Quantinuum Systems Administrator Guide

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INTRODUCTION

The **Quantinuum System Model H1, powered by Honeywell**, is the best-in-class trapped ion quantum computer. This administrator guide covers all that is needed to manage user access and monitor usage across an organization.

When an organization is set up on the Quantinuum systems, an administrator from the organization is selected to manage the organization's users, add new users, and monitor overall H-System Quantum Credits (HQCs) usage. Adding and managing users can be done by user or by creating groups of users. Administrators can also view all job submissions and generate usage reports for their organization.

The managing organization is responsible for following the terms laid out in the Quantinuum Systems Subscription Agreement. Because administrators have the ability to add and remove users, administrators must ensure compliance with the Quantinuum Systems Subscription Agreement.

All administrator management can be done from the **Org Admin** view on the [Quantinuum User Portal](). To navigate to this view, click on **Org Admin** in the top right-hand corner of the user portal.

MANAGING USERS

The ***Users*** tab in the **Org Admin** view lists all users that have been granted access to Quantinuum Systems for your organization.

Adding New Users

- Click the ***Users*** tab in the **Org Admin** view.
- Click *ADD NEW USER* on the right side of the screen.
- Add the user's email address and select your organization in the dropdown.
    - You can optionally add that user to a Group, if desired.
    - You can optionally choose to add another person as an Account Administrator.
- Click *ADD*.

Adding Groups

Managing your organization's subscription credits by groups of users may be helpful to allocate or monitor credits across users for certain projects, large experiments, or to view usage by teams in your organization.

- Click the ***User Groups*** tab in the **Org Admin** view.
- Click *ADD NEW GROUP* on the right side of the screen.
- Enter a Group Name.
- Click *ADD*.

Adding Users to Groups

Users can be added to Groups in one of two ways: when a user is initially added to the user portal or after a group is created.

To add a user to a group after the user is already in the portal:

- Click the ***Users*** tab in the **Org Admin** view.
- Click the check box next to the user's USER LOGIN.
- Click *ACTIONS* on the right side of the screen, then *Update Groups*.
- In the dropdown, select the Group Name you'd like to add the user to.
    - You can add users to more than one group.
- Click *UPDATE*.

Users can be added to more than one group.

- If the user is added to one group only, that group becomes the user's Default Group.
- If the user is added to more than one group, you can choose which group is the user's Default Group.

MANAGING USAGE

All jobs on Quantinuum H-Series hardware are tracked utilizing H-System Quantum Credits (HQCs) and emulator HQCs (eHQCs). For a full description of how HQCs are calculated, see the *Quantinuum Systems User Guide* on the Quantinuum User Portal.

When a circuit is submitted (either to a syntax checker, emulator, or quantum computer), the cost in HQCs or eHQCs is returned with the results. Submitting to a syntax checker does not cost HQCs. The cost of submitting the same job to quantum hardware will be returned with the results for planning purposes.

Organization Usage

The number of credits remaining on an organization's plan can be seen under the ***Machines*** tab in the **Org Admin** view.

- Credits are broken out by type of hardware: quantum computers, emulators, syntax checkers.
- The numbers displayed are a real-time view showing the total number of credits remaining for the month.
- There are no limits to submitting to the Syntax Checker.
- The credits available are updated the first of each month when plans are refreshed.

Quotas

Usage quotas can be set for individual users or user groups and by plan type (i.e. quantum hardware vs. emulator). Quotas can help ensure no one user or group of users utilizes the majority of an organization's subscription.

Set Quota(s) by User

It is possible to set quotas for an user as an individual and for the user to be assigned to multiple groups. If this is the case, the quota granted to the user will be the minimum across the User quota and User Group quotas the user is assigned to. If a user is part of multiple groups, then the quota granted to the user is the minimum across the User quota and the User Group quota the user submits to. Every job checks against all quotas for an user – User, User Group(s), and organization.

If users are assigned to more than one User Group, they have the option of which group their job will be assigned to when they set up and submit a job. If no group is specified, their jobs will be assigned to their Default Group. All jobs count against your organization's overall quota.

- Click the ***Users*** tab in the **Org Admin** view.
- Click the check box next to the user's USER LOGIN.
- Click *ACTIONS* on the right side of the screen, then *Add User Quota*.
- Enter the HQCs in Quota Amount and select the Machine to apply the quota to.
- Click *ADD*.

Set Quota(s) by User Group

Quotas for User Groups can be set and updated at any time.

The quota for a User Group is is a total, not a monthly amount. As an example, suppose your organization has a 3-month subscription with 5,000 HQCs/month and you set up 2 user groups, Group A and Group B. Group A estimates that their experiment will take 10,000 HQCs and Group B estimates 5,000 HQCs. Both groups will be running experiments across the 3-month period. In this case, the quota for Group A can be set to 10,000 HQCs and Group B set to 5,000 HQCs, even though your organization can only run 5,000 HQCs/month. The amount of HQCs each group uses will track against their total quota.

If a User Group utilizes all of its quota amount, more can be added. It is recommended that the total number of credits assigned across all User Groups be larger than the total credits for your organization. Although this could result in capping the users when the organization limit is hit, it will help avoid a situation where one User Group runs out of HQCs while another group does not use all their HQCs. Since all jobs check against all quota levels, there is no risk of using more than the total available HQCs.

- Click the ***User Groups*** tab in the **Org Admin** view.
- Click the check box next to the group's GROUP NAME.
- Click *ACTIONS* on the right side of the screen, then *Add Group Quota*.
- Enter the HQCs in Quota Amount and select the Machine to apply the quota to.
- Click *ADD*.

View Remaining Credits by User

- Click the ***Users*** tab in the **Org Admin** view.
- Select the arrow next to the user's USER LOGIN.
- The box in view shows the credits remaining for the user for each machine type.

You can view this information only if the User has a quota assigned to it either individually or via a User Group. Otherwise, nothing will be displayed.

View Remaining Credits by User Group

- Click the ***User Groups*** tab in the **Org Admin** view.
- Select the arrow next to the group's GROUP NAME.
- The box in view shows the credits remaining for the group for each machine type.

You can view this information only if the User Group has a quota assigned to it. Otherwise, nothing will be displayed.

USAGE REPORTS

Under the ***Jobs*** tab in the **Org Admin** view, administrators can view a variety of usage reports that can be filtered by machine, status, and users.

- Information is updated in real-time and can be used to monitor who is or is not using which asset.
- Reports display the machine used, user, date, and cost per job and can be filtered to specific date ranges (within the data retention period).

To create a report:

- Click the ***Jobs*** tab in the **Org Admin** view.
- Click the calendar icon and filter to a date range of interest.
- Under the *Filter* icon choose which machines, statuses, or users you'd like to filter to.
- Export the report results by clicking on the *Paper* icon. This is on the right side, to the left of the *Filter* icon.

SUPPORT

Quantinuum values a deep relationship with users and welcomes any questions or feedback. For initial inquiries please use the email address QCsupport@quantinuum.com. Additional personal email addresses may be made available for rapid Q&A or for more detailed discussion.