

Configuring and Customizing the HUBzero Experience

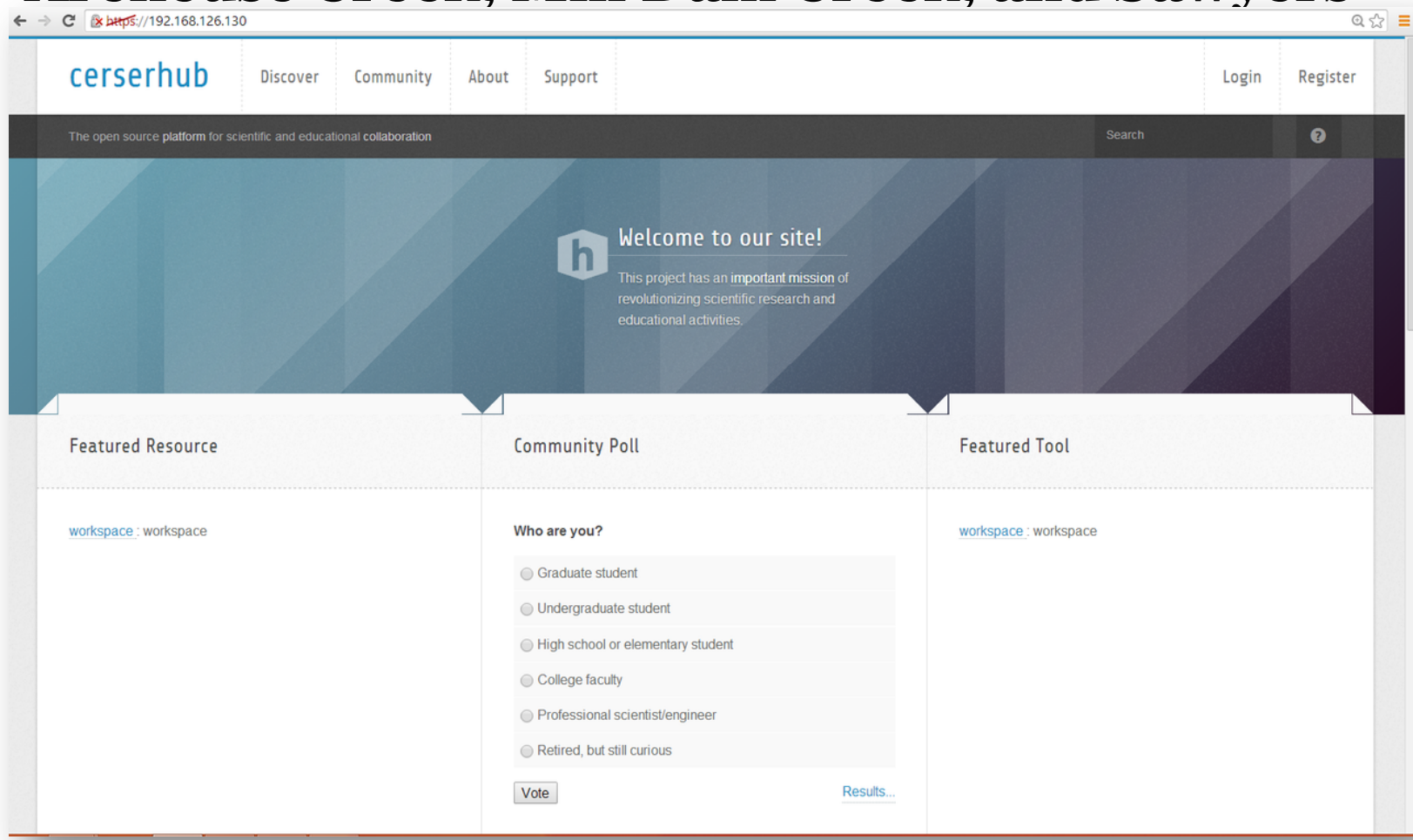
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Abstract: HUBzero is an open source software package used to construct websites for scientific research and educational activities. HUBzero was originally created by researchers at Purdue University in conjunction with the National Science Foundation (NSF) who sponsored the Network for Computational Nanotechnology to support nanoHUB.org. The HUBzero platform currently supports over 40 hubs across a variety of disciplines, including cancer research, biofuels, climate modeling, water quality, education, and more.

