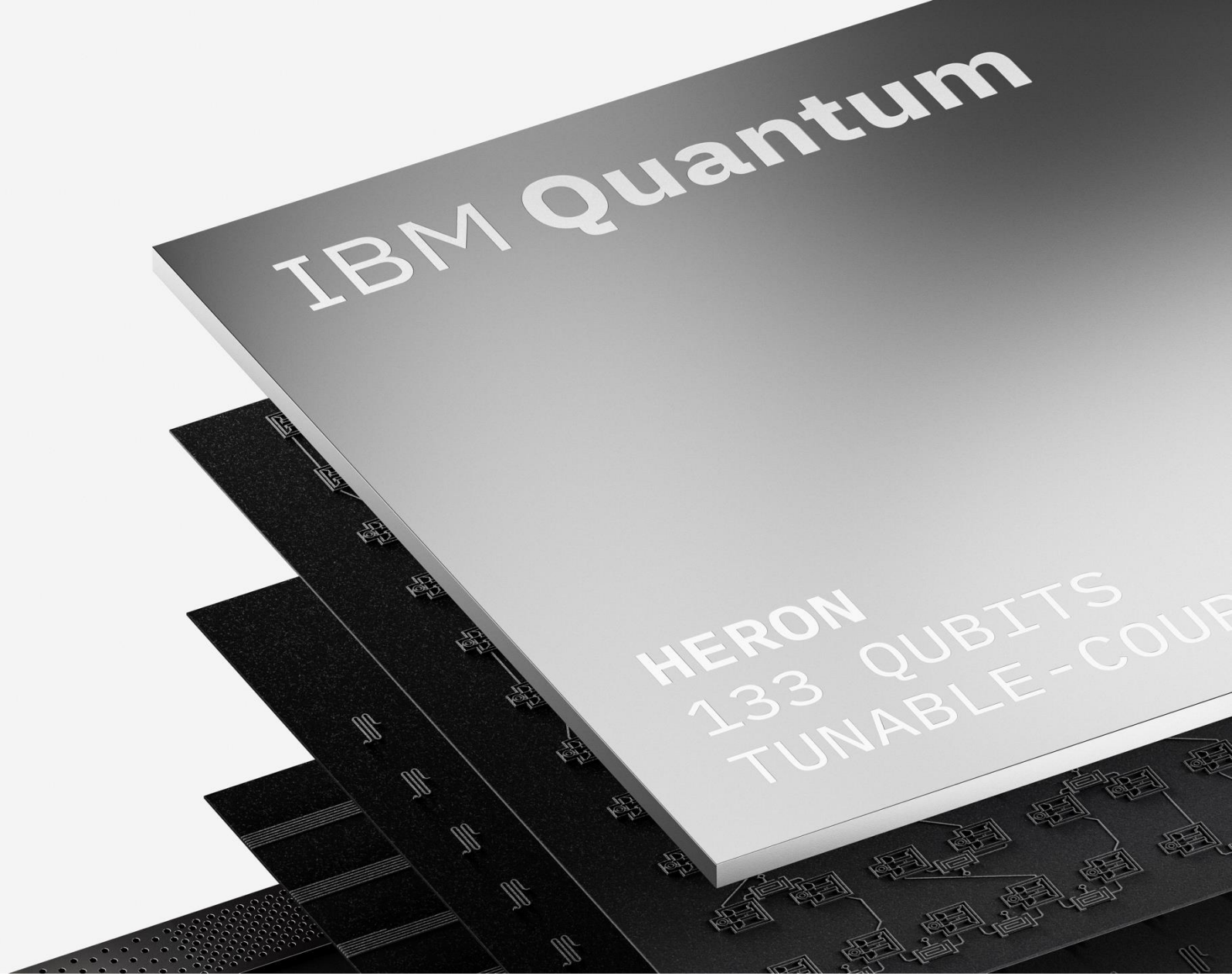
IBM Quantum Platform Upgrade

Post Migration End-Users Onboarding

May 2025



양자정보연구지원센터에 사용자 신청을 한 적이 없는 신규 사용자는 사용 신청을 먼저 하셔야 됩니다.

