



GenAP Single-Cell Workshop

Introduction to using GenAP

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Summary

- Introduction to GenAP
Carol Gauthier
- Introduction to using Galaxy in GenAP
David Morais
- Single-Cell Research in Galaxy
Florian Wuennemann
- Single-Cell Analysis Portal
Gael Cagnone + Florian Wuennemann

Summary : Introduction to GenAP

- Why GenAP & what is it ?
- Accounts and Authentication
- Workspaces and applications
- Managing access
- Storage, files management and Datahubs

Why GenAP & what is it?

Explosive growth of compute and data storage needs in Life Sciences.

Life scientists are generally not used to the traditional High Performance Computing (HPC) environment.

High level analysis tools and easy access to HPC resources, is key to empower life scientists.

Why GenAP & what is it?

GenAP is a computing platform for life science researchers offering services since 2015, and currently in its second generation since 2019.

GenAP aims at easing the work of researchers and students by offering out of the box Web applications running on an infrastructure that leverages Cloud and HPC resources.

GenAP helps connect together: Analysis and Visualization Web applications, Large Data storage locations and dedicated HPC resources.

Accounts in GenAP

- GenAP relies on external identity providers for its authentication and accounts management.
- When you login using one of the identity providers, GenAP will automatically create an account in its database with the information provided by the identity provider.
- The information provided will determine the level of access rights of your account in GenAP.
- If you log in several times by using different providers, you may end up with several distinct accounts.
 - For example one GenAP account linked to your Compute Canada account, and one GenAP account linked to your Google account.
 - Each accounts are considered distinct users.

Authenticate using your Compute Canada account

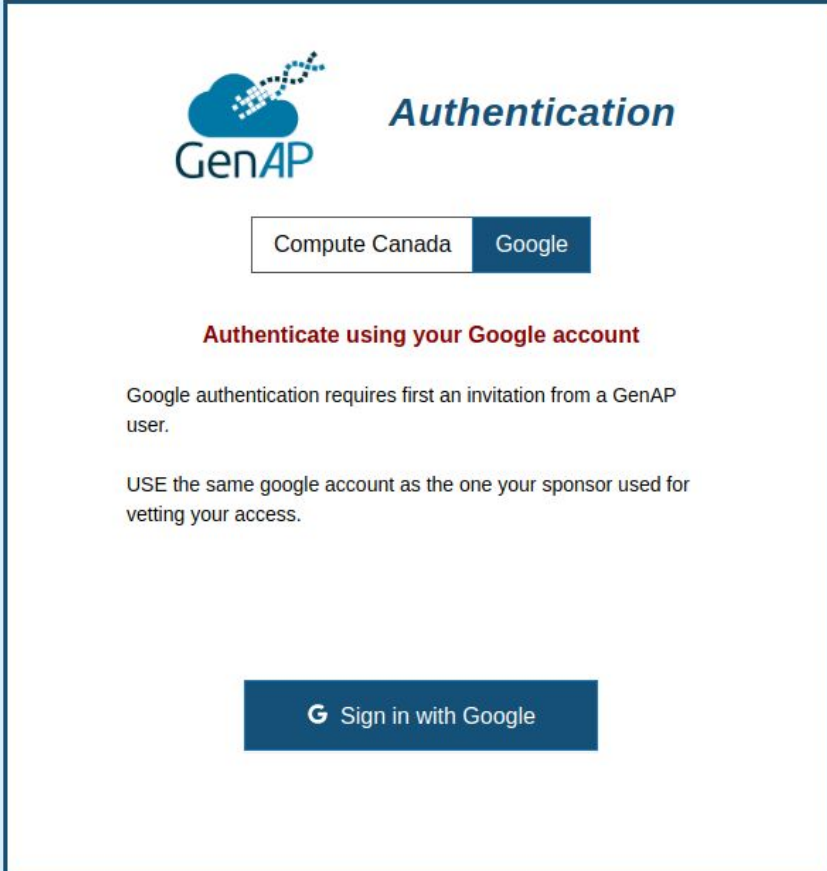
- You can use your email, CCI or username and password at Compute Canada to login.
- GenAP is a trusted Compute Canada site and authenticate your credentials directly to the Compute Canada identity server. GenAP does not keep any passwords in its own database.
- Depending on your position at Compute Canada (Faculty, students, etc.), you will be given different access rights within GenAP. For example:
 - Faculties can create and manage their own Workspaces and groups.
 - Faculties have resources allocations.
 - Faculties can invite international collaborators to use their workspace.
 - Students or sponsored research staff need to be added to a Workspace in order to have access to it.
- Have fun and enjoy!



The screenshot shows the GenAP Authentication page. At the top left is the GenAP logo. To its right is the word "Authentication" in a blue, italicized font. Below the logo are two buttons: "Compute Canada" (dark blue) and "Google" (white with a blue border). Underneath these buttons is the heading "Authenticate using your Compute Canada account" in red. Below this is the instruction "PLEASE use your Compute Canada identifier (Email, CCI or username) and password". There are two input fields: the first is for the identifier, with a placeholder "email_cci_or_username" and a magnifying glass icon; the second is for the password, with a lock icon and a series of dots. Below the password field is a dark blue button with a circular arrow icon and the text "Login to GenAP". At the bottom right of the form area is a blue link that says "Forgot your Compute Canada password ?".

Authenticate using your Google account

- If you are not a canadian researcher or student and do not have an account at Compute Canada, you can still login to GenAP using your google account,
 - But ... you will first need to be invited/sponsored by a GenAP user with sufficient access rights (typically a Faculty from a canadian university).
 - Next slide will show your sponsored how to invite a collaborator.
- If you have been already invited, you can select Google in the Authentication box and click "Sign In with Google". You will then be sent to the Google Sign-in page where you select the account corresponding to the email that was used to invite you in GenAP (needed only if you have several Google accounts).
- Once the authentication is confirmed, an account will be created in GenAP for you. At this point, your sponsor in GenAP can give you access to its Workspaces or add you in their groups.
- Have fun and enjoy!




Authentication

Compute Canada Google

Authenticate using your Google account

Google authentication requires first an invitation from a GenAP user.

USE the same google account as the one your sponsor used for vetting your access.

 Sign in with Google

Invite a collaborator (user)

2 very simple steps:

1) Go to the page "My Invited Users". If you don't see it, it is because you do not have the needed rights.

2) Write the email of your collaborator and click "Add Email".

You can choose to revoke the invitation at any time by removing the email here. The corresponding user will not be able to login anymore.

My list of invited users

If you are a canadian researcher registered at Compute Canada and using GenAP, it is now possible to invite collaborators from outside Canada to join the GenAP community. **Note that Compute Canada and CanDIG users can login to GenAP without the need to be invited.**

The collaborators you invite need to have a google account in order to login to GenAP using the Google authentication. To invite collaborators, simply provide their email and it will be automatically added to your list of invited users. At this point, your collaborators will have to login to GenAP at least once in order to be added in the GenAP users database, then you will be able to add them in one of your groups or directly give them access to your workspaces.

