



NVIDIA Iray Server

User's and administrator's guide

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NVIDIA Iray Server — User's and administrator's guide

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1 Preface

1.1 Purpose of this document

This document describes client-server setups where the client application and NVIDIA® Iray® Server seamlessly manage offline rendering to leave your machine resources available for other tasks.

1.2 Audience

This document is intended for the following user groups:

- Users of [Iray-compatible applications](#)¹ who want to offload batch or interactive rendering to Iray Server.
- Administrators who are responsible for managing settings, resources, and users.

1.3 How this document is organized

This document is organized as follows:

- [Introducing Iray Server](#) (page 2) describes what Iray Server is and what it is used for.
- [Installing Iray Server](#) (page 6) describes hardware, software, and configuration requirements as well as performance considerations.
- [Starting Iray Server](#) (page 9) describes how to start Iray Server from the command line as well as from a Windows desktop icon. It also describes how to log in to the browser-based UI for Iray Server. From this UI you manage the render queue and render results.
- [Managing the queue for batch jobs](#) (page 19) describes how to submit, stop, restart, re-order, edit, copy and delete jobs.
- [Managing render results](#) (page 29) describes how to view, download, archive, and delete results and resubmit archived render jobs.
- [Iray Server administration tasks](#) (page 34) describes how to customize settings, configure resources, and manage users. The pages where you perform these tasks are only visible to administrators and users with administrator rights.

¹<https://www.irayplugins.com>

2 Introducing Iray Server

NVIDIA® Iray® Server is a multi-user, distributed rendering solution that focuses on flexibility and ease of use without sacrificing performance. You connect to Iray Server by using an [Iray-compatible application](#)².

You can use Iray Server for two purposes:

- *Queue Rendering:* To upload a scene from a client application to Iray Server for offline rendering. Iray Server maintains a queue of rendering jobs. After a rendering job is uploaded to Iray Server it is added to the queue. All jobs in the queue are rendered, one after the other, without further involvement from the client application. A client application can, in fact, be disconnected from Iray Server after submitting jobs. Rendering results are stored by Iray Server. You can retrieve these results from the file system or by using a web browser.
- *Streaming:* To offload interactive rendering from the client application to Iray Server. The client application performs no rendering operations. All rendering is performed on the machine where Iray Server is running. Images are streamed back to the client application. Offload rendering makes sense when Iray Server is running on more capable hardware or when you want to free up GPUs and CPUs on your local machine. The only differences you may notice when offloading rendering is potentially faster rendering and less resource usage locally. Any changes you make to a scene from the client application are immediately reflected in the images streamed back from Iray Server.

All asset management is automatically performed by the client application and Iray Server. You do not need to manually upload any scene assets such as textures, materials, light profiles and so on. This is true, even when assets on the client are changed.

Iray Server is designed for efficient performance across a range of client-server configurations:

- When a client application is based in the same local area network (LAN) as the machine Iray Server is running on
- When Iray Server is running on a machine in a different network, or even in a different country. Both the upload of the scene and the streaming of the rendered images are designed to minimize the usage of your Internet bandwidth.

To minimize network and Internet usage, the client application analyzes the active scene when it connects to Iray Server. The client application only sends parts of the scene and scene assets which have not been rendered previously on this particular Iray Server installation. Uploads are independent of any naming, scene usage, or instancing conventions that are used.

This approach has a number of important benefits for you:

- It minimizes upload times.
- It makes interactive usage quite fluid.
- It liberates you from asset management.

²<https://www.irayplugins.com>

- It guarantees that what you render locally will match what you get from Iray Server.

2.1 Browser-based user interface

Iray Server uses a built-in HTTP server to provide a browser-based interface:

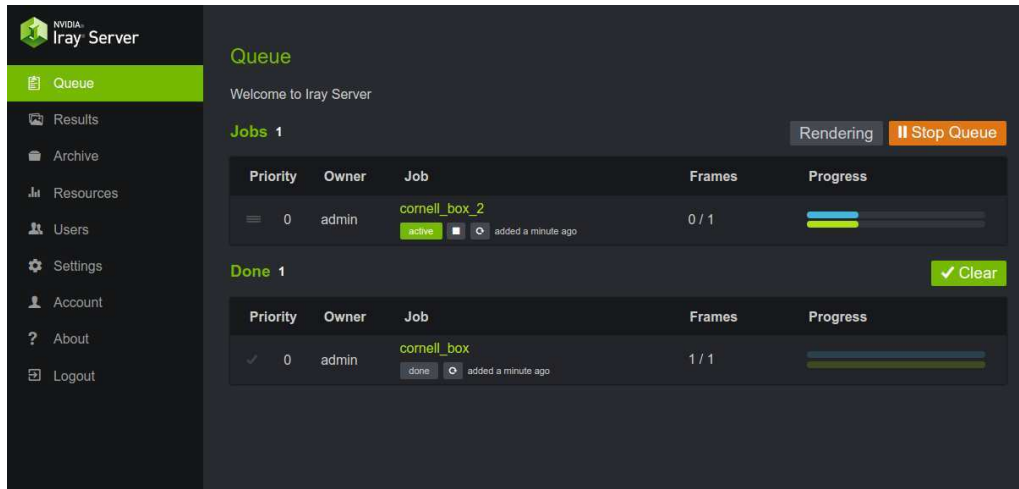


Fig. 2.1 – The Iray Server browser-based user interface provides a minimalistic page design where highly visible links and switches are used to reveal secondary functionality

From the user interface you can inspect the render queue, change the order of the jobs in the queue, and configure Iray Server to suit your requirements.

For administrators, the user interface provides additional functionality to manage configuration settings, resources and users.



Fig. 2.2 – From the Resources page, administrators can enable and disable CPU and GPU usage

2.2 Iray Server modes

Iray Server supports the following modes:

- *Queuing*: Offline batch rendering.
 - *Supported render modes*: Iray Photoreal and Iray Interactive
 - *Supported configurations*: Standalone, cluster, and VCA
 - *Supported GPUs*: All
 - *Supported CPUs*: x86-64

Iray Server 2.2 supports stereoscopic rendering in Queuing mode.

- *Streaming*: Rendering on an external machine while you edit locally.
 - *Supported render modes*: Iray Photoreal and Iray Interactive
 - *Supported configurations*: Standalone and VCA
 - *Supported GPUs*: Professional (Quadro, Tesla, and Grid)
 - *Supported CPUs*: Not applicable.

2.3 Render modes

Iray Server supports the following render modes for queuing and streaming:

- *Iray Photoreal* generates physically-based photorealistic imagery. Images are progressively refined to provide full global illumination including caustics, sun studies, and luminance distributions.
- *Iray Interactive* targets a look which is consistent with the physically-based results of Iray Photoreal but uses faster, less accurate rendering algorithms than Iray Photoreal. Iray Interactive is ideal when ray-tracing effects, such as reflections and refractions, are desired but limited photorealism is acceptable. An application submitting a job can set special options for Iray Interactive to more finely tune the balance between speed and rendering quality. If the application does not specify these settings, the default settings are used. The default settings target a look that is very close to Iray Photoreal, but global illumination effects and ambient occlusion are not enabled.

Note:

- *Multi-version support for Iray*: Iray Server 2.1 and later support Iray-enabled applications running Iray 2016.1, Iray 2016.2, and Iray 2016.3. The version of Iray used for rendering is chosen automatically; it matches the Iray version used by the client application. On Iray Server itself, each version of Iray that is launched is referred to as an *Iray Worker*.
- *Stereoscopic rendering*: Iray Server 2.2 supports stereoscopic rendering in Queuing mode only.

2.4 Configuration modes

Iray Server supports the following configuration modes:

- *Standalone*: Iray Server runs on a single machine. You can install Iray Server on:
 - The same machine as your Iray-compatible application
 - A separate machine
- *Cluster*: Multiple Iray Server instances are connected to each other in a local area network (LAN) and each host (unless disabled) participates in rendering. Iray Server supports multicast and TCP/IP.
- *VCA*: Iray Server connects to a VCA and offloads all rendering to a VCA or a cluster of VCAs.

2.4.1 Setting up a VCA or VCA cluster for rendering

For information about installing, using, and administrating a VCA or VCA cluster, download the VCA documentation from the [NVIDIA Quadro VCA³](#) web page.

2.5 Licensing Iray Server

For information about licensing Iray Server, see the [Iray Server⁴](#) web page.

³<http://www.nvidia.com/object/visual-computing-appliance.html>

⁴<https://www.irayplugins.com/iray-server/>

3 Installing Iray Server

Iray Server runs under Windows and Linux. This chapter describes the requirements for installing Iray Server and performance considerations.

Iray Server updates and upgrades: When you update or upgrade Iray Server, passwords, the cache, and render results remain unchanged.

3.1 Supported operating systems

Iray Server runs under:

- *Windows 7, 64-bit:* An installer is provided. By default, Iray Server is installed at:

`C:\Program Files\NVIDIA Corporation\Iray Server`

The default cache and image results directory is:

`C:\ProgramData\NVIDIA Corporation\Iray Server`

A desktop icon is installed on your desktop. Double-click this icon to start Iray Server. *Customizing default locations:* After Iray Server is installed, you can copy the Iray Server folder from Program Files to a different location. When you start `iray_server.exe` directly from the new location, subfolders are created in the new location for caching and image results.

- *Linux, 64-bit:* A gzipped tar file is provided. Unpack with tar.

3.2 Hardware requirements

3.2.1 GPU requirements

Iray Server has specific GPU requirements for GPU acceleration and streaming:

- Fermi or later NVIDIA GPUs are required for GPU acceleration.
- Professional GPUs — Quadro, Tesla, or Grid — are required on the server side for streaming.

3.2.2 CPU requirements

x86-64 CPU processors are supported for sole operation or working together with GPUs.

3.3 Software requirements

Iray Server is a companion application for Iray-compatible client applications.

- No application other than Iray Server is required on dedicated rendering machines, also known as rendering nodes.

- Iray Server works with [Iray-compatible applications](#)⁵ that are based on the Iray Bridge versions supported by this release of Iray Server.

3.4 Configuration requirements

Note: The machine that clients connect to and send jobs to is called the *master node* while all other machines in the cluster are called *render nodes*.

Iray Server is designed to support a range of configurations with minimal restrictions:

- Heterogeneous client-server configurations are supported, for example: a Windows client and Linux rendering nodes.
- Heterogeneous server configurations are not supported. Every machine in an Iray Server cluster must run under the same operating system.
- At least 100-Mbit/s Ethernet is recommended between clustered machines. Between the client and a streaming server, 10-Mbit/s is acceptable.

3.5 Setting up Iray Server for distributed rendering

When configuring Iray Server for distributed rendering, only one node — the master node — can be used to receive jobs from client applications. This master node also provides the Web UI for Iray Server users. You specify the master node from the command line in a terminal window. Other nodes in an Iray Server cluster are rendering nodes only.

Sending a job “to the queue” outputs the required Iray render data to the Iray Server master node as a job for processing. Sending a job is usually quite quick, after which the client application is free to do other work. Any number of jobs can be sent to Iray Server before they are processed, without any performance impact to the master node. Submitted jobs can be managed and modified within the Queue Manager interface of Iray Server.

3.6 Performance considerations

3.6.1 Cluster configuration

Rendering efficiency is best when the performance of all machines in a cluster is similar. However, you can mix machines with different performance levels with fairly minimal impact. Slow machines will not hold back much faster machines in the same cluster; faster machines will simply contribute more iterations per minute than the slower machines.

When you add machines to the cluster over time, they will be included for use on the next frame. You can remove machines from the cluster without hurting an active job, other than losing the iteration a particular machine is currently rendering. A “dropped” iteration is made up by the next iterations sent to the master node.

3.6.2 Cluster size

An Iray Server cluster runs independently of any other Iray Server. If you have a large number of potential render farm machines, the decision about how large a cluster should be is usually one of efficiency and rendering job type. Tests show that more than 70 percent efficiency is

⁵<https://www.irayplugins.com>

possible with 20 similar machines running a complex render job, while very fast render jobs (those completing under a minute) may see less than 70 percent efficiency with just a few machines in the cluster.