The team investigated how HUBzero features are utilized for research, education, and scientific collaboration. The project involved configuring and customizing the user experience on a new hub. The team also learned how to work with simulation workspaces, plus the process of allowing groups to collaborate. Finally, the team learned how to publish the hub so that it could be viewed publicly and how to use the new database component.

To accomplish this, the HUBzero team members used data collected by the 2013 Research Experience for Undergraduates Pasquotank River Watershed Team who completed tests of five tributaries and the river itself. Streams tested were Newbegun Creek, Knobbs Creek, Areneuse Creek, Mill Dam Creek, and Sawyers



Introduction: In order to make recent research data collected by participants of the CERSER (Center of Excellence in Remote Sensing) program at ECSU (Elizabeth City State University) interactive for other users of the science community, HUBzero was introduced as a tool for fulfilling the task at hand. In order for the HUBzero tool to be of assistance, the proceeding questions are to be answered: How can the team obtain knowledge of HUBzero by creating a hub; What processes are required to upload a database to the hub and further install it on a computer server; How can the hub be made accessible and interactive to the science community.

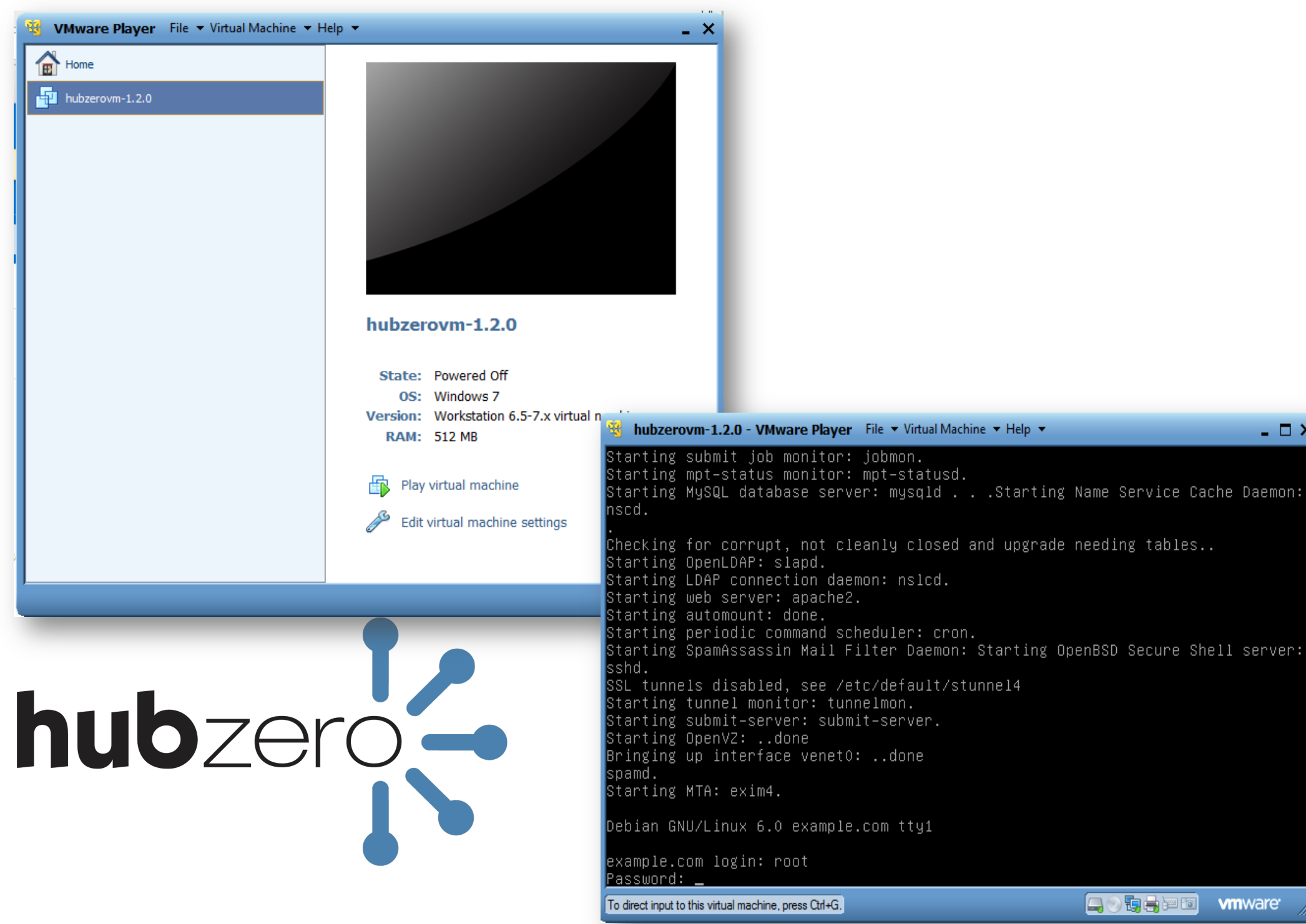
Prior to making research data interactive and accessible, a hub must be created using HUBzero to set the stage for community interaction. HUBzero was created with the purpose of sharing and connecting theorists, experimentalists, and educators all with the collective aim of bridging together scientific discovery and the scientific community. With this in mind, by creating a hub, customizing, and establishing it on the HUBzero site through running the VMware player the hub is ready to be manipulated for interaction.