Invite a new collaborator to GenAP by providing his or her email

Enter a valid email

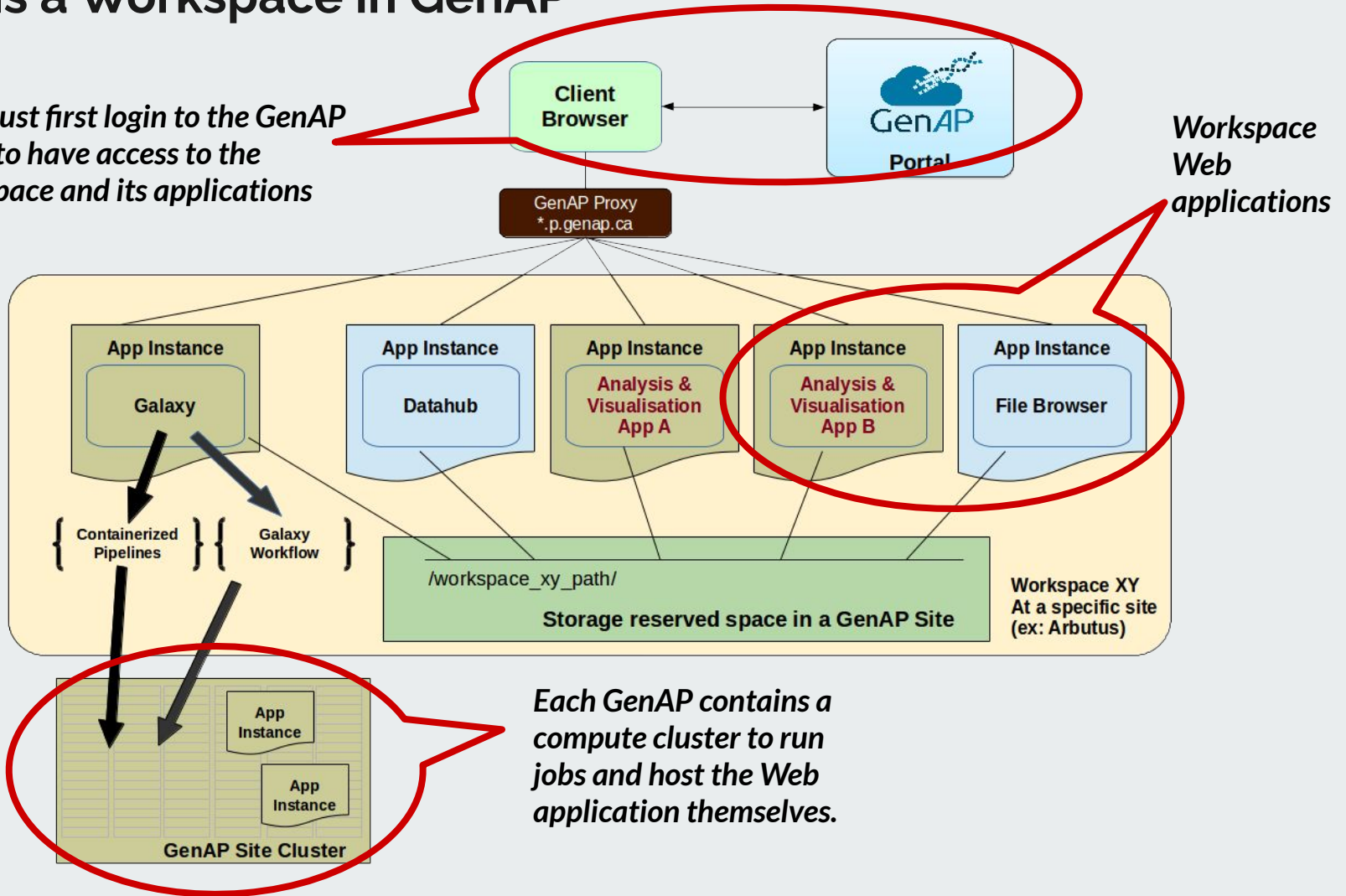
collabo1_google_account@gmail.com Name of collabo 1	
collabo2_google_account@gmail.com Name of collabo 2	
collabo3_google_account@gmail.com Name of collabo 3	
collabo4_google_account@gmail.com Name of collabo 4	

< 1 >

Workspaces and applications

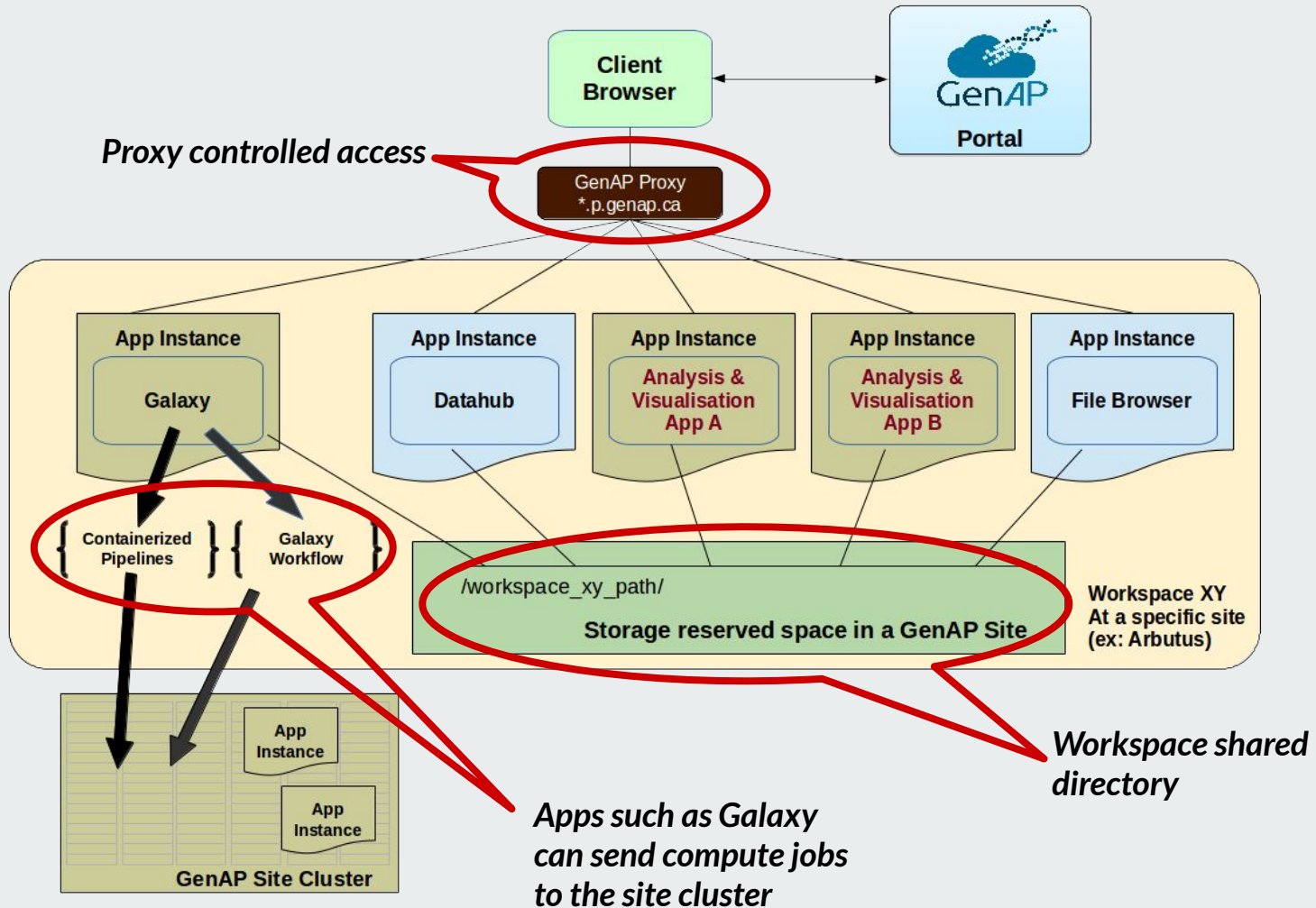
What is a Workspace in GenAP

User must first login to the GenAP portal to have access to the Workspace and its applications



Each GenAP contains a compute cluster to run jobs and host the Web application themselves.

What is a Workspace in GenAP



Create a Workspace

- Below is your new Workspace immediately after its creation.

Workspace unique id

The GenAP resource site where the Workspace is located

Tutorial Workspace (p65) **Resource: Arbutus**

Workspace applications **Add an application**

Choose users who can access the workspace **Choose a user**

Choose groups who can access the workspace **Choose a group**

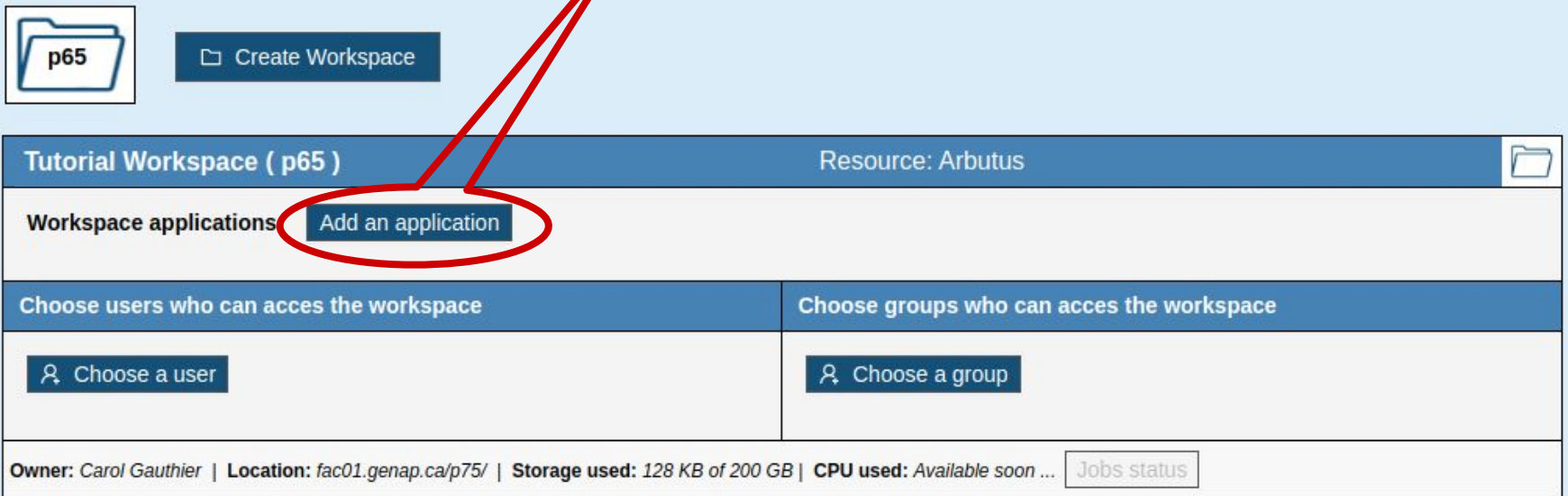
Owner: Carol Gauthier | Location: fac01.genap.ca/p75/ | **Storage used: 128 KB of 200 G** | **CPU used: Available soon ...** **Jobs status**

Workspace storage used and its maximum storage allocated

Workspace compute usage and access to its jobs status on the cluster

Add an application to a Workspace

- Simply pressing the "Add an application" will lead you to the available list of pre-packaged applications (next page).