양자정보연구지원센터에 의해 승인된 사용자에 한해서 초대장 수락을 통해 Upgraded IBM Cloud Platform 사용 가능합니다. 다음 페이지부터 참고

New Users who haven’t applied to Qcloud Center should first contact them.

Only users approved by Qcloud Center can use Upgraded IBM Cloud Platform by accepting the invitation. Please refer to the next page

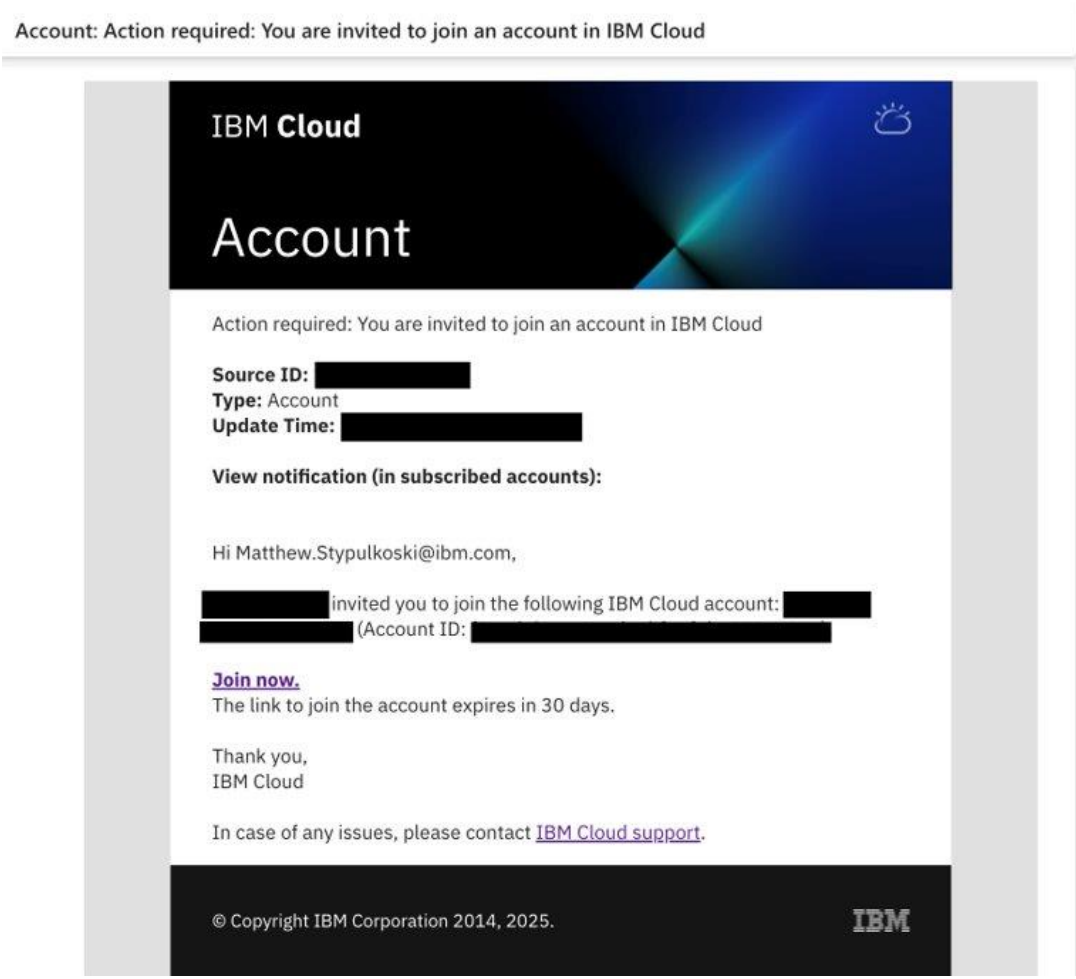
All SKKU hub premium users should accept **email invitation**

Accept **email Invitation** to join the IBM Cloud account. You will have 30 days to accept the invite before it expires.

