OAK RIDGE National Laboratory

December User Conference Call
Analysis Analysis and Visualization Tools at OLCF

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U.S. DEPARTMENT OF ENERGY

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- Scientific Visualization Tools Overview
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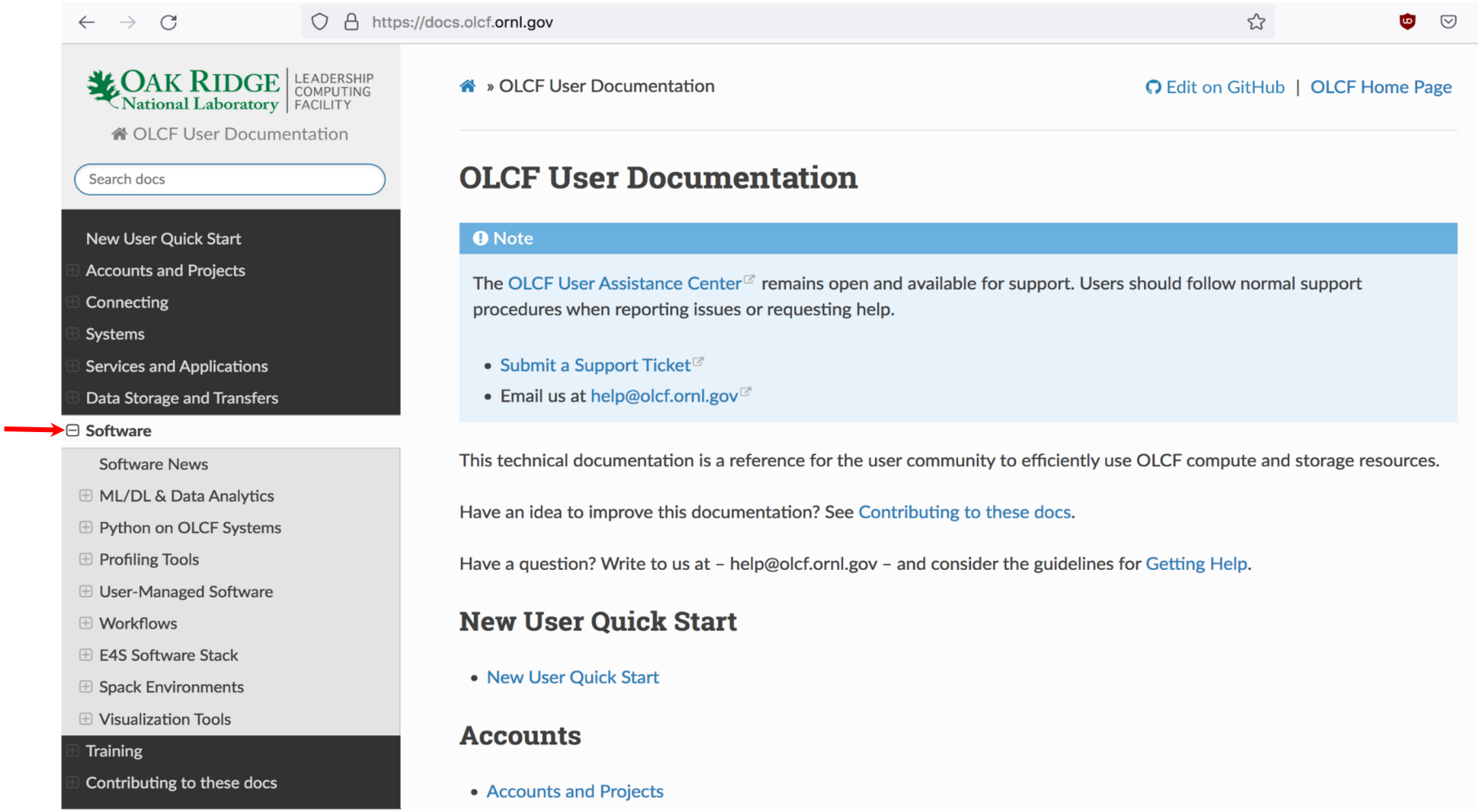
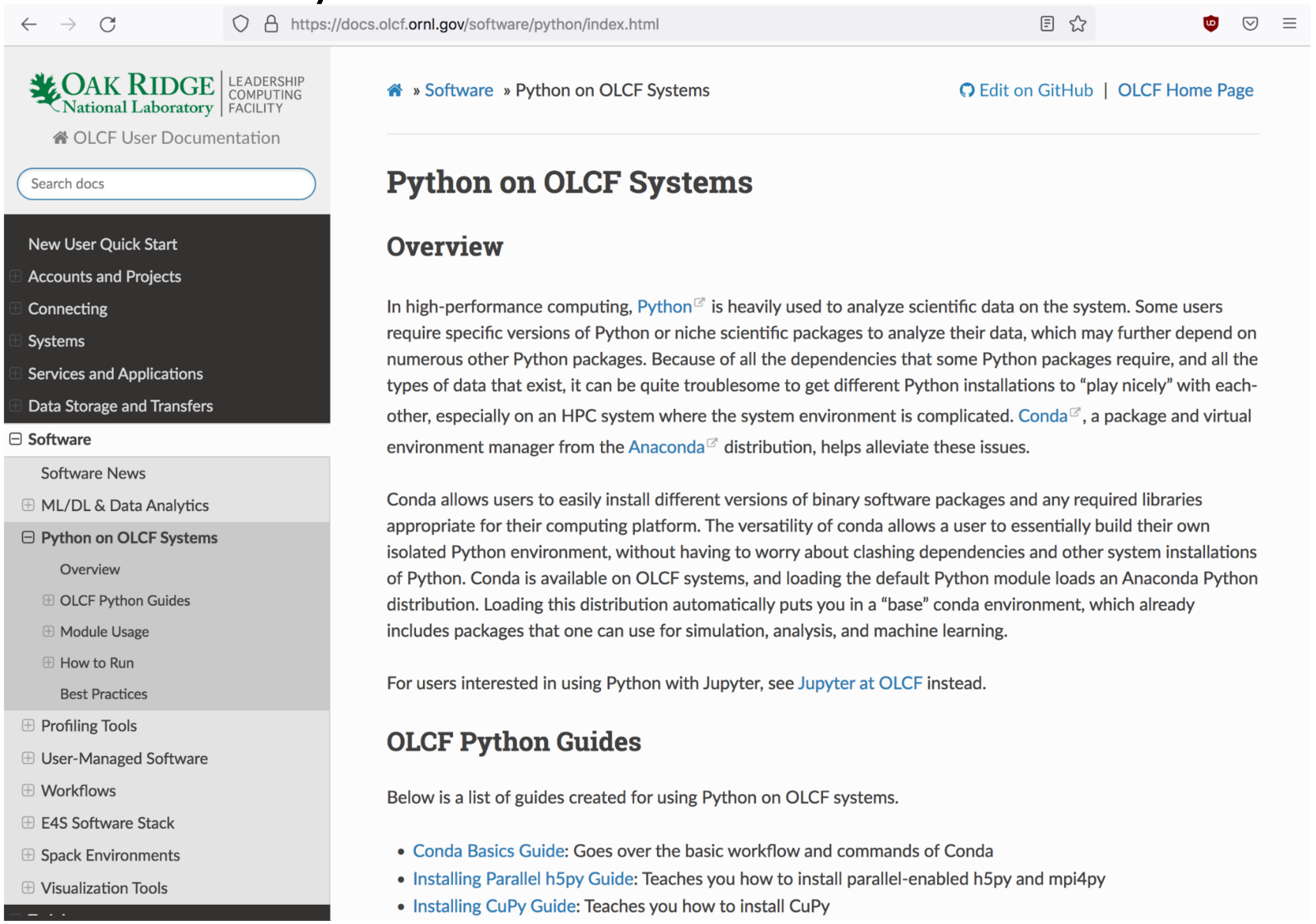
  - Visit

