

SciServer: Upcoming 2.0.0 Release

Summary

A new update of SciServer and its associated applications is on its way with a release date of **26th July 2018 (07/26/2018)**. There should be little to no system downtime for this, but we will inform everyone closer to the date if such downtime will be necessary.

Changes for CasJobs, SkyServer or SkyQuery Users

For the majority of users who only use CASJobs, SkyServer and SkyQuery there will be little “visible” or functional change to these applications with this release.

The main change everyone will notice is that the Login Portal looks a bit different and, if you log into the system directly from the portal, you will see a new SciServer “Dashboard” application as the homepage for the system. From here you can launch CasJobs and SkyServer. Otherwise your existing application shortcuts will still take you directly to the applications themselves, bypassing the Dashboard.

Changes for Compute Users

The main changes, beyond the Dashboard, will be seen by users of SciServer Compute:

- **Interactive.** There will be a new Compute Application that looks a bit different, and provides additional functionality.
- **Jobs.** In addition to being able to launch and run ‘Interactive’ Jupyter Notebooks, you will also be able to submit batch jobs, whereby you can run a previously created Jupyter Notebook in the background. This provides support for the execution of jobs that are too big or too long to be run synchronously from an interactive browser session.

We have also extended the features for file storage and sharing, which have changed the file structure to support sharing, and affect how they need to be accessed from Jupyter Notebooks. Files are also now available outside the Compute environment, through the Dashboard.

Disruption for Compute Users

The benefits of this updated release are many, including the provision of new server hardware for improved performance and stability. Unfortunately this change does come with some and disruption for Compute Users:

All existing Compute Containers will be deleted, and will need to be recreated in the new system.

This does not affect any stored data on Persistent or Scratch folders. It will only affect the following:

- If you are storing data locally on your container, that will be lost. The SciServer [storage policies](#) already include clear warnings that your containers are not the places for data that you want to retain, *so you will need to copy any data files, scripts, notebooks etc off local storage and onto your Persistent or Scratch folders.*
- If you have installed custom libraries (e.g. doing a pip install) in your Compute Container, *you will need to install those again in the new environment.*
- You may need to update your Interactive Notebooks if you are writing data to Files, to address the new file structure and folder paths. This is described below.

Given the above disruptions, we recommend that you:

- 1) Move or copy all data that you want to keep into your Persistent and Scratch folders prior to July 26th.
- 2) Make a note of any custom libraries that you may have installed, so you can reinstall them after the release.

The Compute Images available in the new Compute Environment are updated versions of those currently in Production, and we provide images to support both python and R packages, rather than separating them. All images also contain “development tools” (i.e. gcc packages) by default.

Recommended Next Steps for Compute Users

We encourage everyone to make the switch early by accessing this link to the new Compute environment and recreating new Compute Containers.

<https://apps.sciserver.org/compute/>

You will have time to run your existing Notebooks and make sure that they still work, or to identify issues and let us know about them.

To report issues with this transition please use the SciServer website:

<http://www.sciserver.org/support/bug-report-and-suggestion-form/>

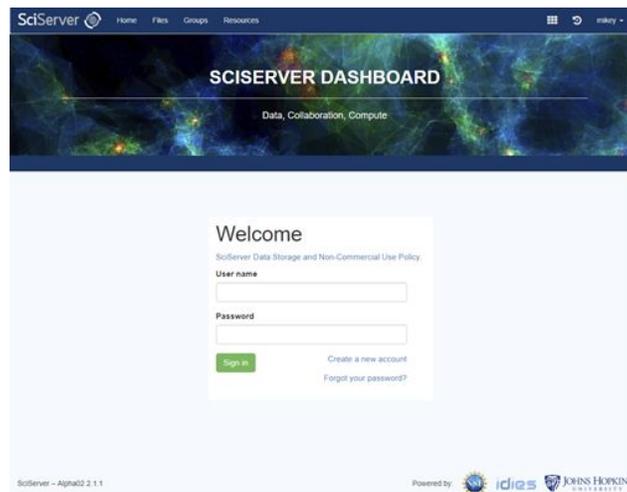
What New Features are Coming?

There are many new features we have introduced – and more to come in subsequent releases – that will make working with your data across both databases and file systems easier and more productive.

