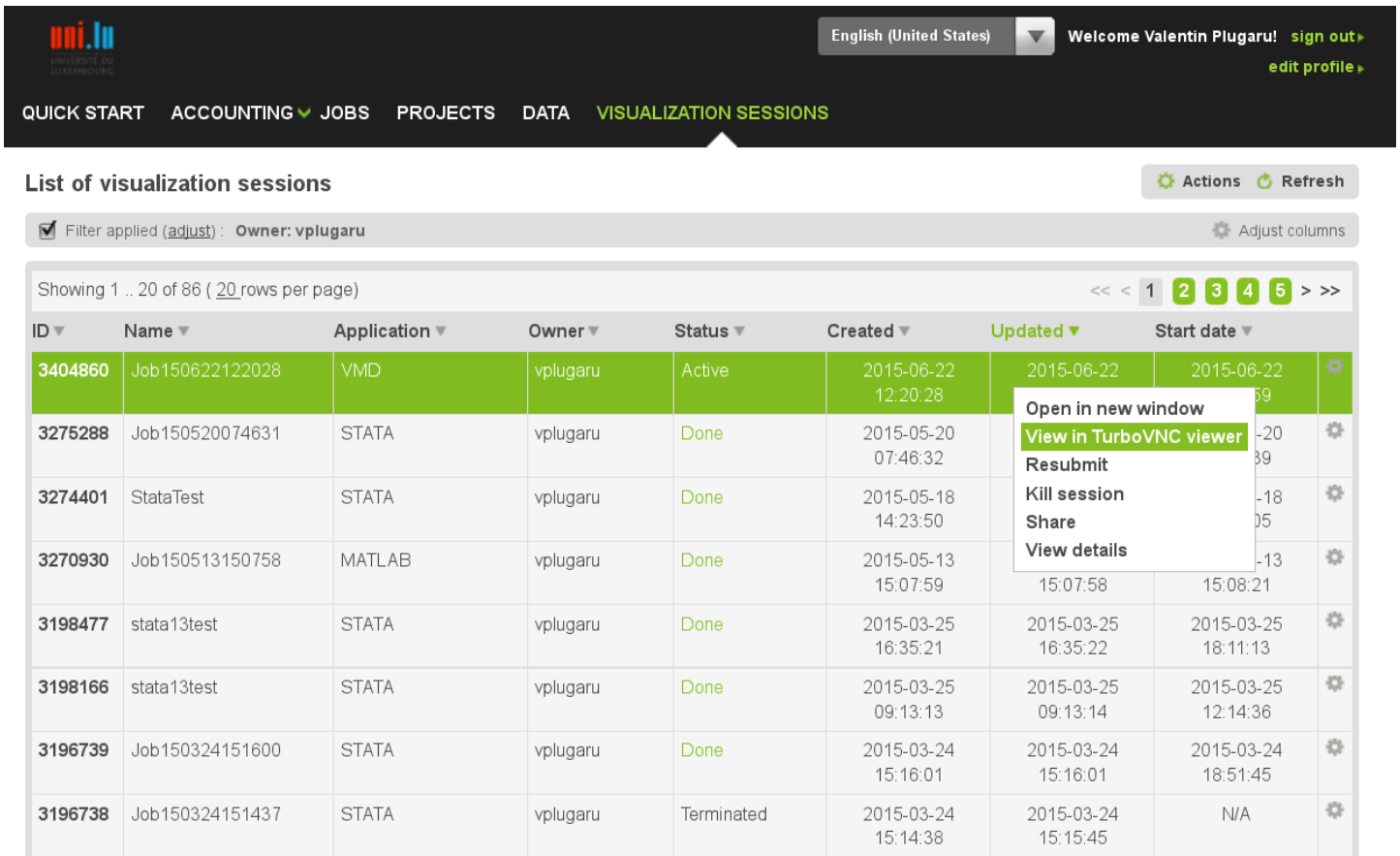
Launching a graphical session



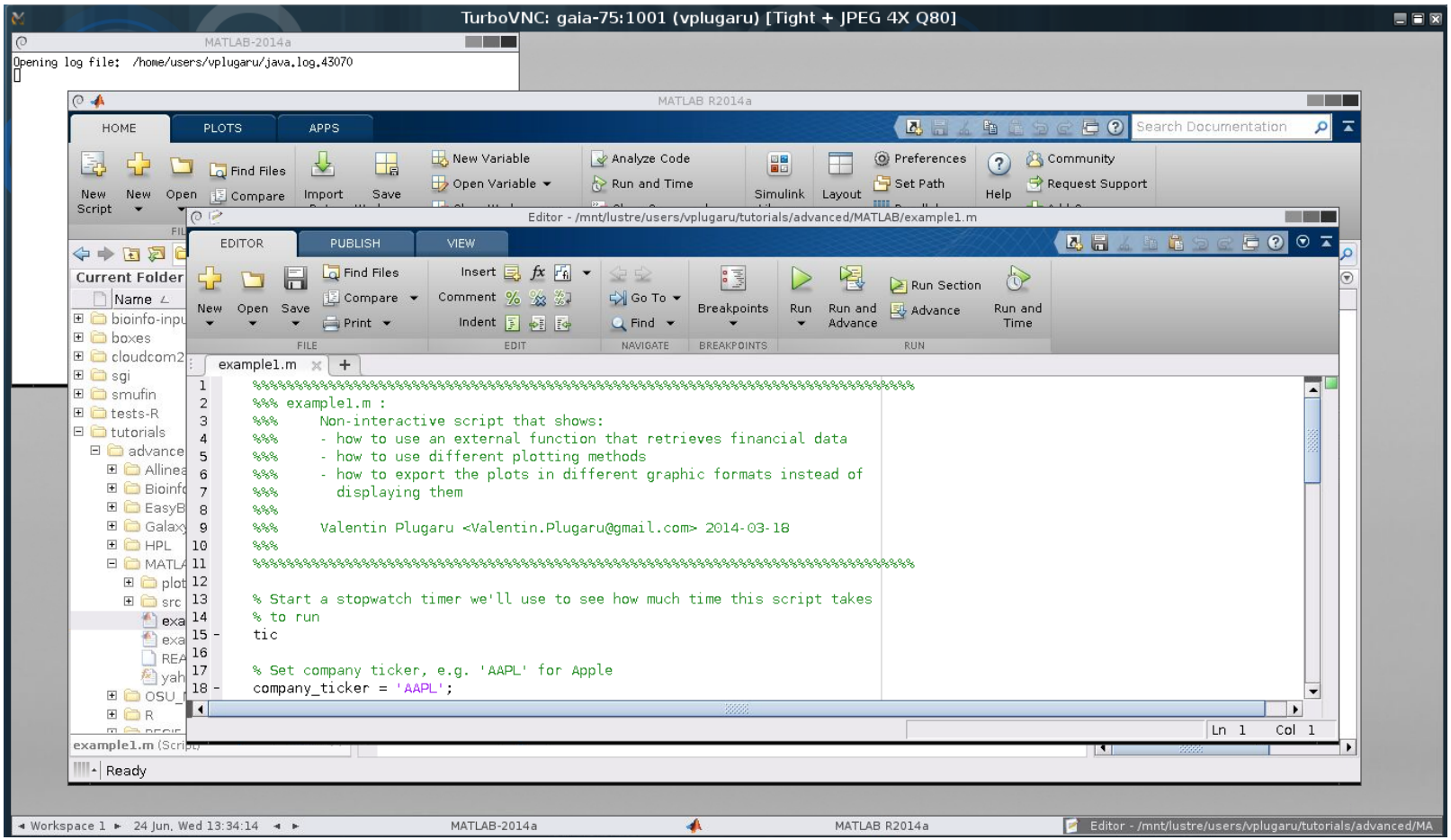