a. If there is already a cloud account associated with the invited email this will be used
b. If not, you will need to **create a User ID** on IBM Cloud at this time

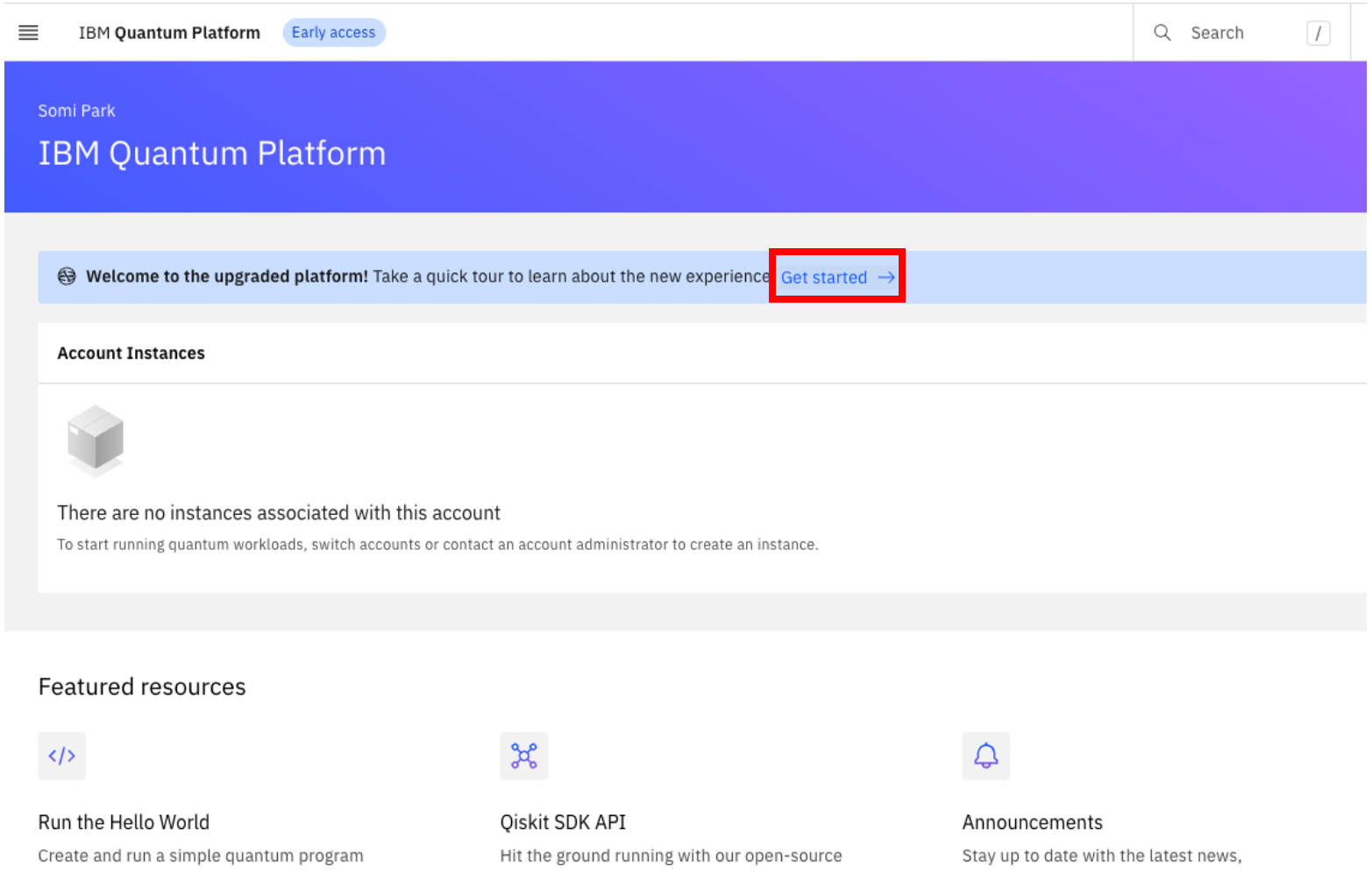
- Note that by joining our organization's account, you are not required to provide a payment method (i.e.,a credit card) like individual accounts require

