

Introduction

This is the user doc for the cloud environment that the Neuroscience Gateway (NSG) provides for neuroscience tool developers. The SDSC cloud based developer environment allows neuroscience tool developers to create a suitable instance on the SDSC cloud and use an image that includes basic software stack and tools that neuroscience tool developers may use for their tool development work. It provides:

- Python 2.7
- Python 3
- TightVNC
- Google Chrome (for use with VNC)
- Jupyter
- Open MPI 3.1.4
- Ncuron 7.2
- Singularity 3.11.0

It allows developers to put software in a Singularity container, connect to a VNC server, run Jupyter Notebook etc. Based on needs of the neuroscientist tool developers, other software and features will be provided in the tool development environment.

Getting Started

Development is done on the SDSC Cloud. To access the cloud dashboard, follow [this link](#). You will log in with the username and password given to you by NSG.

Adding an SSH Key

Before launching any instances, you should upload an SSH key so that you can authenticate with them. Navigate to the **Key Pairs** page by going to **Project** -> **Compute** -> **Key Pairs** in the navigation menu on the left.

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Click here for filters or full text search.

Create Key Pair

Import Public Key

Delete Key Pairs

Displaying 2 items

Name	Type
Surface Windows Key	ssh
Trevor Surface id_rsa	ssh

Displaying 2 items

You can either create a key pair using the dashboard or upload an existing public key.

Create a Key Pair

Click **Create Key Pair** on the right side of the screen. Give it any name that you would like and select **SSH Key** as the key type. Finally, click **Create Key Pair**. Your browser will automatically download the private key for you. You can store the private key anywhere on your computer. Remember the location you will need it when you try to SSH into your instance.

Upload a Public Key

Click **Import Public Key** on the right side of the screen. Give it any name that you would like and select **SSH Key** as the key type. Then either select the public key file or paste its contents into the text box. Finally, click **Import Public Key**.

Adding an SSH Security Group

The following section should only be done once per project. A security group is a firewall which control outgoing and incoming connections. Before you are able to use your SSH key to authenticate with an instance, you will need to set up a security group that will allow SSH connections.

Navigate to the **Security Groups** page. You can do this by going to **Project** -> **Network** -> **Security Groups** in the navigation menu on the left.

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Displaying 2 items

Name	Security Group ID	Description	Actions
SSH	e285019e-19f0-4420-8dea-92ba8554fbdd		Manage Rules
default	0ab162ae-f01c-4508-8f3-75e67a7b1ddf	Default security group	Manage Rules

Displaying 2 items

Click **Create Security Group** on the right side of the screen. In the popup window, name the security group "SSH" and then click **Create Security Group**. Next, click **Add Rule** on the right side of the screen. In the **Rule** dropdown, select **SSH**. Click **Add** to add the rule.

Launching a Development Instance

Development instances on the SDSC Cloud come prepackaged with software for development.

Navigate to the **Instances** page. You can do this by going to **Project** -> **Compute** -> **Instances** in the navigation menu on the left.

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Instance ID

Filter

Launch Instance

Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions
No items to display										

Click **Launch Instance** on the right side of the screen.

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Launch Instance

Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions
No items to display										

In the popup window, give your new instance any name you would like.

Launch Instance

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Please provide the initial hostname for the instance, the availability zone where it will be deployed, and the instance count. Increase the Count to create multiple instances with the same settings.

Instance Name

example_instance1

Description

Availability Zone

West-Datcenter

Count

1

Total Instances (10 Max)

10%

0 Current Usage

1 Added

9 Remaining

Cancel

Back

Next

Launch Instance

Click on **Source** on the left. In the dropdowns for **Select Boot Source**, select **Image**. Under the **Available** section, select **NSGImage**. You can also search for the image in the search box, by clicking on the up arrow at the end of the row.

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Metadata

Instance source is the template used to create an instance. You can use an image, a snapshot of an instance (image snapshot), a volume or a volume snapshot (if enabled). You can also choose to use persistent storage by creating a new volume.