4 Starting Iray Server

This chapter describes how to start Iray Server and log into the user interface from a browser. The following tasks are covered:

- [How to start Iray Server from the command line and the command line options](#) (page 9)
- [The steps for starting Iray Server under Windows and Linux](#) (page 14)
- [Logging in to the Iray Server user interface from a browser](#) (page 15)
- [Logging out](#) (page 17)
- [Checking your Iray Server user profile](#) (page 17)
- [Changing your password](#) (page 18)

4.1 Setting up Iray Server for distributed rendering

Any machine running Iray Server can process jobs sent to it for offline rendering. The machine that clients connect to and send jobs to is termed the master node while all other machines in the cluster are termed render nodes. In practice, the client (plug-in) first connects to the master node's address to verify the user has access to Iray Server. Sending a job "to the queue" outputs the required Iray render data to the Iray Server master node as a job for processing. Sending a job is usually quite quick, after which the client application is free to do other work. Any number of jobs can be sent to Iray Server before they are processed, without any performance impact to the master node. Submitted jobs can be managed and modified within Iray Server's Queue Manager interface.

4.2 The `iray_server` command

Start Iray Server from the command line using the `iray_server` command. For an up-to-date list of command options, enter `iray_server --help`.

Most options described in the following sections are supported by all configuration modes:

- Standalone
- Cluster:
 - UPD
 - TCP/IP with Discovery
- VCA

4.2.1 General options

<i>Option</i>	<i>Description</i>
<code>-v [--version]</code>	Displays the version and exits.
<code>-h [--help]</code>	Displays the help and exits.
<code>--rlm-activate arg</code>	Specifies the activation key to check out an RLM retail license. After the key is successfully activated, you do not need to re-enter it.
<code>--rlm-revoke</code>	Revokes the active RLM retail license.
<code>--start-queue</code>	Starts Iray Server with the queue running. If this option is not supplied, the queue will accept jobs but will not render them until you start the queue using the browser-based UI.
<code>--open-browser</code>	At startup, the web interface of Iray Server is opened in the browser.

4.2.2 Path options

<i>Option</i>	<i>Description</i>
<code>--install-path arg</code>	Installation path containing the html folder and the benchmarks folder. The default is the local working directory.
<code>--flexnet-path arg</code>	Sets the expected FlexNet license path or server address.
<code>--plugin-path arg</code>	Sets the plugin search path.
<code>--log-file arg (=iray_server.log)</code>	Write log messages to this file. If empty, file logging will be disabled.

4.2.3 HTTP options

<i>Option</i>	<i>Description</i>
<code>-p [--port] arg (=9090)</code>	HTTP port.
<code>-l [--listen] arg (=0.0.0.0)</code>	Bind HTTP server to a specific IP address. Changing the setting is only required in rare cases for machines with multiple network interfaces.

4.2.4 Cluster options

To build a cluster and coordinate the machines' workload, Iray Server can use either UDP with multicast or TCP/IP.

<i>Option</i>	<i>Description</i>
<code>--multicast-address arg</code>	Multicast address and port. In the UDP mode, a multicast address will be used to find all the hosts that should comprise a cluster. All Iray Servers using the same multicast address will connect to each other automatically. If no multicast address is specified, 239.0.0.1:11000 will be used. For a TCP/IP address, Iray Server will switch to TCP with discovery mode and use the given address to find other hosts.
<code>-c [--cluster] arg</code>	Multicast increment (integer) or TCP/IP discovery address. For a multicast increment, this value will be added to the multicast address. For TCP/IP discovery mode, use the TCP/IP address of the master.
<code>--interface arg</code>	Sets the interface to be used for outgoing packets. It will use the interface selected by the operating system according to the configured routing settings. The default should work in most cases. The string may end with : and a port number to select which port to listen to for UDP.
<code>-m [--master]</code>	Starts Iray Server as master / with web interface to manage jobs. Other Iray Server nodes that were not started as master will participate in rendering but the database is stored on the master server. You can have only one master server in a cluster.

4.2.4.1 Establishing the master node of a cluster

The `--master` flag makes that machine the master node. The master node hosts the Queue Manager interface, maintains the cache of submitted jobs, and is the default location for image results.

Each cluster must have a master to operate, and each cluster can only have one master. If a cluster is formed without a master, the resulting pool of machines will wait for a master to join that cluster. If a machine is started with `--master` and there is a master already, Iray Server cannot be used until only one master remains.

4.2.4.2 Cluster formation with TCP/IP

Iray Server will use the TCP/IP protocol to form a cluster when the IP address of the master node is provided as a startup argument along with the `--cluster` argument (without a number).

For example, assuming that your master node has an IP address of 192.168.2.1, your startup arguments for forming a cluster would be:

```
iray_server --cluster 192.168.2.1 --master    On the master node
iray_server --cluster 192.168.2.1           On all render nodes
```

Note: There is no cluster number with TCP/IP since the cluster is explicitly defined by the master's address

4.2.4.3 Cluster formation with multicast

Iray Server uses the multicast protocol to automatically locate machines with the same cluster number. Nothing more than the `-c\#` options needs to be supplied for this to work. The `-c` option, followed by an integer argument, tells the machine what cluster number to join.

For example, to create cluster 1 :

```
iray_server -c1 --master    On the master node
iray_server -c1             On all render nodes
```

While multicast is quite easy to setup, some networks may constrain multicast bandwidth, resulting in greater than normal file transfer times and poorer rendering efficiency. There also may be situations where different parts of a facility are on different multicast networks and so cannot see one another or where multicast is disabled in switches and routers. If you find one of these to be the case on your network, then you should probably switch to TCP/IP.

4.2.4.4 Iray Server on a single machine

When Iray Server is started without any cluster arguments, it defaults to running individually. As a cluster of 1 (one), it is automatically its own master node, so there's no need to supply a `--master` argument.

In this mode, Iray Server can be used for either streaming or queuing. If streaming, it will still accept jobs for later processing in its queue. This mode will also work on the same machine as an Iray Client to provide a background rendering capability. For example, you could be working with an Iray plugin, and output any number of jobs, keep working and then process them as you take a break from Iray authoring. If your machine has multiple GPUs, you may want to assign one for interactive authoring and others to process the Queue as you work.

4.2.5 Iray Bridge protocol options

Iray Server Version 1.2 supports multiple versions of the Iray Bridge protocol. This means that Iray Server can work with client applications that use different versions of Iray.

Currently, Iray versions 2016.1, 2016.2, and 2016.3 are supported by Iray Server; any maintenance releases of these Iray versions will be supported by Iray Server as well. When new versions of Iray are released, they will be supported by new versions of Iray Server.

Note: Earlier versions of Iray Server and Iray-compatible applications, must continue to use the same version of the Iray Bridge in order to work together.

4.2.5.1 Cache manager options

<i>Option</i>	<i>Description</i>
<code>--cm-address arg (=127.0.0.1:30300)</code>	The address to listen on. Do not change it unless there is a conflict in the port usage.
<code>--cm-path arg (=cache)</code>	The directory to be used by the cache manager to store its data.
<code>--cm-low-water arg (=0)</code>	When memory usage (in MB) drops below this value, garbage collection is ended.
<code>--cm-high-water arg (=0)</code>	When memory usage (in MB) exceeds this value, garbage collection is started. To disable garbage collection, set the value to 0.

Note: The ports for each Iray Worker are derived from the ports given to Iray Server by command line options. Iray Server increments these port numbers for each Worker so they do not collide with each other.

4.3 Starting Iray Server under Windows and Linux

To start Iray Server under Windows:

1. Double-click the Iray Server icon on your desktop. A terminal window is opened and Iray Server is started.

```
[Wed, 06 Jan 2016 15:02:56] Configuring database...
[Wed, 06 Jan 2016 15:02:56] Database schema generated
[Wed, 06 Jan 2016 15:02:56] Iray Server starting...
[Wed, 06 Jan 2016 15:02:56] HTTP Port: 9090
[Wed, 06 Jan 2016 15:02:56] Install Path: C:\Program Files\NVIDIA Corporation\Iray Server 2015
[Wed, 06 Jan 2016 15:02:56] Disk Cache Location: path:cache
[Wed, 06 Jan 2016 15:02:56] Log File: iray_server.log
[Wed, 06 Jan 2016 15:02:56] Plugin Search Path:
[Wed, 06 Jan 2016 15:02:56] Multicast Address:
[Wed, 06 Jan 2016 15:02:56] Multicast Increment: 0
[Wed, 06 Jan 2016 15:02:56] TCP/IP Discovery Address:
[Wed, 06 Jan 2016 15:02:56] Cluster Interface:
[Wed, 06 Jan 2016 15:02:56] Head Node Address:
[Wed, 06 Jan 2016 15:02:56] Loading neuray...
[Wed, 06 Jan 2016 15:02:56] Loaded C:\Program Files\NVIDIA Corporation\Iray Server 2015\libneuray.dll
[Wed, 06 Jan 2016 15:02:56] Using license file: C
[Wed, 06 Jan 2016 15:02:56] [Streaming] session state callback created
[Wed, 06 Jan 2016 15:02:56] Configuring network...
[Wed, 06 Jan 2016 15:02:56] Cluster manager connection enabled
[Wed, 06 Jan 2016 15:02:56] Connecting to cluster manager 'wss://8.36.120.201:443' with user 'Robert'
[Wed, 06 Jan 2016 15:02:58] Connected to cluster manager
[Wed, 06 Jan 2016 15:02:58] [Mode] Switching mode to Standalone
[Wed, 06 Jan 2016 15:02:58] Found pro GPU: [2] Quadro K6000
[Wed, 06 Jan 2016 15:02:58] Pro GPU is available (Quadro or Tesla)
[Wed, 06 Jan 2016 15:02:58] Streaming is supported: yes
[Wed, 06 Jan 2016 15:02:58] Local rendering is enabled
[Wed, 06 Jan 2016 15:02:58] Setting disk cache location to path:cache
[Wed, 06 Jan 2016 15:02:58] Loading plugins...
[Wed, 06 Jan 2016 15:02:58] Plugins loaded
[Wed, 06 Jan 2016 15:02:58] Starting neuray...
[Wed, 06 Jan 2016 15:02:58] [Cluster_callback] this host has the id 1
[Wed, 06 Jan 2016 15:02:58] Starting bridge...
[Wed, 06 Jan 2016 15:02:58] Enable streaming...
[Wed, 06 Jan 2016 15:02:58] Created bridge application for streaming at /bridge
[Wed, 06 Jan 2016 15:02:58] Streaming has been enabled
[Wed, 06 Jan 2016 15:02:58] Created bridge application at /iray_server_bridge.ws
[Wed, 06 Jan 2016 15:02:58] Bridge protocol version: 246000.2384
[Wed, 06 Jan 2016 15:02:58] -----
[Wed, 06 Jan 2016 15:02:58] Using trial license: 26 days and 8 hours left
[Wed, 06 Jan 2016 15:02:58] Starting http server...
[Wed, 06 Jan 2016 15:02:58] Available network interfaces:
[Wed, 06 Jan 2016 15:02:58] 10.21.120.154 Intel(R) Ethernet Connection (2) I218-U
[Wed, 06 Jan 2016 15:02:58] Iray Server started - listening on all network interfaces on port 9090
```

Fig. 4.1 – Iray Server running in a terminal window

If Iray Server fails to start, go to the terminal window and check the log for errors.

2. From a browser, enter the appropriate URL for your configuration. The login page for Iray Server is displayed.

Configuring command line options: You can configure command line options by editing the settings of the Iray Server desktop icon. Alternatively, you can configure command line options when you start Iray Server directly from the Windows command line.

To start Iray Server under Linux:

1. Open a terminal window.
2. From the command line, enter `iray_server` and the command options appropriate for the configuration mode that you want: Standalone, Cluster (UPD or TCP with Discovery), or VCA. The following console message is displayed:

Iray Server is starting ...

