



# ICCP v3.0.0.173 User Manual

Imbio Core Computing Platform (ICCP)



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## Languages

If a French translation of this user manual is required by Health practitioner from Canada, Imbio shall provide it within 30 business days.

## User Interface

The user interface (also known as the portal) is used to perform various tasks related to the job life cycle for data processed by the platform.

## Access To the Portal

The portal can be accessed from your browser. For the correct URL please check the Quick Tech Guide or the email you received from Imbio Support.

When you log in for the first time, you will be prompted to update your password.

## User Levels

### Clinical User

Users with Clinical User access level can:

- Create jobs
- Download input for jobs
- Download output for jobs
- Download single CSV for a job
- Download an aggregated CSV report for many jobs
- Download the PDF reports for jobs
- Edit segmentation for jobs (if available)
- Filter jobs
- Check additional info about the job
- Reset password
- Ask Imbio support for help

Additional tabs are view only.

## GroupAdmin

Users with Group Admin user access level can:

- Perform all functions available to the Clinical User
- Edit users in group
- Delete PHI

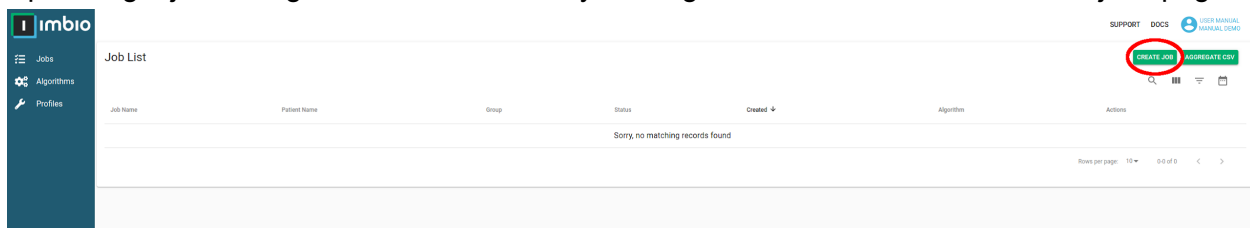
Additional tabs are view only

## Features of Imbio Portal

### Job creation

#### Through Portal

Uploading a job through the Portal is done by clicking the CREATE JOB icon on the jobs page.



This will pop-up a new window where the parameters and job images can be uploaded.

## Create New Job

Job Name \*

J-1571048955

Only '-', '\_' and alphanumeric characters are allowed for the job name. The maximum length is 40 characters.

Groups \*

Manual demo

Algorithm \*

Select...

Input DICOM Series \*

Select an algorithm to enable Asset uploading



\* Required

CANCEL

SUBMIT

Insert the desired name (whitespaces not allowed, replace whitespaces with '-' and '\_'), select the algorithm and upload the images series (this needs to be a compressed file: \*.zip) and then click upload. Once you have uploaded an image series it can be processed again without uploading a second time using the prior uploads option.

## Create New Job

Job Name\*

Demo\_Job\_2

Only '-', '.', '\_' and alphanumeric characters are allowed for the job name. The maximum length is 40 characters.

Groups\*

Manual demo

Algorithm\*

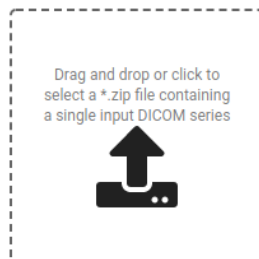


Dummy Algorithm

2.0

Input DICOM Series\*

Dummy Algorithm needs 1 DICOM Series. Use the dropzone to upload the required files, or select prior assets.



### 1. DICOM Series

Upload new input series or click below to select

**SELECT PRIOR**

\* Required

CANCEL

SUBMIT

When it is finished you can interact with the job in different ways:

- Download the input
- Download the csv output
- Download the pdf report

## DICOM Push via PACS or CT Scanner

This feature is only available for enterprise and bridge + cloud installations.

DICOM data can be automatically or manually pushed to ICCP via a DICOM send protocol. The new job will automatically be started with no additional user interaction required via the portal interface. Refer to the Tech Quick Guide provided by Imbio Support for the specific algorithm AETitle, IP and Port. Jobs sent directly from the scanner or pushed from PACS will be displayed

via the interface and the job status will be shown in the imbio portal. When it is finished you can interact with the job in different ways:


- Download the input series
- Download the algorithm outputs
- Download the csv output
- Download the pdf report
- Edit the segmentation

## Downloading data from jobs


All available actions that can be performed on a job can be found in the Actions column.




