HPC-NOW User Manual

CONTENTS

I. About this Software

The HPC-NOW platform (this platform or this software) is developed and maintained by Shanghai HPC-NOW Technologies Co., Ltd. It is also open-source under the MIT License .

The source code repository: Link
The license of adopted by this software is Link . Here are the contents:

```
MIT License
Copyright (c) 2023 Shanghai HPC-NOW Technologies Co., Ltd 上海即算科技有限公司

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SOFTWARE.
```

Please acknowledge and accept the terms above before using this software (including but not limited to compile, link, execute). Otherwise, please do not use this software.

With this software, you can start and manage HPC services on multiple clouds. Currently, this software supports the cloud services below:

Cloud Service Provider	HPC-NOW Internal Code
Alibaba Cloud	CLOUD_A
Tencent Cloud	CLOUD_B
Amazon Web Services	CLOUD_C
Huawei Cloud	CLOUD_D
Baidu Cloud	CLOUD_E
Microsoft Azure	CLOUD_F
Google Cloud Platform	CLOUD_G

II. Quick Installation and Start

This software depends on system utilities:

Operating System	Versions/Distros
Microsoft Windows	curl, certutil
GNU/Linux	curl, md5sum, base64
macOS	curl, md5, base64

2.1 Download the Installer

The latest main version of the installer is 0.2.0. Please use the curl toolkit to download the installer. Normally, your OS distribution contains the curl toolkit, which can be executed by the command “curl”. If this is not the case, you can visit the official website of curl to download and install it to your OS. If you are using a GNU/Linux distro, you can install curl with the package manager such as YUM | DNF | APT.

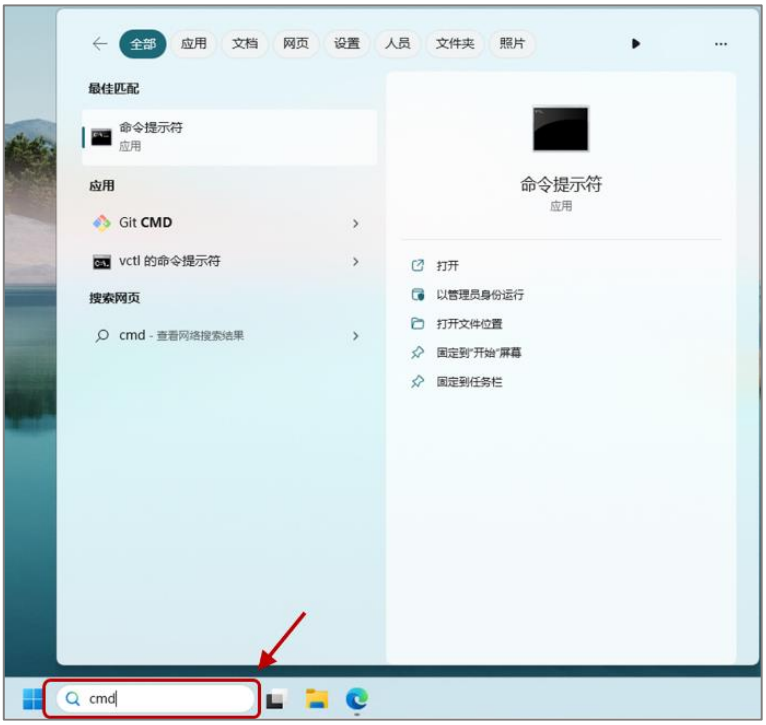
Here are the download links of the installer:

Operating System	Versions/Distros (Validated)	Links
Microsoft Windows	Windows 10/11 Windows Server 2019	Windows
GNU/Linux	Ubuntu 18.04 LTS Ubuntu 20.04 LTS Ubuntu 22.04 LTS CentOS Stream 9 CentOS 8	GNU/Linux
macOS	Monterey （12.0） Ventura （13.0）	macOS

Note: If your OS distribution is not in the “Validated” list, this software will probably still work properly. If you encountered any problems, please report to us.

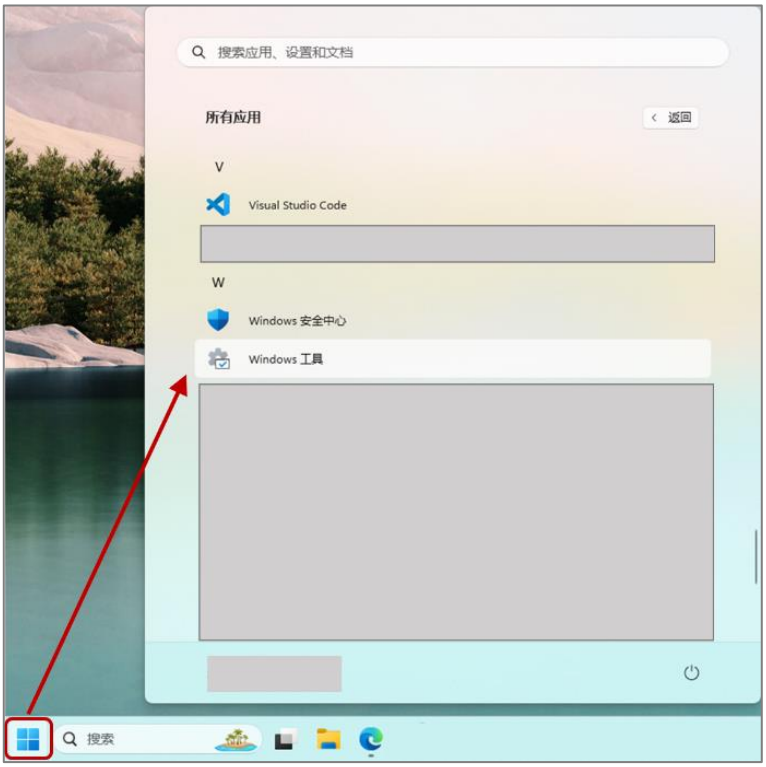
2.1.1 Microsoft Windows

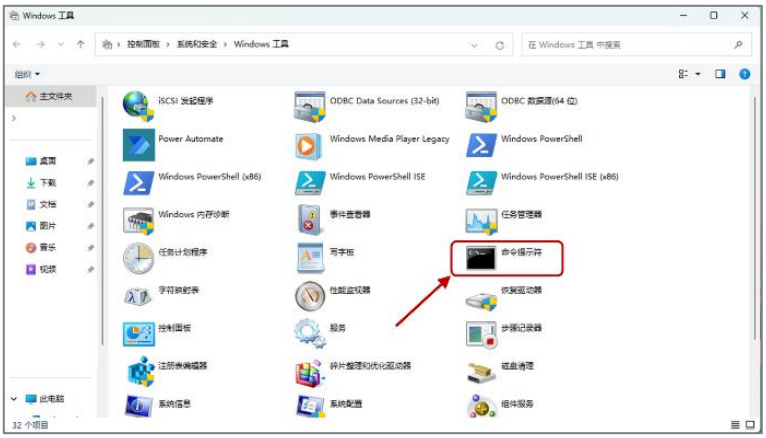
1) If there is search box on the toolbar, you can type ‘cmd’ in it. Please DO NOT click the icon or press the ENTER key.



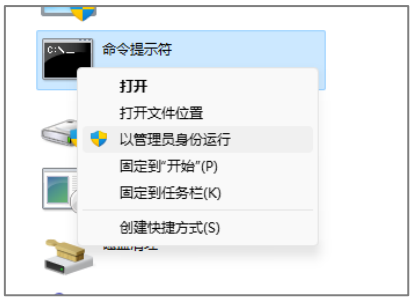
If the search box is absent, you can find the Command Prompt icon by the path below:

Windows icon - All Apps - Windows Tools - Command Prompt





2) Right click on the “Command Prompt” icon, single click on the “Run as Administrator” icon. If the UAC (User Account Control) window appears, please click “Yes” to grant the temporary permission for downloading and installing the HPC-NOW platform.



