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Processor Validation

Processor validation is carried out by running a program on the server which works the processor at 100% of its capacity, 100% of the time. That means all threads in all cores working at 100% (or very near to 100%) all the time.

These types of programs are generically referred to as “CPU Stress Testers” and there are various free ones available on the internet.

There is no generally agreed duration for this test. I ran it for an hour.

Make sure you carefully observe the temperature of your processor during this test, especially if you have built a quiet system as temperatures in these servers tend to run a little higher due to the much slower fan speeds.

Fester uses the free version of a program called “Breakin” by Advanced Clustering run from a bootable USB stick. If you want to use it then download it from their website.

It comes as an ISO file (but can also be obtained as a PXE image if you want to do this stuff across a network).

The first thing we need to do is make the bootable USB stick.

Creating a Bootable USB Stick

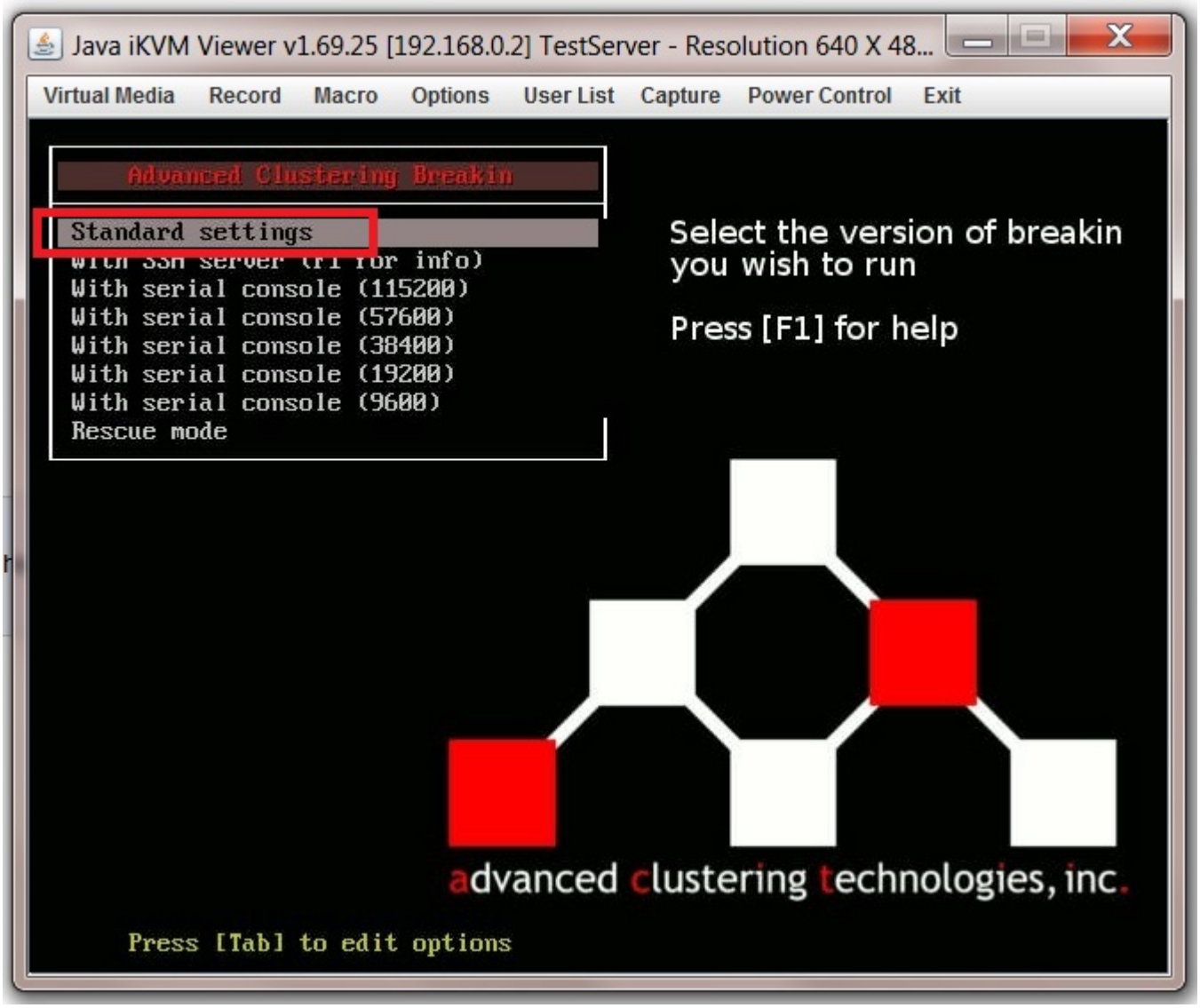
Follow the instructions in Writing a USB Stick to write the Breakin image file to a USB Stick. You can alternatively burn it to a CD-ROM, or mount the file via IPMI.