### Download Input Series

The icon for downloading the input series:   
This will use your browser's settings for download prompt/location.

### Download Algorithm Outputs

The icon for downloading the algorithm output:   
This will use your browser's settings for download prompt/location.

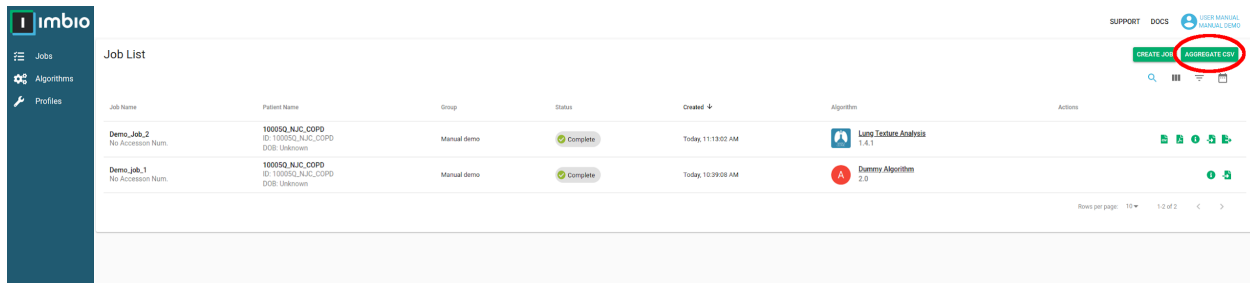
### Download Single CSV Report






The icon for downloading the csv report:   
This will use your browser's settings for download prompt/location.

### Download Aggregated CSV Report

The icon for downloading the aggregated csv report:





| Job Name                        | Patient Name   | Group       | Status   | Created            | Algorithm                      | Actions   |
|---------------------------------|--|-------------|----------|--------------------|--------------------------------|---|
| Demo_Job_2<br>No Accession Num. | 10005Q_NJC_COPD<br>ID: 10005Q_NJC_COPD<br>DOB: Unknown | Manual demo | Complete | Today, 11:13:02 AM | Loop Texture Analysis<br>1.4.1 |     |
| Demo_Job_1<br>No Accession Num. | 10005Q_NJC_COPD<br>ID: 10005Q_NJC_COPD<br>DOB: Unknown | Manual demo | Complete | Today, 10:39:08 AM | Dummy Algorithm<br>2.0         |    |


This will create a report of all jobs shown on the screen. To change the amount of jobs in the csv report use the filter.

## Download PDF Report

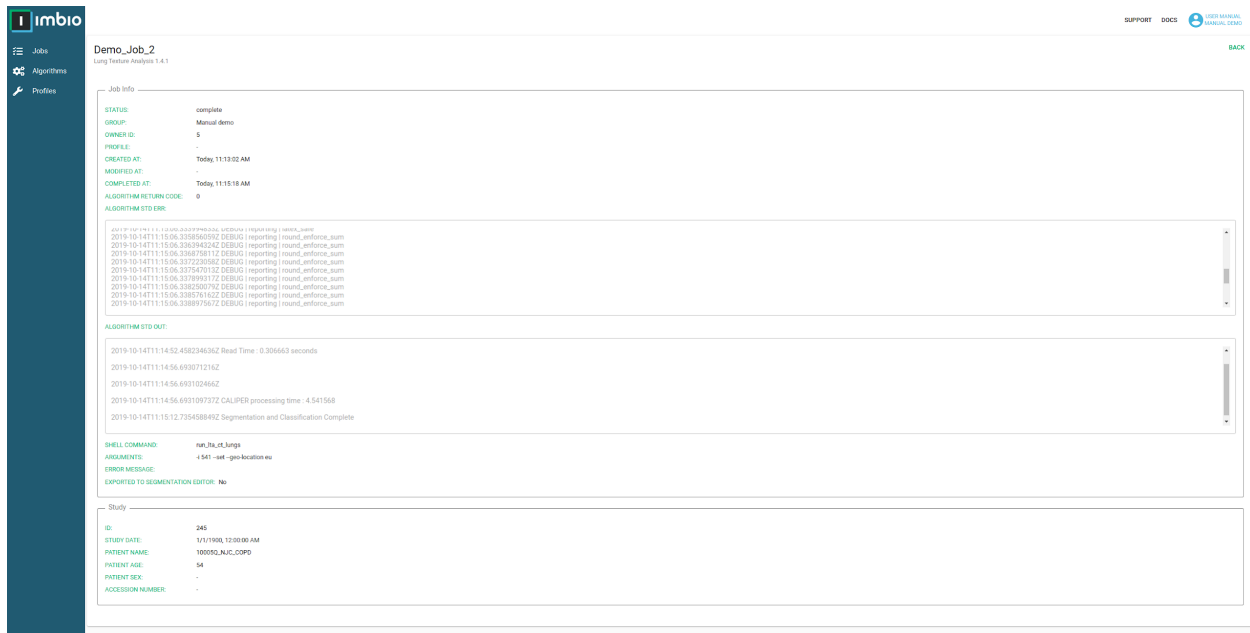
The icon for downloading the PDF report: 