3) Please paste the command line below to download the installer to your local directory: **c:\users\public\installer.exe**

```
curl https://hpc-now-1308065454.cos.ap-guangzhou.myqcloud.com/installer-dev/installer-win-0.2.0-latest.exe -o c:\users\public\installer.exe
```

2.1.2 GNU/Linux

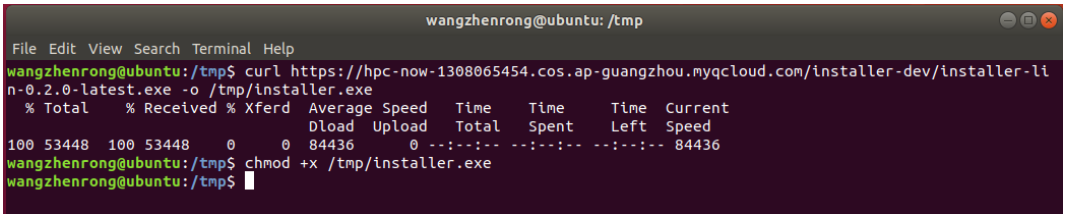
1) Open the Terminal

2) Run the command below to download installer to your local directory: **/tmp/installer.exe**

```
curl https://hpc-now-1308065454.cos.ap-guangzhou.myqcloud.com/installer-dev/installer-lin-0.2.0-latest.exe -o /tmp/installer.exe
```

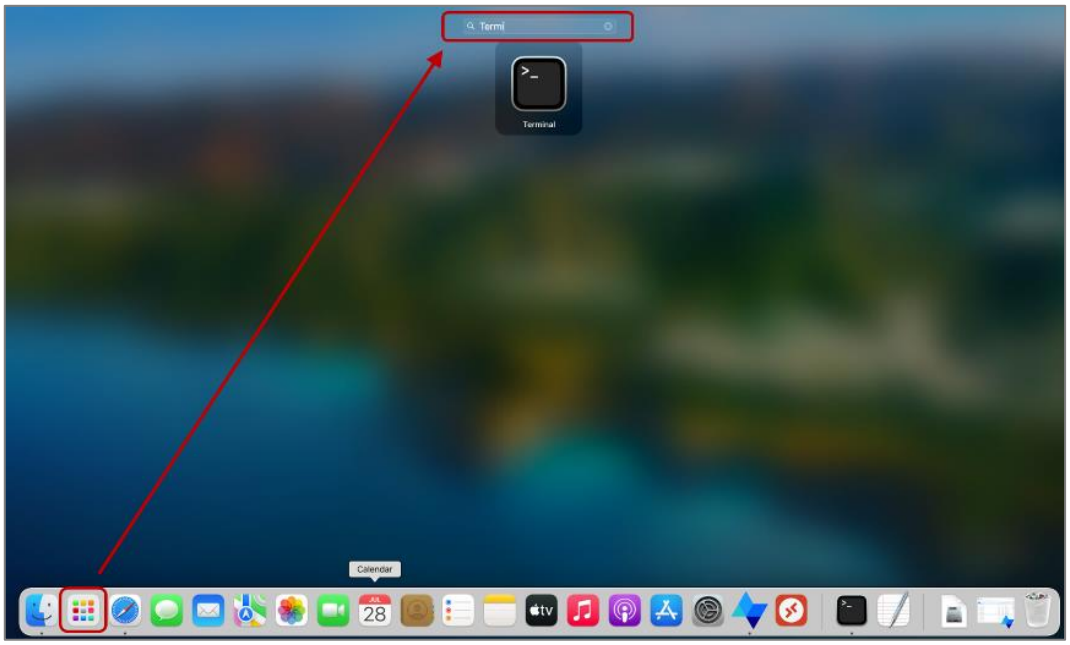
3) Run the command below to make the installer executable:

```
chmod +x /tmp/installer.exe
```



2.1.3 macOS

1) Click the Launchpad icon on the Dock. Type ‘terminal’ in the search box and click the Terminal icon.

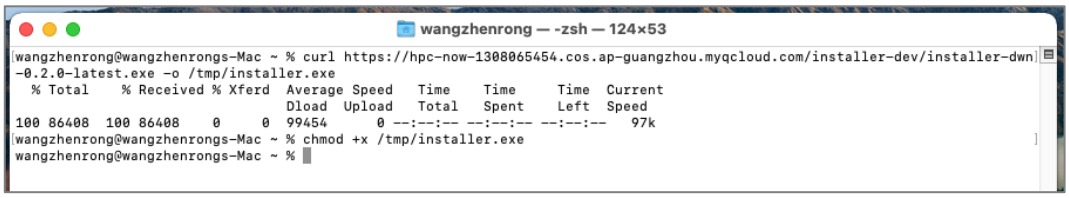


2) Run the command below to download installer to your local directory:
/tmp/installer.exe

```
curl https://hpc-now-1308065454.cos.ap-guangzhou.myqcloud.com/installer-dev/installer-dwn-0.2.0-latest.exe -o /tmp/installer.exe
```

3) Run the command below to make the installer executable:

```
chmod +x /tmp/installer.exe
```



Now, you have downloaded the installer to your local directory:

Microsoft Windows: **C:\Users\Public\installer.exe**
GNU/Linux: **/tmp/installer.exe**
MacOS: **/tmp/installer.exe**

2.2 Install the HPC-NOW Services

The installation process needs admin privilege. For Microsoft Windows, you need to run the installer command as Administrator; for GNU/Linux or macOS, you need to run the installer command with ‘sudo’.

2.2.1 Microsoft Windows

Please run a Command Prompt Window as Administrator and run the command below to start automatic installation:

```
c:\users\public\installer.exe install
```

Please input “accept” when being asked to read the license terms.

2.2.2 GNU/Linux

Open the Terminal and run the command below:

```
sudo /tmp/installer.exe install
```

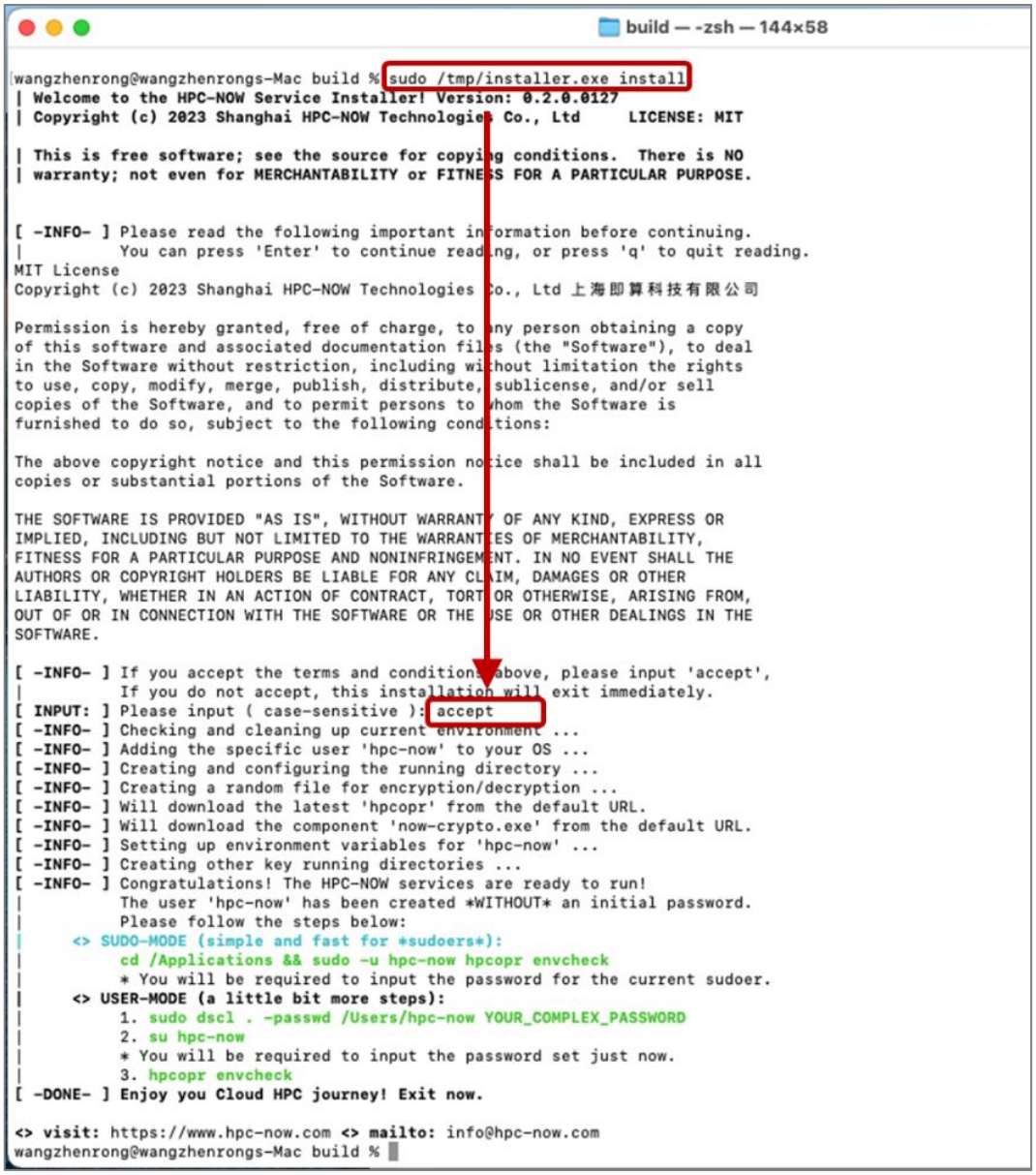
Please input “accept” when being asked to read the license terms.