To verify your configuration mode, check for the Mode message. For example:

[Mode] Switching mode to Standalone

When the start up process is successfully completed, the following console message is displayed:

Iray Server started - listening on [port]

Verifying the configuration mode: The selected mode configuration is also displayed on the Resources page. See [Checking the server configuration](#) (page 42).

4.4 Logging in to the Iray Server user interface

1. From a web browser, enter the appropriate URL for your Iray Server configuration. The Iray Server Sign In page is displayed:

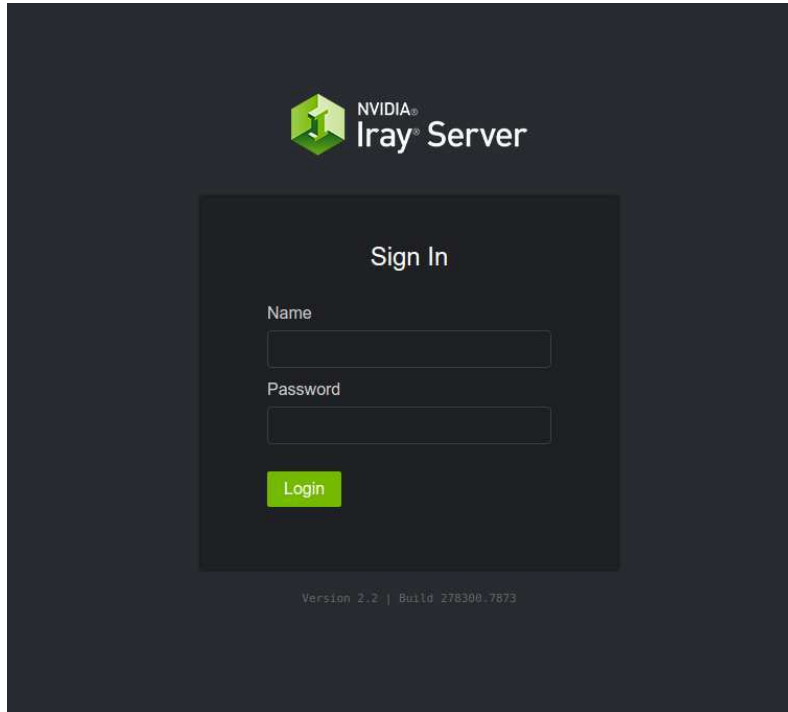


Fig. 4.2 – The Iray Server Sign In window

After installation, the user name and password are admin. When you log in for the first time, you are asked to change your password.

2. Type your name and password and click Login. The Queue page is displayed:

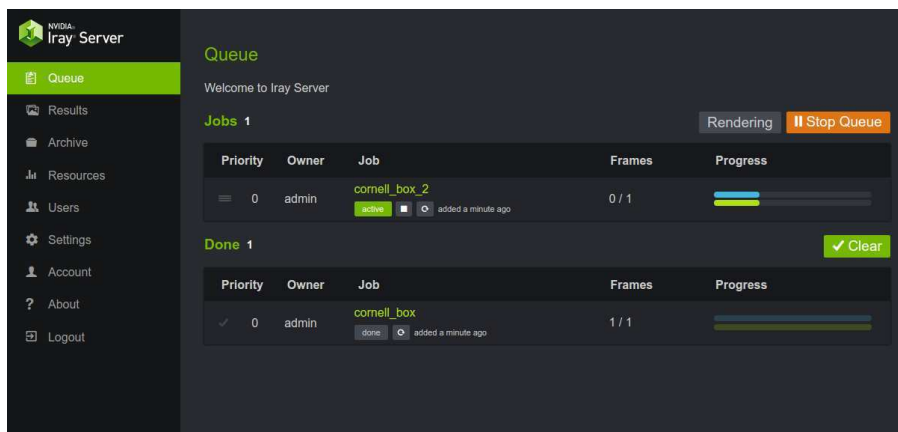


Fig. 4.3 – The Queue page

A list of jobs in the rendering queue is displayed in the Jobs list. A list of rendering jobs that were run is displayed in the Done list. This topic is covered in more detail in [Managing the queue for batch jobs](#) (page 19).

Recovering from login errors:

When you attempt to log in to a cluster, you may accidentally attempt to log in to a render node rather than a master node. Depending on the error, one of the following warning messages are displayed together with information about what to do next:

- A warning that contains the address of the master node:

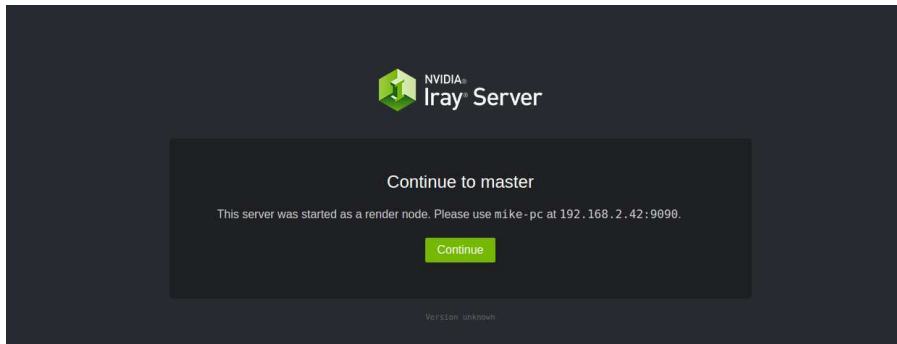


Fig. 4.4 – Continue to master

Click Continue. You are re-directed to the master node where you can continue the log-in operation.

- A warning that the cluster has no master:

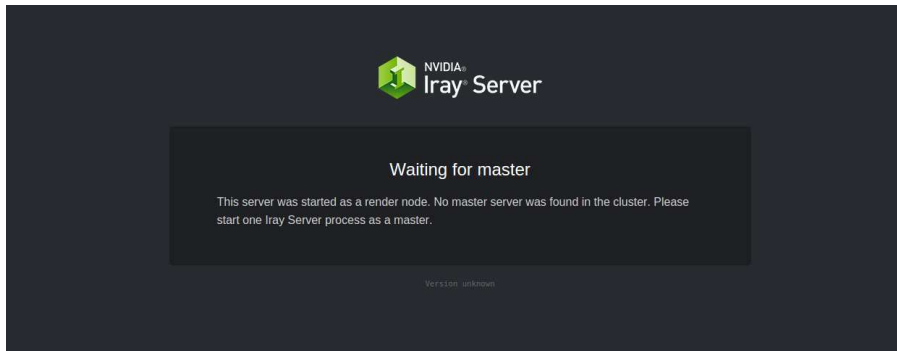


Fig. 4.5 – Waiting for master

Start a master server before continuing the log in operations.

In the rare case that you try to log in to a cluster with two masters, the following warning is displayed:

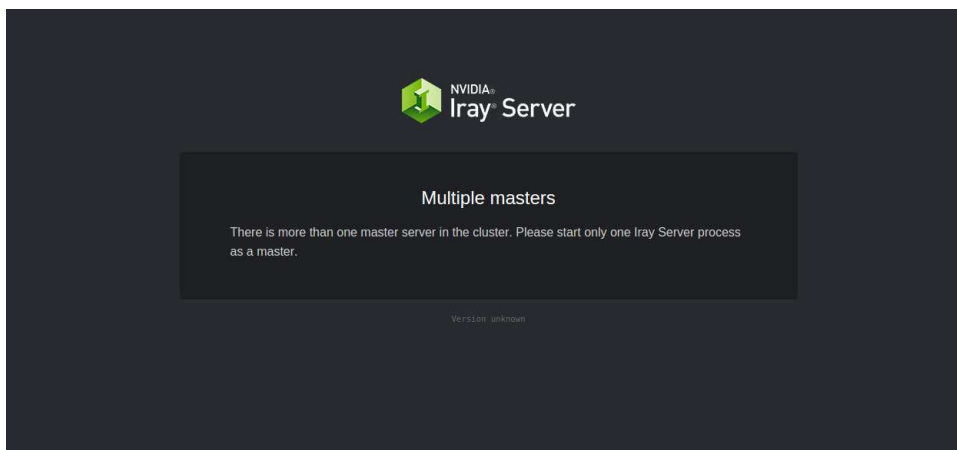


Fig. 4.6 – Multiple masters

Restart the cluster with one master only before continuing the log-in operation.

4.5 Logging out

To log out:

1. Click Logout in the navigation panel. A confirmation window is displayed:

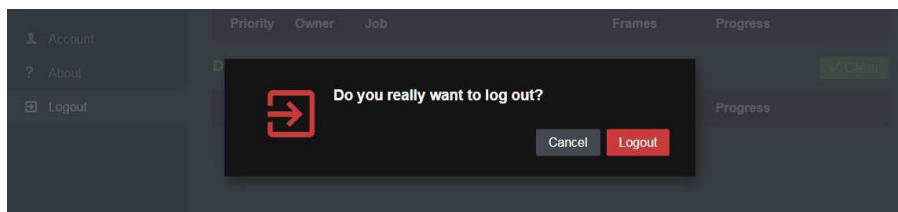


Fig. 4.7 – The log out confirmation window

2. Click Logout. If the queue is running, any waiting jobs will continue to be rendered.

4.6 Checking your user profile

To check your user profile, open the Account page.

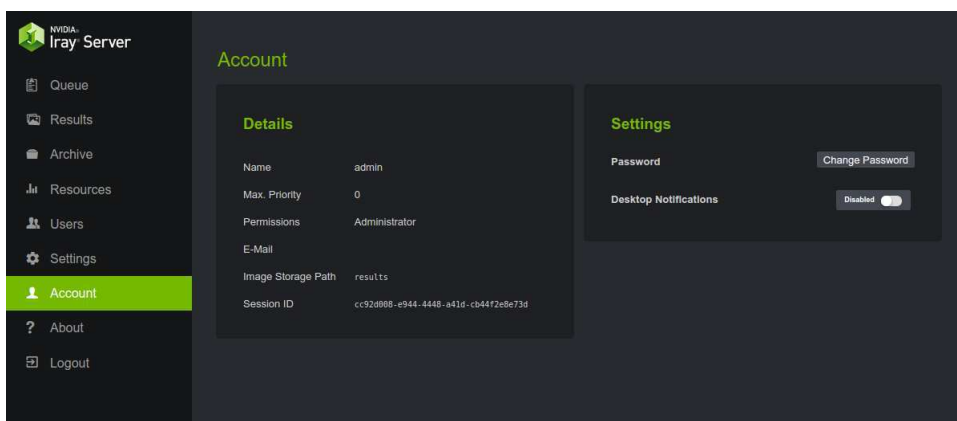


Fig. 4.8 – The Account page

You can:

- Change your [password](#) (page 18)
- Enable [desktop notifications](#) (page 18)

You cannot edit any other fields displayed in your profile.

4.7 Changing your password

To change your password:

1. Click Account from the navigation panel. The Account page is displayed.
2. Under Settings, click the Change Password button. The Change Password window is displayed.
3. Type your current password, your new password, confirm, and click Save.

4.8 Enabling desktop notifications

Note: Desktop notifications are not supported by all browsers.