This will use your browser's settings for download prompt/location.

## Check job info

The icon for getting more information about the job: 

This will redirect you to the job details page.



**Job Info**

STATUS: complete  
 GROUP: Manual demo  
 OWNER ID: 5  
 PROFILE: -  
 CREATED AT: Today, 11:13:02 AM  
 MODIFIED AT: -  
 COMPLETED AT: Today, 11:15:18 AM  
 ALGORITHM RETURN CODE: 0  
 ALGORITHM STD ERR:

```

2019-10-14T11:15:06.320376000Z [INFO] reporting | week_end
2019-10-14T11:15:06.325856000Z [DEBUG] reporting | round_enforce_sum
2019-10-14T11:15:06.326394000Z [DEBUG] reporting | round_enforce_sum
2019-10-14T11:15:06.326832000Z [DEBUG] reporting | round_enforce_sum
2019-10-14T11:15:06.327370000Z [DEBUG] reporting | round_enforce_sum
2019-10-14T11:15:06.327908000Z [DEBUG] reporting | round_enforce_sum
2019-10-14T11:15:06.328446000Z [DEBUG] reporting | round_enforce_sum
2019-10-14T11:15:06.328984000Z [DEBUG] reporting | round_enforce_sum
2019-10-14T11:15:06.329522000Z [DEBUG] reporting | round_enforce_sum
2019-10-14T11:15:06.330060000Z [DEBUG] reporting | round_enforce_sum
2019-10-14T11:15:06.330598000Z [DEBUG] reporting | round_enforce_sum
  
```

ALGORITHM STD OUT:

```

2019-10-14T11:14:52.458234000Z Read Time: 0.305663 seconds
2019-10-14T11:14:56.693071214Z
2019-10-14T11:14:56.693102464Z
2019-10-14T11:14:56.693109737Z CALIPER processing time: 4.541568
2019-10-14T11:15:12.735408492Z Segmentation and Classification Complete
  
```

SHELL COMMAND: nat\_its\_of\_large  
 ARGUMENTS: -s41 -set -geo-location eu  
 ERROR MESSAGE:  
 EXPORTED TO SEGMENTATION EDITOR: No

**Study**

ID: 245  
 STUDY DATE: 1/1/1900, 12:00:00 AM  
 PATIENT NAME: 10005Q\_NJC\_COPD  
 PATIENT AGE: 54  
 PATIENT SEX: -  
 ACCESSION NUMBER: -

## Reset Password

Your password can be reset at any time by clicking your username on the top right hand corner and selecting profile



After clicking 'Change my Password' you will see the following pop-up screen

### Password Change

For your security, you have to change your password.

Password

**New Password \***  
Set the new password you have chosen. You have to type it twice to avoid typo issues. You can verify that your password are in compliance with the password rules below the password fields.

Retype your password

- ✓ Minimum password length
- ✓ Lower case letter
- ✓ Upper case letter
- ✓ Number

\* Required

[CANCEL](#) [SUBMIT](#)

Enter your current password and then your newly desired password. The checkbox at the bottom shows if a when you have given a password of sufficient strength.