2.2.3 macOS

Open the Terminal and run the command below:

```
sudo /tmp/installer.exe install
```

Please input “accept” when being asked to read the license terms.



2.3 Installing 3rd-Party Components

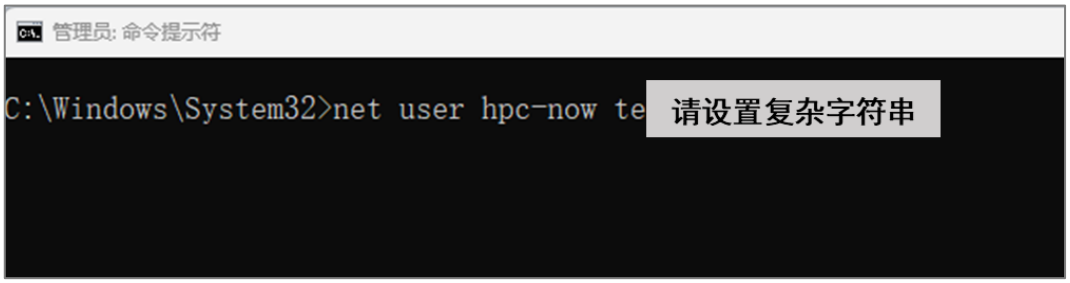
The core component of the HPC-NOW services is **`hpcopr.exe`**. For security considerations, only dedicated the operating system user **`hpc-now`** is able to execute the **`hpcopr.exe`**. The user **`hpc-now`** has been added to your OS during the previous step.

2.3.1 Switch to the hpcopr Running Environment

Microsoft Windows

Please run a Command Prompt Window as Administrator and run the command below:

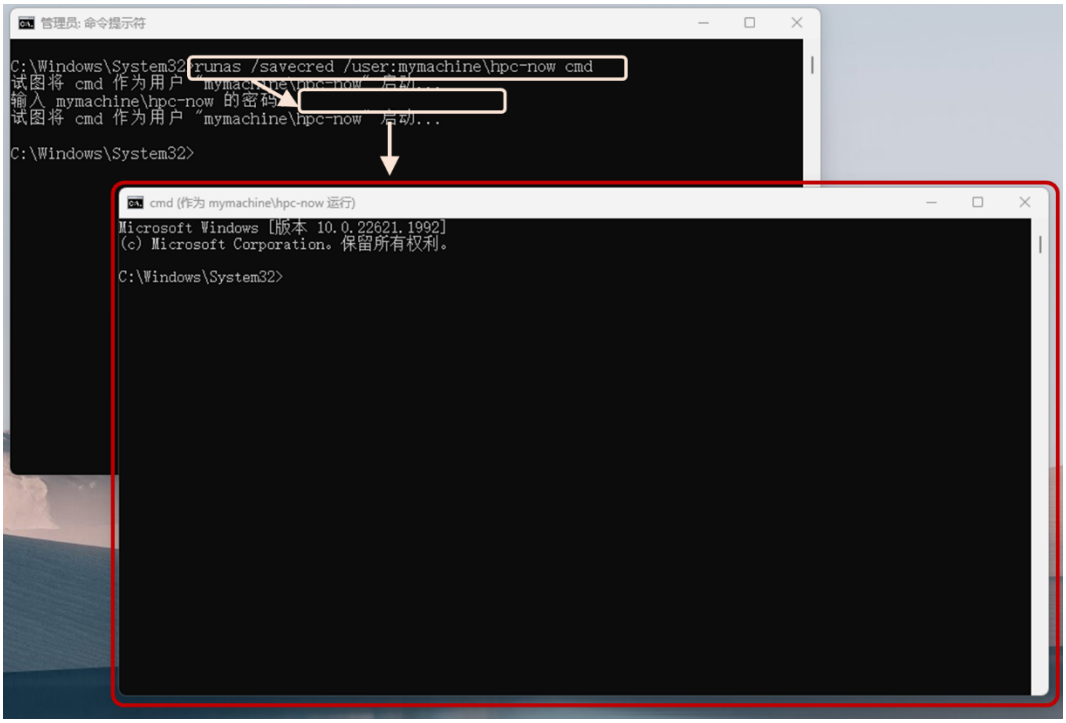
`net user hpc-now` XXXXXXXX (Please replace XXXXXXXX with a complex password string)



Then, run the command below to start a new Command Prompt Window ran by the user **hpc-now**.

```
runas /savecred /user:mymachine\hpc-now cmd
```

The password of hpc-now is required. Now, for security considerations, you can close the Administrator: Command Prompt Window.

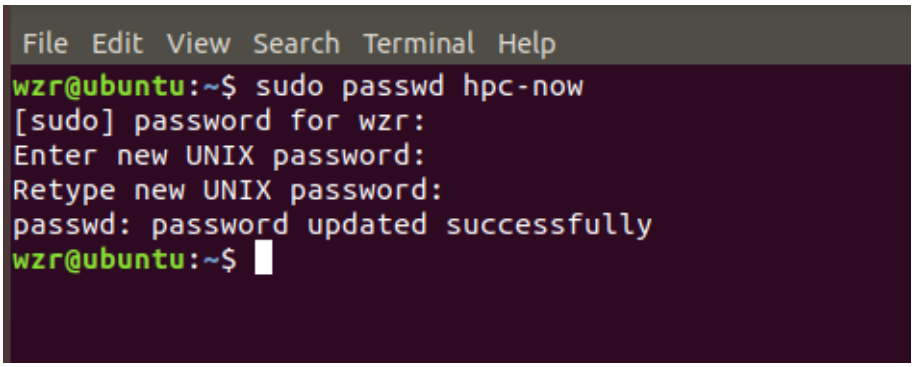


GNU/Linux

Open the Terminal and run the command below:

```
sudo passwd hpc-now
```

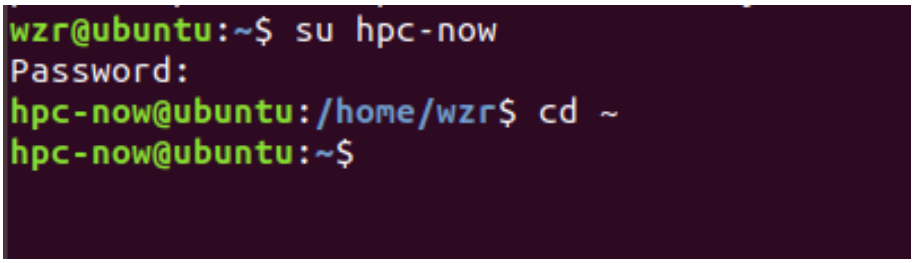
Please input the sudo password and type a complex password string twice to set the password for the user hpc-now.



Then, run the command below to switch to the user **hpc-now**:

```
su hpc-now
```

The password of **hpc-now** is required. Run the command **cd ~** to enter the **$HOME** directory of **hpc-now**.

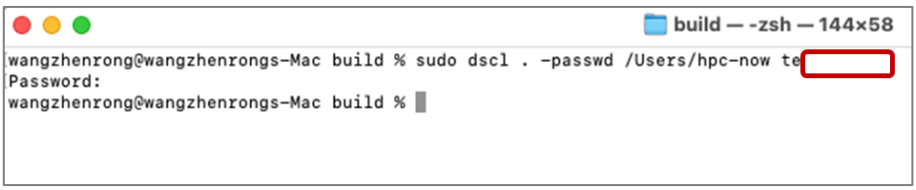


macOS

Open the Terminal and run the command below:

```
sudo dscl . -passwd /Users/hpc-now XXXXXXXX
```

Please replace XXXXXXXX with a complex password string. The sudo password is required.

