# How to Capture a Stack Trace

A stack trace can be captured via iLO and via serial cable. This guide will detail how to use iLO as that offers the most flexibility. Please note that if these steps are not followed **very closely** you could have a system that will not boot. Editing the grub.conf or the menu.lst files must be done with **great caution** 

## **Bios Settings**

Tree Description of Settings

- System Options → Serial Port Options → Virtual Serial Port → COM1
- BIOS Serial Console & EMS  $\rightarrow$  BIOS Serial Console Port  $\rightarrow$  COM1
- BIOS Serial Console Baud Rate → 115200

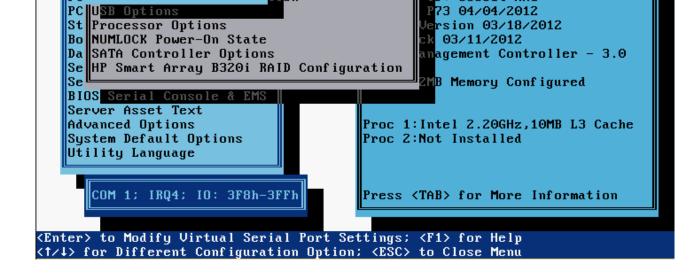
Screenshot Description of Settings

- Select System Options
- Select Serial Port Options

ROM-Based Setup Utility, Version 3.00 Copyright 1982, 2012 Hewlett-Packard Developmen Sy Po Embedded NICs PC Advanced Memory Protection	iant DL360e Gen8 72180HK6 ID: 668814-AA1
PC USB Options St Processor Options	P73 04/04/2012 Version 03/18/2012
Bo NUMLOCK Power-On State	ck 03/11/2012
Da SATA Controller Options Se HP Smart Array B320i RAID Configuration	anagement Controller - 3.0
Se BIOS Serial Console & EMS Server Asset Text	<sup>2</sup> 2MB Memory Configured
Advanced Options Proc 1	:Intel 2.20GHz,10MB L3 Cache :Not Installed
	<tab> for More Information</tab>
<enter> to Display Serial Port Options &lt;1/↓&gt; for Different Configuration Option; <esc></esc></enter>	to Close Menu

- Select Virtual Serial Port
- Set it to COM1

ROM-Based Setup Utility, Version 3.00 Copyright 1982, 2012 Hewlett-Packard Development Company, L.P.		
Sy Embedded Serial Port Po Virtual Serial Port PC PC U <mark>SB Options</mark> St Processor Options Bo NUMLOCK Power-On State	t ion	iant DL360e Gen8 72180HK6 ID: 668814-AA1 P73 04/04/2012 Version 03/18/2012 ck 03/11/2012



Select BIOS Serial Console & EMS

[]	
System Options	HP ProLiant DL360e Gen8
Power Management Options	S/N: CN72180HK6
PCI IRQ Settings	Product ID: 668814-AA1
PCI Device Enable/Disable	HP BIOS P73 04/04/2012
Standard Boot Order (IPL)	Backup Version 03/18/2012
Boot Controller Order	Bootblock 03/11/2012
Date and Time	Power Management Controller - 3.0
Server Availability	
Server Security	8192MB Memory Configured
BIOS Serial Console & EMS	
Server Asset Text	
Advanced Options	Proc 1:Intel 2.20GHz,10MB L3 Cache
System Default Options	Proc 2:Not Installed
Utility Language	
serring hangaage	
	Press <tab> for More Information</tab>

Set BIOS Serial Console Port to COM1

ROM-Based Setup Utility, Version 3.00			
Copyright 1982, 2012 Hewlett-Packard Development Company, L.P.			
Sy BIOS Serial Console Port	HP ProLiant DL360e Gen8		
Po BIOS Serial Console Baud Rate	S/N: CN72180HK6		
PC EMS Console	Product ID: 668814-AA1		
PC BIOS Interface Mode	HP BIOS P73 04/04/2012		
St	Backup Version 03/18/2012		
Boot Controller Order	Bootblock 03/11/2012		
Date and Time	Power Management Controller - 3.0		
Server Availability	John Standard		
Server Security	8192MB Memory Configured		
BIOS Serial Console & EMS	orsens nemory contrigurou		
Server Asset Text			
Advanced Options	Proc 1:Intel 2.20GHz,10MB L3 Cache		
System Default Options	Proc 2:Not Installed		
	rruc Z.nut Installea		
Utility Language			
COM_1:_IBO4:_IO:_3F8h-3FFh	Press (TAB) for More Information		

