Estudio LSHW

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Tabla de contenido

¿Que es Ishw?	5
Desglose LHSW	5
Estructura detallada	6
Tabla resumen	8
Características que usaremos nosotros	9
Ejemplo Ishw completo	2





¿Que es Ishw?

Para empezar un breve resumen .LSHW es una herramienta de Linux que proporciona información detallada sobre la configuración de hardware de la máquina.

Para obtener el listado de especificaciones de hardware hay que usar el comando "lshw" ("ls" de Lister y "hw" de hardware) como superusuario o mediante "sudo":

-sudo Ishw

Con esa orden aparece un extenso y detallado listado con las características técnicas de la máquina en la que se ejecute .

Además podemos exportar los resultados a xml y html. Para hacerlo:

Desglose LHSW

Àrbol Ishw

información del sistema

información de la placa madre

información del procesador

cache, logical cpu









memoria

capacidad, tamaño total, información individual de los bancos

información de las ranuras pci

información de las ranuras ide

información de los discos

tamaño total, partición,

información de las ranuras usb

red

Estructura detallada

La estructura del xml generado viene marcando cada parte del elemento mediante marcadores id o class. Y estes a su vez se encuentran entre un marcador <node >.

Las características se abren con su marcador y se cierran con </marcador> y entre ellos se encuentra el valor de esa característica, ejemplo : <description> ejemplo </description>

-Información del sistema

class="system" → Va ser el tipo de elemento padre,por ejemplo 'Desktop Computer'.

A continuación se muestran las características de este elemento padre.

<description> seria la descripción del tipo de elemento padre.

A continuación se muestran las características del elemento padre :

<vendor>,<serial>,<width units="bits"> que corresponderían a características y valores definidos o sino se crearían de nuevo.

-Placa Base









En el xml viene marcada mediante la etiqueta id="core", este seria un tipo de elemento,que podemos crearlo si no existe o bien si está ya creado registrar sus características que vienen marcadas por las etiquetas :

<description>,,,<vendor>,.... que corresponderían a características y valores definidos o sino se crearían de nuevo.

-Procesador

En el xml viene marcado mediante la etiqueta id="cpu" o class="processor" lo mismo que antes, este sera un tipo de elemento y luego vienen sus características :

<description>,<product>,<vendor>

-Memoria Caché

Las memorias caché vienen dadas por un marcador con un dígito incremental según el número de memoras caché que tenga el elemento. El marcador sería id="cache:X" siendo X un número entero positivo comprendido entre 0-9 siendo 0 el primero. Ejemplo , la primera memoria caché tendría id="cache:0".

Luego vendrían sus características: <description>,<capacity units="bytes">, ...

-Disco Duro

El disco duro es lo siguiente que nos aparecerá después de la memoria caché,y viene señalado con el marcador id="memory" .Lo mismo de antes, si el tipo de elemento disco duro no está creado lo creamos.

Luego sus características : <description>,<slot>,<size units="bytes">

-Memoria RAM

La o las memorias RAM son parecidas a la estructura de la memoria caché, vienen identificadas mediante un marcador con un dígito incremental según el número de memorias RAM que tenga el sistema , y el marcador es id="bank:0" .

Luego sus características <description>,<vendor>,<serial>,<size units="bytes">,<clock units="Hz">, ...









-Información de las ranuras PCI

Las ranuras pc como son varias también tiene un marcador incremental solo que en este caso no empieza en 0 sino en su marcador base luego incrementándose desde 0 a 9.Por ejemplo el primer PCI tendría el marcador id="pci", el segundo id="pci:0" etc

Luego sus características <description>,,<vendor>,<width units="bits">,<clock units="Hz">, ...

-Información de las ranuras USB

Las ranuras USB otro tanto, vienen asignadas a marcadores incrementales siendo id="usb:0" el primero y id="usb:9" el rango mas alto.

Luego sus características <description>,,,<vendor>,<version>,...

A continuación vendrían las particiones del disco que vamos ignorarlas porque en nuestro caso no tienen ninguna importancia.

Más abajo vendrían los otros componentes hardware :

-Cdrom

El marcador para este elemento vendría definido como id="cdrom" y luego sus características:

<description>, <description>,

Obteniendo todos estes datos anteriores lo que se haría sería crear un nuevo elemento en la tabla 'element' para el elemento padre y luego crearíamos un elemento para cada uno de los componentes de este , siendo el id_padre de cada uno de ellos el id_element de su elemento superior. Y luego para cada uno de sus características las crearíamos en la tabla 'data charac element'.