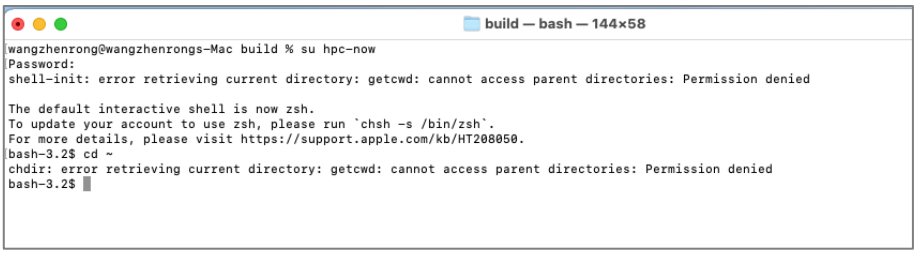


Then, run the command below to switch to the user **hpc-now**:

```
su hpc-now
```

The password of **hpc-now** is required. Run the command **cd ~** to enter the **$HOME** directory

of **hpc-now**.



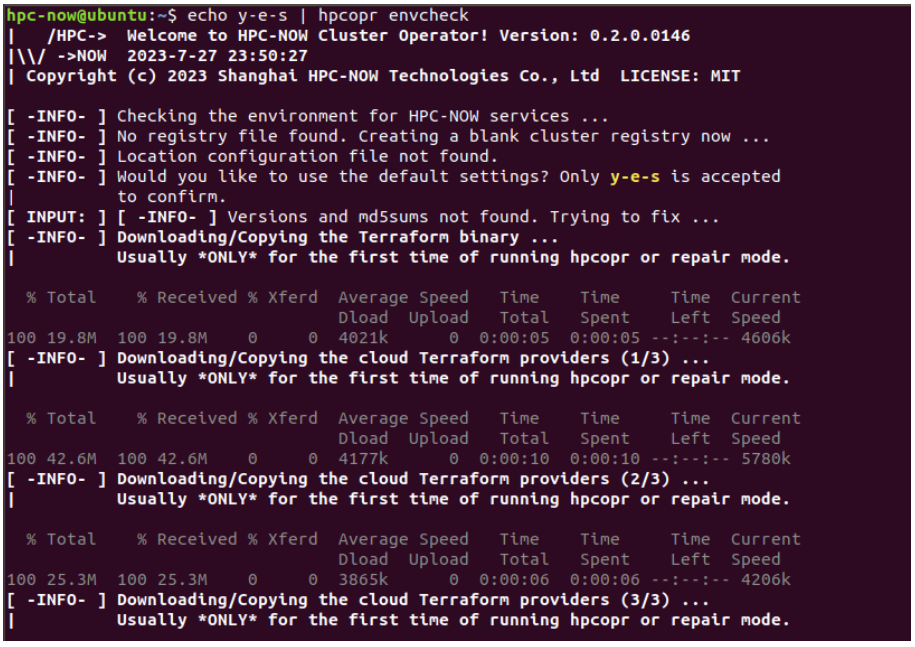
Now, the **hpcopr** is ready for running.

2.3.2 Installing Components

Please switch to the **hpcopr** running environment (See Section 2.3.1). Then, run the command below to start installing the 3rd-Party components automatically.

```
echo y-e-s | hpcopr envcheck
```

Several 3rd-Party packages (~ 280 MB) will be downloaded and installed. This step is only for the first time of running **hpcopr**. The time for this step depends on the internet connectivity of your device.



At the completion of the components, an info will be echoed:

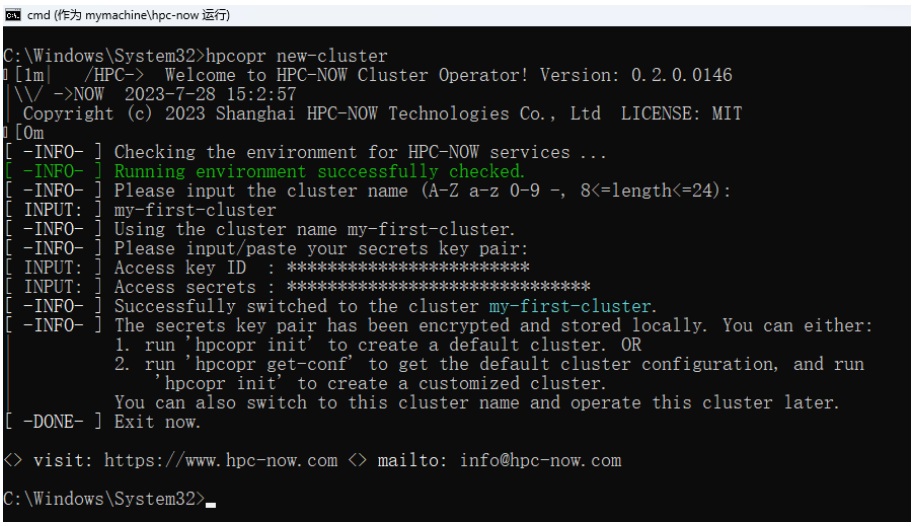
Now, the hpcopr is ready for work.

2.4 Create Your First HPC Cluster

Please run the command below to register your first HPC Cluster.
`hpcopr new-cluster`

If you are registering a Google Cloud Platform (GCP) account, please run the command with the **`--gcp`** parameter. i.e.
`hpcopr new-cluster --gcp`

A Cloud Service key pair will be required. Currently the HPC-NOW services support Amazon Web Services (AWS), Alibaba Cloud, Tencent Cloud, Huawei Cloud, Baidu, Azure, and GCP. Please input a valid key pair when asked.



VERY IMPORTANT: If you are using GCP, a JSON-Format key file will be required. Please follow the steps below to generate a valid JSON-Format key file:

- Log in your GCP console, and create a new project
- Create a service account with the “owner” role of the new project
- Generate a JSON-Format key for the new service account

For more details, please refer to the doc.

VERY IMPORTANT: If you are using Amazon Web Services global regions (NOT China regions), you MUST subscribe the CentOS 7.9 and CentOS Stream 9 AMIs to you AWS account before initializing any clusters. Please visit the AWS Marketplace and search “CentOS”, then choose Amazon Web Services as the publisher. Then, select **CentOS Stream 9 (x86_64)** and **CentOS 7 (x86_64) - with Updates HVM** and subscribe them respectively.

Then, in the same Command Prompt Window or Terminal window, run the command below to initialize your first cluster.

If you are using AWS Global regions, please specify the region and az:
`hpcopr init --ci a8c16g --rg us-east-1 --az us-east-1a`

If you are using services from other providers or AWS China Regions, please input:
`hpcopr init --ci a8c16g`

The automatic initialization process will start immediately. Please input y-e-s to confirm the initialization. No other interaction or operation is needed.

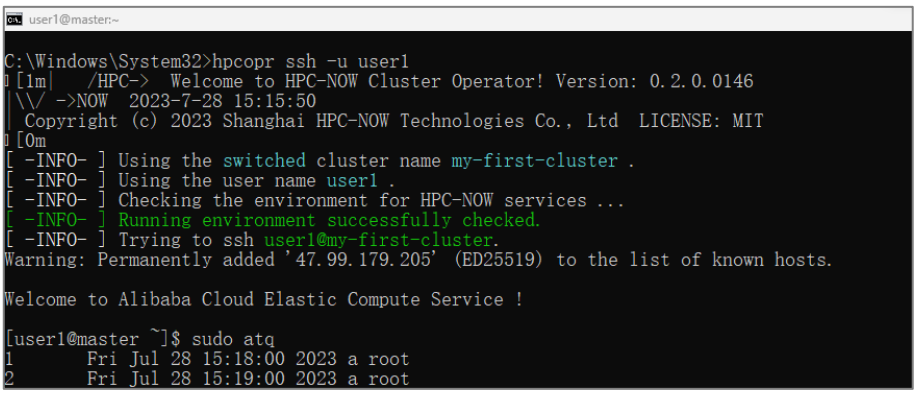
```
C:\Windows\System32>hpcopr init
[1m|   /HPC->  Welcome to HPC-NOW Cluster Operator! Version: 0.2.0.0146
|\\/ ->NOW  2023-7-28 15:7:46
| Copyright (c) 2023 Shanghai HPC-NOW Technologies Co., Ltd  LICENSE: MIT
[0m
[ -INFO- ] Using the switched cluster name my-first-cluster .
[ -INFO- ] Checking the environment for HPC-NOW services ...
[ -INFO- ] Running environment successfully checked.
[ -INFO- ] You are operating the cluster my-first-cluster now, which may affect
           the resources|data|jobs. Please input y-e-s to continue.
[ INPUT: ] y-e-s
[ -WARN- ] Configuration file not found. Using the specified or default params.
[ START: ] Start initializing the cluster ...
[ STEP 1 ] Creating initialization files now ...
[ -INFO- ] Creating a Unique Cluster ID now...
[ STEP 2 ] Cluster Configuration:
           Cluster ID:            my-first-cluster
           Region:                cn-hangzhou
           Availability Zone:     cn-hangzhou-j
           Number of Nodes:       1
           Number of Users:       3
           Master Node Instance:  a8c16g
           Compute Node Instance: a4c8g
           OS Image:              centoss9
[ -WAIT- ] This may need 1 min(s). 1 sec(s) passed ... (|)
[ -WARN- ] Do not terminate this process manually. Max Exec Time: 600 s
           Command: apply. View log: hpcopr viewlog --std
[ -WAIT- ] This may need 3 min(s). 49 sec(s) passed ... (|)
```