To enable desktop notifications:

1. Click Account from the navigation panel. The Account page is displayed.

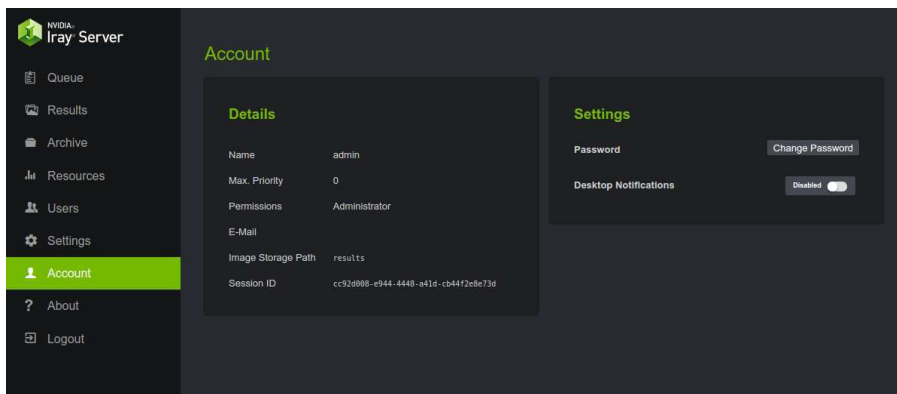


Figure 4.9

2. Under Settings, check the status of the Desktop notifications button. If disabled, click the button to enable it. If your browser does not support desktop notifications, an information message is displayed and this feature remains disabled.

Desktop notifications are sent to you when a job is completed. The first time that a notification is sent to you from Iray Server, a pop-up window is displayed. Click the Allow button if you want to receive desktop notifications.

5 Managing the queue for batch jobs

This chapter describes capabilities of the Iray Server queue mode and tasks that you can perform from the Queue page.

5.1 Introduction to the Iray Server queue

You submit jobs to Iray Server from [Iray-compatible applications](#)⁶. Submitted jobs are added to the Iray Server queue. On the Queue page, jobs are listed in the order they will be run.

If you have administrator privileges, you can view all jobs in the queue. Otherwise, you can view your jobs only. The queue can only be started and stopped by users with administrator privileges.

From the Queue page, you can perform the following tasks:

- [View the queued and finished jobs lists](#) (page 21)
- [Move jobs](#) (page 27)
- [Delete jobs](#) (page 27)
- [Stop and restart jobs](#) (page 23)
- [Edit jobs](#) (page 27)
- [Create and submit copies of jobs](#) (page 25)

⁶<https://www.irayplugins.com>

5.2 Submitting a job

Submit a job from an [Iray-compatible application](#)⁷. For more information, refer to the documentation of your client application.

When a job is successfully submitted it is displayed on the Queue render page under the heading Jobs.

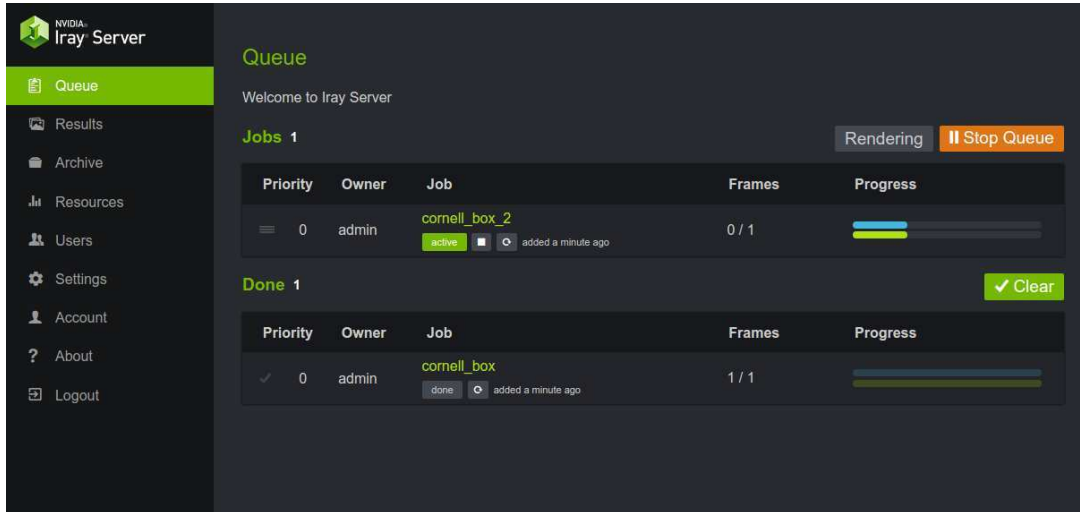


Fig. 5.1 – The jobs list displayed on the Queue page

Note:

- The duration of time that has passed since the job was submitted is displayed to the right of the combined tool and status bar.
- The number of frames to be rendered is displayed in the Frames column.
- The current status of a job is displayed to the left of the toolbar (below the name of the job).

The toolbar enables you to perform a number of operations including stopping, running, editing, copying, and removing jobs in the queue.

You can change the order of your jobs in the render queue by dragging and dropping the priority icon. See [Moving a job up or down the queue](#) (page 27).

5.2.1 Setting gamma correction values

When a job is submitted, it includes a *gamma correction value*. This is a floating point value that describes a non-linear function, which is intended to correct for the non-linear response of display devices. A value of 1.0 leaves the image unchanged. Values higher than 1.0 raise the brightness of darker pixels.

There are two possible workflows regarding gamma correction:

1. Leave the stored image data untouched and apply the gamma correction when the image is displayed.

⁷<https://www.irayplugins.com>

2. Bake the gamma correction into the image, in other words, store the pixels values with the gamma correction applied.

Which workflow is adequate depends on the supported dynamic range (bit depth) of the image file format.

For image file formats such as PNG, which support a low dynamic range only, it is best to bake the gamma correction into the image. If gamma correction is applied when the image is displayed, detail in dark regions cannot be recovered and image artefacts may result. In fact, all applications commonly used to display PNG and JPEG images, for example web browsers, expect the image data for these file formats to be stored with a gamma of 2.2.

For image file formats such as EXR, which support a high dynamic range, it is best to leave the image data untouched, in other words, work with a gamma of 1.0. This approach is better for workflows that use the image for compositing or texturing. Most applications commonly used to view EXR files assume the gamma of the stored pixel values is 1.0 and apply a gamma correction when displaying.

Iray Server always honors the gamma setting by baking the gamma correction into the stored image. Therefore:

1. Supply a gamma of 2.2 when rendering low dynamic range formats such as PNG or JPG.
2. Supply a gamma of 1.0 when rendering high dynamic range formats such as EXR.

5.3 Viewing the queued and finished jobs lists

Two jobs lists are displayed on the Queue page:

- *Jobs list*: A complete list of jobs in the render queue. This list is described later in this topic.

Note: All jobs are displayed in the queue, regardless of the Iray Worker (version of Iray) used for rendering.

- *Done list*: A complete list of rendered jobs. For a description of the list, see [Viewing render results](#) (page 29).

The following information is displayed for each job in the render queue:

- *Priority*: By default, a job's position in the queue is determined by its priority level. Zero (0) is the highest priority level. There is no minimum priority level. If jobs have the same priority level, their position in the queue is determined by waiting time. The quickest way to change a job's position in the queue is by dragging and dropping the job's Priority icon. This operation may trigger a change in the job's priority level. During edit and copy operations, you can also change the priority level of a job. See [Moving a job up or down the queue](#) (page 27).

Note: As a user, you are assigned a priority level by the Iray Server administrator. This is the highest priority level you can assign to your jobs.

- *Owner*: The user ID of the person who submitted the job.

- **Job:** The name of the job, which is assigned by the person who submitted the job. To view the job description, click the name. If you have administrator privileges, you can see the details of all jobs in the queue. Otherwise, you can see the details of your jobs only.

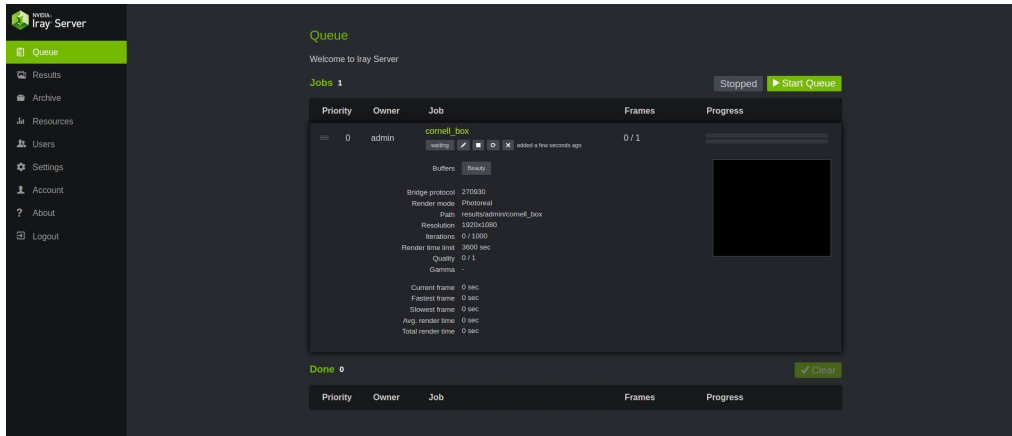


Fig. 5.2 – A job description

A toolbar provides status information and action buttons:

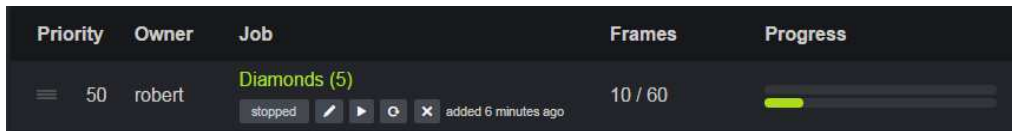


Fig. 5.3 – The toolbar

- **Stopped/waiting/running:** The current status of the job.
- **Edit:** Edit the job parameters. See [Editing a job](#) (page 27).
- **Start/Stop:** Toggle to start or stop the job. See [Restarting a job](#) (page 24) and [Stopping a job](#) (page 24).
- **Copy:** Create a copy of the job, edit it, and submit it. See [Copying a job](#) (page 25).
- **Remove:** Delete the job. See [Deleting a job](#) (page 27).
- **Time:** Elapsed time since the job was submitted.
- **Frames:** The number of frames already generated / the number of frames submitted.
- **Progress:** Two progress bars are displayed. The blue bar represents the percentage of the generated frame that is completed. The green bar represents the percentage of the generated animation, if any, that is completed. Progress calculations are based on user-specified completion criteria for iterations, render time (hh:mm:ss), and quality, and which criterion is expected to be satisfied first.

Note: You can change the values of these criteria from the Edit mode. See [Editing a job](#) (page 27).

5.4 Starting and stopping the render queue

Note:

- Only users with administrator privileges can start and stop the render queue.
- Streaming and queuing modes cannot run simultaneously. See [Switching between streaming and queuing](#) (page 23).

5.4.1 To start the render queue

From the Queue page, click Start Queue. The render queue is started and the Stop Queue button is displayed.

If a connection to VCA Manager has been established, the Reserve Cluster window is displayed:

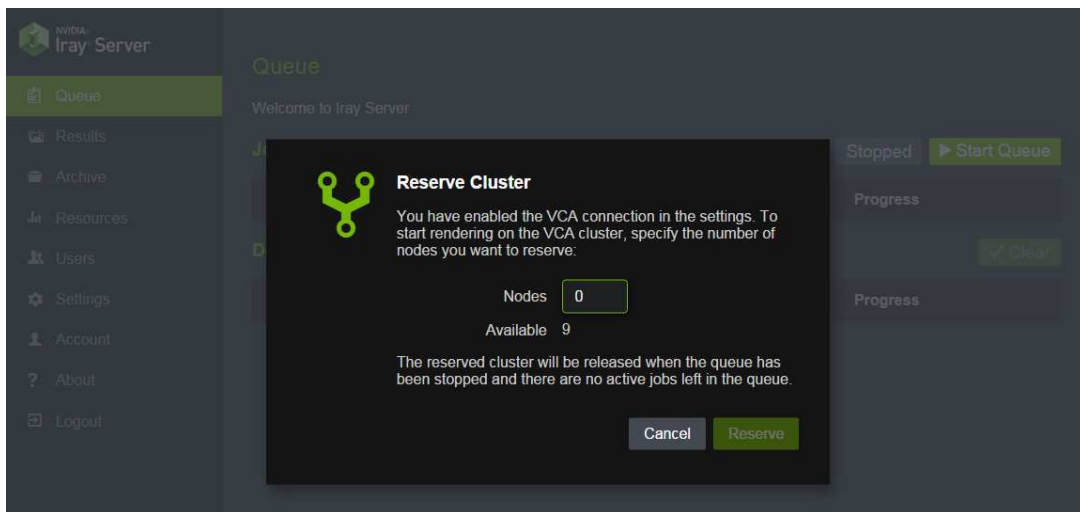


Fig. 5.4 – The Reserve Cluster window

Specify the number of VCA nodes you want to reserve for rendering and click Reserve. The queue is started automatically.