Tabla resumen

Estes elementos son los principales que nos vamos encontrar en un Pc









Ahora muestro una tabla con todos los supuestos elementos que podemos distinguir haciendo Ishw en nuestro pc:

Classe	Descripcion	Ejemplos
system	Se refiere a toda la maquina	laptop, server, desktop computer
bridge	convertidor de bus interno	PCI-to-PCI brige, AGP bridge, PCMCIA controler, host bridge
memory	banco de memoria que puede contener info, codigo ejecutable, etc.	RAM, BIOS, firmware, extension ROM
processor	procesador	CPUs, RAID controller on a SCSI bus
address	memory address range	extension ROM, video memory
storage	controlador de almcenamiento	SCSI controller, IDE controller
disk	dispositivo de almacenamiento de acceso remoto	discs, optical storage (CD-ROM, DVD±RW)
tape	dispositivo de almacenamiento de acceso secuencial	DAT, DDS
bus	device-connecting bus	USB, SCSI, Firewire
network	interfaz de red	Ethernet, FDDI, WiFi, Bluetooth
display	adaptador de display	EGA/VGA, UGA
input	dispositivo de input de usuari	keyboards, mice, joysticks
printer	dispositivo de impresion	printer, all-in-one
multimedia	dispositivo de audio/video	sound card, TV-output card, video acquisition card
communication	dispositivo de comunicacion de linea	serial ports, modem
power	fuente de energia	power supply, internal battery
volume	volumen de disco	filesystem, swap, etc.
generic	dispositivo generico (se usa cuando no hay una clase predefinida)	

Características que usaremos nosotros







Estos son las características de elementos básicos que vamos coger del LSHW para la puesta clasificación y almacenaje en la base de datos de Getracer:

-Pc

Características:

- -Descripción
- -Vendedor
- -N° bits (Puede ser en bits o bytes)
- -Placa Base

Características:

- -Descripción
- -Vendedor

-Procesador

Características:

- -Producto
- -Vendedor
- -Número Cores (Puede que tenga un solo core)
- -Nº bits

-Memoria RAM

Características:

- -Descripción
- -Vendedor (En ordenadores viejos puede que no aparezca)
- -Tamaño
- -Nº Bits
- -Frecuencia

-Pci

Características:

- -Descripción
- -Producto
- -Vendedor
- -Nº Bits

-Targeta Gráfica







Características:

- -Producto
- -Vendedor
- -Nº Bits

-Targeta de Red

Características:

- -Descripción
- -Producto
- -Vendedor
- -Nº Bits

-Usb

Características:

- -Descripción
- -Producto
- -Vendedor
- -Versión

-Disco Duro

Características:

- -Descripción
- -Producto
- -Vendedor
- -Tamaño
- -Nº Bits

-Cd Rom

Características:

- -Descripción
- -Producto
- -Vendedor







Ejemplo Ishw completo.

A continuación un ejemplo real.

```
<?xml version="1.0" standalone="yes" ?>
<!-- generated by lshw-B.02.15 -->
<!-- GCC 4.5.2 -->
<!-- Linux 3.0.0-12-generic #20-Ubuntu SMP Fri Oct 7 14:56:25 UTC 2011 x86 64 -->
<!-- GNU libc 2 (glibc 2.13) -->
<node id="jrodeiro-optiplex-760" claimed="true" class="system" handle="DMI:0100">
<description>Desktop Computer</description>
cproduct>OptiPlex 760 ()
<vendor>Winbond Electronics</vendor>
<serial>GB9K44J</serial>
<width units="bits">64</width>
<configuration>
 <setting id="administrator password" value="enabled" />
 <setting id="boot" value="normal" />
 <setting id="chassis" value="desktop" />
 <setting id="power-on password" value="enabled" />
 <setting id="uuid" value="44454C4C-4200-1039-804B-C7C04F34344A" />
</configuration>
<capabilities>
 <capability id="smbios-2.5" >SMBIOS version 2.5
 <capability id="dmi-2.5" >DMI version 2.5
 <capability id="vsyscall64" >64-bit processes</capability>
 <capability id="vsyscall32" >32-bit processes
</capabilities>
 <node id="core" claimed="true" class="bus" handle="DMI:0200">
 <description>Motherboard</description>
 oduct>0D517D
 <vendor>Winbond Electronics/vendor>
 <physid>0</physid>
 <version>A00</version>
 <serial>..CN137408AO01EG.</serial>
  <node id="firmware" claimed="true" class="memory" handle="">
  <description>BIOS</description>
  <vendor>Winbond Electronics</vendor>
  <physid>0</physid>
  <version>A00</version>
```

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```
<date>09/26/2008</date>
<size units="bytes">65536</size>
<capacity units="bytes">4128768</capacity>
<capabilities>
 <capability id="pci" >PCI bus</capability>
 <capability id="pnp" >Plug-and-Play</capability>
 <capability id="apm" >Advanced Power Management
 <capability id="upgrade" >BIOS EEPROM can be upgraded
 <capability id="shadowing" >BIOS shadowing</capability>
 <capability id="escd" >ESCD</capability>
 <capability id="cdboot" >Booting from CD-ROM/DVD</capability>
 <capability id="bootselect" >Selectable boot path
 <capability id="edd" >Enhanced Disk Drive extensions/capability>
 <capability id="int13floppytoshiba" >Toshiba floppy</capability>
 <capability id="int13floppy720" >3.5&quot; 720KB floppy</capability>
 <capability id="int5printscreen" >Print Screen key</capability>
 <capability id="int9keyboard" >i8042 keyboard controller</capability>
 <capability id="int14serial" >INT14 serial line control
 <capability id="int17printer" >INT17 printer control
 <capability id="acpi" >ACPI</capability>
 <capability id="usb" >USB legacy emulation</capability>
 <capability id="biosbootspecification" >BIOS boot specification/capability>
 <capability id="netboot" >Function-key initiated network service boot</capability>
</capabilities>
</node>
<node id="cpu" claimed="true" class="processor" handle="DMI:0400">
<description>CPU</description>
oduct>Intel(R) Core(TM)2 Quad CPU Q9550 @ 2.83GHz/product>
<vendor>Intel Corp.</vendor>
<physid>400</physid>
<businfo>cpu@0</businfo>
<slot>CPU</slot>
<size units="Hz">200000000</size>
<capacity units="Hz">200000000</capacity>
<width units="bits">64</width>
<clock units="Hz">1333000000</clock>
<configuration>
 <setting id="cores" value="4" />
 <setting id="enabledcores" value="4" />
 <setting id="threads" value="4" />
</configuration>
<capabilities>
<capability id="x86-64" >64bits extensions (x86-64)
 <capability id="fpu" >mathematical co-processor</capability>
```