If everything goes well, you will see the echo starting with "**`Congratulations! …`**", which means that all the cloud resources have been created successfully.

```
[ STEP 3 ] Remote executing now, please wait 60 seconds for this step ...
[ -DONE- ] Remote execution commands sent..
[ -INFO- ] After the initialization:

        +-Cluster name: my-first-cluster +-Cluster role: opr
        +-Payment Method: od-On-Demand PostPaid
          +-master(47.99.179.205,Running,a8c16g)
          +-+-db(Running)
            +-+-compute1(10.0.117.186,Running,a4c8g,hton)

[ -DONE- ] Congratulations! The cluster is initializing now. This step may take at
           least *7* minutes. *DO NOT* operate the cluster during this period.
           You can now log on the master node by 'hpcopr ssh -u USERNAME'.
           The desktop will be ready after the init process.

<> visit: https://www.hpc-now.com <> mailto: info@hpc-now.com
```

However, you still need to wait 5~7 minutes for the initialization of the HPC environment. During this period, you can log into the cluster and check the process.

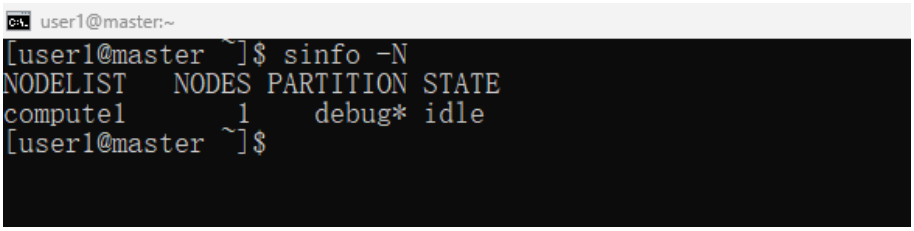
hpcopr ssh -u user1
sudo atq



You can run the command below to check the status of the SLURM service.

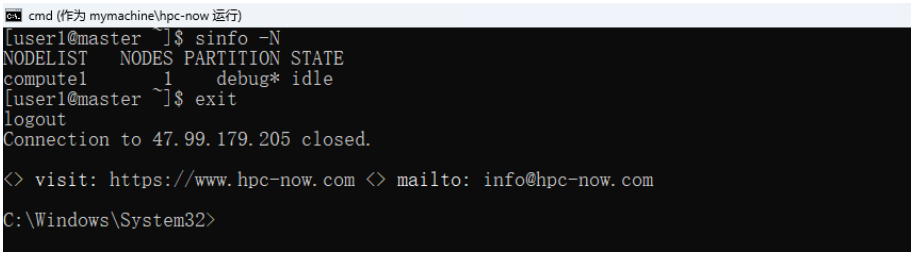
sinfo -N

If you receive the information below, the cluster is ready for HPC workloads.



2.5 Deploy Your First HPC Application

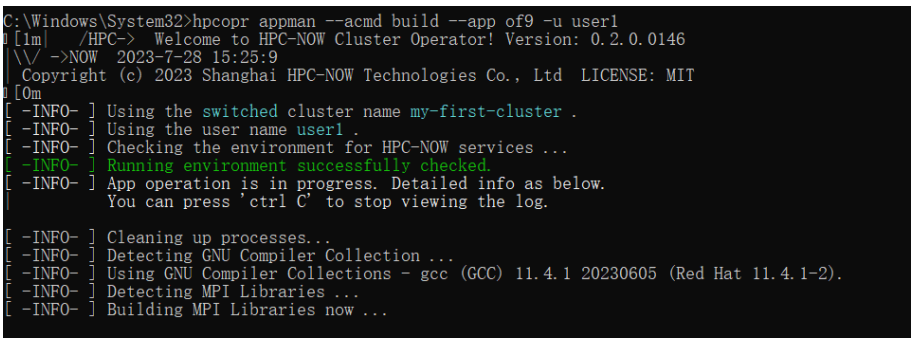
If you've logged into the cluster, please input the **exit** command to return to the local **hpcopr** environment.



In order to deploy the OpenFOAM-9 to the cluster, you only need to run the command below:

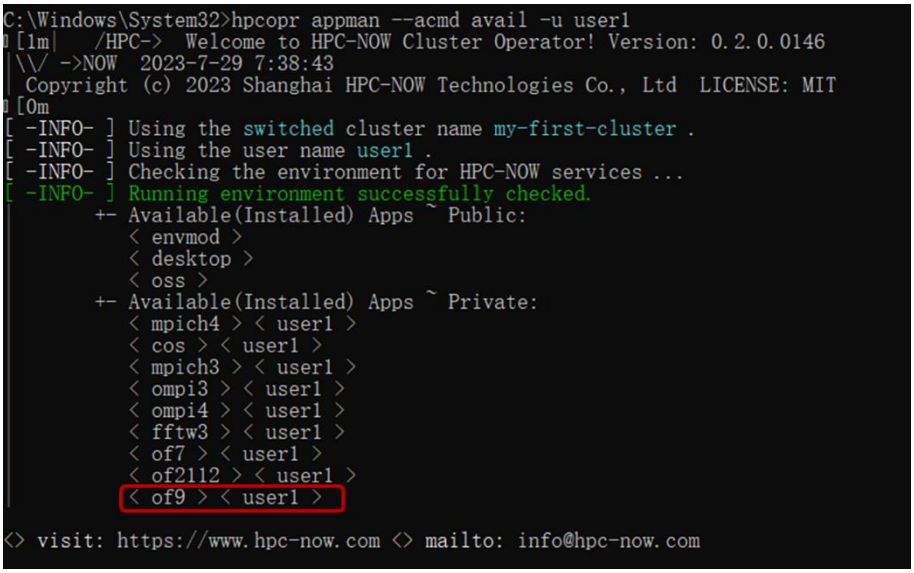
hpcopr appman --acmd install --app of9 -u user1

The deployment is automatic.



At the completion of the deployment, you can run the command below to check:

```
hpcopr appman --acmd avail -u user1
```



Please install ParaView to post-process the OpenFOAM results.

```
hpcopr appman --acmd install --app paraview -u user1
```

2.6 Submit Your First HPC Job

After the steps from Section 2.1 to Section 2.5, the cluster is ready for running OpenFOAM cases.

2.6.1 Prepare the Case

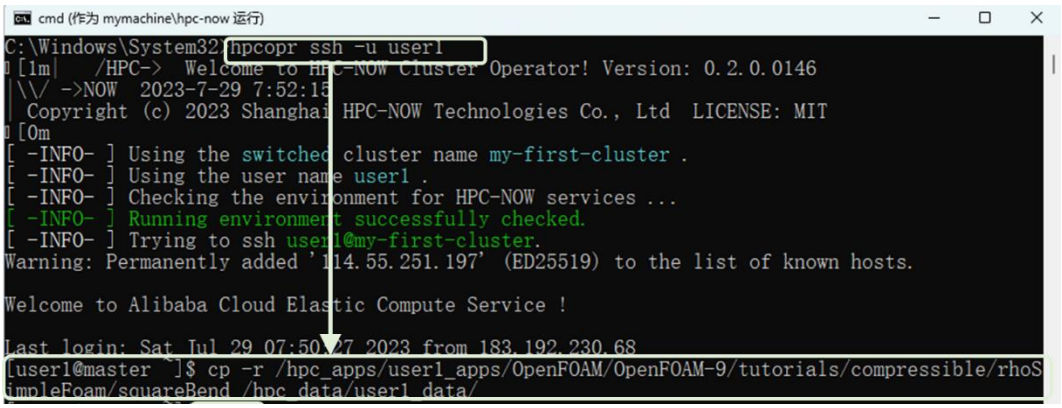
We will use the tutorial case **`rhoSimpleFoam/squareBend`** in the OpenFOAM source code.