Select Boot Source

Image

Create New Volume

Yes

No

Volume Size (GB)

1

Delete Volume on Instance Delete

Yes

No

Device Name

vda

Allocated

Name	Updated	Size	Type	Visibility
Select an item from Available items below				
Available				
Q nsg				
Name	Updated	Size	Type	Visibility
NSGImage	10/7/20 4:57 PM	20.00 GB	raw	Shared

Cancel

Back

Next

Launch Instance

Click on **Flavor** on the left. Select the flavor with the CPU and RAM configuration that meets your needs by clicking on the up arrow at the end of the row. For this example, I will use **m1.medium**.

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Metadata

Flavors manage the sizing for the compute, memory and storage capacity of the instance.

Allocated

Name	VCPUS	RAM	Total Disk	Root Disk	Ephemeral Disk	Public
Select an item from Available items below						
Available 11						
Click here for filters or full text search						
> c1.large	2	4 GB	20 GB	20 GB	0 GB	Yes
> m1.medium	1	4 GB	20 GB	20 GB	0 GB	Yes
> c1.xlarge	4	8 GB	20 GB	20 GB	0 GB	Yes
> m1.large	2	8 GB	20 GB	20 GB	0 GB	Yes
> m1.xlarge	4	16 GB	20 GB	20 GB	0 GB	Yes
> r1.large	2	16 GB	20 GB	20 GB	0 GB	Yes
> c1.2xlarge	8	16 GB	20 GB	20 GB	0 GB	Yes
> m1.2xlarge	8	32 GB	20 GB	20 GB	0 GB	Yes
> txe.medium	1	32 GB	20 GB	20 GB	0 GB	Yes

Click on **Security Groups** on the left. Select the **SSH** security group that you or your group has created earlier by clicking on the up arrow at the end of the row.

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Metadata

Select the security groups to launch the instance in.

Allocated 1

Name	Description
> default	Default security group

Available 2

Click here for filters or full text search

Name	Description
> test	
> SSH	

Click on **Key Pair** on the left. Select the **SSH** Key that you created earlier by clicking on the up arrow at the end of the row.

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A key pair allows you to SSH into your newly created instance. You may select an existing key pair, import a key pair, or generate a new key pair.

Create Key PairImport Key Pair

Allocated

Displaying 0 items

Name	Type
Select a key pair from the available key pairs below.	
Displaying 0 items	
Available 2	

Click here for filters or full text search

Displaying 2 items

Name	Type
> Surface Windows Key	ssh
> Trevor Surface_id_rsa	ssh

Displaying 2 items

Click **Launch Instance** on the bottom right of the popup to finish.

Assigning a public IP Address

Your newly created instance will not be able to be reached until you give it a public IP address by **Associating a Floating IP** with it. From the instances page. There are 2 options to associate a floating IP address to an instance. First, will be checking if the project already has available IPs to use. Second, will be requesting new IPs if the project does not currently have any IPs or all of them are in use.

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Displaying 1 item

Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions	
example_instance	-	10.128.21.180	m1.medium	Trevor Surface id_rsa	Active	us-east-1	West-Datacenter	None	Running	0 minutes	Create Snapshot

Associate Floating IP

Attach Interface

Detach Interface

Edit Instance

Attach Volume

Detach Volume

Update Metadata

Retrieve Password

Edit Security Groups

Edit Port Security Groups

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Rescue Instance

Pause Instance

Suspend Instance

Shelve Instance

Start by finding the instance that you would like to add an IP to. Click on the dropdown menu under the

Actions column. Then select Associate Floating IP option

Checking for existing Floating IPs

Manage Floating IP Associations

IP Address

Select an IP address

Port to be associated

dev_doc_test: 10.128.61.182

Cancel

Associate

In the IP Address field, click the dropdown arrow.

Manage Floating IP Associations

IP Address

Select an IP address

132.249.238.61

Cancel

Associate

Select the IP address from the dropdown menu that you would like to use. Then click on the Associate button.

If you do not see any IPs in the dropdown menu, the next section will cover how to request a new IP

Requesting new a IP

Manage Floating IP Associations

IP Address

No floating IP addresses allocated

Port to be associated

example_instance: 10.128.21.180

Cancel

Associate

In the IP Address field, click the + at the end.

In the popup window, click Allocate IP. Then click Associate in the bottom right of the popup window.

Your instance should now be accessible at the associated IP address. Note that this is the IP address that starts with 132.* not 10.*.