Using Breakin

Start by powering down the server if it isn’t powered down already.

Insert the bootable Breakin USB stick and switch on the server.

If all goes well you will eventually be presented with a screen like this. Chose the “standard settings” option by using the “↑” and “↓” keys and then press the “Return/Enter” key.



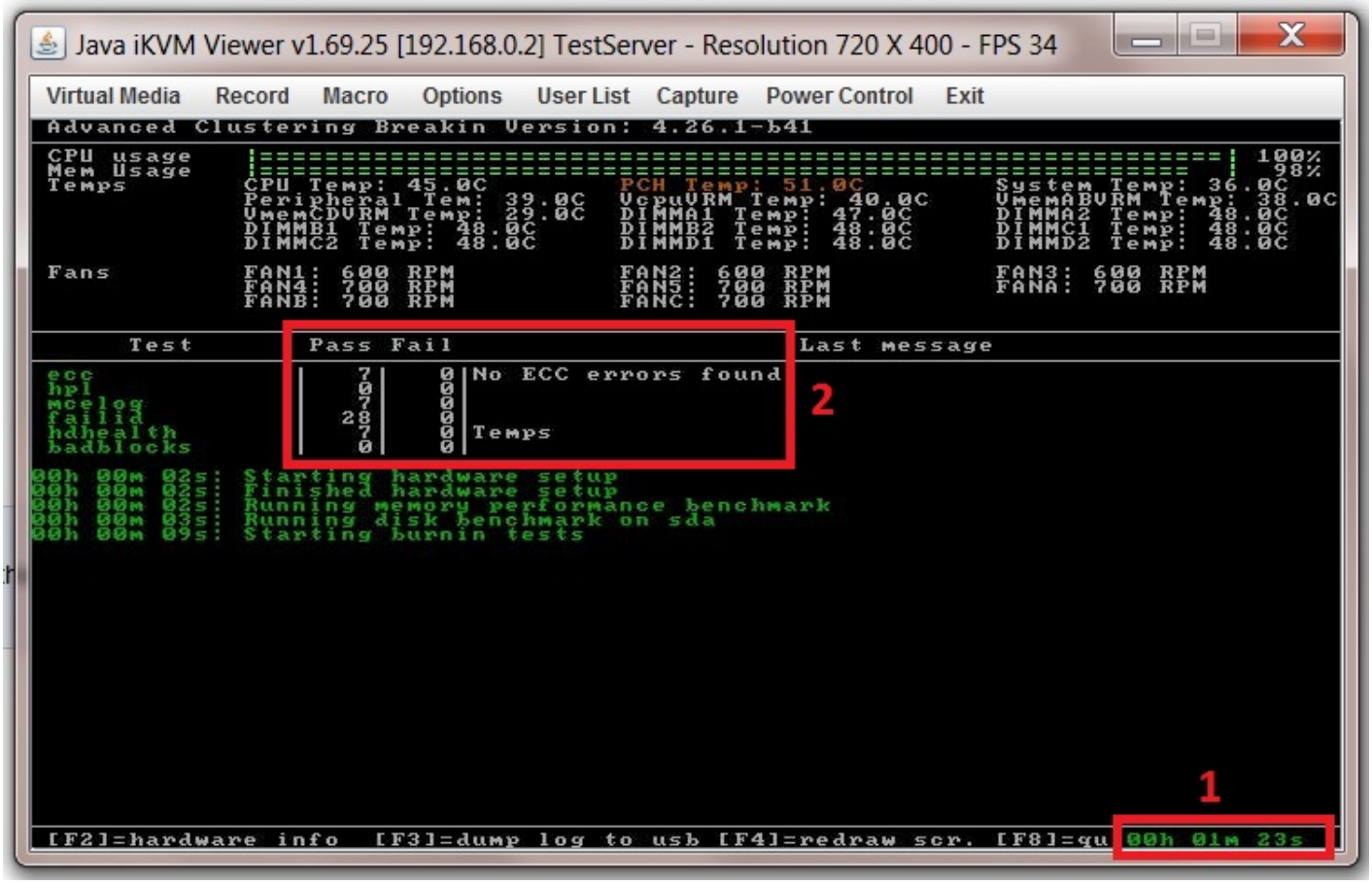
The program will start to load up.

When it is finished you should see something like this with the test duration at the bottom of the screen (1).

Any failures will be listed in the “Fail” column, with the number of times the test passed in the “Pass” column just to the left of this (2).

Keep an eye on the temperatures especially if this is a quiet server build.