The screenshot displays the GenAP workspace interface. At the top left, there is a folder icon labeled 'p65' and a 'Create Workspace' button. Below this, the workspace name 'Tutorial Workspace (p65)' is shown, along with the resource 'Resource: Arbutus'. The 'Workspace applications' section contains an 'Add an application' button, which is circled in red. Below this, there are two sections for user and group management: 'Choose users who can access the workspace' and 'Choose groups who can access the workspace', each with a 'Choose a user' or 'Choose a group' button. At the bottom, there is a status bar showing 'Owner: Carol Gauthier | Location: fac01.genap.ca/p75/ | Storage used: 128 KB of 200 GB | CPU used: Available soon ...' and a 'Jobs status' button.

Add an application to a Workspace

The File Browser is probably the first application you want to install in your Workspace.

It will allow you to upload and manage your data as well as setting up your keys for using SFTP clients (filezilla).

For more on this, see the tutorial on Storage, Files management and Datahubs.

Only one instance per Workspace is allowed for each of the File Browser, Galaxy and SCAP application.

Install applications in workspace "p75"

Please select an application to install

Galaxy	Galaxy is a popular open source, web-based platform for data intensive biomedical research. Instances created in workspace "p75": 0 (1 more available)
Data Hub	The Data Hub is a simple way to share your data on the web. Use a File Browser to deposit your data in the dedicated Data Hub directory. Instances created in workspace "p75": 0 (25 more available)
File Browser	The File Browser allows you to upload/download files and organize your workspace storage. Instances created in workspace "p75": 0 (1 more available)
SCAP (Single-Cell Analysis Portal)	For Single Cell Researchers: This application allows to visualize and annotate your scRNA-seq clustering results. Instances created in workspace "p75": 0 (1 more available)

Cancel
Please select an application

Add an application to a Workspace

Galaxy is a very well known easy to use Web based platform for biologists and health science researchers.

Once you have created the Galaxy App, you will be sent back to the Workspace. You will need to start the Galaxy app before you can access it. Starting the Galaxy will take several minutes.

Also, in order to save resources, if you do not access your Galaxy for 2 weeks, it will be put to sleep. After this period, the Galaxy will take a few minutes to be restarted when you access it again.

Only one instance per Workspace is allowed for each of the File Browser, Galaxy and SCAP application.



Install applications in workspace "p75"

Please select an application to install

Galaxy	<p>Galaxy is a popular open source, web-based platform for data intensive biomedical research.</p> <p>Instances created in workspace "p75": 0 (1 more available)</p>
Data Hub	<p>The Data Hub is a simple way to share your data on the web. Use a File Browser to deposit your data in the dedicated Data Hub directory.</p> <p>Instances created in workspace "p75": 0 (25 more available)</p>
File Browser	<p>The File Browser allows you to upload/download files and organize your workspace storage.</p> <p>Instances created in workspace "p75": 0 (1 more available)</p>
SCAP (Single-Cell Analysis Portal)	<p>For Single Cell Researchers: This application allows to visualize and annotate your scRNA-seq clustering results.</p> <p>Instances created in workspace "p75": 0 (1 more available)</p>

Cancel
Please select an application

Add an application to a Workspace

The Datahub is a nice and simple way to share your data to collaborators on the Web. Simply deposit your data, using the file Browser or SFTP, at the Datahub location and it is automatically available at the URL address of the Datahub.

You can have up to 25 Datahubs in a Workspace. Your only real limitation being the storage quota of the Workspace.

You can set the visibility of the Datahubs to Public (anybody on the Web) or Private (Only the users having access to the Workspace).

For more on this, see the tutorial on Storage, Files management and Datahubs.

Install applications in workspace "p75"

Please select an application to install

<div style="background-color: #2c4e64; color: white; padding: 10px; text-align: center; margin-bottom: 10px;">Galaxy</div>	<p>Galaxy is a popular open source, web-based platform for data intensive biomedical research.</p> <p>Instances created in workspace "p75": 0 (1 more available)</p>
<div style="background-color: #2c4e64; color: white; padding: 10px; text-align: center; margin-bottom: 10px;">Data Hub</div>	<p>The Data Hub is a simple way to share your data on the web. Use a File Browser to deposit your data in the dedicated Data Hub directory.</p> <p>Instances created in workspace "p75": 0 (25 more available)</p>
<div style="background-color: #2c4e64; color: white; padding: 10px; text-align: center; margin-bottom: 10px;">File Browser</div>	<p>The File Browser allows you to upload/download files and organize your workspace storage.</p> <p>Instances created in workspace "p75": 0 (1 more available)</p>
<div style="background-color: #2c4e64; color: white; padding: 10px; text-align: center; margin-bottom: 10px;">SCAP (Single-Cell Analysis Portal)</div>	<p>For Single Cell Researchers: This application allows to visualize and annotate your scRNA-seq clustering results.</p> <p>Instances created in workspace "p75": 0 (1 more available)</p>

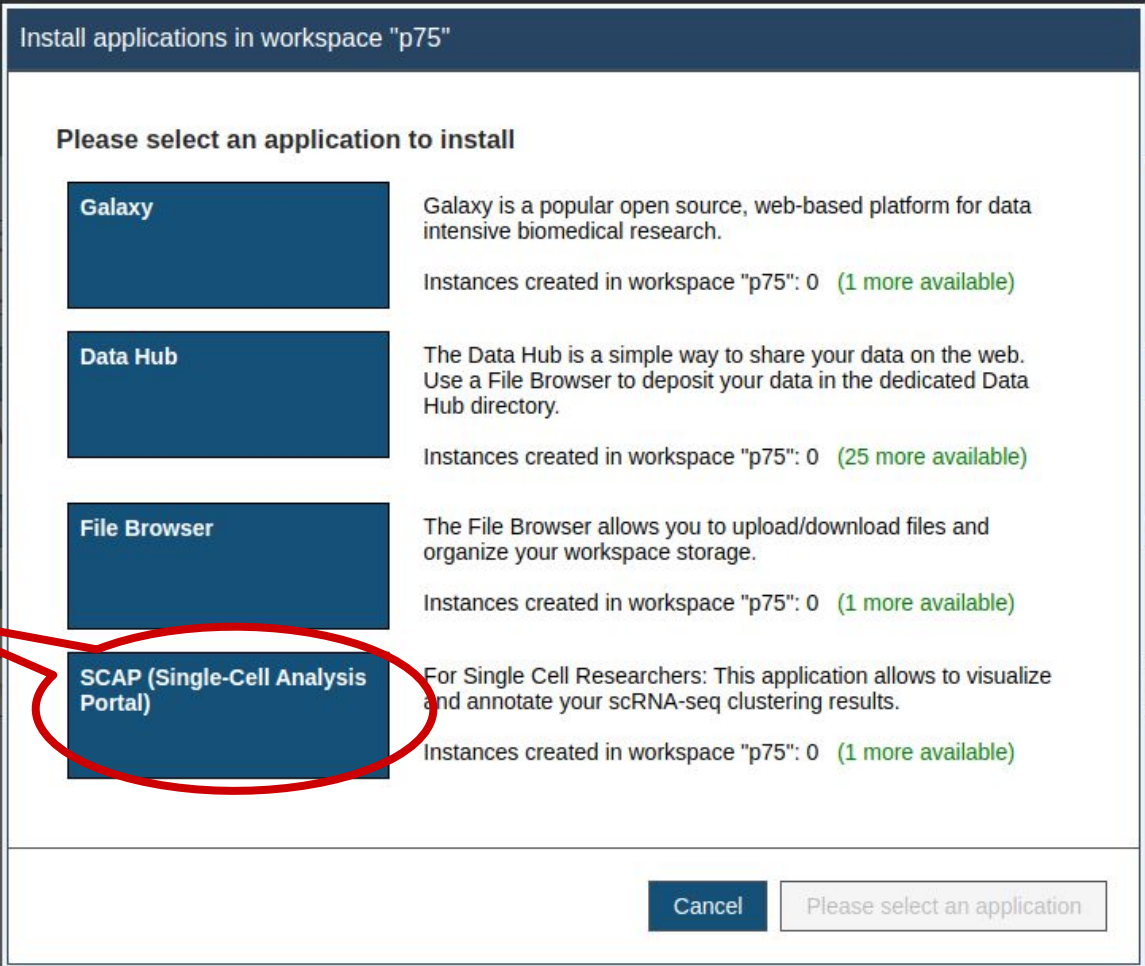
Cancel
Please select an application

Add an application to a Workspace

The SCAP is targeting Single-Cell researchers for analysis, visualization and annotation of scRNA-seq clustering results.