Checking job status



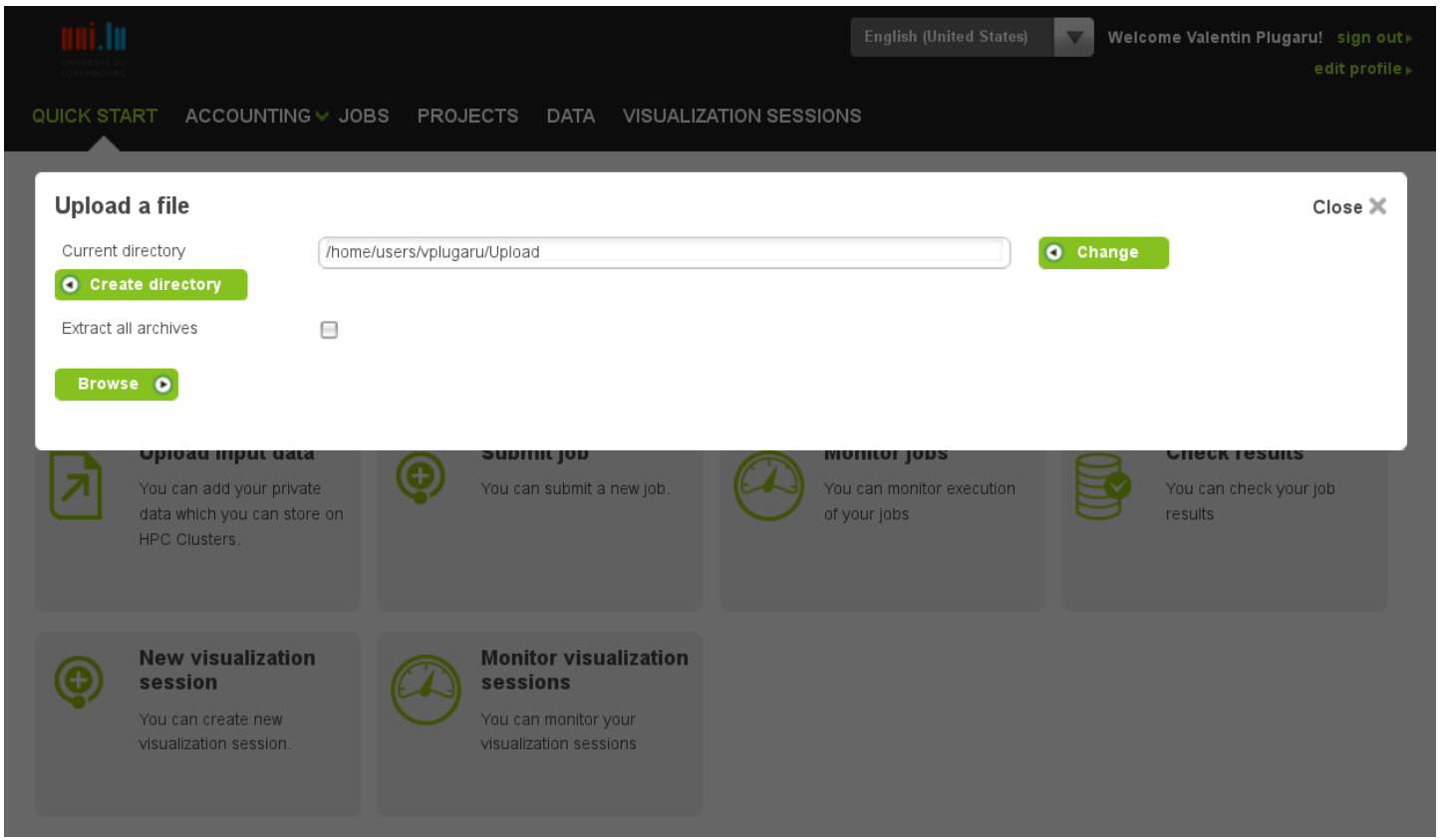
Connecting to a running session



An active remote desktop session



Uploading data



Questions?

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