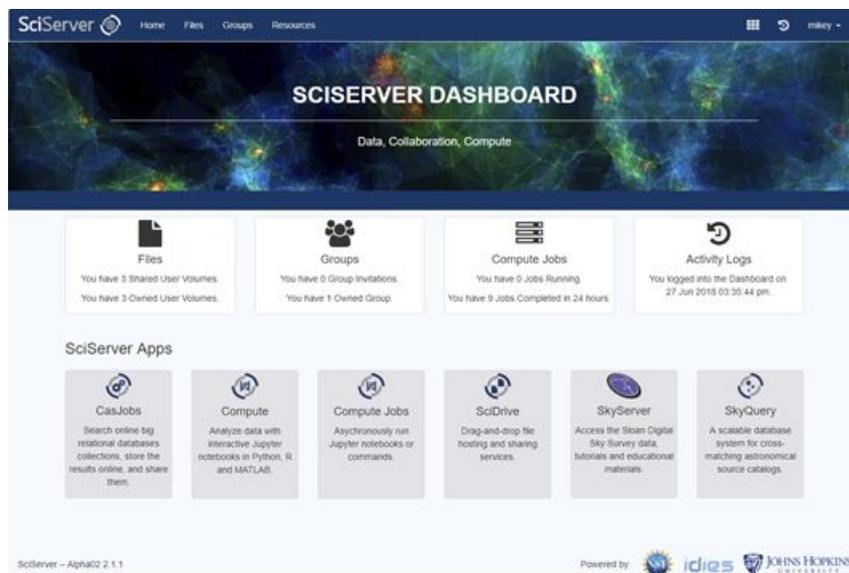
Detailed documentation can be found here:

<http://alpha.sciserver.org/wp-content/uploads/2018/06/SciServer-How-Tos.pdf>

Authentication: There is an updated Login Portal and account validation:

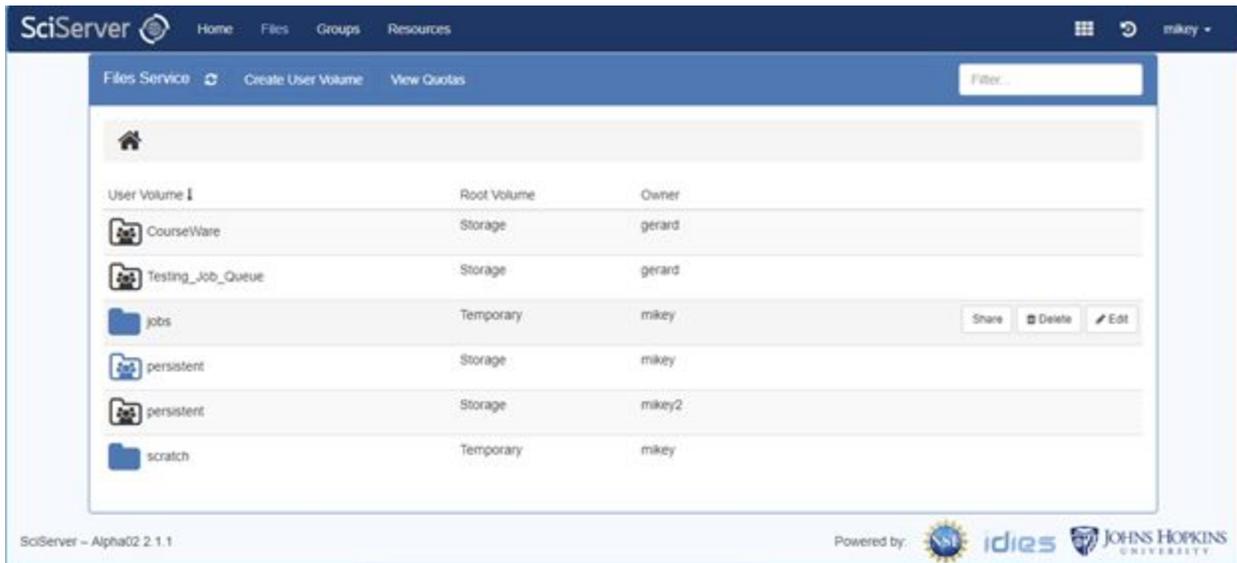


Dashboard: There is a new SciServer Dashboard, a central launching point for SciServer Applications