For more details visit the GenAP "Single-Cell Research" help page here: <https://genap.ca/p/help/single-cell-in-genap>

Only one instance per Workspace is allowed for each of the File Browser, Galaxy and SCAP application.



Install applications in workspace "p75"

Please select an application to install

Galaxy	Galaxy is a popular open source, web-based platform for data intensive biomedical research. Instances created in workspace "p75": 0 (1 more available)
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SCAP (Single-Cell Analysis Portal)	For Single Cell Researchers: This application allows to visualize and annotate your scRNA-seq clustering results. Instances created in workspace "p75": 0 (1 more available)

Cancel Please select an application

Add an application to a Workspace

- Once you have added a few applications to your Workspace, it will look like this.

Tutorial Workspace (p65)
Resource: Arbutus
📁

Workspace applications Add an application

File Browser
Running

https://filebrowser-311-p65.p.genap.ca

⏹ Stop
▶ Start
Go to App →

URL of this app cannot be open to public

Public
 Private

Data Hub
Running

https://datahub-312-p65.p.genap.ca

Go to App →

URL is accessible to Workspace members only

Public
 Private

Galaxy
Running

https://galaxy-313-p65.p.genap.ca

⏹ Stop
▶ Start
Go to App →

URL of this app cannot be open to public

Public
 Private

Choose users who can access the workspace

🔍 Choose a user

Carol Gauthier
x
✔
✎

Choose groups who can access the workspace

🔍 Choose a group

Owner: Carol Gauthier | Location: fac01.genap.ca/p65/ | Storage used: 12.25 MB of 200 GB | CPU used: Available soon ... Jobs status

Add an application to a Workspace

This button will send you directly to the application

This is the permanent URL of the application. You can use it directly. If login is needed (private app), the user will first be directed to the GenAP Authentication page prior to access it.

Some types of applications will allow you to control their status.

Tutorial Workspace (p65) Resource: Arbutus

Workspace applications: Add an application

File Browser	Data Hub	Galaxy
Running	Running	Running
https://filebrowser-311-p65.p.genap.ca	https://datahub-312-p65.p.genap.ca	https://galaxy-313-p65.p.genap.ca
<input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Go to App →"/>	<input type="button" value="Go to App →"/>	<input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Go to App →"/>
URL of this app cannot be open to public	URL is accessible to Workspace members only	URL of this app cannot be open to public
<input type="radio"/> Public <input checked="" type="radio"/> Private	<input checked="" type="radio"/> Public <input type="radio"/> Private	<input type="radio"/> Public <input checked="" type="radio"/> Private

Choose users who can access the workspace

Choose a user

Carol Gauthier x [checked] [edit]

Choose groups who can access the workspace

Choose a group

Owner: Carol Gauthier | Location: fac01.genap.ca/p65/ | Storage used: 12.25 MB of 200 GB | CPU used: Available soon ... [Jobs status]

Add an application to a Workspace

This section allows you to decide if the application can be open to public or only accessible to the Workspace members and groups.

For security and privacy reasons, some types of application cannot be made public.

Tutorial Workspace (p65)
Resource: Arbutus

Workspace applications
Add an application

File Browser

Running

https://filebrowser-311-p65.p.genap.ca

⏹ Stop
▶ Start
Go to App →

URL of this app cannot be open to public

Public
 Private

Data Hub

Running

https://datahub-312-p65.p.genap.ca

Go to App →

URL is accessible to Workspace members only

Public
 Private

Galaxy

Running

https://galaxy-313-p65.p.genap.ca

⏹ Stop
▶ Start
Go to App →

URL of this app cannot be open to public

Public
 Private

Choose users who can access the workspace

🔍 Choose a user

Carol Gauthier
x
✔
✎

Choose groups who can access the workspace

🔍 Choose a group

Owner: Carol Gauthier |
 Location: fac01.genap.ca/p65/ |
 Storage used: 12.25 MB of 200 GB |
 CPU used: Available soon ...
Jobs status

Managing access

Manage access to your Workspaces and their applications

Tutorial Workspace (p65)
Resource: Arbutus
📁

Workspace applications Add an application

<div style="background-color: #4a7ebb; color: white; padding: 2px 5px; display: flex; justify-content: space-between;"> File Browser Running </div> <p>https://filebrowser-311-p65.p.genap.ca</p> <div style="display: flex; gap: 5px;"> 🛑 Stop ▶ Start Go to App → </div> <p>URL of this app cannot be open to public</p> <div style="display: flex; gap: 10px;"> <input type="radio"/> Public <input checked="" type="radio"/> Private </div>	<div style="background-color: #4a7ebb; color: white; padding: 2px 5px; display: flex; justify-content: space-between;"> Data Hub Running </div> <p>https://datahub-312-p65.p.genap.ca</p> <div style="display: flex; gap: 5px;"> Go to App → </div> <p>URL is accessible to Workspace members only</p> <div style="display: flex; gap: 10px;"> <input checked="" type="radio"/> Public <input checked="" type="radio"/> Private </div>	<div style="background-color: #4a7ebb; color: white; padding: 2px 5px; display: flex; justify-content: space-between;"> Galaxy Running </div> <p>https://galaxy-313-p65.p.genap.ca</p> <div style="display: flex; gap: 5px;"> 🛑 Stop ▶ Start Go to App → </div> <p>URL of this app cannot be open to public</p> <div style="display: flex; gap: 10px;"> <input type="radio"/> Public <input checked="" type="radio"/> Private </div>
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Choose users who can access the workspace

🔍 Choose a user

Carol Gauthier
x
✔
✎

Choose groups who can access the workspace

🔍 Choose a group

Owner: Carol Gauthier | Location: /tac01.genap.ca/p65/ | Storage used: 21.75 MB of 200 GB | CPU used: Available soon ... Jobs status

Add here the individual users you want to grant access. Click "Choose a user" and type in the name or email, then select from the proposed choices

Manage access to your Workspaces and their applications

Tutorial Workspace (p65) Resource: Arbutus

Workspace applications [Add an application](#)

File Browser Running https://filebrowser-311-p65.p.genap.ca <input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Go to App"/> → URL of this app cannot be open to public <input type="radio"/> Public <input checked="" type="radio"/> Private	Data Hub Running https://datahub-312-p65.p.genap.ca <input type="button" value="Go to App"/> → URL is accessible to Workspace members only <input checked="" type="radio"/> Public <input checked="" type="radio"/> Private	Galaxy Running https://galaxy-313-p65.p.genap.ca <input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Go to App"/> → URL of this app cannot be open to public <input type="radio"/> Public <input checked="" type="radio"/> Private
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Choose users who can access the workspace | **Choose groups who can access the workspace**

|

Carol Gauthier <input checked="" type="checkbox"/> <input type="button" value="x"/> <input type="button" value="edit"/>	David Morais <input type="checkbox"/> <input type="button" value="x"/> <input type="button" value="edit"/>
Michel Barrette <input type="checkbox"/> <input type="button" value="x"/> <input type="button" value="edit"/>	David Bujold <input checked="" type="checkbox"/> <input type="button" value="x"/> <input type="button" value="edit"/>

Owner: Carol Gauthier | Location: fac01.genap.ca/p65/ | Storage used: 22 MB of 200 GB | CPU used: Available soon ...