- Use your institution email



Access New IBM Quantum Platform

Access the platform at quantum.cloud.ibm.com then click '**Get started**' which will give you a quick tour of the platform



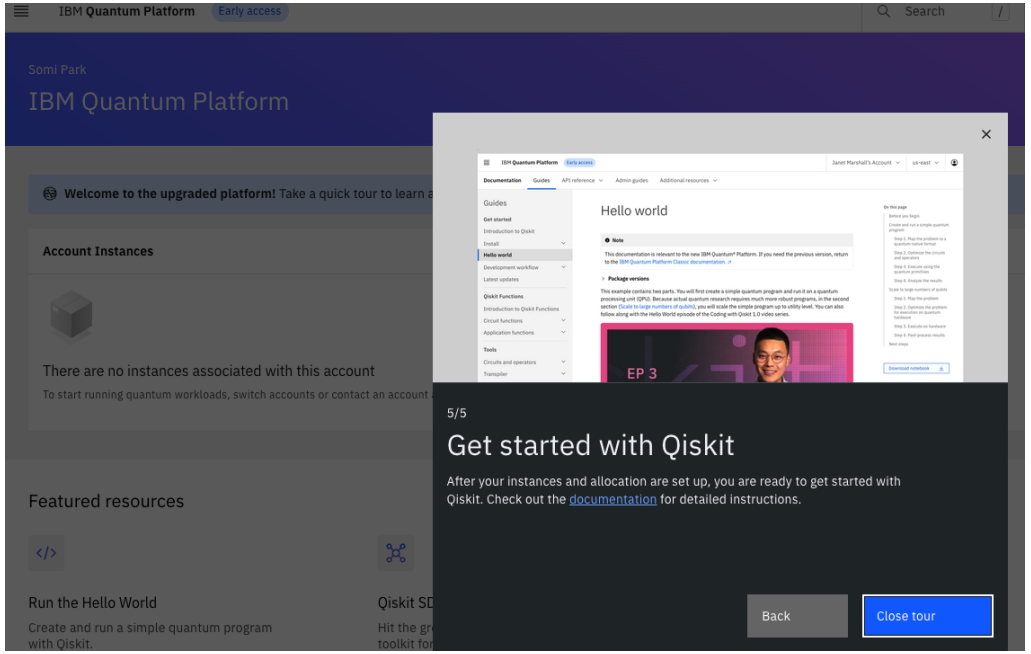
- For users who are new, go to page 4
- For users who are migrating from previous platform, go to page 8

For users who are new

Get started with Qiskit

1. You should have Qiskit installed. Follow the video instructions.
2. You can run workloads on IBM QPUs by setting up an account on IBM Cloud. Your user account is associated with one or more **instances** and a unique **token** is assigned to each account.

Note that, The video shows how to set up an account but it's outdated. Please refer to the next page.




```
token = "<your-API-token>"
```

```
from qiskit_ibm_runtime import QiskitRuntimeService

QiskitRuntimeService.save_account(
  token=token,
  channel="ibm_cloud", # `channel` distinguishes between different account types.
  instance="instance-CRN", # Copy the instance CRN from the Instance section on th
  name="account-name", # Optionally name this set of credentials.
  overwrite=True # Only needed if you already have Cloud credentials.
)
```

Run `exit()` to close the Python shell. From now on, whenever you need to authenticate to the service, you can load your credentials with `QiskitRuntimeService()` .