Connecting to an Instance

You should be able to connect to your instances using the SSH key that you selected when created the instance. When connecting to your instance, use ubuntu as your username. The IP address starts with 132.* is the one you will use to SSH into the instance The IP should be the 2nd value in the IP Address column on the Instances page.

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Displaying 3 items

Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions	
dev_doc_test	dev_env_0.0.2	10.128.61.182	m1.medium	NISG Dev	Active	us-east-1	West-Datacenter	None	Running	4 hours, 2 minutes	Create Snapshot
ssh_test	-	10.128.61.182	132.249.238.220	m1.medium	Work MacBook	Shelved Offloaded	us-east-1	None	Shut Down	2 weeks, 1 day	Disassociate Floating IP
nsg_test	nsg_dev_env	10.128.61.210	132.249.238.52	m1.medium	NISG Dev	Active	us-east-1	None	Running	2 weeks, 2 days	Create Snapshot

For help connecting from Mac or Linux, look [here](#). For help connecting from Windows, look [here](#).

Shelving an Instance

Instances should only be kept running when they are being used. When instances are not in use, they should be shelved. Shelved instances are essentially paused until they are needed again. Data stays on shelved instances and is not lost.

From the instances page, find the instance that you would like to shelve. Click the dropdown arrow at the end of the row and click Shelve Instance.

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Displaying 1 item

	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions	
<input type="checkbox"/>	example_instance	dev_env_0.0.1	10.128.21.180, 132.249.238.76	m1.medium	Trevor Surface id_rsa	Active	us-east-1a	West-Datacenter	None	Running	7 minutes	Create Snapshot

Displaying 1 item

Disassociate Floating IP

Attach Interface

Detach Interface

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Attach Volume

Detach Volume

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Edit Port Security Groups

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Suspend Instance

Shelve Instance

Resize Instance

Lock Instance

Reboot Instance

Unshelving an Instance

From the instances page, find the instance that you would like to unshelve. Click the dropdown arrow at the end of the row and click **Unshelve Instance**.

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Displaying 1 item

	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions
<input type="checkbox"/>	example_instance	-	10.128.21.180, 132.249.238.76	m1.medium	Trevor Surface id_rsa	Shelved Offloaded	us-east-1a	None	Shut Down	13 minutes	Disassociate Floating IP

Displaying 1 item

Edit Instance

Update Metadata

Edit Port Security Groups

Unshelve Instance

Lock Instance

Delete Instance

More Information and Guides

For more information and guides on how to use the SDSC cloud, see the [SDSC Cloud Wiki](#).
ssian.net/wiki/spaces/SC/pages/110034993/SSH+to+Instance+using+Mac+and+Linux+here. For help connecting from Windows, look [here](#).

Shelving an Instance

Instances should only be kept running when they are being used. When instances are not in use, they should be *shelved*. Shelved instances are essentially paused until they are needed again. Data stays on shelved instances and is not lost.

From the instances page, find the instance that you would like to shelve. Click the dropdown arrow at the end of the row and click **Shelve Instance**.

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Displaying 1 item

	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions	
<input type="checkbox"/>	example_instance	dev_env_0.0.1	10.128.21.180, 132.249.238.76	m1.medium	Trevor Surface id_rsa	Active	us-east-1a	West-Datacenter	None	Running	7 minutes	Create Snapshot

Displaying 1 item

Disassociate Floating IP

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Suspend Instance

Shelve Instance

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Lock Instance

Reboot Instance

Unshelving an Instance

From the instances page, find the instance that you would like to unshelve. Click the dropdown arrow at the end of the row and click **Unshelve Instance**.

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	Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions
<input type="checkbox"/>	example_instance	-	10.128.21.180, 132.249.238.76	m1.medium	Trevor Surface id_rsa	Shelved Offloaded	us-east-1	None	Shut Down	13 minutes	<div>Disassociate Floating IP</div> <div>Edit Instance</div> <div>Update Metadata</div> <div>Edit Port Security Groups</div> <div>Unshelve Instance</div> <div>Lock Instance</div> <div>Delete Instance</div>

More Information and Guides

For more information and guides on how to use the SDSC cloud, see the [SDSC Cloud Wiki](#).