To revoke the access to a user simply click the "x"

Check this box to allow the user to administer the Workspace

Manage access to your Workspaces and their applications

Tutorial Workspace (p65) Resource: Arbutus

Workspace applications Add an application

File Browser

Running

https://filebrowser-311-p65.p.genap.ca

⏹ Stop
▶ Start
Go to App →

URL of this app cannot be open to public

Public
 Private

Data Hub

Running

https://datahub-312-p65.p.genap.ca

Go to App →

URL is accessible to Workspace members only

Public
 Private

Galaxy

Running

https://galaxy-313-p65.p.genap.ca

⏹ Stop
▶ Start
Go to App →

URL of this app cannot be open to public

Public
 Private

Choose users who can access the workspace

🔍

✕
Carol Gauthier

✎

✕
David Morais

✎

✕
Michel Barrette

✎

✕
David Bujold

✎

Choose groups who can access the workspace

🔍

✕
GenAP people

✕
Tutorial Group

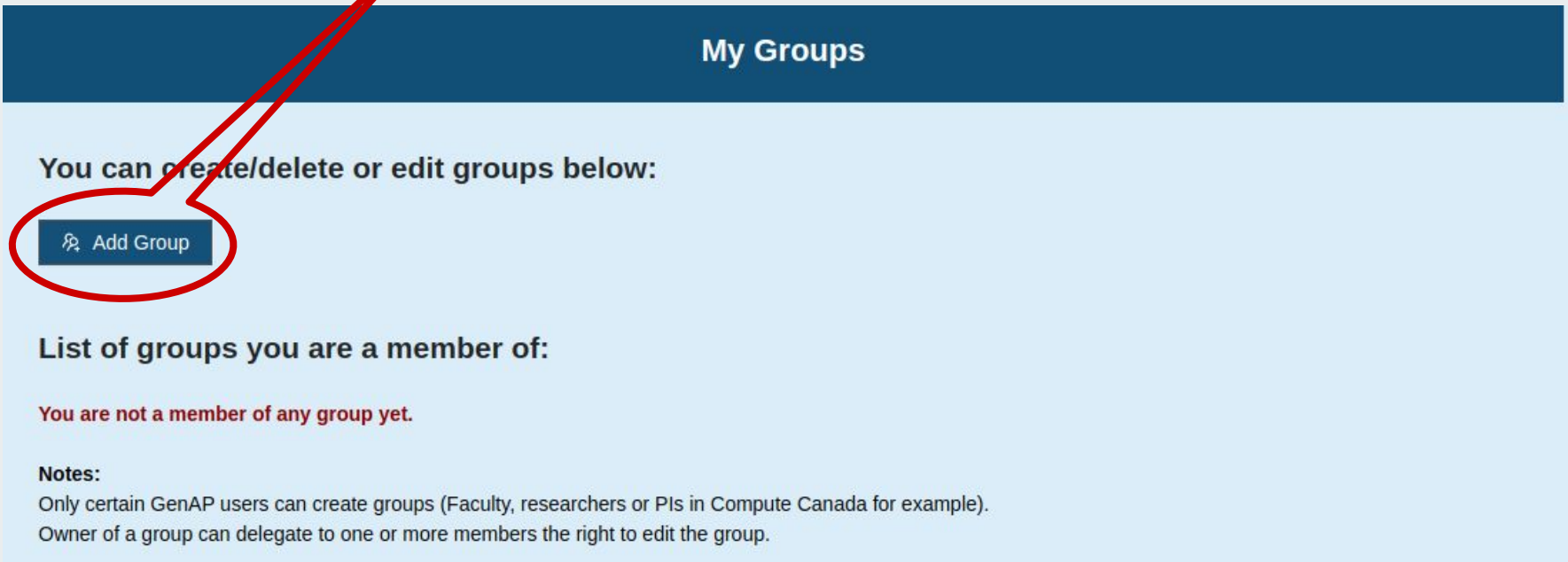
Owner: Carol Gauthier | Location: fac01.genap.ca/p65/ | Storage used: 22.13 MB of 200 GB | CPU used: Available soon ... Jobs status

Add here the groups of users you want to give access to this Workspace. Simply press "Choose a group" and select the group (from your list of groups, see next pages)

To revoke the access to a group simply click the "x"

Manage your groups of users

Before you can grant access to your Workspace to a groups of users, you need to create one. On the "My Groups" page press "Add Group". In the dialog box, simply give your new group a name. If you don't see the "Add Group" button, it means you cannot create groups. Only users that are Compute Canada sponsors are given the right to create a Workspace (typically users with a Faculty position)



My Groups

You can create/delete or edit groups below:

[Add Group](#)

List of groups you are a member of:

You are not a member of any group yet.

Notes:
Only certain GenAP users can create groups (Faculty, researchers or PIs in Compute Canada for example).
Owner of a group can delegate to one or more members the right to edit the group.

Manage your groups of users

Groups you own and/or manage.

Click this button to add a new group

Type in and select the users you want to add to the selected group

This is the list of groups you are a member of, including the groups you own and/or manage

Create and manage groups:

List of groups you are a member of:

GenAP people Tutorial Group

Notes:
Only certain GenAP users can create groups (Faculty, researchers or PIs in Compute Canada for example).
Owner of a group can delegate to one or more members the right to edit the group.

Manage your groups of users

Create and manage groups:

To remove a user from the group simply click the "x"

Check this box to give the user the right to edit/manage the group

Click here to remove the group. All Workspaces access this group of users had will be revoked.

List of groups you are a member of:

- GenAP people
- Tutorial Group

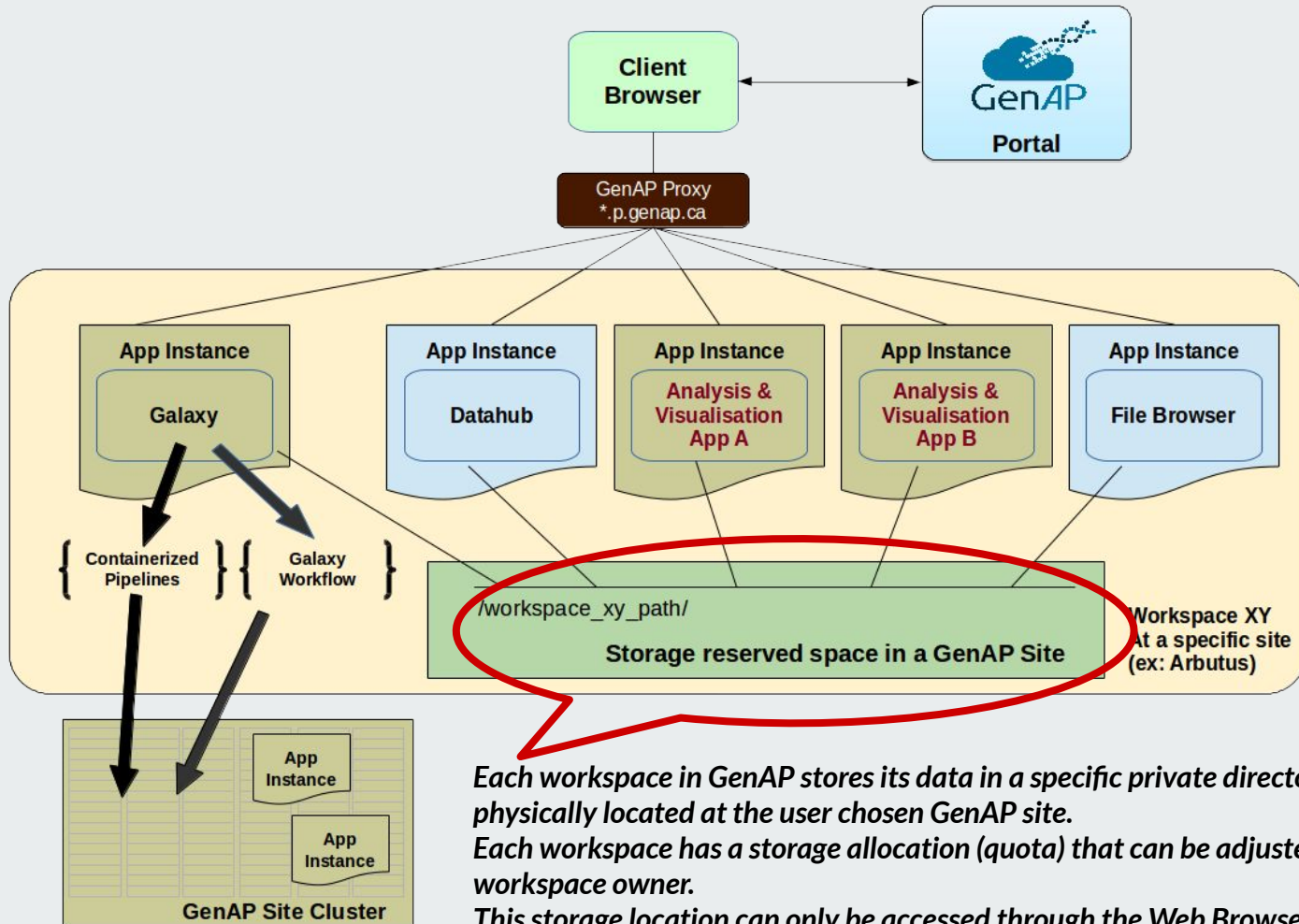
Notes:

Only certain GenAP users can create groups (Faculty, researchers or PIs in Compute Canada for example).
Owner of a group can delegate to one or more members the right to edit the group.

Storage, Files management and Datahubs

- GenAP storage
 - Data location
 - Managing my storage allocation
 - Workspace directory structure
- Managing files
 - File browser application
 - sFTP
 - SSHFS
- How to setup and use Datahubs

GenAP Storage: Data location



Each workspace in GenAP stores its data in a specific private directory physically located at the user chosen GenAP site. Each workspace has a storage allocation (quota) that can be adjusted by the workspace owner. This storage location can only be accessed through the Web Browser application, sFTP or SSHFS over sFTP.

