Rescale API Command Basics

The Rescale API command is a python-based client application for submitting and managing jobs to Rescale without having to explicitly login to the Rescale web interface. This guide describes the steps needed to set up the Rescale API command on your local workstation.

● Basic Rescale API command Syntax

Once the Rescale API commands are installed, each API command can be executed as the format like:

```
api_command <option> [--key API-key] [--platform https://platform_address ]
```

In each ***api_command***, an **API-key** token is used to identify the user and associated account. The ***platform_address*** is the hostname of each regional Rescale platform. **<option>** is different for each ***api_command***.

● Rescale platform_address

Rescale platform is the global platform (US, KR, JP, EU). If you are a user on one of Rescale global platforms, your regional platform addresses are as below:

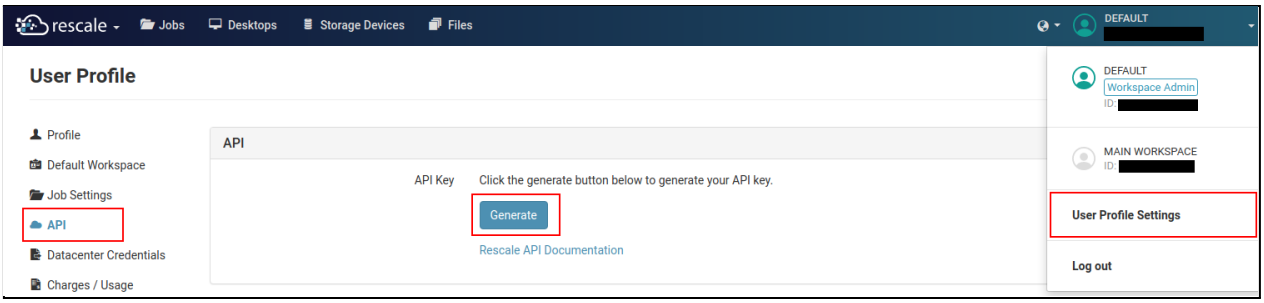
platform	https://platform_address
US	https://platform.rescale.com
Korea	https://kr.rescale.com
Japan	https://platform.rescale.jp
EU	https://eu.rescale.com

● Obtaining an API-key

In order to utilize the Rescale API command, an **API-key** token must be generated to properly identify the user and associated account.

To create this **API-key** token, in the Rescale Web UI, click on the drop down menu associated with the user account name (usually your email address) in the upper right hand corner. Select **User Profile Settings** from the drop down menu. Then from the navigation menu on the left, choose **API**. This should bring you to: https://*platform_address*/user/settings/api-key/

From this page, click the **Generate** button to create a new **API-key**. Make note of this string, but you can return to the page at any time to retrieve it. This string is your private **API-key** for each ***api_command.***



Simplifying API Commands

For using the Rescale API commands, the Rescale **API-key** and ***platform_address*** must be used every time. Since the API-key is a long combination of letters and numbers, it will be helpful to create a configuration file that contains **API-key** and ***platform_address***. You can follow the steps outlined below to create a configuration file with your profile:

● On Windows

The API command will look for the configuration file in `%USERPROFILE%\.config\rescale \apiconfig` by default. As a first step, navigate to your `%USERPROFILE%` directory. Create a folder `.config` and a `rescale` folder under that. Inside `.config\rescale`, open notepad and add the following contents and save as the name **apiconfig**.

```
 [default]
apibaseurl = https://platform_address
apikey = XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

In the configuration file, **apibaseurl** means the web address of Rescale platform which you are using and **apkey** is your API-key token.

● On Linux

The API command will look for the configuration file in `$HOME/.config/rescale/apiconfig` by default. As a first step, navigate to your `$HOME` directory. Create a folder `.config` and a `rescale` folder under that. Inside `$HOME/.config/rescale`, open an editor and add the following contents and save as the name **apiconfig**.