Utility Language	
COM 1; IRQ4; IO: 3F8h-3FFh	Press <tab> for More Information</tab>
<enter> to Modify BIOS Serial Console Po</enter>	nt: (F1) for Helm
$\langle \uparrow / \downarrow \rangle$ for Different Option; $\langle ESC \rangle$ to Clo	· · · · · · · · · · · · · · · · · · ·

Set BIOS Serial Console Baud Rate to 115200

ROM-Based Setup Utility, Version 3.00 Copyright 1982, 2012 Hewlett-Packard Dev	velopment Company, L.P.
Sy BIOS Serial Console Port Po BIOS Serial Console Baud Rate PC BIOS Interface Mode St Boot 9600 Berv 9600 Serv 97600 Serv 115200 BIOS Server Asset Text Advanced Options System Default Options Utility Language 115200 (1/21) Changes Configuration Selection (Enter> Saves Selection; (ESC> to Cance	HP ProLiant DL360e Gen8 S/N: CN72180HK6 Product ID: 668814-AA1 HP BIOS P73 04/04/2012 Backup Version 03/18/2012 Bootblock 03/11/2012 Power Management Controller - 3.0 8192MB Memory Configured Proc 1:Intel 2.20GHz,10MB L3 Cache Proc 2:Not Installed Press <tab> for More Information</tab>

# iLo Settings

■ Administration → Access Settings Ensure that SSH Access is Enabled and the Port is set to 22 Appring new Forcor Lights-Out Functionality settings will restarcice and terminate proviser connect Administration iLO Firmware · Changes to the Idle Connection Timeout may not take place immediately in current user sessions but Licensing User Administration Access Settings Service Security Network Secure Shell (SSH) Access Enabled 🔽 Management 22 Secure Shell (SSH) Port Remote Console Port 17990 Web Server Non-SSL Port 80 Web Server SSL Port 443 Virtual Media Port 17988 SNMP Access Enabled 🔽 SNMP Port 161 SNMP Trap Port 162

		Apply
IPMI/DCMI		
Enable IPMI/DCM	ll over LAN on Port 623	
		Apply

- Set Idle Connection Timeout to Infinite
- Set Serial Command Line Interface Status to Enabled
- Set Serial Command Line Interface Speed to 115200

Access Op	ptions
-----------	--------

Idle Connection Timeout (minutes)	Infinite	
iLO Functionality	Enabled	
iLO ROM-Based Setup Utility	Enabled	
Require Login for iLO RBSU	Disabled	
Show iLO IP during POST	Enabled	
Serial Command Line Interface Status	Enabled - No Authentication	
Serial Command Line Interface Speed	115200 🔽 (bits/second)	
Minimum Password Length	8	
Server Name	T-tower	
Authentication Failure Logging	Enabled - Every 3rd Failure	
		Apply

After making these changes you should **log out of all iLO sessions** on this system (including any ssh sessions) to make sure the changes take effect.

# **Kernel Arugments**

Every Operating system will take the same common commands, they are:

console=tty0 console=ttyS0,115200

Please note these are **case sensative** 

The kernel boot messages must also be shown. This is done differently on RHEL and SLES

To make the change permanent, please see the next section. These changes **must** be made permanent if you are doing reboot testing or trying to reproduce any intermittent bug

#### Suse Linux Enterprise Server (SLES)

#### SLES10

At the Boot Options, please enter splash=verbose console=tty0 console=ttyS0,115200