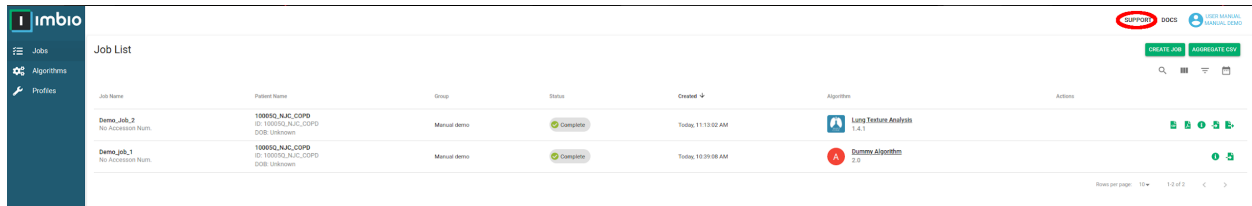
- ✓ Minimum password length
- ✓ Lower case letter
- ✓ Upper case letter
- ✓ Number

If you have forgotten your password, please contact imbio support and we will reset your password. Once reset, on first login you will be prompted to change the given password.



## Request support from Imbio Staff

If you have any questions that were not answered in this manual, Imbio support will be happy to help out. They can be contacted from the portal, by clicking the support menu located in the top right hand corner



This will redirect you to the official Imbio support page.

### WE'RE HERE TO HELP

Your satisfaction with Imbio and our solutions is a priority for us. Please initiate a support case using the form on this page. You will receive an automatic email confirmation with your case number and an Imbio support team member will contact you shortly.

#### SUPPORT HOURS

8:00 AM – 6:00 PM CST (GMT -5:00)  
Although we recommend using our online case submission, you can also reach Imbio support by phone or email.

#### PHONE SUPPORT

U.S. Support Line: +1 612-520-7360  
Toll Free Number: +1 844-247-4458

#### EMAIL SUPPORT

[SUPPORT@IMBIO.COM](mailto:SUPPORT@IMBIO.COM)

#### SUPPORT DOCUMENTATION

- + [Lung Density Analysis Documentation](#)
- + [Lung Texture Analysis Documentation](#)

Contact Name


Company

Email

Phone

Support Needed:

Description

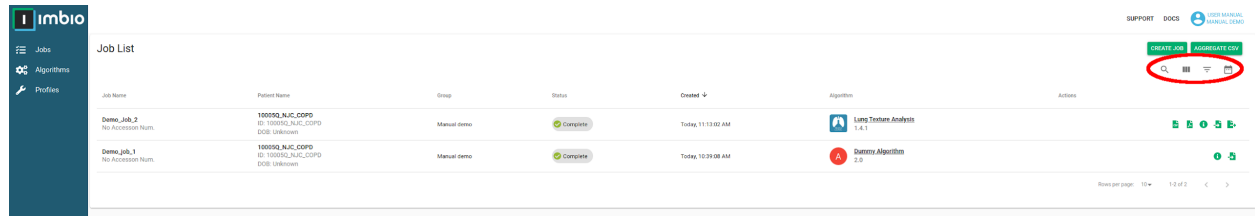
I'm not a robot   
reCAPTCHA  
Privacy - Terms

SUBMIT

## Filtering jobs



All filter options can be located in the upper right side of the UI



Filtering jobs has 3 main options:

- Filter by date
- Listed columns in the UI
- Filter by content

### Filter by date

The icon for filtering by date: 

Once the filter is set only the jobs created between the set intervals will be displayed.

### Table filter

The icon for filtering job detail level: 

This will display all available options. Click the desired checkboxes to add/remove the selected columns.

### Content Filter

The icon for filtering by content: 

This will display all available options. Select the desired values, multiple can be chosen. Only resulted with this values will be displayed. If multiple are selected values only jobs with all selected values are visible in the UI.


### Search for job(s)

The icon for searching for jobs: 

The filter can be used for job name, accession number or patient name.


Searching for the job name will result in a single job displayed, however searching by accession number or patient name can return multiple records.

## Edit segmentation

The icon for editing the segmentation: 

Please check the segmentation editor tools user manual for detailed instructions on using the tool.