```
 [default]
apibaseurl = https://platform_address
apikey = XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
```

In the configuration file, **apibaseurl** means the web address of Rescale platform which you are using and **apkey** is your API-key token.

Example apiconfig file in Windows is below:

```
C:\Users\rescale-user\.config\rescale>type apiconfig
 [default]
apibaseurl = https://kr.rescale.com
apikey = e183b4bdc10934d2c5ba43d561ee8954550d15c7
```

If the apibaseurl and the apikey are defined in the configuration file, each API command can be executed without the **API-key** and the ***platform_address*** as the format below:

```
$ api_command <option>
```

Even if the configuration file is used, if the **API-key** or the ***platform_address*** is specified in the API command, the specified API-key and platform_address are applied.

Rescale API Commands

This section provides a list of various API commands. If you set up the **API-key** and the ***platform_address*** in the configuration file, **--key** and **--platform** options can be omitted. Even if the configuration file is used, you can **--key** and **--platform** options with the API command to override the configuration.

● Rescale coretypes information

You can obtain the information about Rescale coretypes available using the following command and flags:

COMMAND	**list_coretype** [--key API-key] [--platform https://platform_address]

FLAGS	DESCRIPTION
-h, --help	Show this help message and exit
-k, --key	Specify the API-key token to identify the user and associated account
-p, --platform	Specify the hostname of each regional Rescale platform you are using

RESULT	The **list_coretype** shows the coretype name, the spec, the code, the available number of cores, and the available number of GPUs for GPU-enabled. The coretype name, for example '**Emerald**' will be used for another API command. The part of the **list_coretype** result is shown following:

```
C:\> list_coretype
 Coretype name: Moonstone
                    spec: Intel Xeon Platinum 8175M (Skylake)
           code: moonstone
           cores: [1, 2, 4, 8, 24, 48]
           gpuCounts: [0, 0, 0, 0, 0, 0]

 Coretype name: Onyx
                   spec: Intel Xeon E5-2666 v3 (Haswell)
           code: hpc-3
           cores: [1, 2, 4, 8, 18]
           gpuCounts: [0, 0, 0, 0, 0]
```

- **Rescale software information**

You can obtain the information about Rescale software available using the following command and flags:

COMMAND	**list_analysis_software** [--key API-key] [--platform https://platform_address]

FLAGS	DESCRIPTION
-h, --help	Show this help message and exit
-k, --key	Specify the API-key token to identify the user and associated account
-p, --platform	Specify the hostname of each regional Rescale platform you are using

RESULT	The **list_analysis_software** shows the software name, the code, and the available version. The code, for example '**ansys_fluent**', and the version, for example '**2020r1**' will be used for another API command. The part of **list_analysis_software** result is shown following:

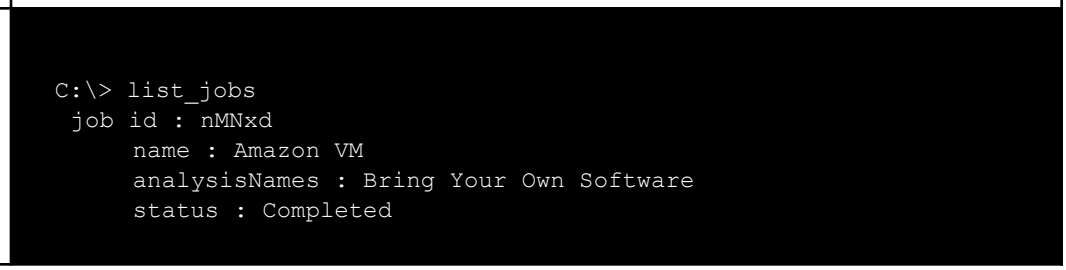
```
C:\> list_analysis_software
 Software name: ANSYS Fluent
          code: ansys_fluent
          version:
                    2021r1
                    2020r2
                    2020r1
                    2019r3
```

- **Rescale job information**

You can obtain the information about your Rescale jobs using the following command and flags:

COMMAND	**list_jobs** [--key API-key] [--platform https://platform_address]

FLAGS	DESCRIPTION
-h, --help	Show this help message and exit
-k, --key	Specify the API-key token to identify the user and associated account
-p, --platform	Specify the hostname of each regional Rescale platform you are using

RESULT	The **list_jobs** shows the job id, the job name, and the analysis software used for the job, and the status of the job. The job id, for example '**nMNxd**' will be used for another API command. The part of **list_jobs** result is shown following:
	