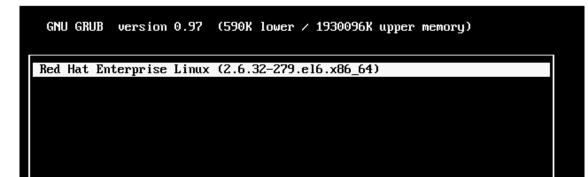
#### SLES11

Follow instructions for Sles10

### Redhat Enterprise Linux (RHEL)

#### RHEL 6

- Press any key to stop the countdown
- At this screen press e

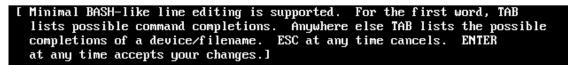


Use the  $\uparrow$  and  $\downarrow$  keys to select which entry is highlighted. Press enter to boot the selected OS, 'e' to edit the commands before booting, 'a' to modify the kernel arguments before booting, or 'c' for a command-line.

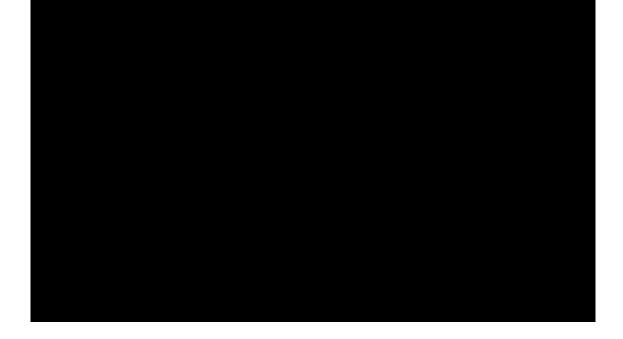
- Highlight the line that begins with kernel
- press e

GNU GRUB v	ersion 0.97	(597K lower	× 1930128K	upper memory)
				UID=5b6105b1-7959-4e16→
Press'b' boot sequ after ('O	to boot, 'e' ence, 'c' for	' to edit th r a command- ) the select	e selected ( line, 'o' to ed line, 'd	s highlighted. command in the o open a new line ' to remove the ain menu.

remove rhgb and quiet



<=pc KEYTABLE=us rd\_NO\_DM rhgb quiet



add console=tty0 console=ttyS0,115200 this is case sensative



RHEL 5

Follow instructions for RHEL 6

### Special Note about Install Time

When you are installing the OS for the first time you will need to add another option to the command line. In this order

console=tty0 console=ttyS0,115200 console=vga	-
L	

# Making the Changes Permanent

This Step **MUST** be followed, if you are doing any sort of reboot testing or long running test.

#### SLES

To make the changes permanent:

(as root) edit the file
 /boot/grub/menu.lst
 To every line that starts with kernel add the same options as above

splash=verbose console=tty0 console=ttyS0,115200

#### SLES - Xen

For the Xen kernels, you will need to edit /boot/grub/menu.lst. Find the section that has the XEN kernel in it. You can look for xen.gz. In that section add console=vga,com1 com1=115200 to the line that has /boot/xen.gz. It should look similar to this:

kernel (hd0.1)/boot/xen.gz console=vga.com1 com1=115200	i
Kernet (hdo, i// boot/ ken.gz console=vga, comi comi=ii5200	1

In that same section, there is a line that has **vmlinuz** in it. To that line add **console=tty0 console=xvc0,115200** It should look **similar** to this:

```
module (hd0,1)/boot/vmlinuz root=/dev/sda3 splash=verbose console=tty0 console=xvc0,115200
```

It is important not to delete anything, only add to the section.

#### RHEL

To make the changes permanent:

■ (as root) ed //boot/gr	ub/grub.conf		 	
<ul><li>To every li</li><li>Add</li></ul>	ne that <b>starts with kernel</b> remo	ove <b>rhgb</b> and <b>quiet</b>		
console=tty0 con	sole=ttyS0,115200		 	