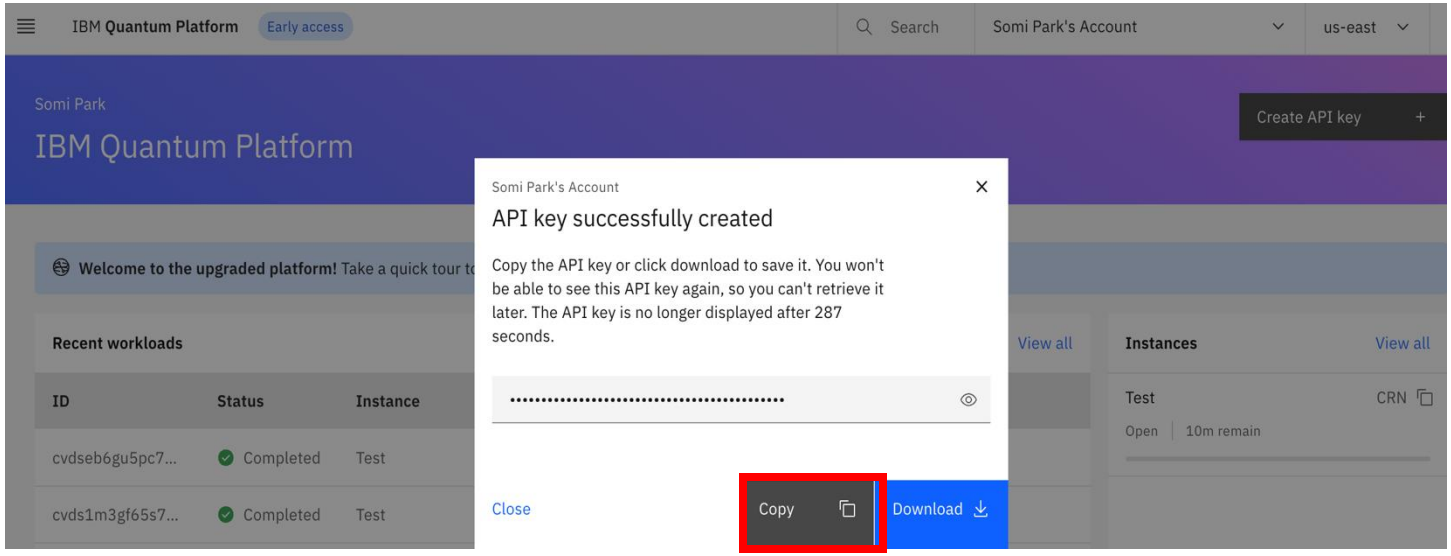
```
# Load default saved credentials
service = QiskitRuntimeService()
```

```
# Load saved credentials if you specified a name
service = QiskitRuntimeService(name="account-name")
```

For users who are new

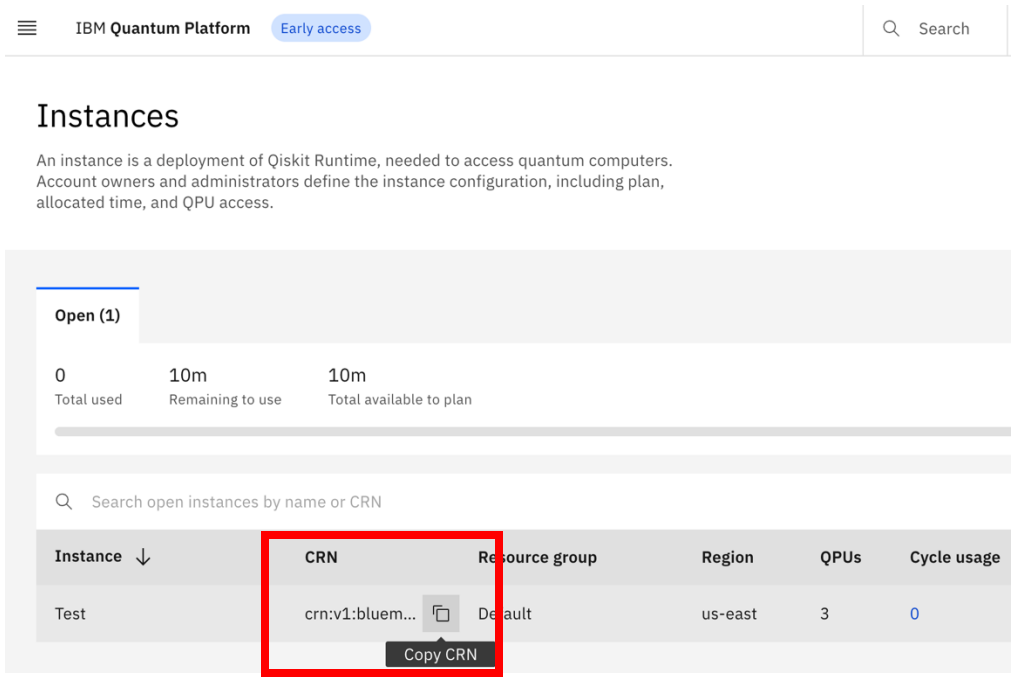
Set up to use IBM Cloud (document)