Log into your cluster by running the command below:

```
hpcopr ssh -u user1
```

Run the commands below to preprocess the case, including copying the files, meshing the model, and partitioning the model for parallel solving.

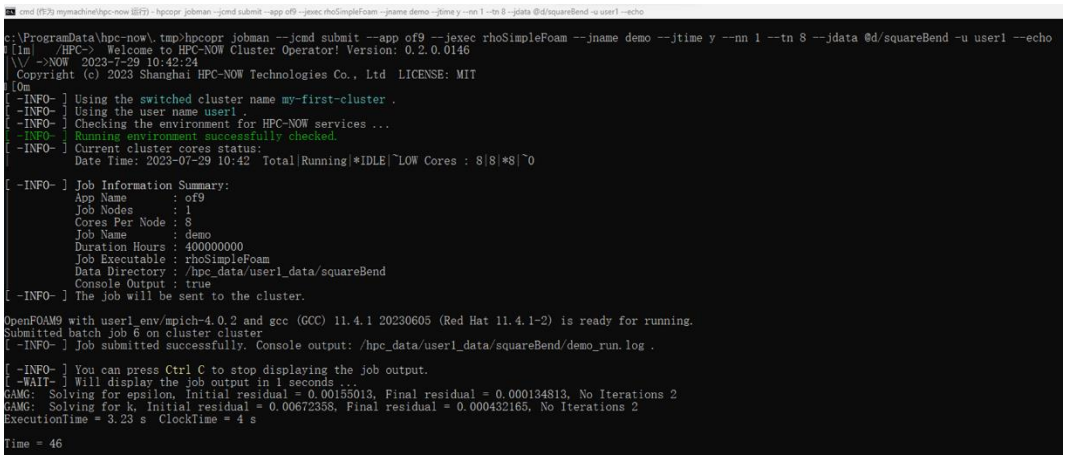
```
[user1@master ~]$ cp -r /hpc_apps/user1_apps/OpenFOAM/OpenFOAM-9/tutorials/compressible/rhoSimpleFoam/squareBend /hpc_data/user1_data/
[user1@master ~]$ cd /hpc_data/user1_data/squareBend
[user1@master squareBend]$ of9.env
[user1@master squareBend]$ blockMesh
[user1@master squareBend]$ decomposePar
[user1@master squareBend]$ exit
```



2.6.2 Start Solving the Case

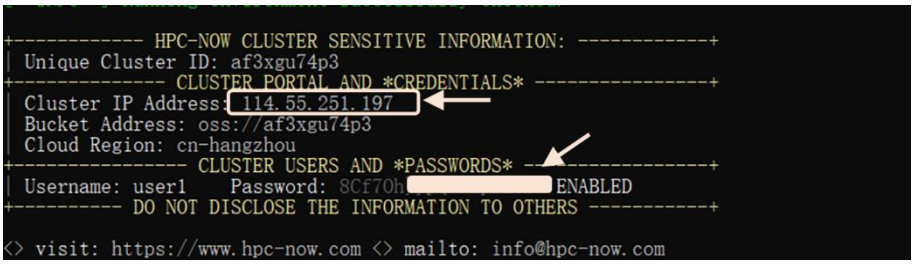
Run the command below to submit a job.

```
hpcopr jobman --jcmd submit --app of9 --jexec rhoSimpleFoam --jname demo --jtime y --nn 1 --tn 8 --jdata @d/squareBend -u user1 --echo
```



2.6.3 PostProcessing

The results (output data) locate in the directory **`/hpc_data/user1_data/squareBend.`** You can user the Remote Desktop tools for visualized postprocessing. In order to log into the desktop environment, you need to get the password for user1.Please run the command **`hpcopr vault -u user1`** to get the cluster IP address and the password of user1.



- **Microsoft Windows:** please search 'mstsc' and open the Remote Desktop Software
- **GNU/Linux:** please install 'Remmina' and follow its instructions.
- **macOS:** please install the Microsoft Remote Desktop app from the Apple Store.

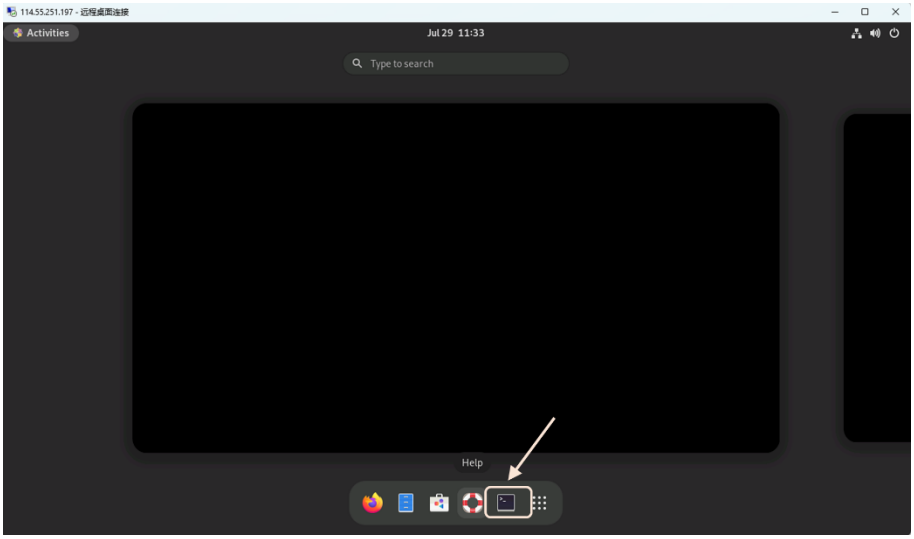
In this section, we use Microsoft Windows to demonstrate the postprocessing operations.

- **Computer:** Cluster IP Address
- **User Name:** user1
- **(Recommended but not mandatory)** Open the Display tab:
  - Choose the colour depth of the remote session
  - Select **TrueColour (24 bit)**
- Check the box '**Allow me to save credentials**' and click the '**Connect**' icon.
- Paste the password string of user1 to proceed

Then, you will enter the desktop environment of the cloud HPC cluster.

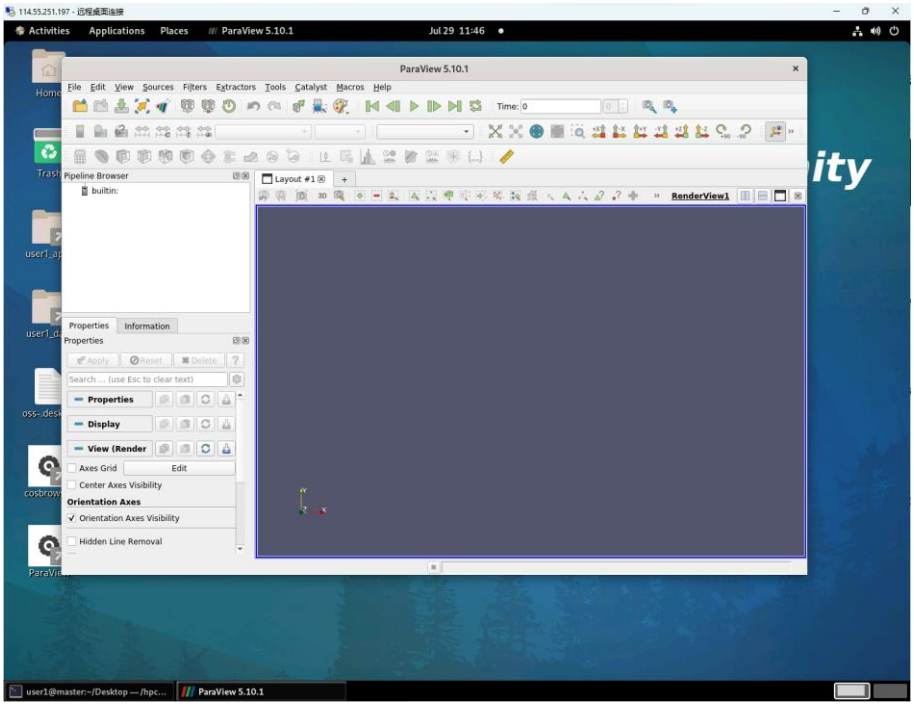
Single click on the Terminal icon. In order to make the desktop more user-friendly, please run the gnome initialization command below.

```
[user1@master ~]$ gini
```