Tools Overview

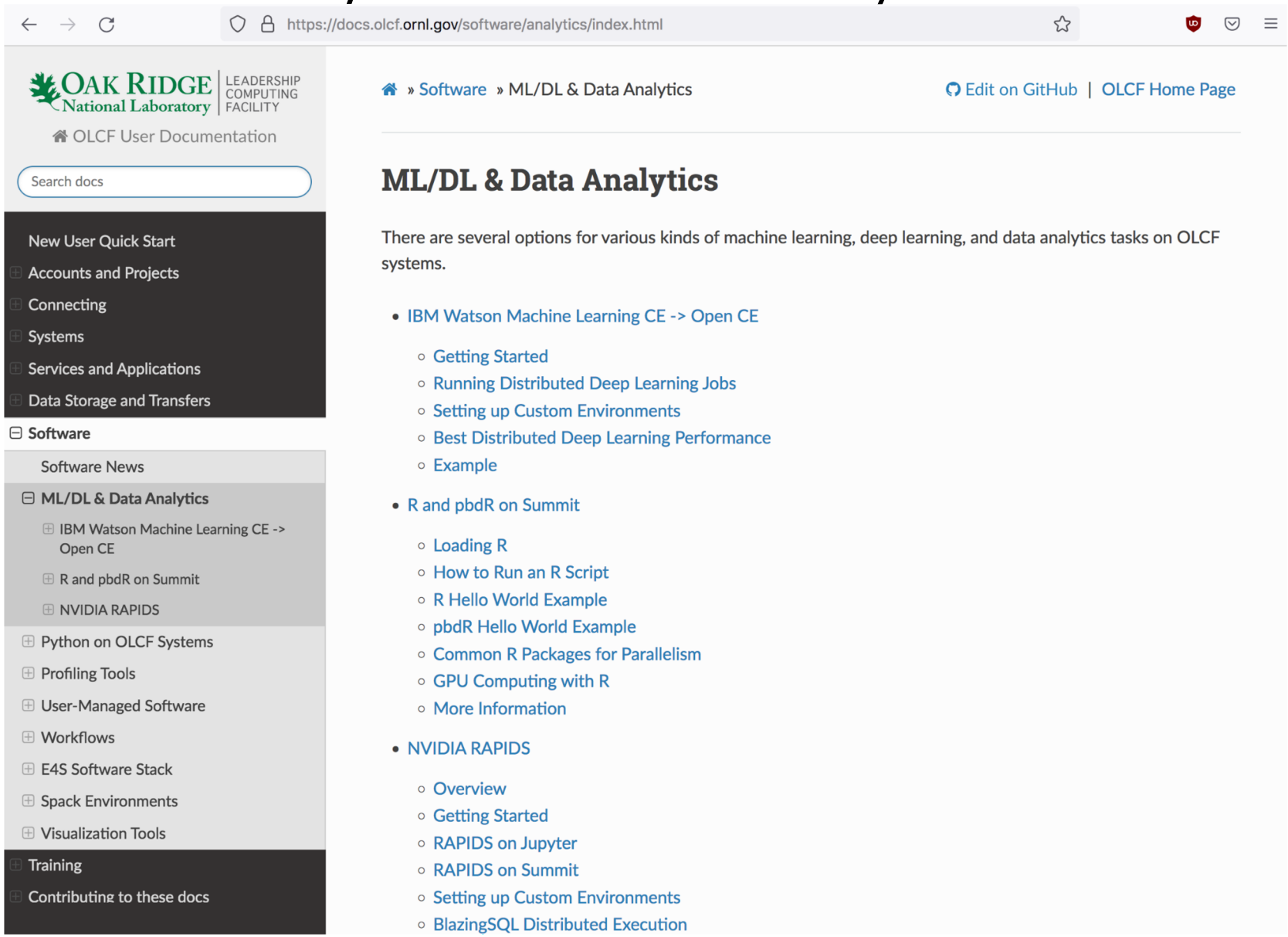
- docs.olcf.ornl.gov



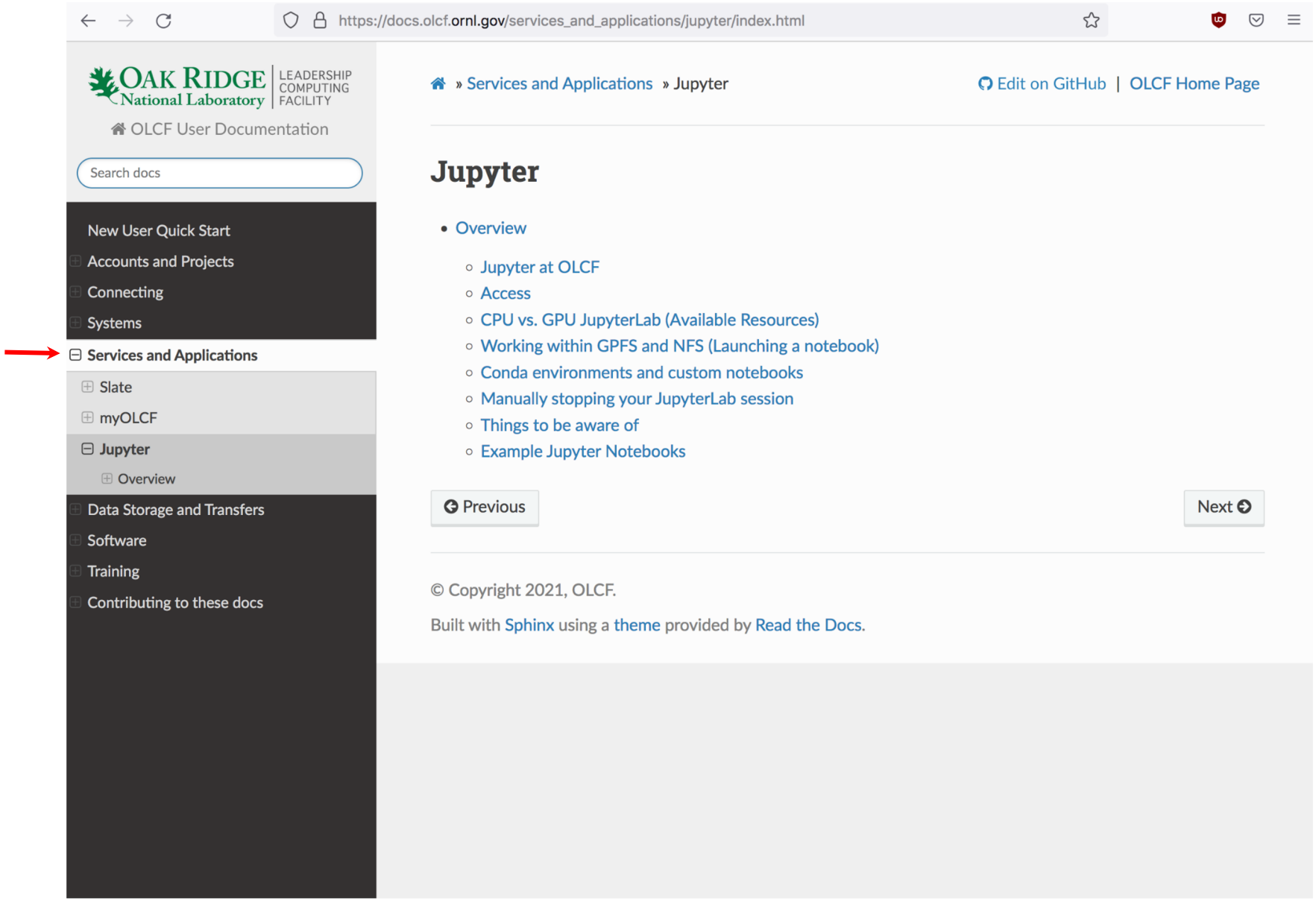
Tools Overview. Python at OLCF



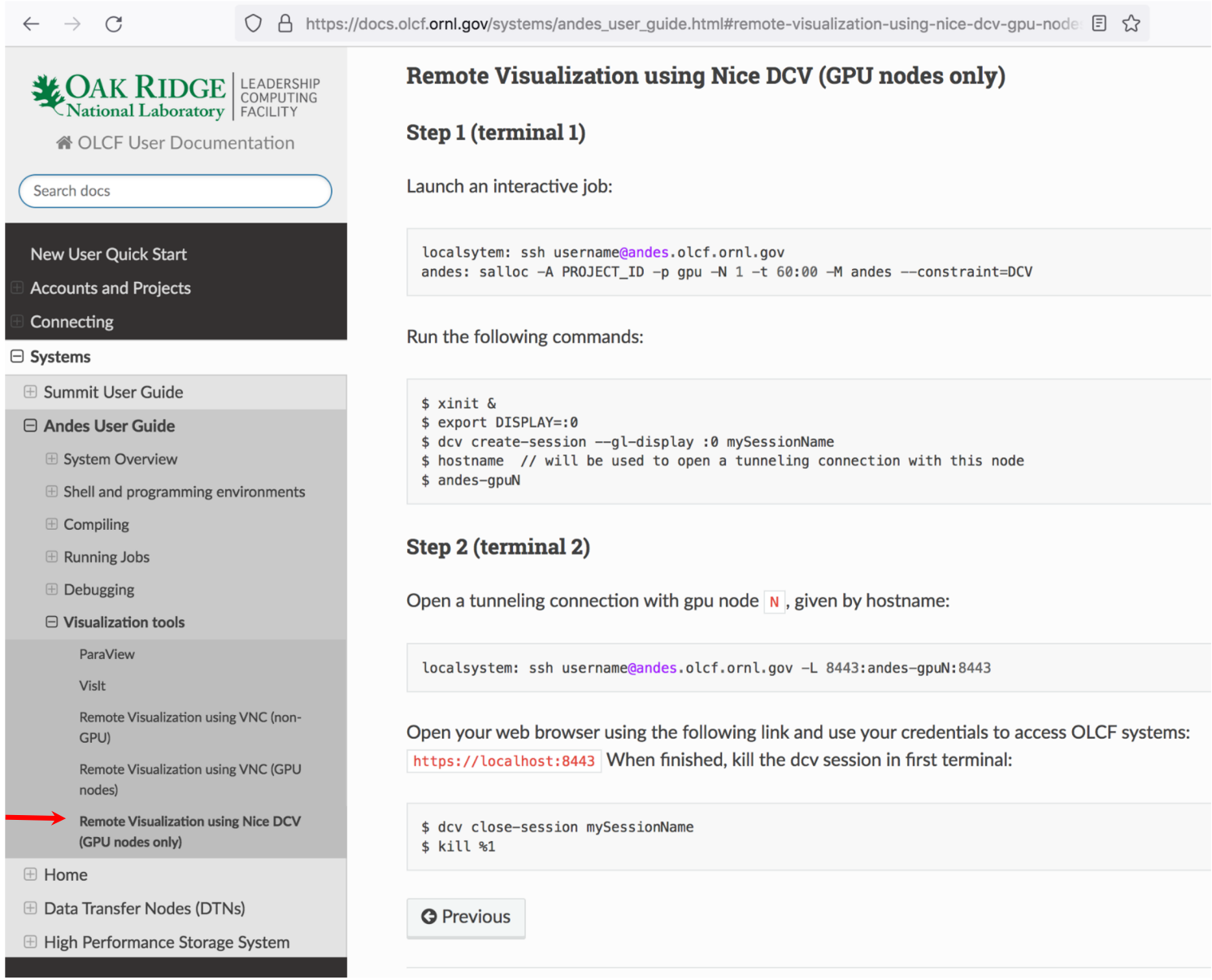
Tools Overview. ML/DL & Data Analytics



Jupyter at OLCF



Visualization tools



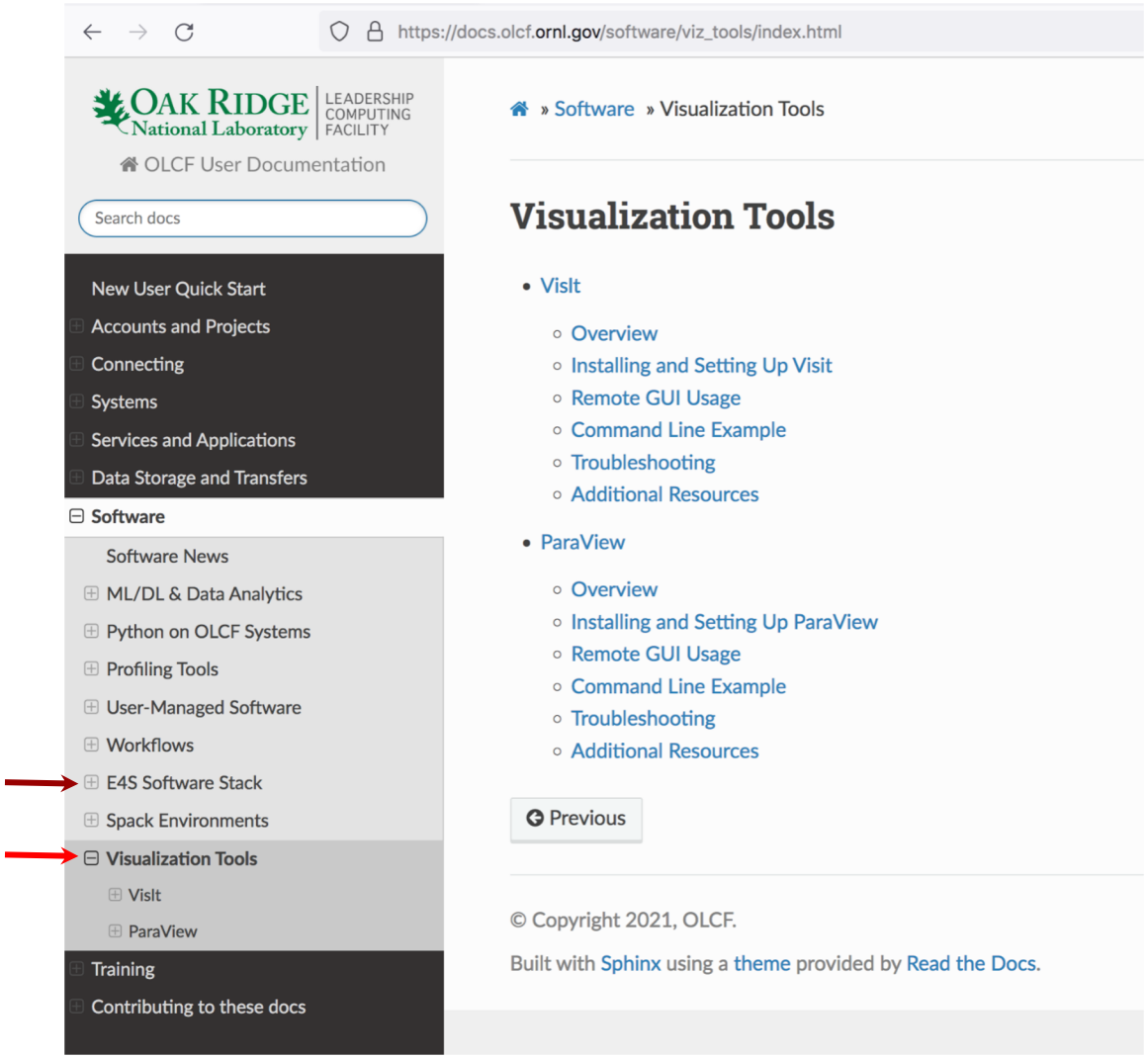
Remote Desktops. TurboVNC and NiceDCV

- Users can access and control a remote desktop (xfce) running on Andes.
