

How to use NetRender



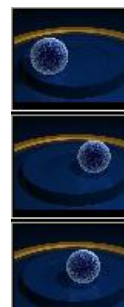
Net Render: The Cinema4D distributed rendering on PC/MAC

An animation's rendering requires many CPU cycles, even if it makes use of dual processor. Net Render is a module dedicated to distributed rendering that we find in Cinema 4D; this is a rendering method too often "forgotten" also by who has the luck to have a little domestic PC / MAC network.

The Network Rendering is a procedure that distributes and organizes the animation's frames on many computers at the same time. In this tutorial we deal with configuration's details more specifically and, above all, we analyze the extreme power and flexibility of this real methodology of work.

It's necessary to make an introduction and some considerations analysing the structure of a network (LAN = Local Area Network). In our case we want to render a simple animation made with Cinema 4D 8.1, making use of a network (with IP addresses indicated sideways) compound by:

- Workstation Dual Athlon (Windows XP) with IP address 192.168.1.1
- Workstation Dual Pentium (Windows XP) with IP address 192.168.1.2
- iMac G4 (Mac OS X v10.1.4) with IP address 192.168.1.4



It has intentionally inserted a Mac system to confirm one advantage, which Net Render has regards its rivals, that is the ability to **use different operative systems at the same time**, because Cinema 4D works on Apple and Windows. Even our little G4 can help you!

NETRENDER - La nostra configurazione / Our Configuration

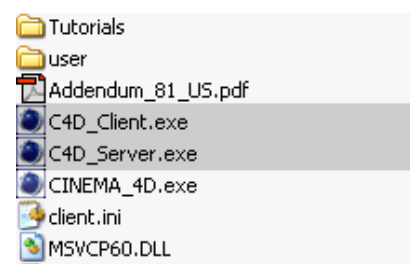


Client and Server: these unknown...

Technically Net Render is subdivided into two modules: Client and Server.

The difference is that the clients must be launched on every computer which participates in our Network Rendering, while the server must be only launched on computer which will manage our job.

In the Cinema 4D main directory you find these two files. In this tutorial we will launch the server on our dual Athlon and, successively, every client on all the computers (included double Athlon).



Cinema4D directory

Client and Server configuration...

It exists two files, client and server; both are configurable in menu File > Network Setting or in the single files client.ini and server.ini that you find in the same directory (these are files of configuration which are created when you use the window Network Setting). Each setting overwrites the other.

If we were in a office network, you would have to render your job using the pc/mac of your colleagues, but you want to create a password for safety reasons, so that only the clients configured with this password can be engaged in the job.

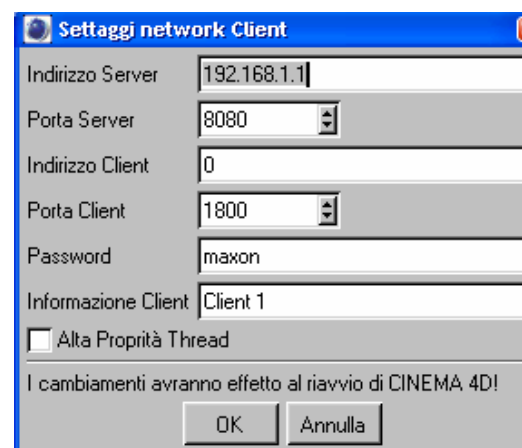
First we launched the **server** on the quicker workstation and then we configure each field in File > Network Setting.

- **IP Address** = 192.168.1.1 (server)
- **Port** = Leave the default one that will be of use to enter the real NetRender.
- **Password** = it is the password that we decide to set only on computers which will enter our distributed rendering.
- **Other Options** = Not explained on this tutorial but very easy to understand.



We launch a **client** on every computer and we compile the required fields in File > Network Setting.

- **Server Address**= it is the computer address that will act as server, in our case 192.168.1.1
- **Server Port**= Leave the default one (the server one).
- **Client Address** and **Port**= Leave the default one.
- **Password** = the same password of the server..
- **Client Description** = for instance iMac G4 according to the computer. Insert a brief description in order that it would be easier to identify single computer in the job's management. Imagine being in an office and you will understand the importance of associating a name to a computer.

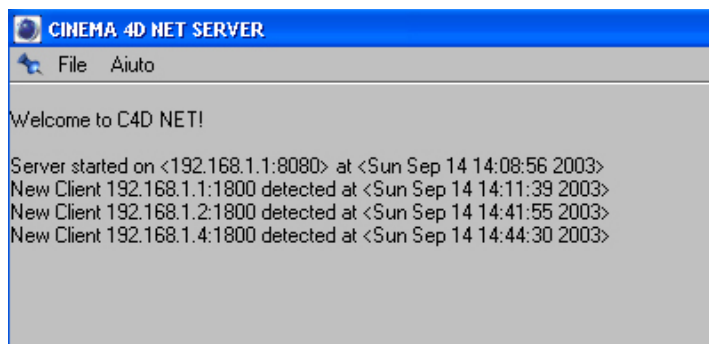


I wanted to talk to you about that at the beginning of tutorial, but I seemed more correct to insert now a little explanation about Network Rendering. When our job starts, the server distributes a portion of frames to every computer, but it happens that a computer would be slower than another and the server assign again more frames to a quick computer and less frames to a slow computer. The result is similar to other systems of distributed rendering where a different thing happens, but with the same result: the first frame is assigned to the first computer, the second frame to another computer and so on, until all the computers will be engaged. At this point the first free computer receives the first not assigned photogram that must be elaborated and so on.