The desktop will be customized with desktop icons, window top bars, etc. Then, run the command **paraview** to open the ParaView GUI.

```
[user1@master ~]$ paraview
```

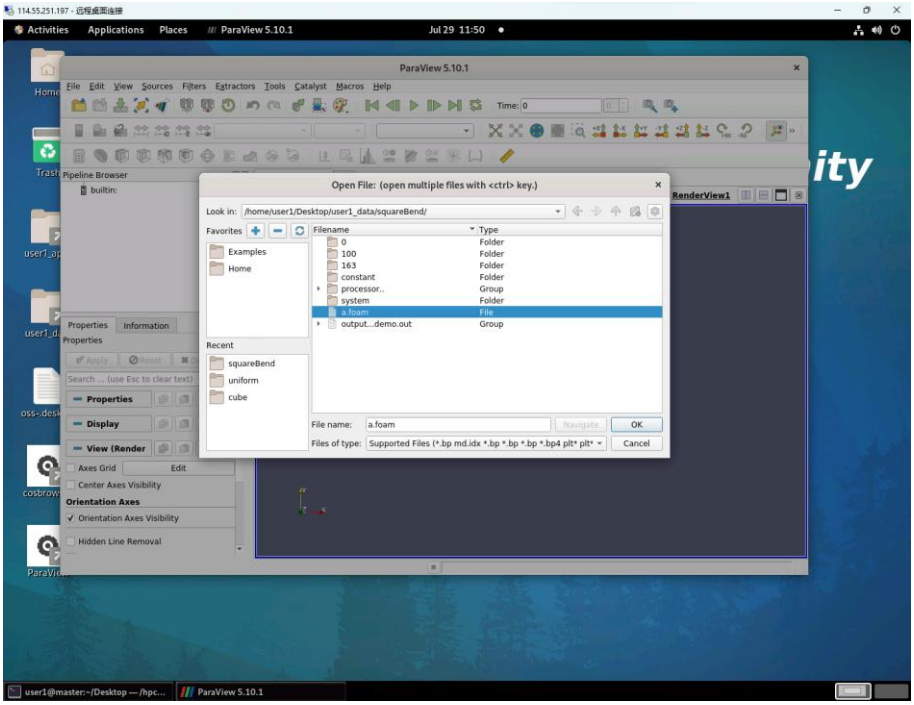


In order to post process the data, please run the commands below:

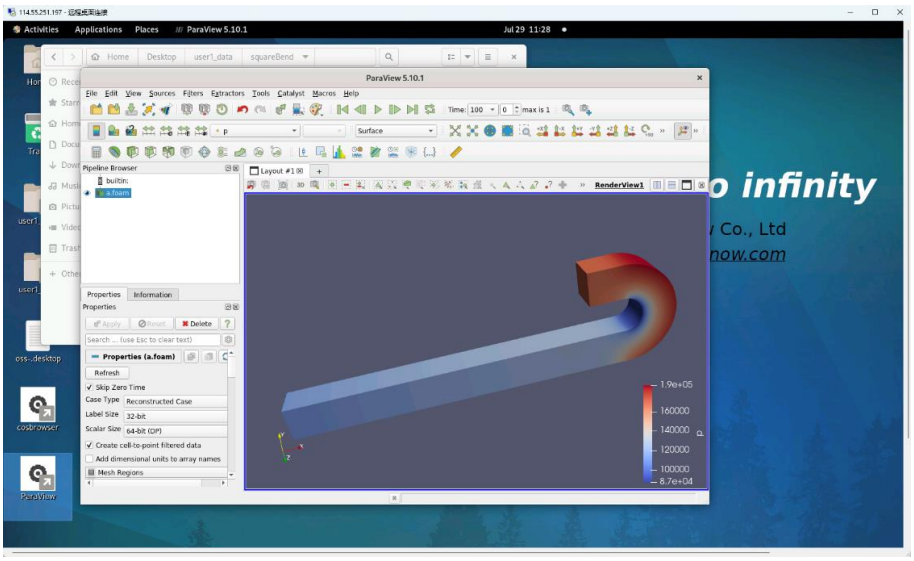
```
[user1@master ~]$ cd /hpc_data/user1_data/squareBend
[user1@master squareBend]$ of9.env #Load the OpenFOAM-9 envrionment
[user1@master squareBend]$ reconstructPar #Combine the results
[user1@master squareBend]$ touch a.foam #Create a file for ParaView
```

Go to the ParaView GUI, click on the menu:

File -> Open -> Desktop/user1_data/squareBend -> a.foam



Click on the “Apply” button on the left.



2.7 Cluster Hibernation and Wakeup

You can hibernate the cluster to avoid extra compute costs. Run the command below:

```
hpcopr sleep
```

NOTICE: The storage costs cannot be avoided by hibernation.

Run the command:

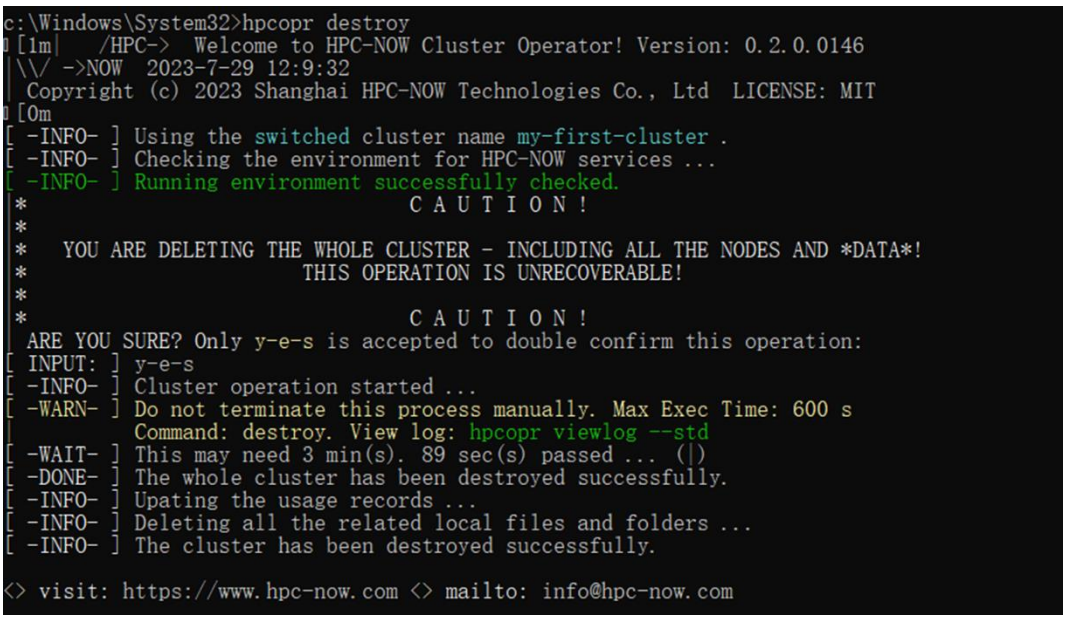
hpcopr wakeup --all OR **hpcopr wakeup --min** to wake up the cluster.

2.8 Destroy the Cluster

After all the steps above, we recommend to destroy the whole cluster in order to avoid any further cloud costs. Please run the command:

hpcopr destroy

NOTICE: Destroying the cluster will *permanently* destroy all the cloud resources related to the cluster and erase all the data in the cluster.



III. Main Funtions

3.1 Get the Help Info

Run the command: **hpcopr help** to get the help info.
Run the command: **hpcopr help --cmd CMD_NAME** to view the help info of a command, such as 'dataman'

3.2 Brief Introduction to the Functions

The **hpcopr.exe** is the main interface for you to operate.

USAGE: hpcopr CMD_NAME CMD_FLAG ... [CMD_KEYWORD1 CMD_KEY_STRING1] ...

- **CMD_FLAG:** such as **--force, --all**
- **CMD_KEYWORD:** key-value pair, such as **-c myFirstCluster**

3.2.1 Get-Started

envcheck :~ Quickly check the running environment.

3.2.2 Multi-Cluster Management

new-cluster :~ Create a new cluster to initialize.
ls-clusters :~ List all the current clusters.
switch :~ Switch to a cluster in the registry to operate.
glance :~ View all the clusters or a target cluster.
refresh :~ Refresh a cluster without changing the resources.
export :~ Export a cluster to another hpcopr client. Optional params:
import :~ Import a cluster to the current hpcopr client.
remove :~ Completely remove a cluster from the OS and registry.
exit-current:~ Exit the current cluster.