1. Find your API key. From the dashboard, create your API key, then copy it to a secure location so you can use it for authentication. (Please note that, you cannot retrieve it later so don't forget to copy and save it!)
2. Find your CRN from the Instances section of the dashboard. Click the icon to copy your CRN for the instance you want to use, then save it in a secure location so you can use it for authentication.



If you are working in a trusted Python environment (personal laptop or workstation), use the **save_account()** method to save your credentials locally.

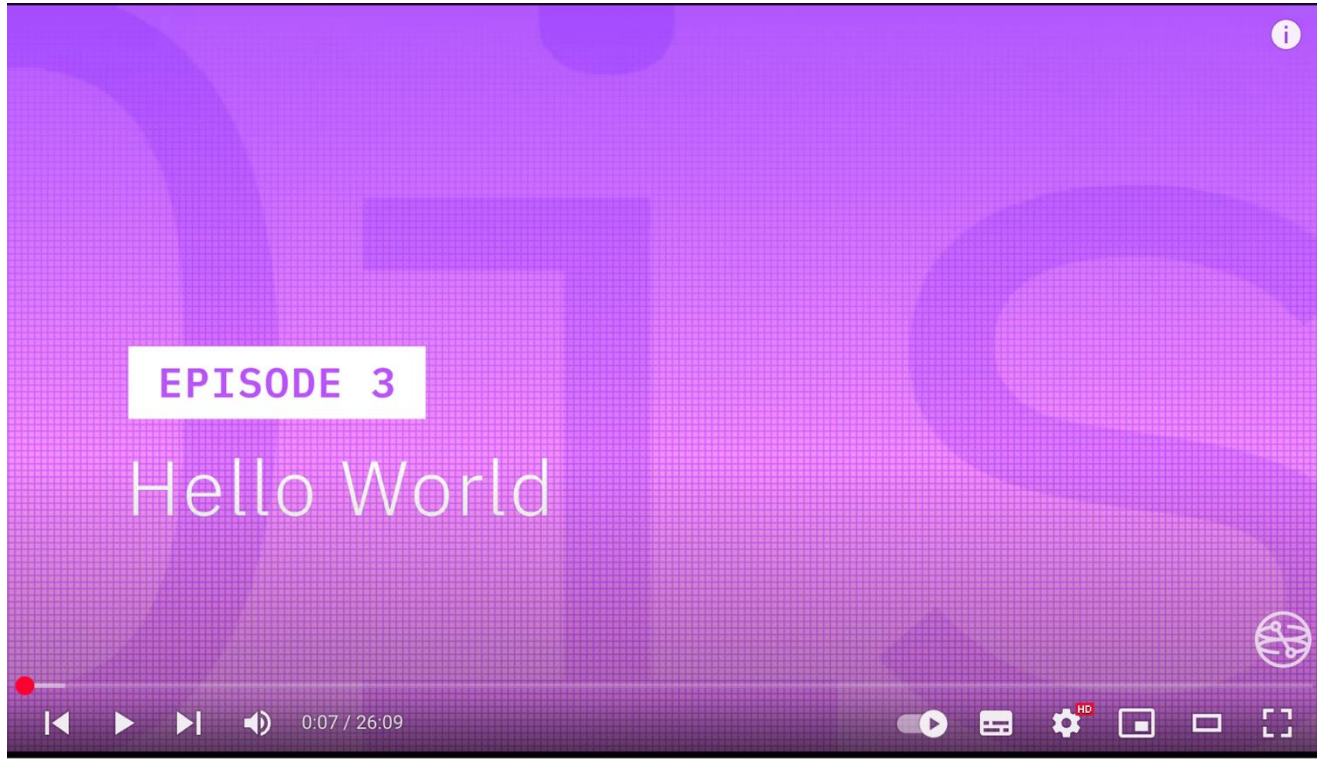
```
from qiskit_ibm_runtime import QiskitRuntimeService
service = QiskitRuntimeService.save_account(
                token=token,
                instance="<IBM Cloud CRN>",
                name="<account-name>",
                set_as_default=True
)
```



