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# inferno Grid Software



# Inferno Grid Software

In the competitive world of business, companies are becoming increasingly reliant on complex data processing and analysis as part of their product development. These tasks require vast amounts of computational power which, if using dedicated hardware, comes at great cost. The Inferno Grid System provides a low cost solution with several advantages:

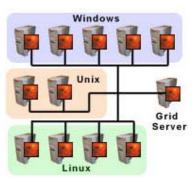
- **Increased performance** Harness the unused power of existing machines to create a large compute resource without the expense of high performance hardware.
- **Improved research** Perform complex modelling and data analysis faster and with greater accuracy. Speed up time to market by reducing the wait for critical results and improving throughput at the testing and development stage.

The Inferno Grid System minimises hassle as users can continue to use their existing applications without the need to modify or rewrite code. The Inferno Grid System can also control multiple jobs across several platforms without the need for different servers. Client capabilities ensure that platform specific jobs can only be executed on the correct platform.

#### Features

- **High Tolerance** The Inferno Grid System is resilient to client, server and network failures ensuring that jobs are completed in the shortest possible time with minimal computation loss.
- **Highly Responsive** Stop, start and prioritise jobs with immediate effect across the grid. Once changes have been made, individual clients will start on their new tasks within a matter of seconds.

**No disruption to users** - Processing for the grid takes place in the background using only unused resources. Users can carry on working as normal with no reduction in system performance or responsiveness.



## Inferno Grid Software

#### Versatile

Run native applications on Windows, Linux and Unix or use Inferno applications for complete portability across platforms

#### **Portable Server**

The grid server runs on any platform which supports Inferno (Windows, Linux, Unix and more). The server does not need to be running on the same platform as the grid clients.

## **Small Footprint**

Multi-platform client grid software takes up less than 10MB

## **Dynamic Groups**

Restrict a job to a selected group of clients using include or exclude operators. Groups can be modified whilst a job is running with immediate effect.

## **Good Housekeeping**

All temporary files are removed from the client on task completion or failure

## Advanced administration and monitoring

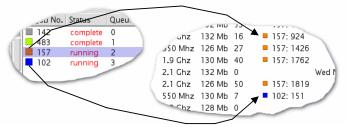
The Inferno Grid System can be controlled remotely and securely from any machine on the network, giving complete freedom to grid administrators. A graphical interface is provided to allow users to control and monitor the status of jobs and clients within the grid. Being able to see the grid at a glance and sort on any client attribute enables users to quickly find non-working or under performing clients.

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**Grid Software** 

mitor								
New Refresh 📕 auto 🗔 invert		Name	IP Address	Cpu	Mem	Tasks	Jobs	Last Connected
		Node 149	161.203.6.149	3.1 Ghz	132 Mb	0		Mon Nov 17 17:16
Displaying: all nodes		Node 15	36.169.146.184	1.1 Ghz	126 Mb	29	157: 1761	
	_	Node 150	32.185.253.203	1.4 Ghz	132 Mb	36	157: 1814	
🕨 🔳 🗶 🚹 📕 🕺 💆		Node 151	51.79.117.106	3.0 Ghz	128 Mb	72	157: 1815	
		Node 152	128.24.97.207	3.1 Ghz	130 Mb	0		Sat Nov 15 08:16
Job No. Status Queue	_	Node 153	174.128.161.103	2.7 Ghz	128 Mb	62	157: 1816	
142 complete 0		Node 154	21.106.167.177	2.9 Ghz	124 Mb	66	157: 1817	
483 complete 1	_	Node 155	138.25.233.116	1.7 Ghz	126 Mb	39	157: 1818	
157 running 2		Node 156	188.224.157.125	750 Mhz	124 Mb	19	157: 1424	
102 running 3	_	Node 157	186.45.165.163	2.2 Ghz	132 Mb	53	157: 1714	
×		Node 158	90.158.240.32	1.1 Ghz	132 Mb	16	<b>1</b> 57: 924	
ob Information		Node 159	144.23.202.173	950 Mhz	126 Mb	27	157: 1426	
Parameters		Node 16	64.229.139.47	1.9 Ghz	130 Mb	40	157: 1762	
🛦 start new job 157		Node 160	123.81.249.102	2.1 Ghz	132 Mb	0		Wed Nov 19 22:16
4	_	Node 161	59.33.134.231	2.1 Ghz	126 Mb	50	157: 1819	
<u>v</u>		Node 162	173.182.65.190	550 Mhz	130 Mb	7	157:151	
Tasks: 2931		Node 163	200.252.250.155	2.2 Ghz	128 Mb	0		Fri Nov 21 04:16
Completed: 63%		Node 164	138.82.20.82	2.8 Ghz	128 Mb	0		
Remaining: 36%		Node 165	5.179.33.16	950 Mhz	124 Mb	12	<b>1</b> 57: 544	
Processing: 108 (3%)		Node 166	77.106.233.132	1.7 Ghz	128 Mb	0		
Failed: 0 (0%)		Node 167	252.91.122.199	1.5 Ghz	124 Mb	39	157: 1612	
with the second s		Node 168	60.84.158.190	2.5 Ghz	126 Mb	66	157: 1820	
Elapsed: 2 mins, 48 secs			119.139.8.185	2.0 Ghz	126 Mb	53	<b>1</b> 57: 1821	
Predicted: 21 secs								(250/250 nod