Following the creation of the hub, the team's mission was to create a database of water quality data, previously researched by past CERSER participants, upload the database onto the hub as a component, and make it interactive for others. By adding the database component to the customized hub, not only does this share research data, but it also becomes a piece of the science community for viewers who are exposed to the team's hub.

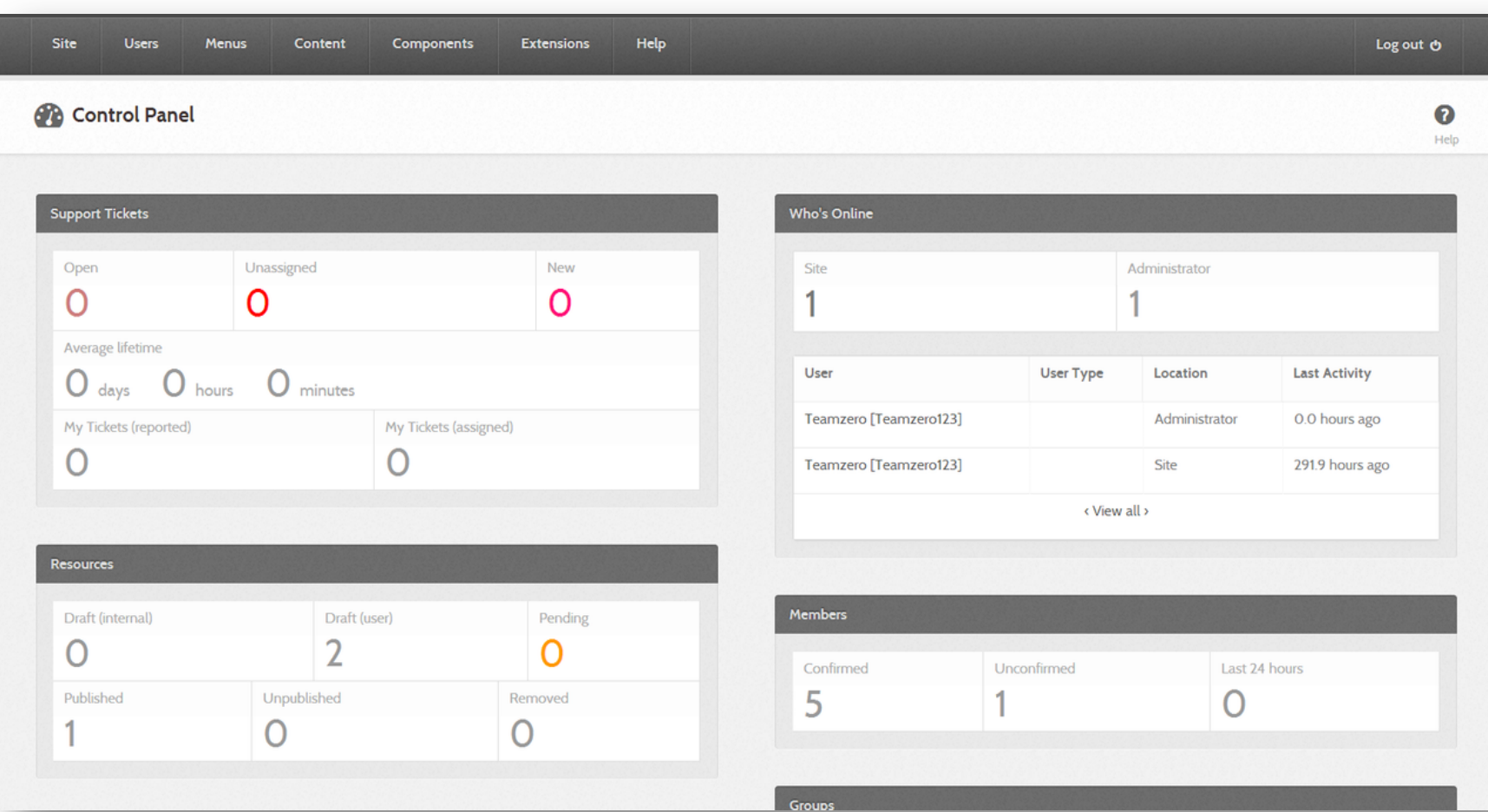
Objectives:

- Download and install HUBzero
- Obtain knowledge of HUBzero by creating a hub
- Upload a database to HUBzero
- Set up hub on Server at ECSU
- Make database accessible and interactive to the science community