GenAP Storage: Managing my storage allocation

Tutorial Workspace (p65)
Resource: Arbutus
📁

Workspace applications Add an application

<div style="background-color: #4a7ebb; color: white; padding: 2px 5px; display: flex; justify-content: space-between;"> File Browser Running </div> <p>https://filebrowser-311-p65.p.genap.ca</p> <div style="display: flex; gap: 5px;"> ⏹ Stop ▶ Start Go to App → </div> <p>URL of this app cannot be open to public</p> <div style="display: flex; gap: 10px;"> <input type="radio"/> Public <input checked="" type="radio"/> Private </div>	<div style="background-color: #4a7ebb; color: white; padding: 2px 5px; display: flex; justify-content: space-between;"> Data Hub Running </div> <p>https://datahub-312-p65.p.genap.ca</p> <div style="display: flex; gap: 5px;"> Go to App → </div> <p>URL is accessible to Workspace members only</p> <div style="display: flex; gap: 10px;"> <input checked="" type="radio"/> Public <input checked="" type="radio"/> Private </div>	<div style="background-color: #4a7ebb; color: white; padding: 2px 5px; display: flex; justify-content: space-between;"> Galaxy Running </div> <p>https://galaxy-313-p65.p.genap.ca</p> <div style="display: flex; gap: 5px;"> ⏹ Stop ▶ Start Go to App → </div> <p>URL of this app cannot be open to public</p> <div style="display: flex; gap: 10px;"> <input type="radio"/> Public <input checked="" type="radio"/> Private </div>
---	---	--

Choose users who can acces the workspace

🔍 Choose a user

Carol Gauthier
×

🗑

David Morais
×

🗑

Michel Barrette
×

🗑

David Bujold
×

🗑

Choose groups who can acces the workspace

🔍 Choose a group

GenAP people
×

Tutorial Group
×

Owner: Carol Gauthier | Location: fac01.genap.ca/p65 | **Storage used: 22.13 MB of 200 GB** | CPU used: Available soon ... Jobs status

Each workspace displays the storage it uses and the maximum amount it can use, corresponding to its allocation (or quota).

It is important to keep your usage well below the limit (<95%) to avoid malfunctioning of some applications like Galaxy when the quota is reached.

GenAP Storage: Managing my storage allocation

- If you can create workspaces, it means you also have a storage allocation on GenAP
- Default total allocation is to 1.5 TB of storage on Arbutus for Compute Canada sponsors.
- This default allocation will be different for each GenAP site, depending on the available resources.
- When you create a workspace, it receives a default allocation of 200 GB (default quota).
- You can manage how to distribute your allocation between your workspaces by going to the page "Storage Allocation" on the left menu. You should see something like the following.

My storage allocation on Arbutus

Allocation: **2000 GB**

Allocated to workspaces: **757 GB**

Not allocated: **1243 GB**

Workspace	Allocated	Used	Available	% Used		
p65	201 GB	1 GB	200 GB	0 %	Increase	Reduce
pf5	353 GB	4 GB	349 GB	1 %	Increase	Reduce
c24	203 GB	1 GB	202 GB	0 %	Increase	Reduce
TOTAL	757 GB	6 GB	751 GB	1 %		

GenAP Storage: Managing my storage allocation

Your total storage allocation on the site (Arbutus in this case)

Total storage allocated to all your workspaces

Storage not allocated. If this number is less than the default workspace allocation (200 GB), you cannot create new workspaces.

My storage allocation on Arbutus

Allocation: **2000 GB** Allocated to workspaces **757 GB** Not allocated **1243 GB**

Workspace	Allocated	Used	Available	% Used		
p65	201 GB	1 GB	200 GB	0 %	Increase	Reduce
pf5	353 GB	4 GB	349 GB	1 %	Increase	Reduce
c24	203 GB	1 GB	202 GB	0 %	Increase	Reduce
TOTAL	757 GB	6 GB	751 GB	1 %		

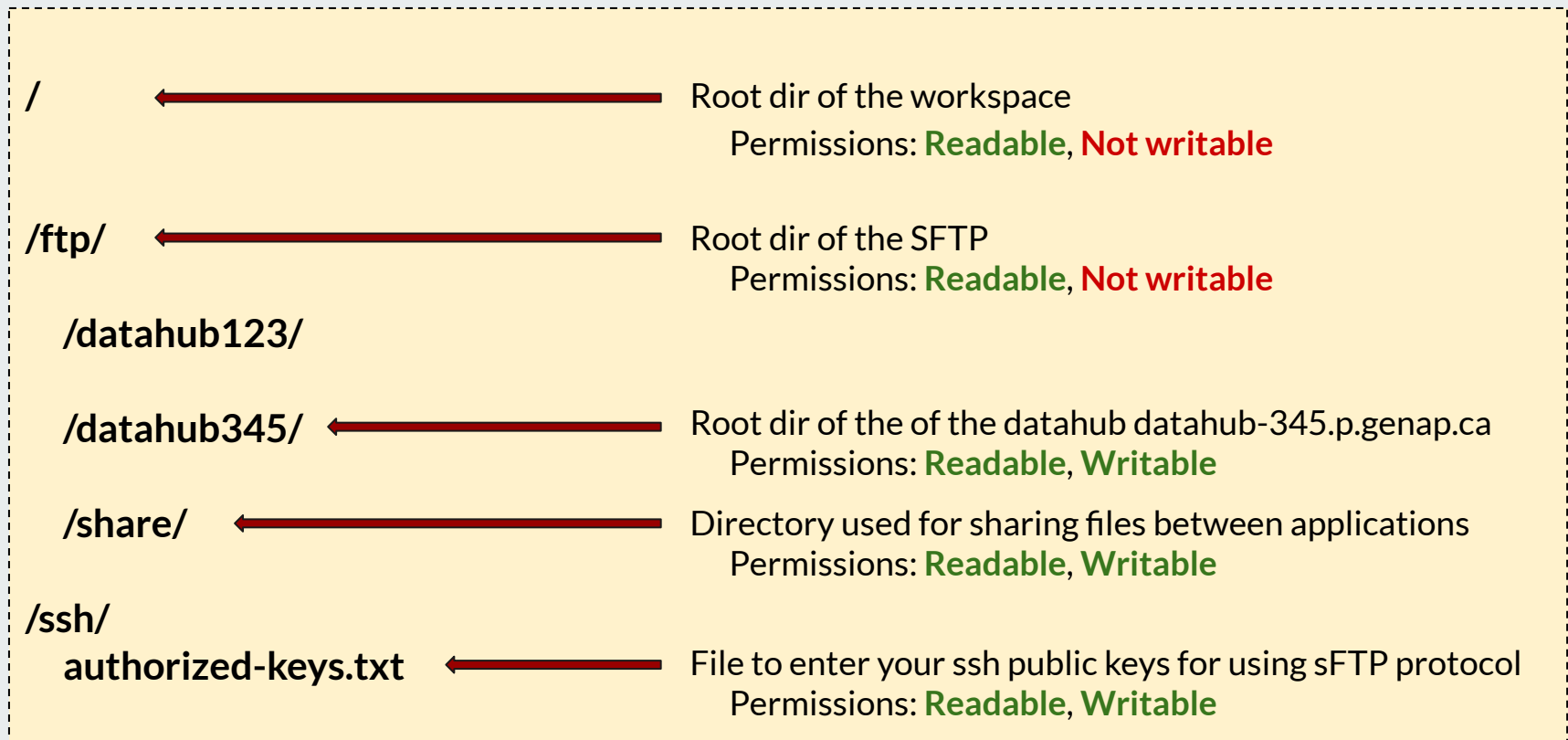
Storage allocated to workspaces

Storage currently used and available for each workspace

To increase or reduce the allocation of a workspace click the corresponding link

GenAP Storage: Workspace directory structure

- Below is the directory structure for each workspace.
- Each workspace are completely independant and are not in anyway inter-connected .
- Files and directory access permissions are indicated below.