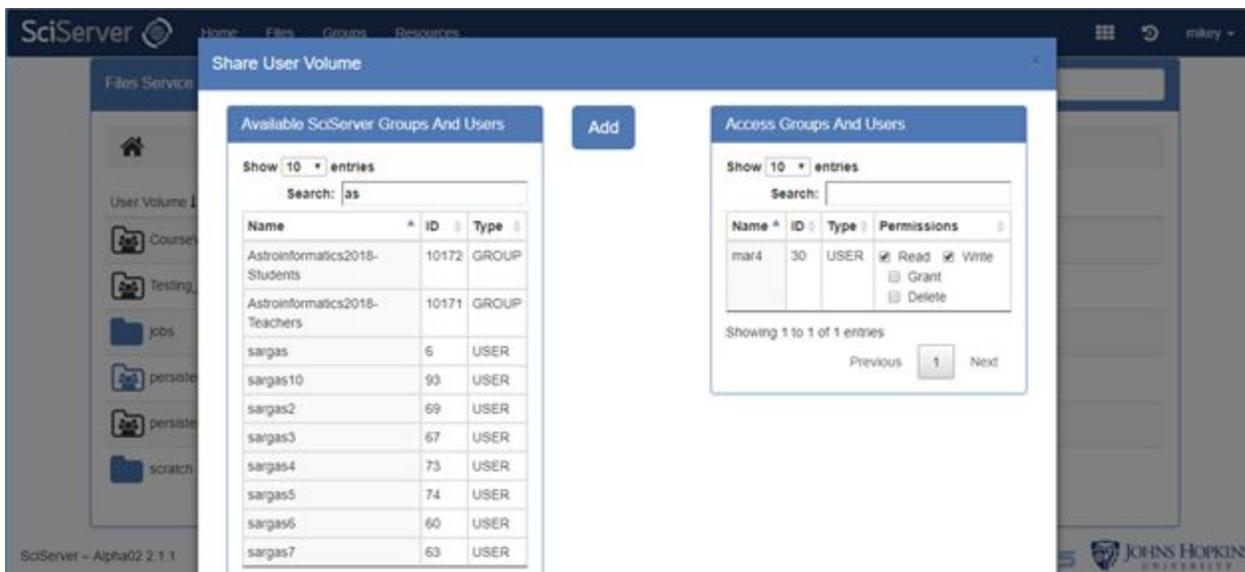
From here, all the usual applications can be accessed and launched under the “SciServer Apps” section, and the new features accessed from the top row of boxes, or the menu items.

File Storage: We have extended our support for files beyond just having access in Compute, and have a UI for file management similar to popular web based approaches



We support all the usual file-based features like Move, Copy, Delete, Rename etc.

Sharing: File Sharing allows users to share persistent and scratch storage volumes with other users and groups.



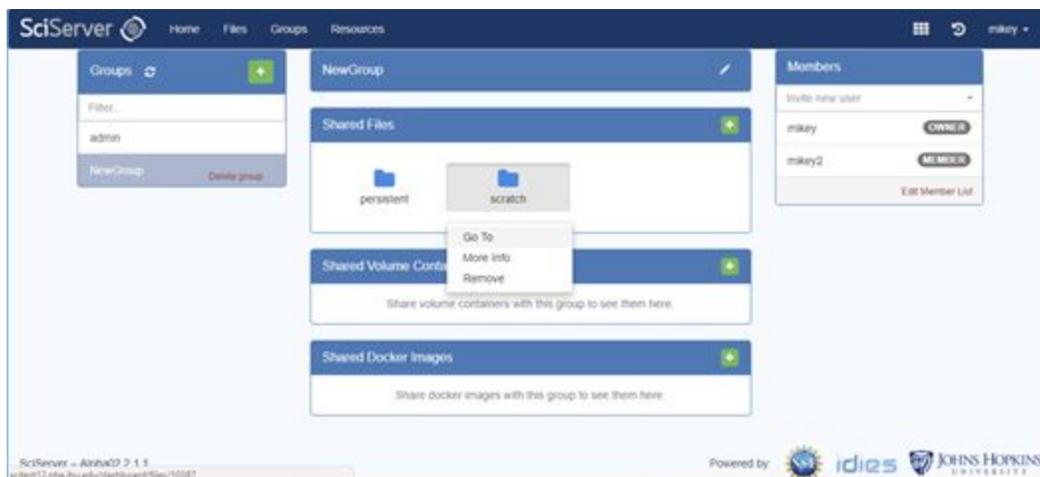
File Structure: We now support file storage beyond just the previous “persistent” and “scratch” storage pools. We have generalized this and we now allow users to create two types of “user volume” in ‘Storage’ and ‘Temporary’, which mirror the original ‘persistent’ and ‘scratch’ features.

All volumes created under ‘Storage’ have the same properties as the current ‘persistent’ – backed up, persistent, and have quotas applied. All volumes under ‘Temporary’ have the same properties as the current ‘scratch’ – temporary, not backed up, unlimited (to available resources). Indeed, current “persistent” folders will just appear as a folder under ‘Storage’, and current “scratch” folders will appear as a folder under ‘Temporary’.