# RHEL - Xen

For the Xen kernels, you will need to edit /boot/grub/grub.conf. Find the section that has the XEN kernel in it. You can look for xen.gz. In that section add com1=115200,8n1 to the end of the line that has xen.gz in it. It should look similar to this:

kernel /boot/xen.az- <kernel ver=""> com1=115200.8n1</kernel>	

In that same section, there is a line that has vmlinuz in it. To that line add console=tty0 console=ttyS0,115200

```
module /boot/vmlinuz-2.6.18-92.el5xen ro root=LABEL=VG_i386 console=tty0
console=ttyS0,115200
```

# SSH to the iLO IP Address

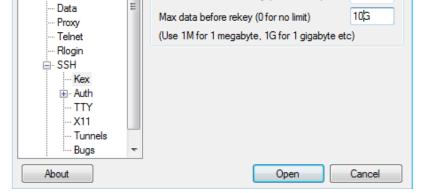
You should use an ssh client (such as putty) to log all session output. The log is the most important part, you will need to send it to the developer. To configure logging:

- Download putty: http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html [http://www.chiark.greenend.org.uk/~sgtatham /putty/download.html]
- Configure Logging, enter putty\_&H\_&D\_&T\_.log

😵 PuTTY Configuration	
Keyboard     Keyboard     Bell     Features     Window     Appearance     Behaviour     Translation     Colours     Colours     Connection     Proxy     Telnet     Rlogin     SSU	Options controlling session logging         Session logging:         None       Printable output         All session output       SSH packets         SSH packets and raw data         Log file name:         putty_&H_&D_&T_log         Browse         (Log file name can contain &Y, &M, &D for date, &T for time, and &H for host name)         What to do if the log file already exists:         Always overwrite it         Always append to the end of it         Ask the user every time         Flush log file frequently         Options specific to SSH packet logging         Omit known password fields         Omit session data
About	Open Cancel

- If you need to log for more than 1 hour, turn off the key exchange this option should only be used in a lab setting
- To turn of key exchange connection → SSH → Kex
- Change Max minutes before rekey to zero
- Change Max data before rekey to 10GB

🕵 PuTTY Configuratio	n	×					
Category:							
<ul> <li>Terminal</li> <li>Keyboard</li> <li>Bell</li> <li>Features</li> <li>Window</li> <li>Appearance</li> <li>Behaviour</li> <li>Translation</li> </ul>	*	Options controlling SSH key exchange Key exchange algorithm options Algorithm selection policy: Diffie-Hellman group exchange Diffie-Hellman group 14 Diffie-Hellman group 1 RSA-based key exchange wam below here					
Colours Connection Data Proxy Telnet	ш	Options controlling key re-exchange         Max minutes before rekey (0 for no limit)         Max data before rekey (0 for no limit)         10/3         (Use 1M for 1 megabyte, 1G for 1 gigabyte etc)					

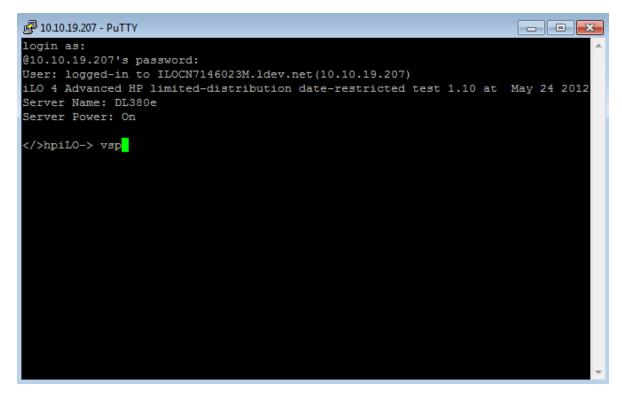


Connect to iLO

#### input the iLO IP Address

🔀 PuTTY Configuration		×	
Category:			
Session	Basic options for your PuTTY session		
	Specify the destination you want to connect to		
E. Terminal	Host Name (or IP address)	Port	
Bell		22	
Features	Connection type:		
Window	🔘 Raw 🔘 Telnet 🔘 Rlogin 🔘 S	SH 🔘 Serial	
Li Appontano			

#### enter vsp



You should see console output from linux

personal/logan/logan\_main/howto/stack\_trace\_cap.txt · Last modified: 2012/10/03 14:34 by blythl