Note: Only users with administrator privileges can set up a VCA connection. For more information, see [Setting up an Iray Server connection to VCA Manager](#) (page 36).

5.4.2 To stop the render queue:

From the Queue page, click Stop Queue.

The currently running job, if any, is completed, then rendering stops. The Start Queue button is displayed.

5.5 Switching between streaming and queuing

Streaming and queuing modes cannot run simultaneously. If a user is streaming from the server when you try to start the queue, a warning message is displayed:

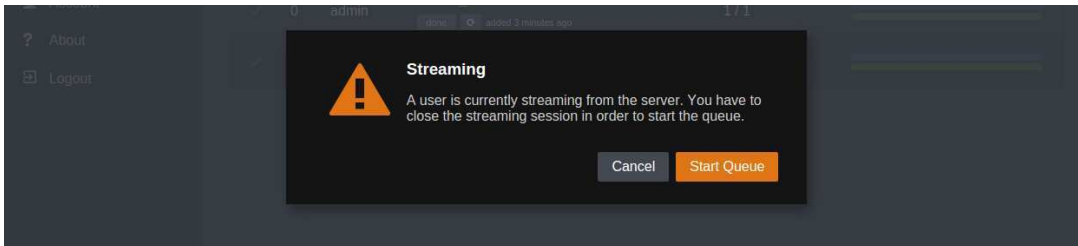


Fig. 5.5 – Streaming warning

Do one of the following:

1. Click Start Queue to stop streaming mode and start queuing mode.
2. Click Cancel to allow the user to continue streaming.

Note: Streaming mode can accept jobs for later processing in the queue.

5.6 Stopping a job

You can stop a running job or a job waiting in the queue. When a job is stopped, you can edit, copy, or remove it. See [Editing a job](#) (page 27), [Copying a job](#) (page 25), and [Removing a job](#) (page 27).

A stopped job can continue to move up the queue but it cannot run. In the meantime, other jobs in the waiting state are run.

To stop a running job:

1. From the Queue page, look under Jobs and locate the running job you want to stop.
2. Click the Stop button. A confirmation window is displayed.
3. From the confirmation window, choose one of the following:
 - Confirm the stop operation. The current state of the job is saved but the progress of the currently rendering frame is lost. The job remains in the render queue and the job status is changed to stopped. You can restart and finish the job later.
 - Cancel the stop operation. The job will continue to be rendered until completion.

When a running job is stopped, its displayed status is changed to stopped.

To stop a job waiting in the queue:

1. From the Queue page, look under Jobs and locate the waiting job you want to stop.
2. Click the Stop button.

When a waiting job is stopped, its displayed status is changed to stopped.

5.7 Restarting a job

Note:

- Users can restart their own jobs only.
- Users with administrator privileges can restart any job in the queue.

To restart a stopped job in the queue:

1. From the Queue page under Jobs: Find the job you want to restart and click the Start button. If the job queue is running (not stopped), a confirmation window is displayed.
2. From the confirmation window, confirm or cancel the restart operation. A job is restarted from its current position in the render queue.

5.8 Copying a job and adding it to the queue

You can make a copy of a queued or completed job, edit its parameters to suit your needs, and add it to the queue.

To create a copy of a job and add it to the queue:

1. From the Queue or Archive pages: Find the job you want to re-submit and click the Copy button. The Copy page is displayed with a list of editable parameters:

Copy

Name
✓ Available
TestProject

Priority
Lower values mean higher priority
5

Render mode
Iray Photoreal or Iray Interactive
Stereo Photoreal

Stereo Pairing
Export method for both eyes
Left over Right

Eye Separation Distance
In scene units
0.314

Resolution
Resolution for all buffers
800 600

Buffers
List of buffers and light path expressions

Buffer	Format	Bit Depth	Remove
Beauty	PNG	RGBA	Remove

Buffer... Format... Bit Depth... Add Buffer

Light Path Expressions
Add light path expressions

☒ Max. iterations
1 - infinity
100

☒ Max. render time
in seconds
60

☒ Max. quality
0 - infinity
1

Cancel Save

Fig. 5.6 – The Copy window

- **Name:** The name of the new job, which must be unique. If the frame of the entry box is red, the displayed name is already used and must be changed before you can submit the job. If the frame of the entry field is green, the displayed name is unique.

- *Priority*: A job's position in the queue is determined by its priority level. Zero (0) is the highest priority level. You cannot assign a priority level to a job that is higher than the priority level assigned to you by the administrator.
- *Render mode*: Supported render modes are Photoreal, Interactive, Stereo Photoreal, and Stereo Interactive.



Figure 5.7

If you select a stereo render mode, the following editable parameters are displayed:

- *Stereo pairing*:
 - *Separate*: Two images are rendered. Each image represents one eye.
 - *Left over right*: The image of the left eye is rendered above the image of the right eye. The rendered images are twice the height of a non-stereo image.
 - *Left next to right*: The image of the left eye is rendered beside (left side of) the image of the right eye. The rendered images are twice the width of a non-stereo image.
 - *Eye separation distance*: The deviation separating the two perspectives. Use a minor deviation that matches the natural perspectives that both eyes receive in binocular vision. The value is specified in scene units.
- *Resolution*: Enter the resolution. You can unlock the ratio between height and width by clicking on the little lock symbol.
- *Buffers*: A list of all buffers to be rendered. For each buffer the buffer type, the file format and the bit depth is specified. To remove buffers in the list, click Remove.

You can:

- Change the file format and the bit depth for each buffer in the list.
- Add new buffers by selecting a new buffer type from the drop-down menu to the left of the Add Buffer button. You must select an image file format and a bit depth for the output data. You can only select supported combinations of buffer type, image file format, and bit depth.
- *Light Path Expressions*: Light Path Expressions (LPEs) enable you to render any interaction of light with any object into separate images, which can then be composited. To generate output files using LPEs, you specify a name, light path expression (LPE), format, and bit depth, and click Add. For more information about creating and using LPEs, refer to the documentation for your Iray-compatible application and the iray dev blog entry, [Compositing with Light Path Expressions](http://blog.irayrender.com/post/79494710/compositing-with-light-path-expressions)⁸.
- Calculations for determining the end of the render operation include any combination of the following criteria:

⁸<http://blog.irayrender.com/post/79494710/compositing-with-light-path-expressions>

- Maximum iterations
- Maximum render time (hh:mm:ss)
- Maximum quality

2. Modify the job parameters to suit your needs and click Add to Queue.

5.9 Editing a job

If a job is stopped or waiting, you can edit its parameters in the queue. While the Edit window is open, the job status is stopped. A job can continue to move up the queue while the Edit window is open, but it cannot run; other jobs in the waiting state, including those with a lower priority, are run in the meantime. After you close the Edit window, the previous status of the job is restored (waiting or stopped)

To edit a job in the queue:

1. From the Queue page: Find the job in the queue that you want to edit and click the Edit icon. The Edit window is displayed with a list of editable parameters: For a description for the fields, see [Copying a job and adding it to the queue](#) (page 25).
2. Modify the job parameters to suit your needs and click Save.

5.10 Moving a job up or down the queue

The easiest way to move a job up and down the queue is by dragging its Priority icon.

Priority level has two aspects:

- The priority level assigned to you by your administrator
- The priority level you assign to a job

The highest priority level you can assign to a job is the priority level assigned to you by your administrator. There are no restrictions concerning the lower boundary of priority levels that you can assign to jobs.

If you drag and drop a job with a low priority in front of a job with a higher priority, the priority level of the moved job is automatically updated. You can also change the priority level from the Edit and Copy windows.

To move a job up or down the queue:

1. From the Queue page, locate the job in the queue.
2. Drag and drop the Priority icon.

5.11 Deleting (removing) a job in the queue

To delete (remove) a job in the queue:

1. From the Queue page, locate the job in the queue.
2. If the job is active, it must first be stopped. See [Stopping a job](#) (page 24).
3. Click the Remove icon. A confirmation window is displayed.
4. From the confirmation window, choose one of the following:

- Delete to remove the job from the render queue. If there are any rendered files, they are saved and accessible from the Results page where you can view them and download them.
- Cancel to continue the rendering operation.

6 Managing render results

This chapter describes tasks associated with viewing, downloading, and archiving the results of your jobs from Iray Server:

- [Viewing render results as imagery](#) (page 29)
- [Viewing render results as a file list](#) (page 30)
- [Downloading render results](#) (page 31)
- [Deleting render results](#) (page 32)
- [Viewing the archive list](#) (page 33)
- [Adding archived jobs to the queue](#) (page 33)
- [Deleting archived jobs](#) (page 33)

6.1 Viewing render results as imagery

For each job listed in the Done list on the Queue page and in the Archive list that belongs to the current user, the generated imagery is displayed on the Results page.



Fig. 6.1 – The Results page

Job results are listed from most recent to least recent. Each row lists the results for each uniquely named job. The list includes the results of uncompleted jobs as long as one frame was rendered before the job was stopped.

For each render result, the following information and action buttons are displayed:

- *Name of the job (top left):* The name of the job.
- *Tool bar (top right):*

- *Delete*: Delete the complete job results.
- *Files*: Display a complete list of generated output files. File names reflect the type of generated output. By default, the number of files is listed on the Files button.
- *Download*: Download the complete job results.
- Thumbnail images for each generated output file. Left-right scrolling arrows are provided. Clicking a thumbnail displays a full-sized image, the file name, the type of generated output, and a Download button.

Note: A bar at the top of the page enables you to download render files even while a job is running.

6.2 Viewing render results as a file list

To display a list of generated files and view selected results:

1. From the Results page, find the job whose result files you want listed. To the right of the job name is the Files button.
2. Click the Files button. The generated output files are displayed as a list of active buttons.

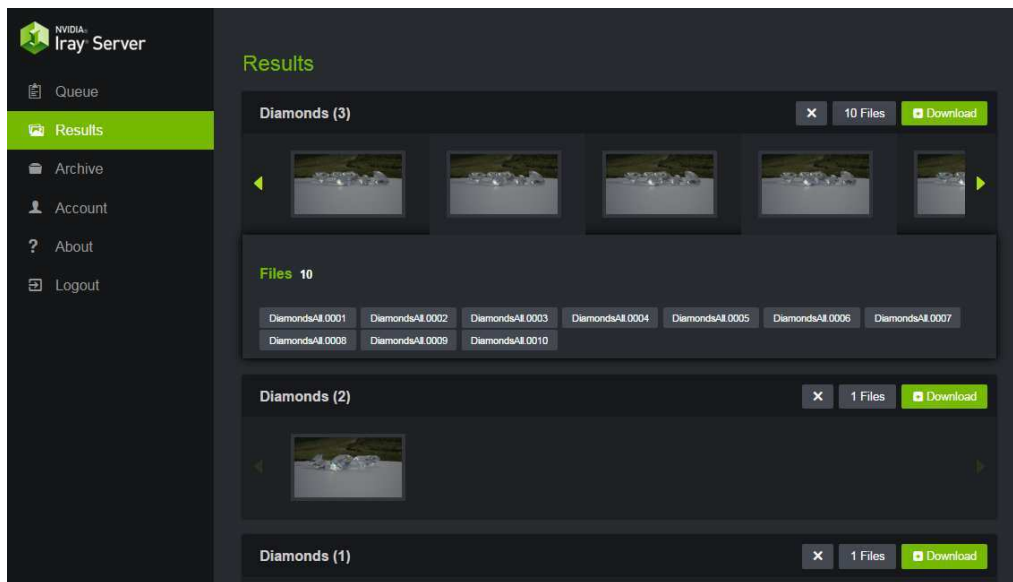


Fig. 6.2 – List of image files generated for a job

3. To open a particular file, click its file name. A full-sized image and the file name of the generated output are displayed.