3.2.3 Global Management

help :~ Show this page and the information here.
usage :~ View and/or export the usage history.
monman :~ Get, filter, and extract cluster monitoring data.
history :~ View and/or export the operation log.
syserr :~ View and/or export the system cmd errors.
ssh :~ SSH to the master node of a cluster.
+ Advanced - For developers:
configloc :~ Configure the locations for the terraform binaries, providers
:~ IaC templates and shell scripts.
showloc :~ Show the current configured locations.
showmd5 :~ Show the md5sum values of core components.
resetloc :~ Reset to the default locations.

3.2.4 Cluster Initialization

rotate-key :~ *Rotate* a new keypair for an existing cluster. The new keypair
:~ should be valid and comes from the same cloud vendor.
get-conf :~ Get the default configuration file to edit and build a customized
HPC cluster later (using the 'init' command).
edit-conf :~ Edit and save the default configuration file *before* init.
rm-conf :~ Remove the configuration file *before* init.
init :~ Initialize a new cluster. If the configuration file is absent,
:~ the command will generate a default configuration file.
rebuild :~ Rebuild the nodes *without* destroying the cluster's storage.

3.2.5 Cluster Management

vault :~ Check the sensitive information of the current cluster.
graph :~ Display the cluster map including all the nodes and status.
viewlog :~ View the operation log of the current cluster.

3.2.6 Cluster Operation

delc :~ Delete specified compute nodes:

addc :~ Add compute nodes to current cluster. You must specify how many
:~ to be added.
shutdownc :~ Shutdown specified compute nodes. Similar to 'delc',
:~ you can specify to shut down all or part of the compute nodes by
:~ the param 'all' or 'NUM'.
turnonc :~ Turn on specified compute nodes. Similar to 'delc',
:~ you can specify to turn on all or part of the compute nodes by
:~ the parameter 'all' or 'NUM'.
reconfc :~ Reconfigure all the compute nodes.
reconfm :~ Reconfigure the master node.
sleep :~ Turn off all the nodes (management and compute) of the cluster.
wakeup :~ Wake up the cluster nodes.
destroy :~ *DESTROY* the whole cluster - including all the resources & data.
payment :~ Switch the payment method between on-demand and monthly.

3.2.7 Cluster User Management

Usage:~ hpcopr userman --ucmd USER_CMD [KEY_WORD1 KEY_STRING1] ...

* The cluster must be in running state (minimal or all). *

--ucmd list ~ List all the current cluster users.
--ucmd add ~ Add a user to the cluster. By default, added users are enabled.
--ucmd delete ~ Delete a user from the cluster.
--ucmd enable ~ Enable a *disabled* user. Enabled users can run HPC workloads.
--ucmd disable ~ Disable a user. Disabled users still can access the cluster.
--ucmd passwd ~ Change user's password.

3.2.8 Cluster Data Management

Usage:~ hpcopr dataman CMD_FLAG... [KEY_WORD1 KEY_STRING1] ...

General Flags :~ -r, -rf, --recursive, --force, -f.
-s SOURCE_PATH ~ Source path of the binary operations. i.e. cp
-d DEST_PATH ~ Destination path of binary operations. i.e. cp
-t TARGET_PATH ~ Target path of unary operations. i.e. ls

Bucket Operations:~ Transfer and manage data with the bucket.

--dcmd put ~ Upload a local file or folder to the bucket path.
--dcmd get ~ Download a bucket object(file or folder) to the local path.
--dcmd copy ~ Copy a bucket object to another folder/path.
--dcmd list ~ Show the object list of a specified folder/path.
--dcmd delete ~ Delete an object (file or folder) of the bucket.
--dcmd move ~ Move an existed object (file or folder) in the bucket.
Example: **hpcopr dataman --dcmd put -s ./foo -d /foo -u user1**

Direct Operations:~ Transfer and manage data in the cluster storage.

* The cluster must be in running state (minimal or all). *

--dcmd cp ~ Remote copy between local and the cluster storage.
--dcmd mv ~ Move the remote files/folders in the cluster storage.
--dcmd ls ~ List the files/folders in the cluster storage.
--dcmd rm ~ Remove the files/folders in the cluster storage.

--dcmd mkdir ~ Make a directory in the cluster storage.
--dcmd cat ~ Print out a remote plain text file.
--dcmd more ~ Read a remote file.
--dcmd less ~ Read a remote file.
--dcmd tail ~ Streaming out a remote file dynamically.
--dcmd rput ~ Upload a *remote* file or folder to the bucket path.
--dcmd rget ~ Download a bucket object(file or folder) to the *remote* path.
@h/ to specify the **$HOME** prefix of the cluster.
@d/ to specify the **/hpc_data/user_data** prefix.
@a/ to specify the **/hpc_apps/** prefix, only for root or user1.
@p/ to specify the public folder prefix (INSECURE !).
@R/ to specify the **/** prefix, only for root or user1.
@t/ to specify the **/tmp** prefix.
Example: **hpcopr dataman --dcmd cp -s ~/foo/ -d @h/foo -r -u user1**

3.2.9 Cluster App Management

Usage:~ hpcopr appman --acmd APP_CMD CMD_FLAG [KEY_WORD1 KEY_STRING1] ...
* The cluster must be in running state (minimal or all). *
-u USERNAME ~ A valid user name. Use 'root' for all users.
~ Admin or Operator role is required for root.
--acmd store ~ List out the apps in store.
--acmd avail ~ List out all the installed apps.
--acmd check ~ Check whether an app is available.
--acmd install ~ Install an app to all users or a specified user.
--acmd build ~ Compile and build an app to all users or a specified user.
--acmd remove ~ Remove an app from the cluster.

3.2.10 Cluster Job Management

Usage:~ hpcopr jobman --jcmd APP_CMD [KEY_WORD1 KEY_STRING1] ...
* The cluster must be in running state (minimal or all). *
* **-u USERNAME** ~ A valid user name. The root user CANNOT submit jobs.
--jcmd submit ~ Submit a job to the cluster.
--jcmd list ~ List out all the jobs.
--jcmd cancel ~ Cancel a job with specified ID

3.2.11 Others

about :~ About this software and HPC-NOW project.
version :~ Display the version info.
license :~ Read the terms of the GNU Public License-v2.0
repair :~ Try to repair the hpcopr core components.

IV. Build from Source

4.1 Build Requirements

Code Management:git。
Compiler：

- **Microsoft Windows**: The latest mingw-w64. Download the MinGW-W64 GCC-8.1.0 package, unzip it, and set up the PATH environment variable.
- **GNU/Linux**: GNU Compiler Collections, known as gcc
- **macOS**: Clang

Run the command **`gcc --version`** or **`clang --version`** (macOS) to make confirm the installation of GCC or Clang.

4.2 How to Build

Step 1. `git clone https://gitee.com/zhenrong-wang/hpc-now.git`
Step 2. `cd hpc-now`
Step 3. `git checkout dev-0.2.2`
Step 4.

- **Micorsoft Windows:** `.\make_windows.bat build`
- **GNU/Linux:** `chmod +x ./make_linux.sh && ./make_linux.sh build`
- **macOS:** `chmod +x ./make_darwin.sh && ./make_darwin.sh build`

4.3 Code Structure

```
DIR --+-- Docs/
      +-- hpcmgr/
      +-- hpcopr/
      +-- infra-as-code/
          +-- alicloud/
          +-- aws/
          +-- qcloud/
          +-- hwcloud/
          +-- baidu/
          +-- azure/
      +-- installer/
      +-- now-crypto/
      +-- scripts/
          +-- app-install/
      +-- make_darwin.sh
      +-- make_linux.sh
      +-- make_windows.bat
```

4.4 How to Install and Use

Please refer to the Chaper II of this manual.

V. Uninstallation/Removal

Administration Privilege is required to uninstall the HPC-NOW services.

For Microsoft Windows users, suppose the installer locates in:
C:\Users\Public\installer.exe

Please run a Command Prompt Windows as Administrator, and run the command:
C:\Users\Public\installer.exe uninstall

For GNU/Linux or macOS users, suppose the installer locates in:
/tmp/installer.exe

Please run the command: **sudo ./installer.exe uninstall**

VERY IMPORTANT: Before uninstallation, please remove all the clusters managed by the hpcopr!