  - Useful when a viz. tool does not have a client/server architecture as in Paraview or Visit
- TurboVNC and NiceDCV as a low-latency alternative to X-forwarding
  - RFB (remote frame buffer protocol) for optimal keyboard and mouse event and frame buffer delivery.
  - Low latency encoding
    - TurboVNC - JPEG encoding on CPU's SIMD instruction set
    - NiceDCV - H264 encoding using NVENC on GPU

Remote Desktops.

	TurboVNC	TurboVNC / VirtualGL	NiceDCV
Open source	Yes	Yes	No
Availability	Regular nodes	GPU nodes	GPU Nodes (5 seats)
Use case	Non graphics intensive apps, e.g. 2D graphics, any user interface (matlab, performance tools, editors, etc.)	GPU accelerated 3D graphics, apps with no client/ server architecture e.g. VMD, yt's 3D visualization, USC Chimera, custom viz. tools CUDA+OpenGL	GPU accelerated 3D graphics, apps with no client/ server architecture e.g. VMD, yt's 3D visualization, USC Chimera, custom viz. tools CUDA+OpenGL If TurboVNC/VirtualGL provide laggy response
Compression	TurboJPEG (SIMD) • Configurable Quality / Compression settings	TurboJPEG (SIMD) • Configurable Quality / Compression settings	H264 (NVENC) • Configurable Quality / Compression settings
Client	vncviewer	vncviewer	Web browser

Visualization Tools



Thanks!

Issues and feedback

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