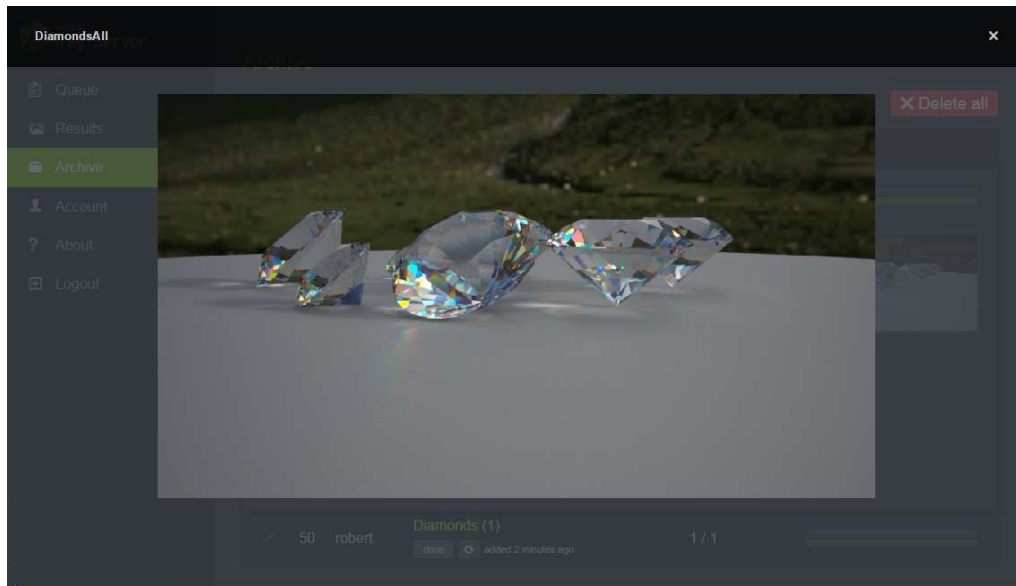


Fig. 6.3 – Full-size image with file name and download button

To download the image file, click the Download button.

6.3 Downloading render results as a zipped folder

Note: Downloading a single image file is described in [Viewing render results as a file list](#) (page 30).

From the Results page, you can download the complete job results as a zipped folder.

To download a zipped folder:

1. From the Results page, find the job whose results you want to download. To the right of the job name is the Download button.
2. Click the download button. A download window is displayed with the name of the zipped folder. The name of the zipped folder is the same as the job name.
3. Specify a download location and click OK.

6.4 Deleting render results for a specific job

From the Results page, you can delete the results of a job.

Note: All output for a job is deleted. You cannot delete a selection of files for a particular job.

To delete all output files for a completed job:

1. From the Results page, find the job whose results you want to delete. To the right of the job name is the X (Delete) button.
2. Click the X (Delete) button. A confirmation window is displayed.
3. From the confirmation window, click Delete. The generated output is deleted.

6.5 Archiving all jobs in the Done list

The Done list is a list of all ended jobs where at least one frame was generated. You can clear the job list in one operation by using the Clear button.

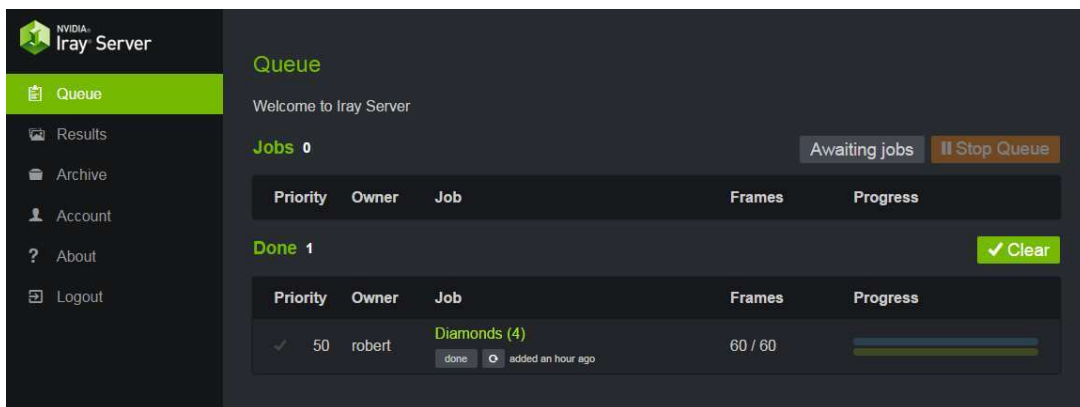


Fig. 6.4 – Clear the Done list by clicking the Clear button

Copies of the cleared jobs are stored in the archive. The render results are not deleted.

Note: You can clear and archive your own jobs only, unless you have administrator privileges.

To archive all jobs in the Done list:

1. From the Queue page beside the header Done: Click Clear. A confirmation window is displayed.
2. From the Confirmation window, click Clear jobs.
3. To view archived jobs, go to the navigation bar on the left and click Archive. The [Archive page](#) (page 33) is displayed.

6.6 Viewing the archive list

From the left navigation bar click Archive. The Archive list is displayed:

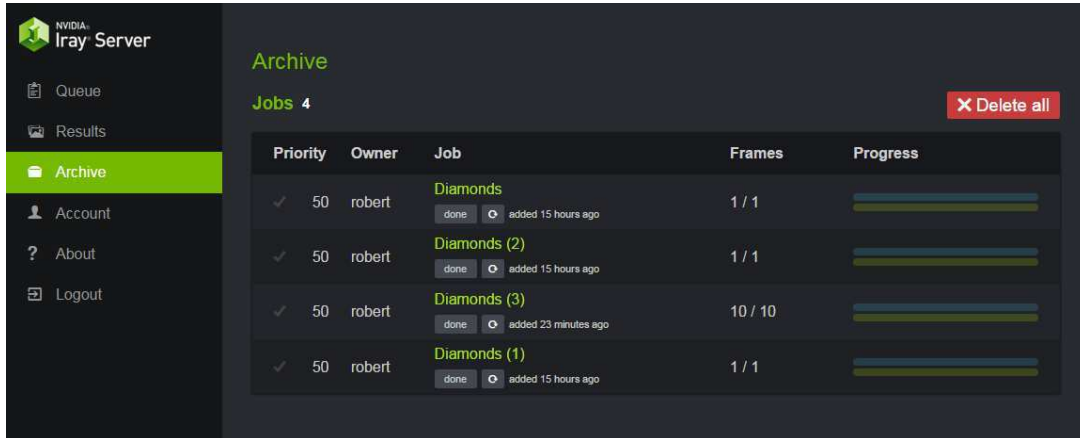


Fig. 6.5 – The Archive page

Jobs are listed from most recently completed to least recently completed. The list has the same layout as the Done list on the Queue page.

Note: In the archive list, you can only see your own jobs, unless you have administrator privileges.

6.7 Adding archived jobs to the render queue

To add an archived job to the render queue:

1. Click the copy button. The Copy window is displayed.
2. Type a valid name and edit other parameters to suit your needs.
3. Click Add to Queue. The job is added to the Jobs list on the Queue page.

6.8 Deleting archived jobs

Note:

- This delete operation deletes all archived jobs. You cannot delete a selection of archived jobs.
- After you delete archived jobs, you cannot retrieve them.

To delete archived jobs:

1. From the Archive page, click Delete. A confirmation window is displayed.
2. From the confirmation window, click Delete jobs.

7 Iray Server administration tasks

Note: You must have administrator privileges to perform the tasks described in this chapter.

This chapter describes tasks associated with managing selected Iray Server configuration settings, managing resources or rendering, and managing users.

7.1 Managing Iray Server configuration settings

From the Settings page, you can specify settings for your Iray Server configuration. The Settings page is divided into the following parts:

- [General settings](#) (page 35) to specify the server name and change the message of the day

Note: Specifying a unique server name is recommended when you have multiple standalone installations of Iray Server to manage independent processes such as staging and production. The name of the server you are linked to is displayed in the bottom left of the window. This is particularly handy when you want to view the various installations from multiple tabs in one or more browser instances.

- [VCA settings](#) (page 36) to enable rendering on a VCA
- [Result settings](#) (page 37) to manage rendered output
- [Events](#) (page 38) to add custom commands

7.1.1 Changing general settings

Following is the General settings section (left of the VCA settings):

Fig. 7.1 – General settings (left of the VCA settings)

The following editable fields are displayed:

- *Server Name*: The server name. The default name is Iray Server.
- *Message of the Day*: A message for all users, which is displayed on the Queue page.

7.1.1.1 Changing server names

If your Iray Server configuration consists of multiple clusters, it is recommended that you give the master server of each cluster a unique name to avoid any confusion.

In the Server Name entry field, type the unique name that you want to assign to the master server and click Save. A Saved message is displayed in the top-right corner of the page.

7.1.1.2 Changing the message of the day

This message is displayed near the top of the Queue page. It is useful, for example, to notify users of upcoming events or server availability.

To change the message of the day:

1. In the Message of the Day entry field, edit the existing message or type a new message.
2. Click Save. A confirmation message is displayed in the top-right corner of the page. The Queue page is immediately refreshed for all users.

7.1.2 Changing VCA settings

Following is the VCA settings section (right of the General settings):

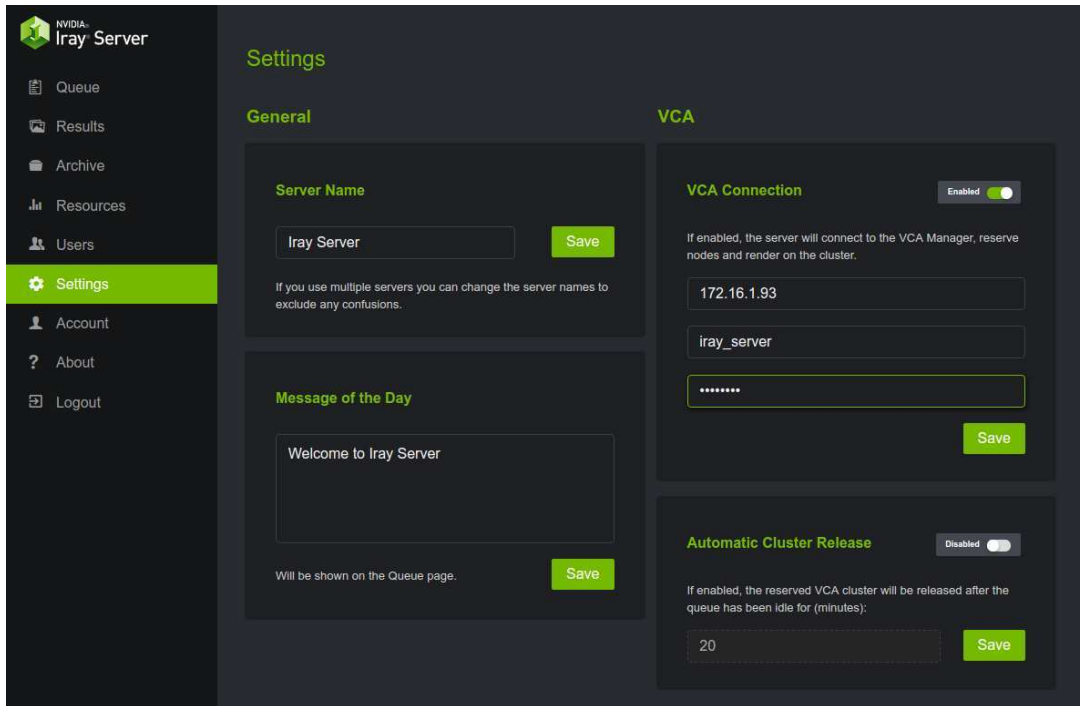


Fig. 7.2 – VCA settings (right of the General settings)

The following sections describe how to enable your VCA connection and how to enable the automatic release of your reserved VCA cluster.