In few words, we will have always the same result. The quickest computer will elaborate more frames than the slowest one, but all the computers will give their contribution to make more rapid the rendering of our animation and, above all, they will work contemporaneously.

Cinema4D, NetRender and our Network

Like in the scheme at the beginning of this tutorial, we first start NetRender SERVER on the computer 192.168.1.1 and, successively, all the clients on every computer of our net (remember also the just mentioned one which acts as server) obtaining this window.



You can notice that the system is simply informing you that all the computers have an active client, they are connected and they wait only for your file .c4d (Job).

We have created a simple scene with Cinema 4D 8.1 that you can download directly online from this tutorial. We have inserted an advanced illumination (radiosity) in order that you could notice the computers' behaviour.

Output and NetRender Job Control

Net Render is waiting for our file .c4d. Configure the output settings in the Rendering Settings of file (frames or animations). Remember that all the computers which participate to the distributed rendering of animation must install the same codec video.

Remember the parameter PORT that you have found in the configuration file of NetRender Server? Well, try now to open your browser on computer that acts as server and write this "strange" web address on your browser:

<http://192.168.1.1:8080>

NET RENDER

Jobs

Jobs Clients Users

User: administrator

Render Queue

Priority	Name	Owner	State	Progress	Command
1	Sfera Netty	administrator	running	74 %	Stop

Inactive Jobs

Name	Owner	State	Progress	Command
No jobs so far	---	---	---	---

Job

192.168.1.1 is our server address and **8080** should be the same value of parameter PORT.

You are pointing out to your server to "visit" this strange address or to link up with itself through a port which will transfer you into the real NetRender.

All is managed from here with a HTML/PHP/ASP interface (the languages used for the realization of web sites). After having inserted the user's name (login) and the password that you have setting before in the Network Setting of server, you enter a window with three sections: **JOBS**, **CLIENTS** and **USERS**.

JOBS Section

Jobs

Jobs Clients Users

User: administrator

Render Queue

Priority	Name	Owner	State	Progress	Command
No jobs so far	---	---	---	---	---

Inactive Jobs

Name	Owner	State	Progress	Command
Sfera Netty	administrator	---	0 %	Start - Clear - Delete

Job

In this first zone we find the **Render Queue** and the **Inactive Jobs** that require to be confirmed and to be launched in the **Render Queue**.

Create New Job - Remember our file .c4d which we want to be submitted to the distributed rendering? We have called it **netrender.c4d**.

First we give a name to the job, for instance "Sfera Netty", we click on **Create New Job** and we insert the job in the inactive jobs. Notice to appear the Start, Clear and Delete commands to control the job.

Upload Section

At this point click on Job's name (the Progress field is obviously still 0%) and enter the UPLOAD zone; in its LEFT side insert the .c4d files which will be elaborated and in the RIGHT side do nothing for the moment, because it will fill during the rendering.

This last zone will show you the final results (frames or AVI/QuickTime). We will see how to use it better at the end.

Go back to the JOBS section and click on START. The job is started! You can notice in this section the state of jobs' advancement and the job's state on the various computers which are participating to the rendering.

Client Section

You can notice, thanks to the descriptions of computers inserted in the clients' configuration, it is very simple to monitor the job that is proceeding and is showing you : IP Address of the computers, Description, State and Name of the JOB, User and ,above all, State and Preview of the frames.

Jobs Clients Users								
Current Clients								
No.	Client	Info	State	Job Name	Job Owner	To Do	Frame	Image
1	192.168.1.1:1800	Dual Athlon	running	Sfera_Netty	administrator	48-50	48	
2	192.168.1.2:1800	Dual Pentium	running	Sfera_Netty	administrator	51-57, 73-74	73	
3	192.168.1.4:1800	Mac G4	running	Sfera_Netty	administrator	76-90	76	

If one of this machine crashes, the network rendering doesn't stop your process!

The result is controllable in the Right side of UPLOAD-DOWNLOAD window, but I advise you to look inside the users' column of Cinema 4D where you can find all our frames and movie, after a wonderful NetRender sequence with use of PC and Mac at the same time...

Bye ☺

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Final support and Credits

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where you can find other official tutorials on Cinema 4D

File: <http://www.seikworld.com/cinema/netrender.c4d>