Managing files: File Browser application

The File Browser application allows you to manage your files and directories in your workspace. It is an easy to use self explanatory interface.
Once you added the app simply click "Go to App"

Tutorial Workspace (p65) Resource: Arbutus

Workspace applications Add an application

File Browser	Data Hub	Galaxy
Running	Running	Running
https://filebrowser-311-p65.p.genap.ca	https://datahub-312-p65.p.genap.ca	https://galaxy-313-p65.p.genap.ca
<input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Go to App →"/>	<input type="button" value="Go to App →"/>	<input type="button" value="Stop"/> <input type="button" value="Start"/> <input type="button" value="Go to App →"/>
URL of this app cannot be open to public	URL is accessible to Workspace members only	URL of this app cannot be open to public
<input type="radio"/> Public <input checked="" type="radio"/> Private	<input checked="" type="radio"/> Public <input type="radio"/> Private	<input type="radio"/> Public <input checked="" type="radio"/> Private

Choose users who can access the workspace

Choose a user

Carol Gauthier David Morais

Michel Barrette David Bujold

Choose groups who can access the workspace

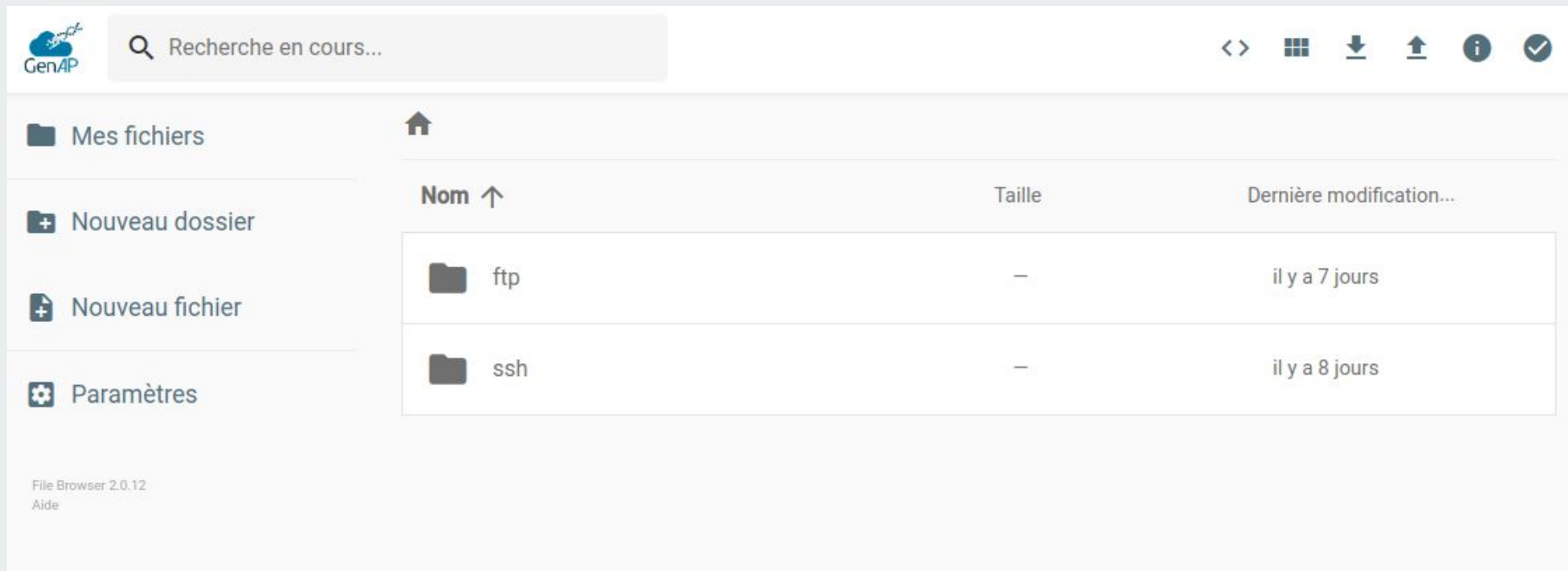
Choose a group

GenAP people Tutorial Group

Owner: Carol Gauthier | Location: fac01.genap.ca/p65/ | Storage used: 22.13 MB of 200 GB | CPU used: Available soon ...

Managing files: File Browser application

- Below is what the File Browser should look like when you first access it.
- Each file browser has a unique URL (filebrowser-311-p65.p.genap.ca for example) which clearly identifies to which workspace it refers to.
- Most of this app is self explanatory, but some features has no effect in the context of GenAP for security reasons. See next pages.



The screenshot shows the File Browser application interface. At the top left is the GenAP logo. A search bar contains the text "Recherche en cours...". On the right side of the top bar are several icons: a double arrow, a grid, a download arrow, an upload arrow, an information icon, and a checkmark. Below the search bar is a sidebar with the following items: "Mes fichiers", "Nouveau dossier", "Nouveau fichier", and "Paramètres". The main area shows a home icon and a table of files. The table has three columns: "Nom", "Taille", and "Dernière modification...". There are two rows of folders: "ftp" and "ssh".

Nom ↑	Taille	Dernière modification...
ftp	—	il y a 7 jours
ssh	—	il y a 8 jours

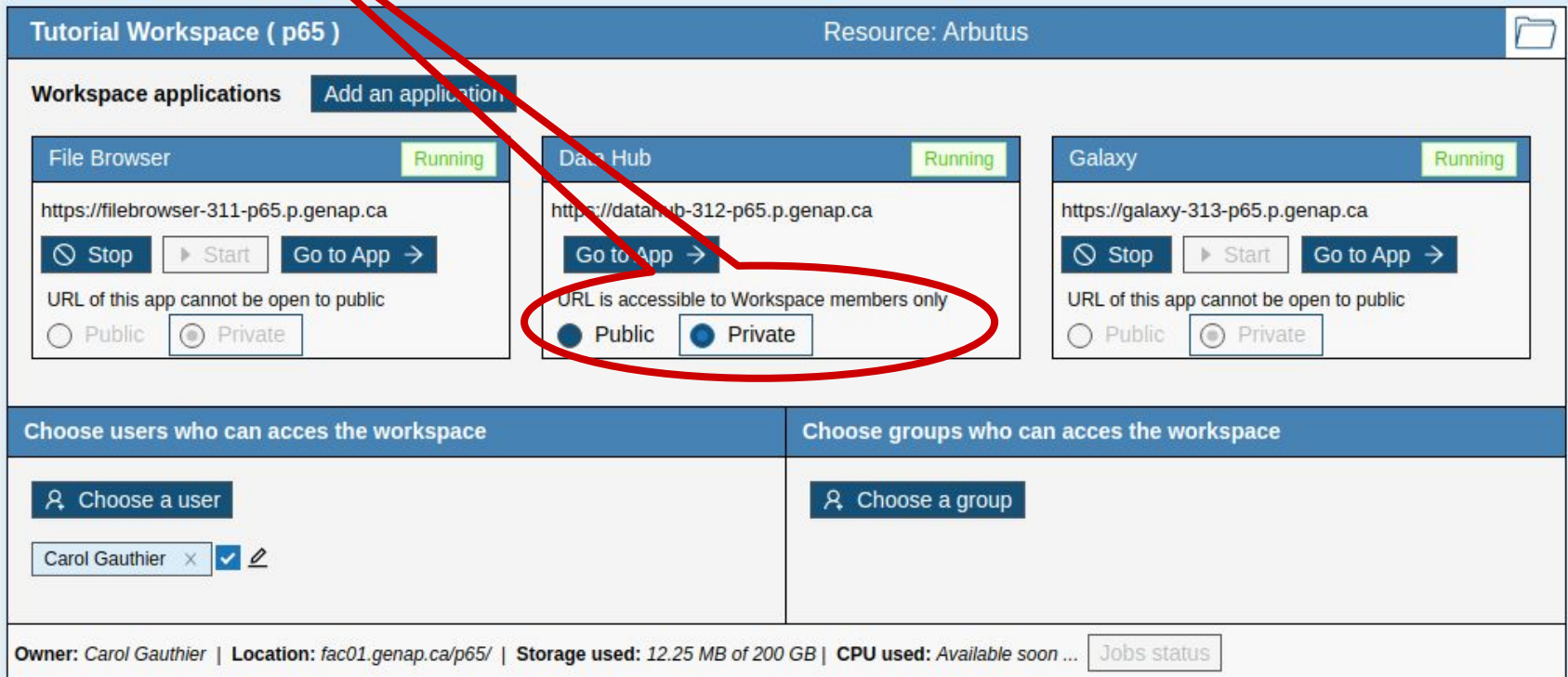
File Browser 2.0.12
Aide

Managing files: Using sFTP and SSHFS clients

- GenAP has an sFTP service that can be used by clients such as sFTP client and Filezilla as well as SSHFS.
- You will need to deposit your ssh public keys at a specific location in your workspace.
- Please visit the Help page <https://genap.ca/p/help/files-transfer> for a detailed explanation on how to set this up.
- Using SFTP and/or SSHFS will allow you to set-up automatic transfer to your workspace within your Scripts and programs. That includes directly into a Datahub or visualization application, making your results immediately available to your collaborators as they are produced.
- For security and privacy reasons, we chose not to offer Globus file transfer services to transfer files to and from your workspaces.
- Also for security reasons we do not allow to use rsync to exchange files to and from your workspaces.

How to setup and use Datahubs

- You can then set the visibility of the Datahub to Public (anybody on the Web) or Private (Only for the users having access to the workspace).