7.1.2.1 Setting up an Iray Server connection to VCA Manager

When enabled, Iray Server connects to and renders on the VCA. You download render results from the Results page. (This is true for all configurations.)

If you want to offload rendering to the VCA, you need to establish an Iray Server connection with VCA Manager. You need to provide a URL that Iray Server can use to connect to VCA Manager, and a user name and password. When the VCA Manager queue is started, the VCA Manager allocates a given number of VCAs for rendering. When the VCA Manager queue is stopped, the VCAs are released.

To edit the VCA settings and establish a connection to VCA Manager:

1. Click the Disabled switch. The Enabled switch is displayed and the Edit mode is activated for the VCA entry fields.
2. In the VCA Address field, type the URL to connect to VCA Manager.
3. In the Username and Password fields, type a known VCA user ID and password.
4. Click Save. Iray Server tries to connect to VCA Manager. A message is displayed to inform you whether or not a connection is established.

Note: If Iray Server fails to connect to VCA Manager, check the validity of the VCA address, and the VCA user ID and password.

The connection to the VCA remains enabled until you disable it or you enable automatic cluster release. When disabled, the VCA nodes are released and rendering is performed on the local machine.

7.1.2.2 Enabling automatic cluster release

You can release a reserved cluster automatically by enabling the Automatic Cluster Release button and specifying an idle time as the release trigger.

To enable automatic release of a VCA or VCA cluster:

1. Click the Enabled/Disabled slider if it is currently disabled.
2. Specify the length of idle time that will trigger the release of the VCA or VCA cluster

After a VCA or VCA cluster is released the VCA connection is set to disabled.

7.1.3 Changing result settings

Following is the Results settings section:

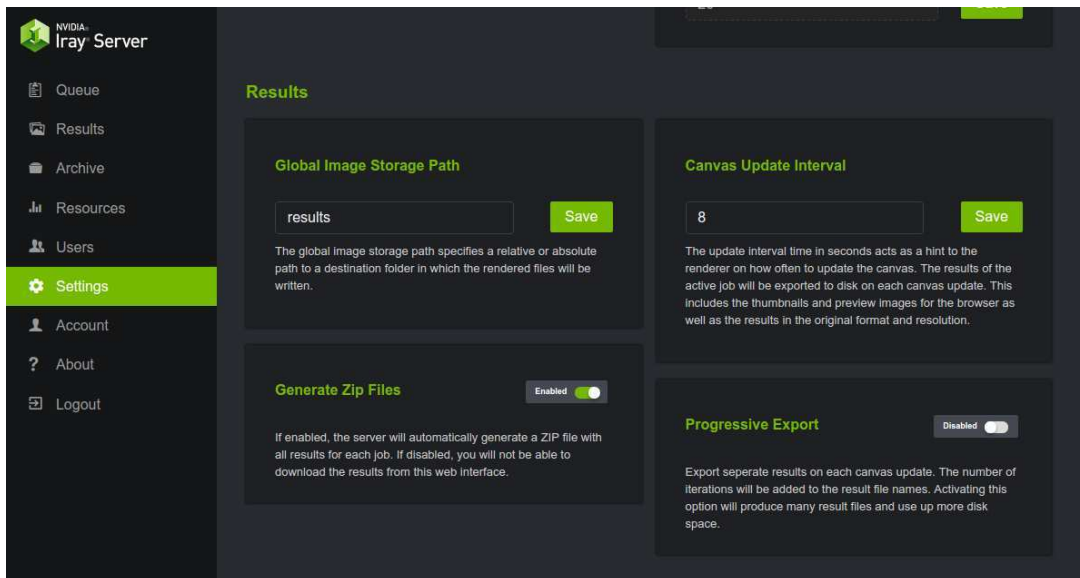


Fig. 7.3 – Resource settings

The following sections describe actions that you can take to manage interim and final render results:

- Specify the directory where render results are stored
- Zip up and download render results
- Specify the update interval for interim render results when you perform a progressive rendering operation
- Export interim render results based on the update interval

7.1.3.1 Specifying a directory for storing render results

When setting up the global storage path or individual paths for users you need to take into account that a storage path may be different on different machines. For example, should Iray

Server run on a Linux machine while your machine is running on Windows, the storage path will look very different even if both machines access the same file server.

In some cases, even between different Windows machines, the setup may differ. For example, a shared storage may be accessed as different disk drives (for example, d:\ and e:\). This is highly dependent on your local setup. The path that you need to give to Iray Server is always the path that is valid on the machine that Iray Server is running on. For that reason, it is recommended that you log in to that machine when determining the storage path.

To change the destination folder for render results: In the Global Image Storage Path entry field, edit the displayed directory name and click Save. A confirmation message is displayed in the top-right corner of the page.

The default directory path is the current working directory of Iray Server. The default directory name is results.

Note: Custom storage paths defined for users remain unaffected by path or name changes to the destination folder.

7.1.3.2 Zipping up and downloading render results

When this setting is enabled, .zip files are generated from the render results for each job. Users download zipped render results from the Results page.

Note: Zip files are a requirement for downloading render results from the user interface.

Creating .zip files takes time and space. Disabling this option makes sense when you are rendering locally and you do not want the associated overhead.

To generate .zip files for downloading render results: Beside Generate Zip Files, set the slider to Enabled. The results of each job are packaged in a .zip file for download from the Iray Server user interface.

7.1.3.3 Setting an update interval for interim render results

You can suggest to the renderer how often you want the interim render result to be updated. The update interval is specified in seconds. When the image is updated, the interim result is exported to disk. Each exported result includes the results in the original format and resolution and thumbnails and preview images.

To specify an update interval: In the Canvas Update Interval entry field, edit the displayed value and click Save. A confirmation message is displayed in the top-right corner of the page.

7.1.3.4 Exporting interim render results to separate result buffers

You can save the results of each interim render result in separate result buffers. However, it is important to remember that enabling this setting produces many result files and uses up more disk space.

To enable separate result buffers for interim results: Beside Progressive Export, set the slider to Enabled.

7.1.4 Adding custom commands

Note: Setting events is for advanced users.

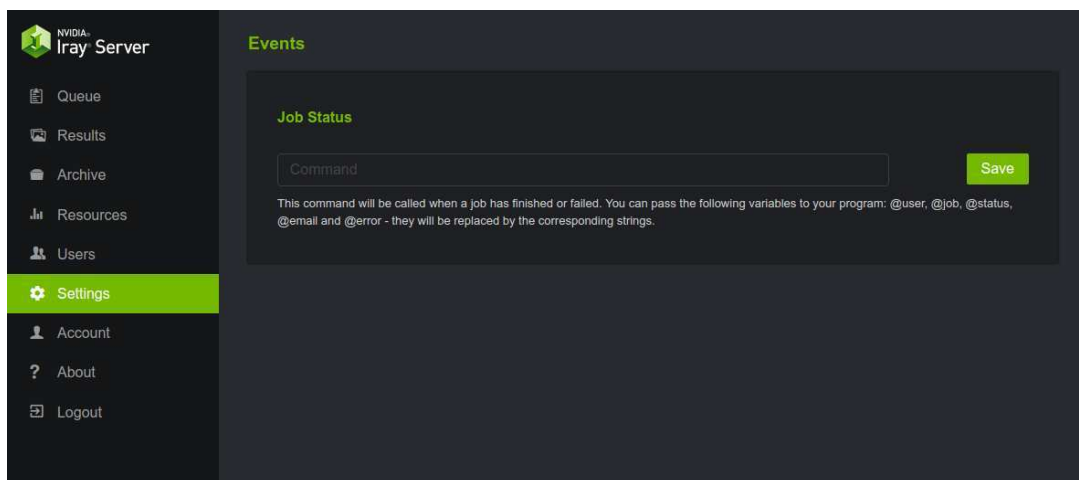


Fig. 7.4 – Event settings

When a job is finished, custom scripts can be called. Under Windows, use a batch script. Under Linux, use a shell script.

Scripts may be used for example to forward a job to a post-processing tool chain or to send notifications to users when jobs are completed. Event settings are shared by all users.

The following variables can be passed to the scripts:

<i>Variable</i>	<i>Value</i>
@user	The user who submitted the job
@job	The name of the job
@status	The status of the job, which can be either done or failed
@email	The email address of the user who submitted the job
@error	A description of the error if there was any.

7.2 Managing resources for rendering

From the Resources page, you can check the status of your rendering resources.

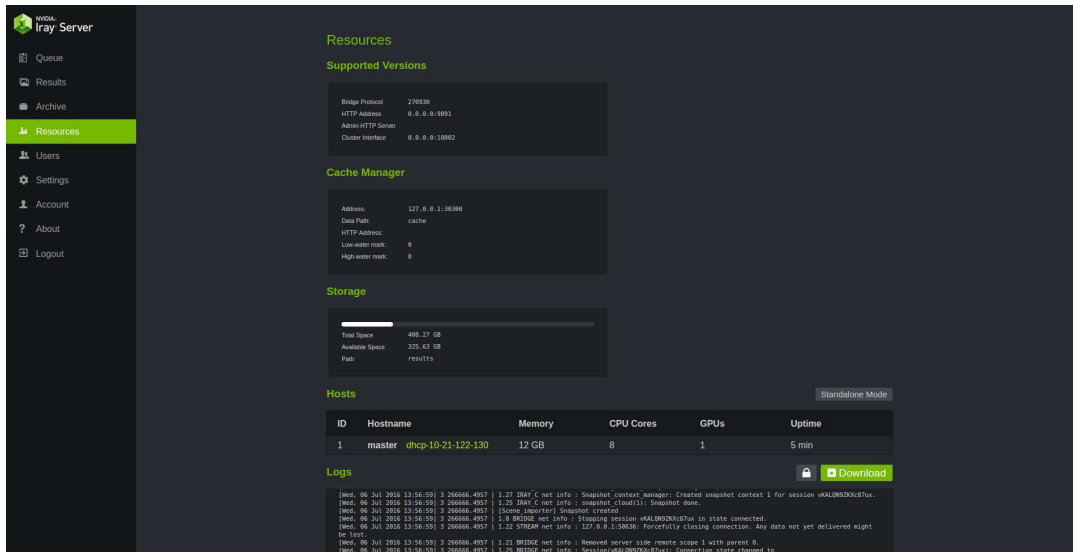


Fig. 7.5 – The Resources page

The Resources page is divided into the following parts:

- **Supported Versions:** Supported versions of Iray Bridge. See [Checking the supported versions of Iray Bridge](#) (page 40).
- **Cache Manager:** Configuration options for the Cache Manager. See [Checking the Cache Manager settings](#) (page 41).
- **Storage:** Available storage for render results. See [Checking the available storage for render results](#) (page 41).
- **Hosts:** List of servers in your Iray Server cluster and their resource status. See [Checking the server configuration](#) (page 42).
- **Logs:** Downloadable log of the master node in your Iray Server cluster. See [Checking and downloading the log of the master node](#) (page 42).
- **Benchmarks:** Pre-uploaded rendering jobs are provided with the installation. You can use these rendering jobs to test that your Iray Server configuration is working and its performance. See [Benchmarks](#) (page 43).

7.2.1 Checking the supported versions of Iray Bridge

From the Resources page, you can view the Supported Versions report. It specifies the supported versions of Iray Bridge. A report is provided for each version of Iray Bridge that is supported.

- Bridge protocol
- HTTP address
- Admin HTTP server
- Cluster interface

Multiversion support for Iray:

Iray Server launches an Iray Worker for each version of Iray that is supported. When a request is submitted to Iray Server, the job is automatically sent to the correct Iray Worker for processing. The Bridge protocol is used to associate it to the relevant version of Iray being run by an Iray Worker. For example:

- Bridge protocol 261500.7208 supports Iray 2016.1
- Bridge protocol 272800.3371 supports Iray 2016.2
- Bridge protocol 278300.3661 supports Iray 2016.3

These Bridge protocols, which are referenced in the log file, may help you track down multi-version issues (if any).