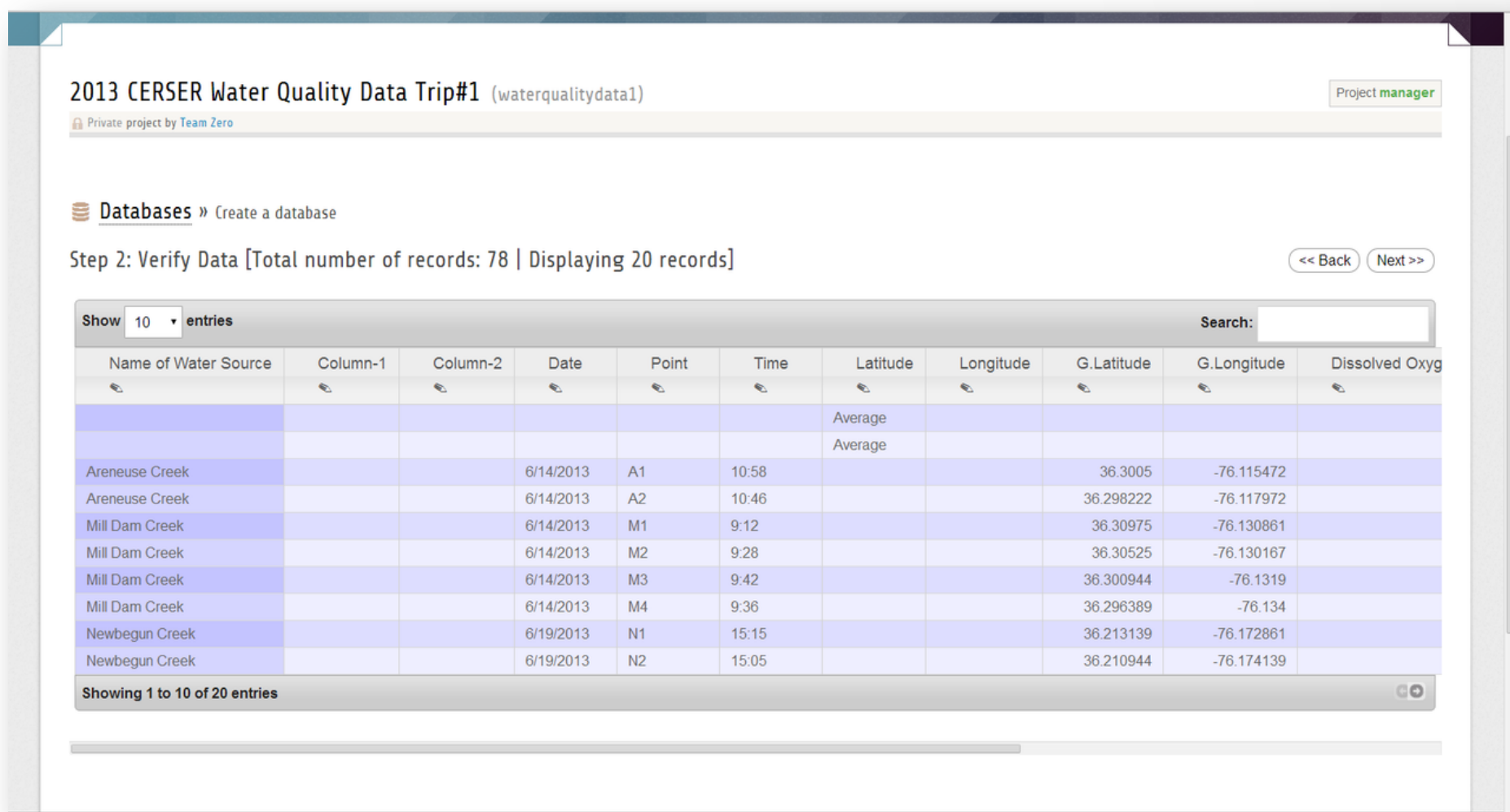
Methodology: The team installed HUBzero and ran the hub by downloading VMware player 5.5 on Windows 7. After the installation process, the team set up the IP address for the hub and navigated through the VMware player with vi controls. While navigating, the team obtained administrative login information and utilized that to register as a new user on the HUBzero site.