The graphical monitor/control interface uses colour coding to allow the user to quickly see the state of the grid:



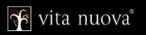
Each job is assigned a colour which is then used in the client list to show which clients are running the job. The interface itself is made up of four main parts:

#### **Control Frame**

From here, the user can configure the view in the client list frame and perform the following operations:

New Refresh 📕 auto 📃 invert	٠	Start a jo
Displaying: all nodes	٠	Stop a jo
	٠	Delete a
	•	Raise/lov

- эb
- b
- job
- wer job priority
- Exclude/include a client



#### Job List

This frame displays a list of all the jobs in the grid along with the following information job:

	Job No.	Status	Queue
$\Delta$	142	complete	0
	483	complete	1
	157	running	2
	102	running	3
$\overline{\mathbf{A}}$			

- Unique job number
- Job status
- Queue position (the order in which jobs will be processed)
- Job colour

## Job Information

More detailed information about the currently selected job is displayed in this frame:

<b>Job Informa</b> Parameters	tion		٠	Con
🔺 start new j	job 157		•	Tota
7			٠	Nur
Tasks:	2931			
Completed:	63%			
Remaining:	36%			
Processing:	108 (3%)			
Failed:	0 (0%)	5		
Elapsed:	2 mins, 48 secs	m	٠	Tim
Predicted:	21 secs		•	Proc

- Command used to start the job
- Total number of tasks (sub-jobs)
- Number of tasks:
  - Completed
  - Remaining
  - Processing
  - o Failed
- Time elapsed since job was started
- Predicted time to completion (if known)

## **Client List**

The final frame displays a list of all clients in the grid along with:

Name	IP Address	Cpu	Mem	Tasks	Jobs	Last Connected
Node 149	161.203.6.149	3.1 Ghz	132 Mb	0		Mon Nov 17 17:16
Node 15	36.169.146.184	1.1 Ghz	126 Mb	29	157: 1761	
Node 150	32.185.253.203	1.4 Ghz	132 Mb	36	157: 1814	
Node 151	51.79.117.106	3.0 Ghz	128 Mb	72	<b>1</b> 57: 1815	
Node 152	128.24.97.207	3.1 Ghz	130 Mb	0		Sat Nov 15 08:16

- Client name
- IP address
- Cpu speed
- Memory
- Total number of tasks completed
- Job (colour coded) and task number for all task currently being processed
- Connected status:
  - Connected
  - Disconnected
  - 📕 Dead
- Last time client was connected (if not currently connected)

#### **Your Requirements**

Vita Nuova can tailor the Inferno grid software to your individual specification as well as providing help with onsite installation and training. Contact us for more information. www.vitanuova.com/solutions/grid