Run a quantum program

- Follow the steps in Hello world. The four steps to writing a quantum program using Qiskit patterns are :
  1. Map the problem to a quantum-native format.
  2. Optimize the circuits and operators.
  3. Execute using a quantum primitive function.
  4. Analyze the results.

- Try a tutorial in IBM Quantum Learning



For users who are migrating

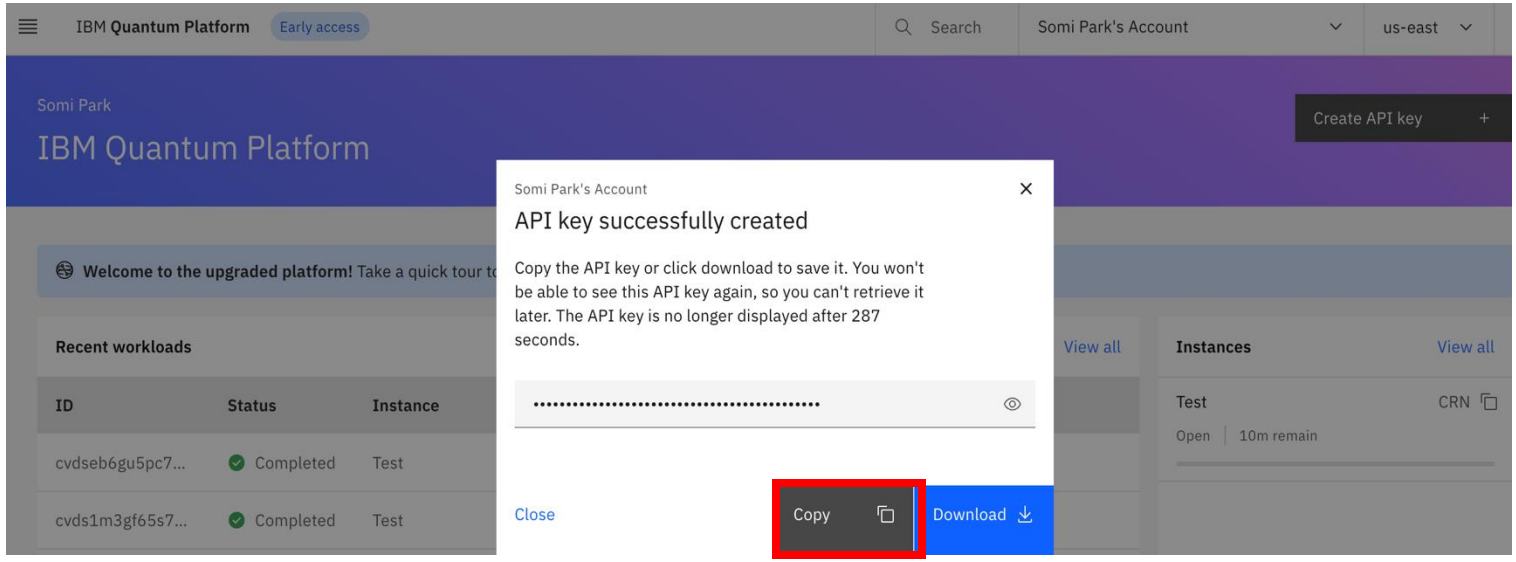
Update your code!