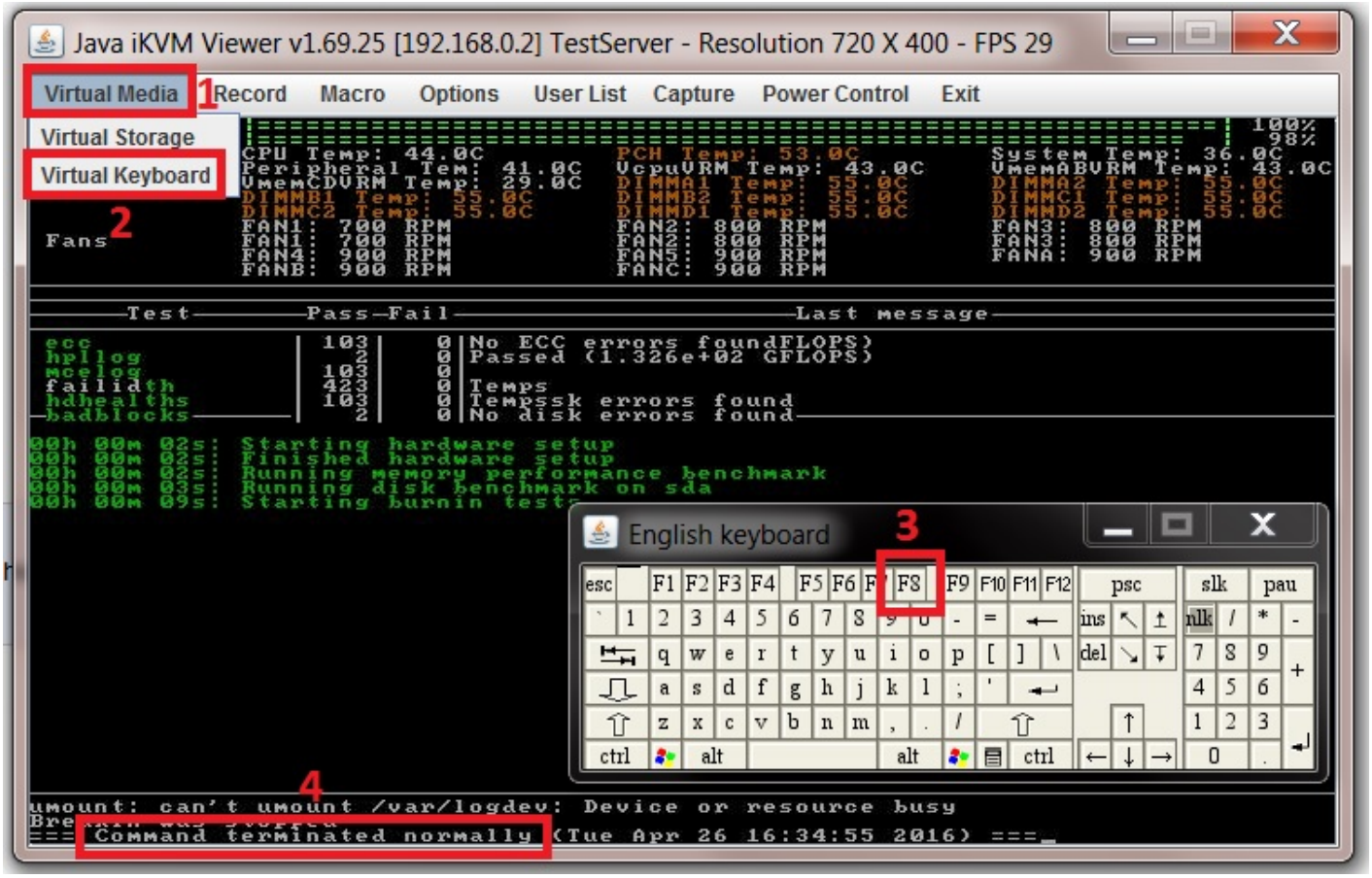
There should be zero failures.



If at any point you need to stop the test open the virtual keyboard by selecting “Virtual Media” (1) from the drop down menus along the top of the iKVM Viewer. Now select “Virtual Keyboard” (2) and click with your mouse on F8 of the virtual keyboard (3).

Pressing F8 on your actual (i.e. physical) keyboard will not work.

If this works you should see something like this with “Command terminated normally” (4) at the bottom of the screen.



When you think the CPU has been thoroughly tested power off the server and remove the USB stick.

That's the CPU validation done.

Why No Prime95 Fester!

p { margin-bottom: 0.1in; direction: ltr; color: rgb(0, 0, 0); line-height: 120%; }p.western { font-family: "Times New Roman",serif; font-size: 12pt; }p.cjk { font-family: "Times New Roman",serif; font-size: 12pt; }p.ctl { font-family: "Times New Roman",serif; font-size: 12pt; }a:visited { color: rgb(128, 0, 128); }a.western:visited { }a.cjk:visited { }a.ctl:visited { }a:link { color: rgb(0, 0, 255); }

Prime95 is a CPU stress tester that seems to be popular with the FreeNAS community.

Unfortunately Fester could not make this bootable. I don't know how.

If someone would like to give me the information and some copyright free screen shots I would be happy to include them in this guide or you could replace this or any section with your own?

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