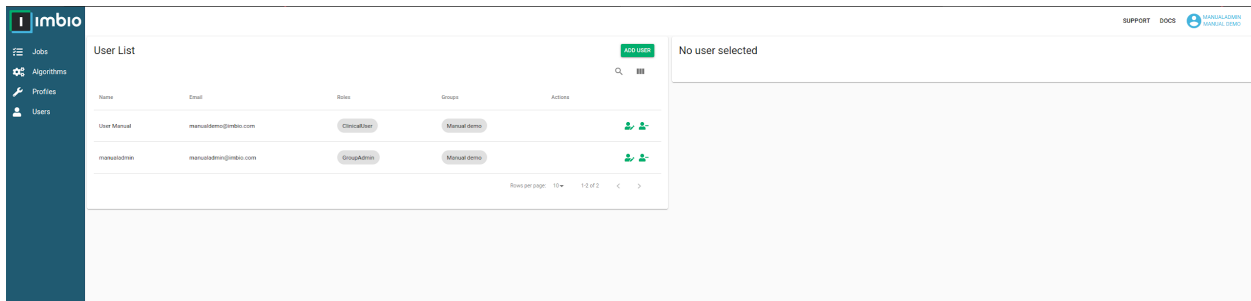
## Deleting jobs

The icon for deleting the PHI of a job: 







Clicking this icon will prompt a warning. This will not remove the record from the UI only the Personal health information linking the job to a specific patient. Deleting one job will delete all jobs with that specific patient.

## User Management

User management is done in the users tab found on the left side of the UI



The screenshot shows the Imbio User Management interface. On the left is a dark blue sidebar with navigation icons for Jobs, Algorithms, Profiles, and Users. The main content area is titled 'User List' and contains a table with columns for Name, Email, Roles, Groups, and Actions. There are two rows of users listed. A green 'ADD USER' button is visible in the top right of the table area. To the right of the table is a large empty box with the text 'No user selected'. At the bottom of the table, there is a pagination control showing 'Rows per page: 10' and '1 of 2'.

| Name         | Email            | Roles        | Groups      | Actions   |
|--------------|------------------|--------------|-------------|---|
| User Manual  | manuel@imbio.com | ClinicalUser | Manual demo |    |
| manuel@imbio | manuel@imbio.com | GroupAdmin   | Manual demo |    |

## Add user



To create a new user click the button labeled add user. This will pop-up a new window

### Add new User

Name\*  
Name

Email\*  
user@example.com

**Password\***  
For the first login, you have to provide a temporary password for the newly created user. It will have to be changed after the first login by the user. Enter a password or Generate one by the wizard icon at the right side.

Enter a password or click "generate"  

- ✗ Minimum password length
- ✗ Lower case letter
- ✗ Upper case letter
- ✗ Number

Groups\*  
Manual demo

Roles\*  
Select...

**Rights of the User**

|   |  |   |
|---|--|---|
| <input type="checkbox"/> Access everything            | <input type="checkbox"/> Can see jobs waiting for review | <input type="checkbox"/> Can modify skins           |
| <input type="checkbox"/> Delete patient               | <input type="checkbox"/> Create user                     | <input type="checkbox"/> Delete user                |
| <input type="checkbox"/> Edit user                    | <input type="checkbox"/> View user                       | <input type="checkbox"/> Change user password       |
| <input type="checkbox"/> Create job                   | <input type="checkbox"/> Edit job                        | <input type="checkbox"/> View jobs                  |
| <input type="checkbox"/> Create algorithm and profile | <input type="checkbox"/> Edit algorithm and profile      | <input type="checkbox"/> View algorithm and profile |
| <input type="checkbox"/> Delete algorithm and profile | <input type="checkbox"/> Add credits to groups           |   |

\* Required

[CANCEL](#) [SUBMIT](#)

Fill in all needed information (ones shown with a star a required for the form to be accepted) and click submit. New users will be prompted to change their passwords on first login. The email address is used as the username for the Imbio portal.

## Delete user

The icon for deleting a user: 

This is found next to each user. Multiple deletion is not permitted on the portal. After clicking the icon a prompt will appear with a warning.

## Modify user

The icon for modifying a user: 

Modify a user to change their role/name.



## On-Premise Installation

The hardware specifications below will provide enough resources to run a single algorithm at a time. If additional jobs are submitted while one is running, those jobs will be queued. If customer requires a higher number of concurrent jobs, additional VMs will need to be obtained.

The application is deployed as two or more VMware vSphere-compatible OVA “appliance” files, one “core” VM, which provides Imbio’s core automation functions and one or more “compute” VMs, on which the actual image processing is performed.