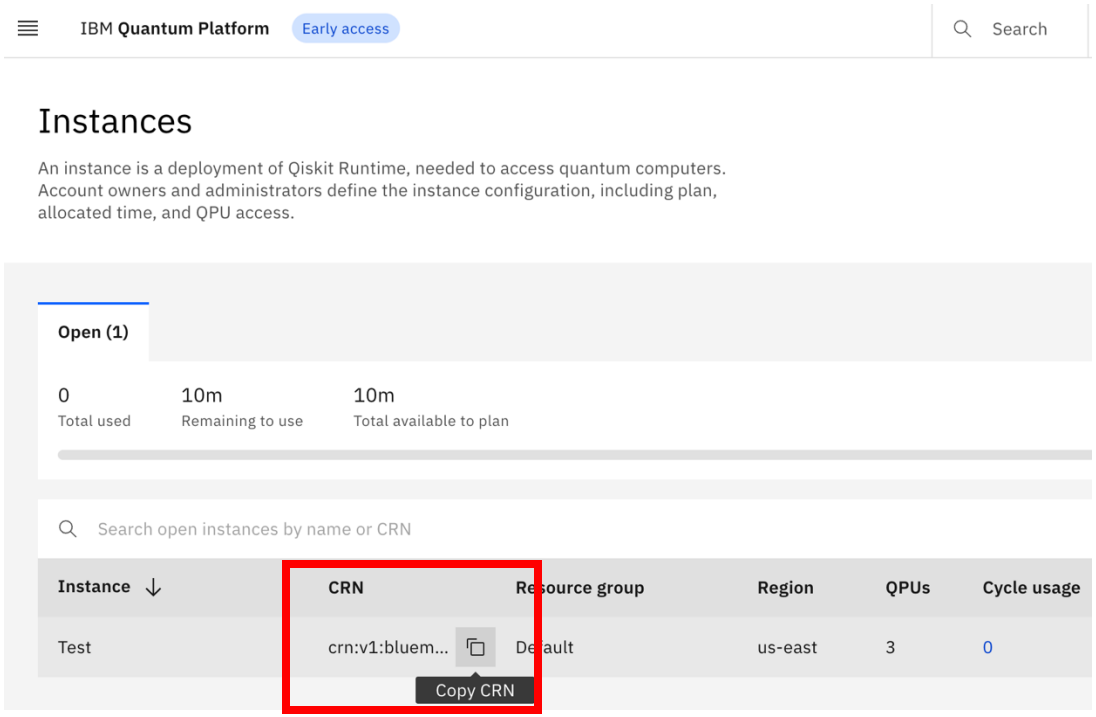
1. Generate a **new API key** via the platform (Please note that, you cannot retrieve it later so don't forget to copy and save it!)
2. Set the **token** to this new API key
3. Set the channel to **ibm_cloud**
4. Set the instance to the correct i**nstance-CRN** retrieved from the platform

Further details on these steps is available here: https://quantum.cloud.ibm.com/docs/en/migration-guides/classic-iqp-to-cloud-iqp

```
from qiskit_ibm_runtime import QiskitRuntimeService

QiskitRuntimeService.save_account(
                token=token,
                channel="ibm_cloud",
                instance="instance-CRN",
                name="account-name", #optional
                overwrite=True
)
```





FAQ

1. If you forgot to save and copy API key, **create another one**. Users can have multiple API keys, and they are tied to the user's account, not specific instances or regions.

2. Fair Share Priority is determined at the **Instance** level. The fair share queueing algorithm considered a Instance's usage over a 28-day rolling window when determining a workload's priority in the queue.

3. **All** users in same Instance will have access to view and manage **workloads** sent from **any** user in that same Instance. This access includes:

    - View and download workload data
    - View and retrieve workload results
    - Cancel workloads

4. New IQP has a **region selector** and users can access different system from two regions. Users can see what systems are available in the page. Instances, workloads will be separate between different regions as well.

    - Frankfurt (eu-de)
    - Washington DC (us-east)