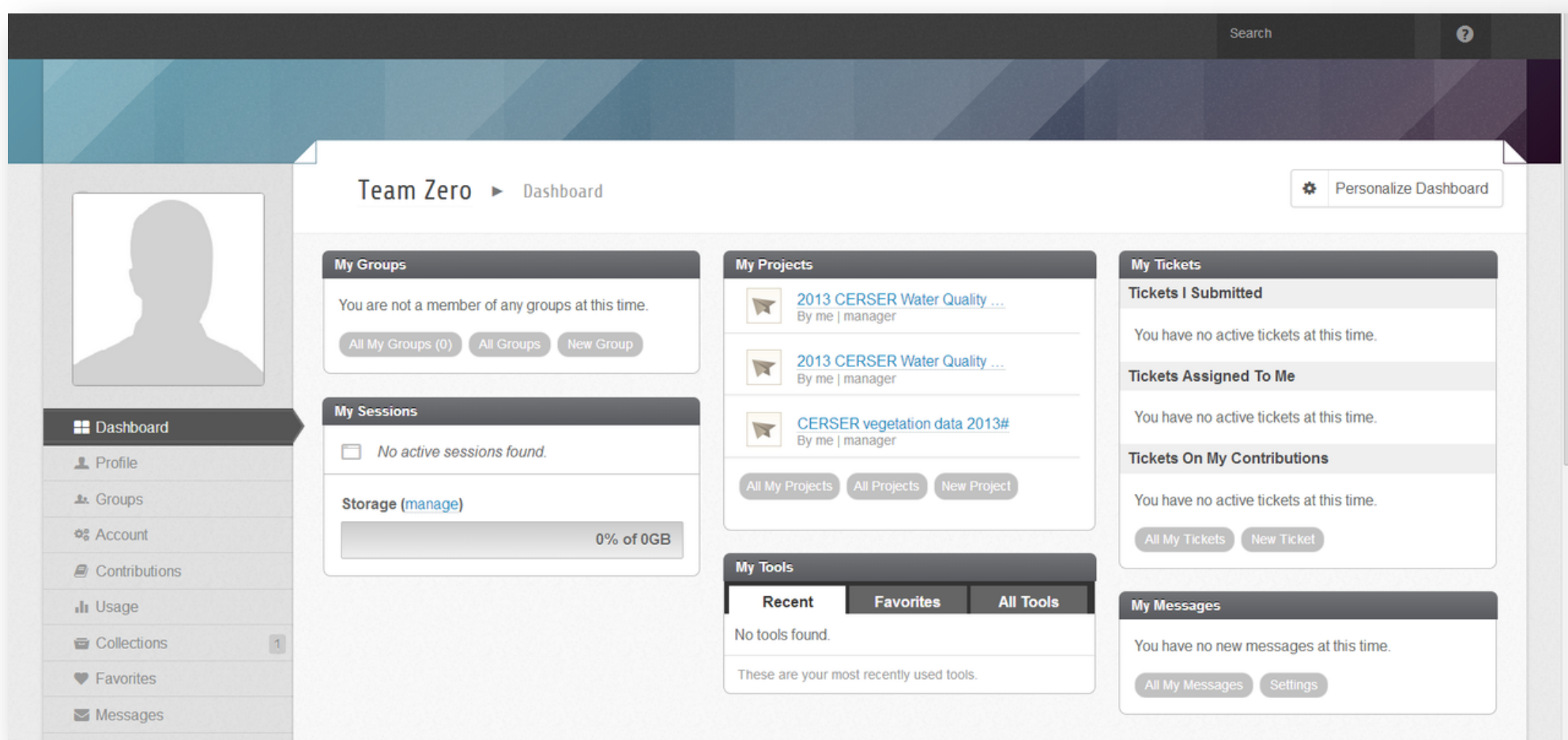
Once the hub was established and made accessible, the team used the administrative login data to log in to the administrative side of the hub. In this particular area, the team verified all login information and configured the team member's component so that all members of the team could have access to the administrative side of the hub. After confirming permission options, the team went on to customize the hub by changing the name to CERSErhub through the Global Configuration component.



Lastly, the team utilized Water Quality Data from the Pasquotank River, taken from 2011 and 2013, to generate a Microsoft Excel spreadsheet. Next, the team converted the spreadsheet to a csv file and uploaded the file into the CERSERhub and converted it to a database.



Conclusion: The team was successful in understanding HUBzero and its many functions. Moreover, the team successfully created and named a hub. Additionally, the team created a project, an administr ator user, an additional user, and uploaded the database into the CERSERhub.



Future Work

- Install the hub on a server at ECSU
- Create an interactive database component by adding DataStores on to the hub
- Customize the hub in order to make it more user-friendly and visually appealing

Acknowledgements

- Je'aime Powell (Old Dominion University)
- Dr. Linda Hayden (Elizabeth City State University)
- Justin Deloatch (Elizabeth City State University)
- Dr. Ann Christine (Purdue University)

- References**
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