Folders are not stored directly under Storage or Temporary however, they are stored under a (system managed) subfolder identified by the users SciServer ID. In this way, you will see your own persistent folders under ‘Storage/<yourusername>’ and your own scratch folders under ‘Temporary/<yourusername>’. Subsequently, you will also see another users volume that was shared with you under either ‘Storage/<otherusername>’ or ‘Temporary/<otherusersname>’.

	jobs		Temporary	mikey
	persistent	Yours	Storage	mikey
	persistent	Someone Else's	Storage	mikey2
	scratch		Temporary	mikey

Groups: Group management allows users to create custom groups of users, and to use these groups to share other system resources with, such as User Volumes, Compute images, or Data Volumes:



Compute: Compute continues to support Jupyter Notebooks for Interactive analysis:

The screenshot shows the SciServer Compute interface. At the top, there are navigation tabs for 'Interactive Notebooks', 'Jobs', and 'Help', along with a 'Sign out' link. The main content area is titled 'Containers' and features a table with the following data:

Created At	Name	Domain	Image	Status	
2018-06-12 19:50:41.0	sesf	Interactive	Python + R	stopped	
2018-06-05 10:27:12.0	Mike Matlab	Interactive	MATLAB R2016a	stopped	

Below the table is a green 'Create container' button. Underneath is a section titled 'Important Information about Compute Container File Storage' with the following details:

- File System:** Most of the folders in a Container's file system should not be used to store your files. Your initial container view is of `/home/ides/workspace`, which may contain volumes under the `Storage` and `Temporary` folders. Any user volumes you choose to add to the container at creation will be present within these folders. Do not store your files in `workspace`, or in any other folder except as described here. If a Compute node fails, your incorrectly stored files will be *lost permanently*.
- Storage:** Use `Storage` volumes for long term storage of your scripts and small data files. The volumes in the `Storage` folder are backed up. These volumes are mounted according to the username of the user who created them under the path `/home/ides/workspace/Storage/username/user_volume_name/`. Files saved to this folder persist between your containers, even in the event that a container fails. Other files and folders cannot be placed in any intermediate paths, i.e., under the `Storage/username` or `Storage/` folders. Your `Storage` volumes are subject to size limitations described in the [SciServer Compute Data Storage Policy](#).
- persistent:** By default, all users start with a `Storage` volume named `persistent`. The files in this volume correspond to the same `persistent` folder in the version of SciServer Compute that is not a component of this alpha release.
- Temporary:** Use `Temporary` volumes for temporary large file storage. The `Temporary` volumes persist between containers and are not affected by Compute node failure, but is not backed up. These volumes are mounted according to the username of the user who created them under the path `/home/ides/workspace/Temporary/username/user_volume_name/`. Other files and folders cannot be placed in any intermediate paths, i.e., under the `Temporary/username` or `Temporary/` folders. Your `Temporary` volumes are subject to time limit and size limitations described in the [SciServer Compute Data Storage Policy](#).
- scratch:** By default, all users start with a `Temporary` volume named `scratch`. The files in this volume correspond to the same

The basic functionality of Interactive Compute is the same as previously. In addition, we now support JupyterLab.

Compute Jobs: Compute jobs submission allows Jupyter Notebooks and standard scripts (e.g. python) to be run in the background on dedicated servers.

The screenshot shows the SciServer Compute Jobs interface. At the top, there are navigation tabs for 'Interactive Notebooks', 'Jobs', 'Files', and 'Help', along with a 'Sign out' link. The main content area is titled 'Compute Jobs' and features a table with the following data:

Submission Time	Job	Status
Wed, Jun 27, 2018 2:55 PM	sleep 240	Completed after 4 minutes
Wed, Jun 27, 2018 2:55 PM	sleep 240	Completed after 4 minutes
Wed, Jun 27, 2018 2:55 PM	sleep 240	Completed after 4 minutes
Wed, Jun 27, 2018 2:54 PM	sleep 240	Completed after 4 minutes
Wed, Jun 27, 2018 2:54 PM	sleep 240	Completed after 4 minutes
Wed, Jun 27, 2018 2:54 PM	sleep 240	Completed after 4 minutes
Wed, Jun 27, 2018 2:54 PM	sleep 240	Completed after 4 minutes
Wed, Jun 27, 2018 2:44 PM	sleep 300	Completed after 3 minutes
Wed, Jun 27, 2018 10:49 AM	Sleep Test sleep 30	Cancelled
Thu, Jun 21, 2018 11:01 AM	pwd	Completed after a few seconds

At the bottom of the table, it says 'Showing 1 to 10 of 29 entries'. There are also 'Previous', '1', '2', '3', and 'Next' navigation links. The footer of the page includes 'SciTest52 - Development', 'Compute alpha2.0.0-642-110-g120e71e', and logos for 'ides' and 'JOHNS HOPKINS UNIVERSITY'.