```
C:\> list_jobs
 job id : nMNxd
      name : Amazon VM
      analysisNames : Bring Your Own Software
      status : Completed
```

- **Rescale HPS (High Performance Storage) information**

You can obtain the information about your HPS using the following command and flags:

COMMAND	**list_hps** [--key API-key] [--platform https://platform_address]

FLAGS	DESCRIPTION
-h, --help	Show this help message and exit
-k, --key	Specify the API-key token to identify the user and associated account
-p, --platform	Specify the hostname of each regional Rescale platform you are using

RESULT	The **list_hps** shows the hps id, the hps name, the size (GB), the date of creation, the maximum walltime and the status of the hps. The hps id, for example '**codRk**' will be used for another API command. The part of **list_hps** result is shown following:

```
C:\> list_hps
 hps id : codRk
      name : Test HPS Storage
      size(GB) : 10
      creation date : 2019-11-25 08:44:10
      walltime : 720
      status : Stopped
```


```
C:\> list_hps
 hps id : codRk
      name : Test HPS Storage
      size(GB) : 10
      creation date : 2019-11-25 08:44:10
      walltime : 720
      status : Stopped
```


- **Show a specific job information**

You can obtain the information about your specific job using the following command and flags:

COMMAND	**job_info** --id job-id [--key API-key] [--platform https://platform_address]

FLAGS	DESCRIPTION
-h, --help	Show this help message and exit
-i, --id	Specify the job id what you want to obtain the information. The job id can be obtained using the **list_jobs** command or in the job list of Rescale web interface
-k, --key	Specify the API-key token to identify the user and associated account
-p, --platform	Specify the hostname of each regional Rescale platform you are using

RESULT	The **job_info** outputs all information of the specified job by the JSON format. You can obtain the detailed information of the job by parsing the JSON output result. The part of the job **'nMNxd'** information is shown following:

```
C:\> job_info --id nMNxd
{
  "id": "nMNxd",
  "isLowPriority": true,
  "name": "Amazon VM",
  "owner": " @rescale.com",
  "resourceFilters": [],
  "archiveFilters": [],
  "cidrRule": "0.0.0.0/0",
  "publicKey": "ssh-rsa
AAAAB3NzaC1yc2EAAAABJQAAAQEAlKlRkTsxyFUNsS5QSwk1UpYGUpLZA85+bCa
mDnnGffnAFdW/ujWAm8ioVdiMvjzf2WMRy8i8LkDEMMYJpix/ITqhQJl0khUwvz
niw/g2gQjTEd5aeBJAkenu9tTvMbBLtBfyaR69YcJXcZJxUdTGrvLqYRCMYcsjR
L0fQrLXTwqSjFnGwpNSfu/QjsFULvDomRr4a5IdmJsc8kNzZHnP7+GWvtdvKO/J
grxIMRLgzQG7JYpwi02TqAhxR/ySv2mbfSNmioCARNQMe//H0/MS90LKHw2EG9w
UuPiyRAMlvczOnwCNLXfh6HM4mxw== rsa-key-20191205",
  "sshPort": 22,
  "paramFile": null,
  "caseFile": null,
  "jobvariables": [],
  "jobanalyses": [
    {
      "envVars": {},
      "useRescaleLicense": false,
      "onDemandLicenseSeller": null,
      "userDefinedLicenseSettings": null,
      "analysis": {
        "code": "user_included",
        "name": "Bring Your Own Software",
        "version": "0",
        "versionName": "CPU"
      },
      "command": "sleep inf",
      "flags": {},
      "hardware": {
        "slots": 1,
        "coresPerSlot": 1,
        "coreType": {
          "code": "emerald",
          "compute": "8.33",
```

- **Monitoring a specific job status**

You can obtain the status of your specific job using the following command and flags:

COMMAND	**monitoring_job** --id job-id [--key API-key] [--platform https://platform_address]

FLAGS	DESCRIPTION
-h, --help	Show this help message and exit

-i, --id	Specify the job id what you want to monitor. The job id can be obtained using the **list_jobs** command or in the job list of Rescale web interface
-k, --key	Specify the API-key token to identify the user and associated account
-p, --platform	Specify the hostname of each regional Rescale platform you are using

RESULT	The **monitoring_job** outputs all information of the specified job by the JSON format and after the JSON is output, the status of the job is shown. If the job is running, the running status is changing. The part of the job '**hdbYS'** monitoring is shown following:

```
C:\> monitoring_job --id hdbYS

Job hdbYS : Pending
Job hdbYS : Validated
Job hdbYS : Executing
```

- **Show a specific HPS information**

You can obtain the information about your specific hps using the following command and flags:

COMMAND	**hps_info** --id hps-id [--key API-key] [--platform https://platform_address]

FLAGS	DESCRIPTION
-h, --help	Show this help message and exit
-i, --id	Specify the hps id what you want to obtain the information. The hps id can be obtained using the **list_hps** command or in the hps list of Rescale web interface
-k, --key	Specify the API-key token to identify the user and associated account
-p, --platform	Specify the hostname of each regional Rescale platform you are using

RESULT	The **hps_info** outputs all information of the specified hps by the JSON format. You can obtain the detailed information of the hps by parsing the JSON output result. The part of the hps '**codRk**' information is shown following:

```
C:\> hps_info --id codRk
{
  "id": "codRk",
  "clusterId": "krDGT",
  "storageSize": 10,
  "dateInserted": "2019-11-25T08:44:10.197969Z",
  "owner": " @rescale.com",
  "urls": {
    "statuses":
"https://kr.rescale.com/api/v2/storage-devices/codRk/statuses/" ,
    "start":

"https://kr.rescale.com/api/v2/storage-devices/codRk/submit/",
    "fileDownload":
"https://kr.rescale.com/api/v2/storage-devices/codRk/file-downl
oads/"
```

- **Submit a job**

You can submit a job on the Rescale platform using one of three job submission commands. The **submit_pjob** is the command that is immediately completed after the job is submitted. Using this command, a user can submit successive jobs without waiting for the previous submitted job to be completed.

The **submit_e2ejob** is the command for submitting an interactive job. Like the **submit_pjob** command, the submit_e2ejob is immediately completed after the job is submitted.

Otherwise both two job submission commands, the **submit_sjob** is waiting for the completion of the submitted job.

COMMAND	**submit_pjob** --input <*job_setup_file*> [--key API-key] [--platform https://platform_address] **submit_e2ejob** --input <*job_setup_file*> [--key API-key] [--platform https://platform_address] **submit_sjob** --input <*job_setup_file*> [--key API-key] [--platform https://platform_address]

FLAGS	DESCRIPTION
-h, --help	Show this help message and exit
-i, --input	Specify the job_setup_filen to submit a job. The job_setup_file is the text file in which variables for job submission are included.
-k, --key	Specify the API-key token to identify the user and associated account
-p, --platform	Specify the hostname of each regional Rescale platform you are using

A Job setup file consists of thirteen key value lines starting with '**#**' and the last "#EOF" line which shows the end of the file. Each key value is enclosed in single quotes after the variable.

The example job set up file is following:

```
#HPS_ID=''
#INPUT_FILE_NAME=''
#ANALYSIS_SOFTWARE='user_included'
#ANALYSIS_SOFTWARE_VERSION='0'
#LICENSE_FILE='LM_LICENSE_FILE'
#LICENSE_INFO='-1'
#CORETYPE='onyx'
#NUM_OF_CORES='1'
#CORE_PRICE_OPTION='on-demand'
#JOB_NAME='API Example'
#JOB_COMMAND='sleep 120'
#EOF : Don't Remove This Line
```

KEY	DESCRIPTION
#HPS_ID	The hps id to be attached to the job as the input. The hps id can be obtained using the **list_hps** command or in the hps list of Rescale web interface. The example is following: **#HPS_ID = ‘ codRk ’**
#INPUT_FILE_NAME	The filename to be uploaded as the input of a job. The file should be located in the directory in which the job submission command is executed or the full path name should be set. The example is following: **#INPUT_FILE_NAME = ‘ input1.inp input2.inp’**
#ANALYSIS_SOFTWARE	The analysis software code to be used for a simulation. It can be obtained using the **list_analysis_software** command. The example is following: **#ANALYSIS_SOFTWARE = ‘ansys_fluent’**
#ANALYSIS_SOFTWAR E_VERSION	The analysis software version of the analysis software which is defined in #ANALYSIS_SOFTWARE. It can be obtained using the **list_analysis_software** command. The example is following: **#ANALYSIS_SOFTWARE_VERSION = ‘2019r3’**

#LICENSE_FILE	The license file name to be used for the analysis software. For Ansys, Cadence and Mentor software, set the value as **LM_LICENSE_FILE**. For Synopsis software, **SNPSLMD_LICENSE_FILE** is used. The example is following: **#LICENSE_FILE = ‘ LM_LICENSE_FILE ‘**

#LICENSE_INFO	The license port and server information as the format of **port@hostname.** The port and hostname is served from the administrator. If the analysis software needs no license, any value (for example -1) can be used but **should not be** empty. The example is following: **#LICENSE_INFO = ‘ 5280@license_server ’** If the license is no need, then **#LICENSE_INFO = ‘ -1 ’**
#CORETYPE	The name of the coretype to be used for the submitted job. The coretype name can be obtained using the **list_coretype** command. The example is following: **#CORETYPE = ‘ emerald’**
#NUM_OF_CORES	The number of cores to be used for the submitted job. The number of cores can be obtained using the list_coretype command and the value should be selected according to the coretype. The example is following: **#NUM_OF_CORES = ‘36’**
#CORE_PRICE_OPTION	The price option for the selected coretype. One of the **on-demand** or the **on-demand-pro** should be specified. The example is following: **#CORE_PRICE_OPTION = ‘ on-demand ‘**
#JOB_NAME	Specify the name of the submitted job. The example is following: **#JOB_NAME = ‘ Rescale API Job submission example ‘**
#JOB_COMMAND	The execution commands for the submitted job. Multiple commands should be separated using semicolons. The example is following: **#JOB_COMMAND = ‘ cd $HOME ; sleep inf ’** If the **submit_e2ejob** command for submitting an end-to-end job, this value can be empty as following: **#JOB_COMMAND = ‘ ‘**
#EOF	This line should not be removed.

The job submission examples are following:
Submit a batch job that is immediately completed after submission

```
C:\> submit_pjob --input batch_job_setup.txt
Job Information

#PLATFORM_ADDRESS : https://kr.rescale.com
#HPS_ID :
#INPUT_FILE_NAME :
#ANALYSIS_SOFTWARE : user_included
#ANALYSIS_SOFTWARE_VERSION : 0
#LICENSE_FILE : LM_LICENSE_FILE
#LICENSE_INFO : -1
#CORETYPE : onyx
#NUM_OF_CORES : 1
#CORE_PRICE_OPTION : on-demand
#JOB_NAME : API Example
#JOB_COMMAND : sleep 120
#EOF : #EOF
```

Submit an end-to-end job for an interactive workflow

```
C:\> submit_e2ejob --input e2e_job_setup.txt
Job Information

#PLATFORM_ADDRESS : https://kr.rescale.com
#HPS_ID :
#INPUT_FILE_NAME :
#ANALYSIS_SOFTWARE : user_included
#ANALYSIS_SOFTWARE_VERSION : 0
#LICENSE_FILE : LM_LICENSE_FILE
#LICENSE_INFO : -1
#CORETYPE : onyx
#NUM_OF_CORES : 1
#CORE_PRICE_OPTION : on-demand
#JOB_NAME : API Example
#JOB_COMMAND : sleep 120
#EOF : #EOF

miniconda_e2e 4.8.4_e2ed is used for analysis
emerald is used for analysis
Job WDZNm : submitted
Job WDZNm : Pending
```

- **Stop a specific job**

You can stop your specific job using the following command and flags:

COMMAND	**stop_job** --id job-id [--key API-key] [--platform https://platform_address]

FLAGS	DESCRIPTION
-h, --help	Show this help message and exit

-i, --id	Specify the job id what you want to stop. The job id can be obtained using the **list_jobs** command or in the job list of Rescale web interface
-k, --key	Specify the API-key token to identify the user and associated account
-p, --platform	Specify the hostname of each regional Rescale platform you are using

RESULT	The **stop_job** command is executed, the status of the running job is changed from **Executing** to **Stopping**. After the job is stopped, the status is changed to **Completed**. The **stop_job** command result of the job **'LNyXdb'** is following:

	`C:\> stop_job --id LNyXdb`
	`Current status of Job LNyXdb : Executing`
	`Current status of Job LNyXdb : Completed`