7.2.2 Checking the cache manager settings

From the Resources page, you can view the cache manager settings. The Cache Manager report contains the following information:

- *Address*: The address to listen on. It should only be changed when there is a conflict in the port usage.
- *Data path*: The directory used by the cache manager to store its data.
- *Low water mark*: Garbage collection is ended when memory usage (in MB) falls below this value.
- *High water mark*: Garbage collection is started when memory usage (in MB) exceeds this value. When this value is set to zero (0), garbage collection is disabled.

7.2.3 Checking the available storage for render results

From the Resources page, you can view the Storage report. It specifies the available disk space for render results. A report is provided for each storage location.

The Storage report contains the following information:

- *Total space*: The amount of space on the hard disk
- *Available space*: The amount of space that is still free
- *Path*: The directory path where render results are stored for all users, unless a custom path is specified

7.2.4 Checking the server configuration

From the Resources page, you can view the Hosts report. It provides a list of the servers in your Iray Server configuration and a short description of each:

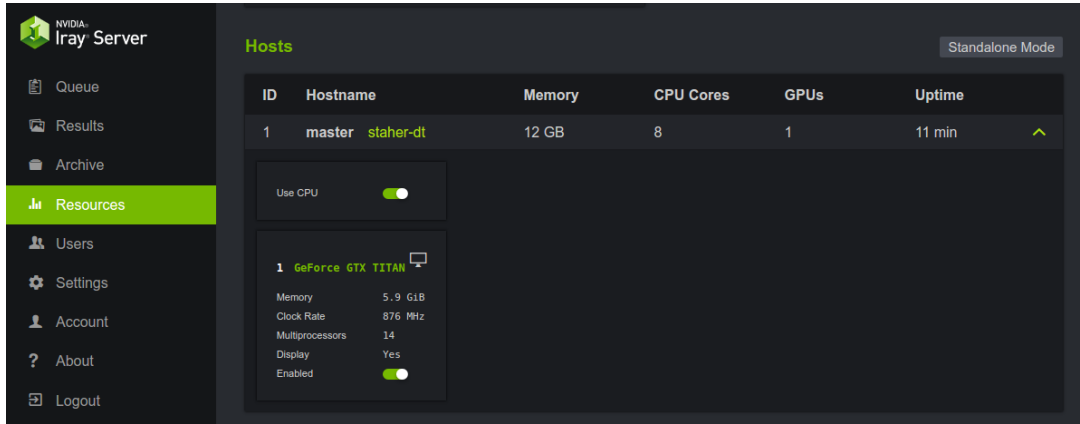


Fig. 7.6 – The Hosts report, which also displays the configuration mode (top-right)

The Hosts report specifies the type of configuration (top-right) and provides the following information about each server:

- ID
- Host name
- Memory
- CPU cores
- GPUs
- Uptime

When you click on the host name, switches are displayed to allow you to enable and disable CPU and GPU usage.

7.2.5 Checking and downloading the log of the master node

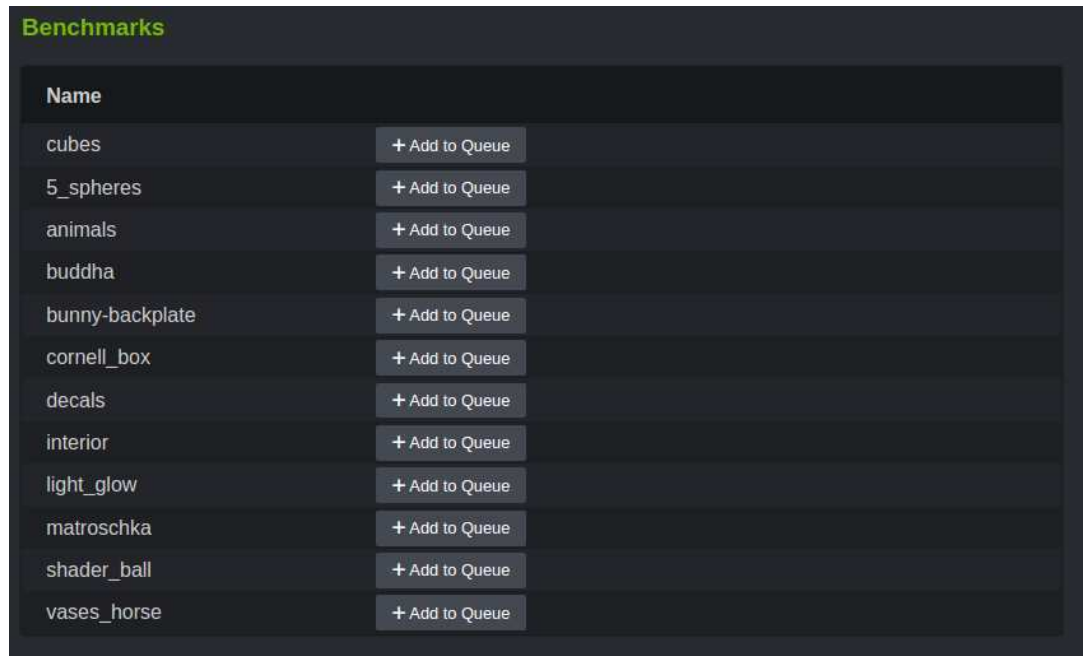
From the Resources page, you can check and download the log of the master node. The log is displayed in a scrollable viewport. The most recent log messages are displayed at the bottom of the window.

The log is locked by default. When the log is locked, scrolling is automatic. For manual scrolling, you need to unlock the scroll bar by clicking the lock icon.

To download the log, click the Download button.

7.2.6 Benchmarks

If there is a benchmarks folder with scenes in the installation directory, a table with all the scene names is displayed on the Resources page.



Benchmarks	
Name	
cubes	+ Add to Queue
5_spheres	+ Add to Queue
animals	+ Add to Queue
buddha	+ Add to Queue
bunny-backplate	+ Add to Queue
cornell_box	+ Add to Queue
decals	+ Add to Queue
interior	+ Add to Queue
light_glow	+ Add to Queue
matroschka	+ Add to Queue
shader_ball	+ Add to Queue
vases_horse	+ Add to Queue

Fig. 7.7 – Benchmark scenes

To run a scene, click the Add to Queue button. The scene is added as a new job to the queue.

The new job uses the following predefined rendering options:

- Format: PNG
- Resolution: 1920x1080
- Maximum iterations: 1000

Note: You can specify the version of Iray to be used for processing a benchmark scene.

7.3 Managing users

From the Users page, you can manage access to Iray Server. The Users page provides a complete list of users. Commands are provided to add and delete users and edit user settings.

You can think of a user account in two ways:

- As a single user account where each user has a unique account name and password.
- As a project account where multiple users share a password.

7.3.1 Viewing and editing a list of users and user settings

From the Users page, a complete and editable list of users and user settings is displayed.

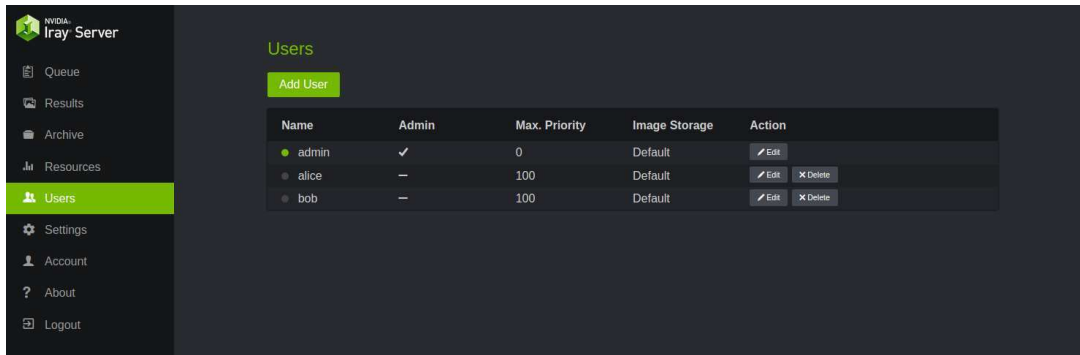


Fig. 7.8 – The Users page

The following information is displayed for each user:

- **Name:** User ID.
- **Admin:** Specifies whether or not the user has administrator privileges.
- **Max. Priority:** Specifies the highest priority level that a user can assign to a job in the queue. The highest priority level is 0 (zero). The lowest priority level is 100.
- **Image Storage:** Specifies the directory where render results are stored for this user.
- **Action:** Specifies the available editing actions for each user.

7.3.2 Adding a user

To add a user:

1. Click the Add user button near the top of the page. The New User window is displayed:

Fig. 7.9 – The New User window

2. Fill in the appropriate fields.

3. Click Save. A confirmation message is displayed in the top-right corner of the page. If the Save operation is successful, the new user is added to the Users list.

7.3.3 Deleting a user

To delete a user:

1. In the Users list locate the user.
2. In the Action column, click Delete. A confirmation window is displayed.
3. Click Remove to delete the user.

7.3.4 Editing a user profile

To edit a user profile:

1. In the Users list locate the user.
2. In the Action column, click Edit. The Edit User window is displayed:

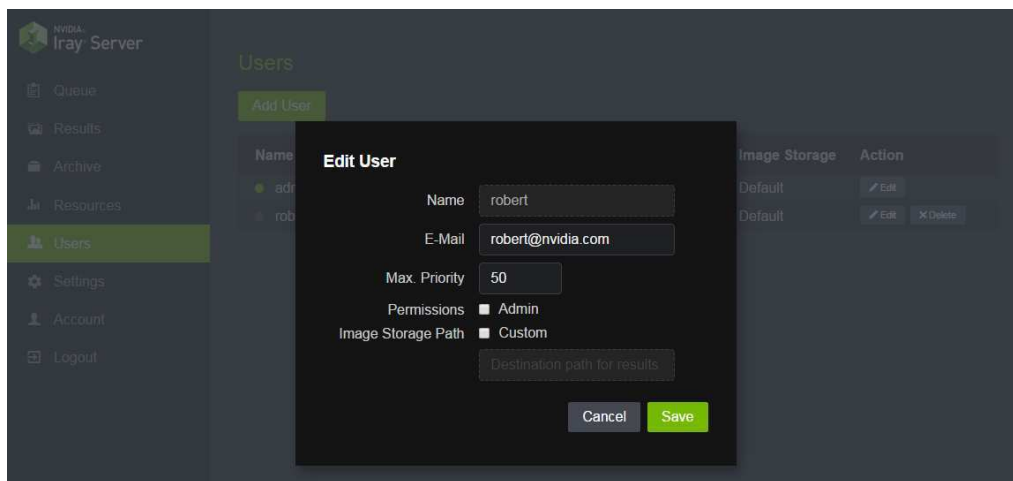


Figure 7.10

3. After you finish your edits, click Save.

7.4 Troubleshooting

The following sections address typical error situations that may occur when running Iray Server.

7.4.1 Clustering

Q: I am using UDP with multicast and it is not working correctly.

A: Iray Server supports two cluster modes: UDP with multicast and TCP/IP discovery mode. UDP with multicast is generally quite easy to set up. You simply enable it; you do not need to concern yourself with addresses.

Some networks, however, either do not support UDP with multicast or support very low bandwidth only. In such cases, TCP/IP discovery mode is recommended. For more information about cluster modes, refer to [Cluster options](#) (page 10).

7.4.2 Out-of-memory

Q: A job appears to hang which prevents Iray Server from uploading the job correctly.

A: The computer on which Iray Server is running may be low on memory. Check the log for typical error messages such as `error: Socket write operation failed.` and `Failed to read data for element ....` Under Windows, select the Performance tab in the Task Manager window. Verify memory usage.

If memory usage is extremely high, either shutdown unnecessary applications and services or run Iray Server on another machine.