Tutorial Workspace (p65) Resource: Arbutus

Workspace applications Add an application

File Browser	Data Hub	Galaxy
Running	Running	Running
https://filebrowser-311-p65.p.genap.ca	https://datahub-312-p65.p.genap.ca	https://galaxy-313-p65.p.genap.ca
Go to App →	Go to App →	Go to App →
URL of this app cannot be open to public	URL is accessible to Workspace members only	URL of this app cannot be open to public
<input type="radio"/> Public <input checked="" type="radio"/> Private	<input checked="" type="radio"/> Public <input type="radio"/> Private	<input type="radio"/> Public <input checked="" type="radio"/> Private

Choose users who can access the workspace

Choose a user

Carol Gauthier x ✓ ✎

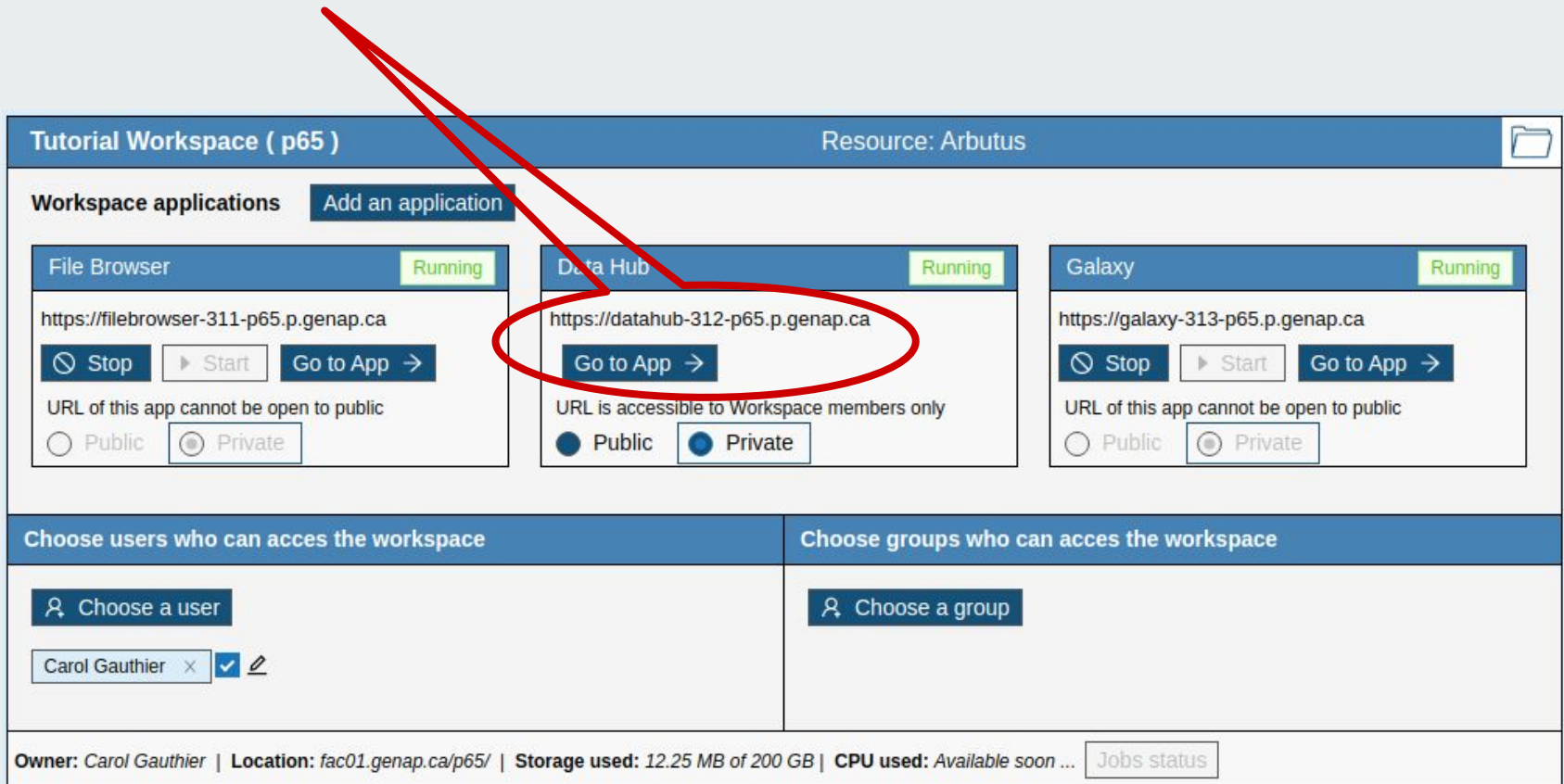
Choose groups who can access the workspace

Choose a group

Owner: Carol Gauthier | Location: fac01.genap.ca/p65/ | Storage used: 12.25 MB of 200 GB | CPU used: Available soon ... Jobs status

How to setup and use Datahubs

- You can visit the datahub by clicking "Go to App" or type in the URL on your browser.
- The URL is what you will give your collaborators you which you share your data with



Tutorial Workspace (p65) Resource: Arbutus

Workspace applications Add an application

File Browser Running

https://filebrowser-311-p65.p.genap.ca

URL of this app cannot be open to public

Public
 Private

Data Hub Running

https://datahub-312-p65.p.genap.ca

URL is accessible to Workspace members only

Public
 Private

Galaxy Running

https://galaxy-313-p65.p.genap.ca

URL of this app cannot be open to public

Public
 Private

Choose users who can access the workspace

Carol Gauthier

Choose groups who can access the workspace

Owner: Carol Gauthier | **Location:** fac01.genap.ca/p65/ | **Storage used:** 12.25 MB of 200 GB | **CPU used:** Available soon ...

How to setup and use Datahubs

- You can now populate your newly created Datahub by using the various ways described earlier in this presentation (the File Browser App, sFTP, SSHFS or FileZilla).
- In the workspace directory look for the corresponding Datahub , then upload there your files and directories.
- As stated earlier, all applications and the sFTP service have read and write access to this Datahub directory.

/ftp/ ← Root dir of the SFTP

/datahub312/ ← Root dir of the of the Datahub : datahub-312.p.genap.ca

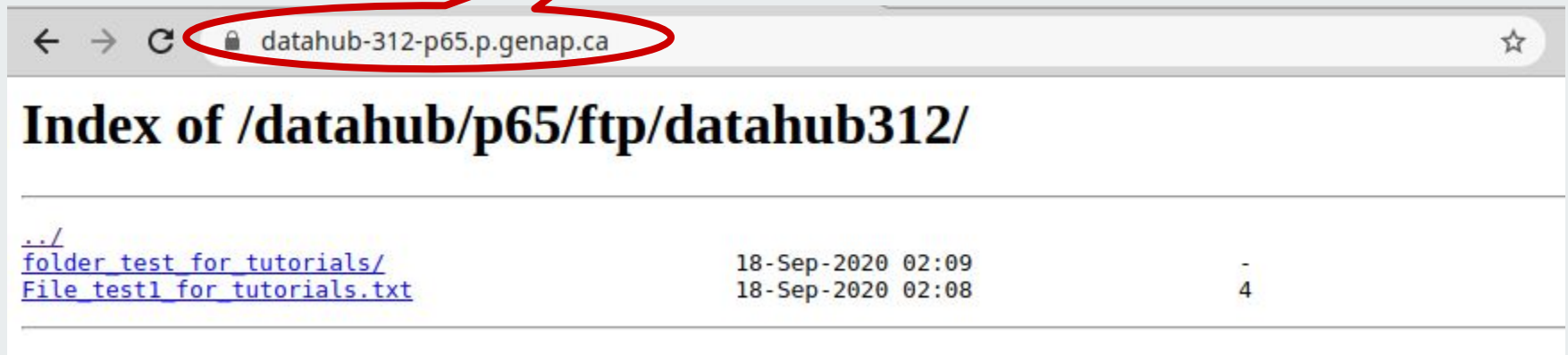
/folder_test_for_tutorials/ ← Test file and folder

File_test1_for_tutorials.txt

How to setup and use Datahubs

Below is what your browser would see when visiting your newly created and populated Datahub.

Datahub URL to share with your collaborators



The screenshot shows a web browser window. The address bar contains the URL `datahub-312-p65.p.genap.ca`, which is circled in red. A red callout bubble points to this URL with the text "Datahub URL to share with your collaborators". Below the address bar, the page title is "Index of /datahub/p65/ftp/datahub312/". The main content area displays a directory listing with the following items:

Item	Modified	Size
../		
folder test for tutorials/	18-Sep-2020 02:09	-
File test1 for tutorials.txt	18-Sep-2020 02:08	4

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Funding organizations



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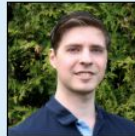
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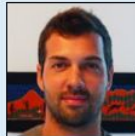
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