### Hardware Requirements

Imbio Core Computing Platform (ICCP) is deployed into a VMware vSphere environment. As such, all of the below hardware specifications assume that they are assigned to the ESXi guests, and are reserved for their use.

#### CCP Core VM Requirements

- Quad-core, 64-bit capable CPU, 2.0GHz minimum
- 32GB RAM
- 200GB Disk Storage minimum (more may be required depending on usage<sup>1</sup>)
- 1 GigE Virtual NIC

#### CCP Compute VM Requirements

- Quad-core, 64-bit capable CPU, 2.0GHz minimum
- 32GB RAM (more may be needed depending on use case and algorithms needed)
- 200GB Disk Storage
- 1 GigE Virtual NIC

### Firewall Requirements

These firewall rules (if required by customer’s network policy) need to be applied to the customer’s network equipment. It is assumed that the core and compute VMs reside on the same layer 2 network and as such, have no restrictions on communication between them. If this is not the case, please contact Imbio support.

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<sup>1</sup> Dependent on volume and SET configuration





## Egress Rules

- 443/tcp to mc.scripzo.com (Package and license updates)
- 443/tcp to sumologic.com (logging manager)
- 123/udp and 123/tcp to local NTP server
- 53/udp and 53/tcp to local DNS resolvers
- 80/tcp and 443/tcp to \*.imbio.com (operating system updates)
- 80/tcp and 443/tcp to mirrors.syringanetworks.net
- 443/tcp to s3.amazonaws.com
- 443/tcp to scripzo-mission-control.s3.amazonaws.com
- 80/tcp and 443/tcp to \*.ecr.us-east-1.amazonaws.com (container registry)
- Misc. ports as needed for DICOM network transfers

## Ingress Rules

- 8443/tcp from administrative subnet (Imbio CCP management interface)
- Misc. ports as needed for DICOM network transfers

## Network Service Requirements

- DNS resolvers
- NTP Server or Servers (if these cannot be provided, then Imbio CCP will require access to a set of external NTP servers)
- 1 static IPv4 address for each VM (1 for CCP Core and 1 each for CCP Compute instances)
- A VPN tunnel to the Imbio Core server and Imbio Compute servers.

# Installation Steps

## Overview

The installation of Imbio CCP involves downloading the Imbio CCP OVA. Imbio support will work with you to either provide download links for the OVA images or upload them to a customer-owned file transfer service.

Generally speaking, both components (CCP Core and CCP Compute) follow a similar installation path:

1. Download and import the OVA into the vSphere environment. This will be the Core VM.
2. Clone the instance once; this will be the first Compute VM.
3. Add DHCP reservation(s) for the two VMs.
4. Power on each instance.



5. Grant remote access to the Imbio support team for completion of installation by setting up VPN access to the machine.
6. Imbio support staff will complete the installation.

## Installation of Imbio CCP Core

The Imbio CCP Core service needs to be installed first. The process is as follows:

1. Import the Imbio CCP OVA.
2. Create a DHCP reservation for Imbio Core's MAC address.
3. Power on Imbio Core VM. The IP address is printed to the console's login screen after boot up. Inspect the console output to verify that the correct IP address is assigned.
4. Grant Imbio support VPN access to the machine.
5. Imbio support will finish the configuration.

Imbio Core is now configured. Proceed to "Installation of Imbio Compute" to complete the installation.

## Installation of Imbio CCP Compute

Your site may be licensed for a number of Imbio CCP Compute instances. The configuration of the Imbio Compute software is identical on all instances. The installation procedure involves installing and validating the first instance, then cloning to the licensed number instances.

1. Clone the Imbio CCP Core VM.
2. Create a DHCP reservation for Imbio Compute's MAC address.
3. Power on Imbio Compute VM. The IP address is printed to the console's login screen after boot up. Inspect the console output to verify that the correct IP address is assigned.
4. Grant Imbio support VPN access to the machine.
5. Imbio support staff will finish the configuration.

If multiple compute instances are warranted in this installation, the CCP Compute VM can be shut down at this point, and cloned as many times as needed. Steps 2-4 above will need to be completed for each CCP Compute VM.

At this point, Imbio support will validate that the CCP application is fully functional and will work with you to ensure proper integration with your existing DICOM tools.