```
<capability id="fpu exception" >FPU exceptions reporting</capability>
   <capability id="wp" />
   <capability id="vme" >virtual mode extensions</capability>
   <capability id="de" >debugging extensions</capability>
   <capability id="pse" >page size extensions</capability>
   <capability id="tsc" >time stamp counter</capability>
   <capability id="msr" >model-specific registers</capability>
   <capability id="pae" >4GB+ memory addressing (Physical Address
Extension)</capability>
   <capability id="mce" >machine check exceptions</capability>
   <capability id="cx8" >compare and exchange 8-byte</capability>
   <capability id="apic" >on-chip advanced programmable interrupt controller
(APIC)</capability>
   <capability id="sep" >fast system calls</capability>
   <capability id="mtrr" >memory type range registers</capability>
   <capability id="pge" >page global enable</capability>
   <capability id="mca" >machine check architecture</capability>
   <capability id="cmov" >conditional move instruction
   <capability id="pat" >page attribute table</capability>
   <capability id="pse36" >36-bit page size extensions/capability>
   <capability id="clflush" />
   <capability id="dts" >debug trace and EMON store MSRs</capability>
   <capability id="acpi" >thermal control (ACPI)</capability>
   <capability id="mmx" >multimedia extensions (MMX)</capability>
   <capability id="fxsr" >fast floating point save/restore/capability>
   <capability id="sse" >streaming SIMD extensions (SSE)/capability>
   <capability id="sse2" >streaming SIMD extensions (SSE2)/capability>
   <capability id="ss" >self-snoop</capability>
   <capability id="ht" >HyperThreading</capability>
   <capability id="tm" >thermal interrupt and status
   <capability id="pbe" >pending break event</capability>
   <capability id="syscall" >fast system calls</capability>
   <capability id="nx" >no-execute bit (NX)</capability>
   <capability id="constant tsc" />
   <capability id="arch perfmon" />
   <capability id="pebs" />
   <capability id="bts" />
   <capability id="rep_good" />
   <capability id="nopl" />
   <capability id="aperfmperf" />
   <capability id="pni" />
   <capability id="dtes64" />
   <capability id="monitor" />
   <capability id="ds cpl" />
```







```
<capability id="vmx" />
 <capability id="smx" />
 <capability id="est" />
 <capability id="tm2" />
 <capability id="ssse3" />
 <capability id="cx16" />
 <capability id="xtpr" />
 <capability id="pdcm" />
 <capability id="sse4 1" />
 <capability id="xsave" />
 <capability id="lahf lm" />
 <capability id="tpr shadow" />
 <capability id="vnmi" />
 <capability id="flexpriority" />
 <capability id="cpufreq" >CPU Frequency scaling/capability>
</capabilities>
 <node id="cache:0" claimed="true" class="memory" handle="DMI:0700">
 <description>L1 cache</description>
 <physid>700</physid>
 <size units="bytes">262144</size>
 <capacity units="bytes">262144</capacity>
 <capabilities>
  <capability id="internal" >Internal/capability>
  <capability id="write-back" >Write-back</capability>
  <capability id="unified" >Unified cache</capability>
 </capabilities>
 </node>
 <node id="cache:1" claimed="true" class="memory" handle="DMI:0701">
 <description>L2 cache</description>
 <physid>701</physid>
 <size units="bytes">12582912</size>
 <capacity units="bytes">12582912</capacity>
 <capabilities>
  <capability id="internal" >Internal/capability>
  <capability id="varies" >Varies With Memory Address
  <capability id="unified" >Unified cache</capability>
 </capabilities>
 </node>
</node>
<node id="memory" claimed="true" class="memory" handle="DMI:1000">
<description>System Memory</description>
<physid>1000</physid>
<slot>System board or motherboard</slot>
<size units="bytes">8589934592</size>
```







```
<node id="bank:0" claimed="true" class="memory" handle="DMI:1100">
 <description>DIMM DDR2 Synchronous 800 MHz (1,2 ns)/description>
 <vendor>Kingston</vendor>
 <physid>0</physid>
 <serial>FB1CEF3A</serial>
 <slot>DIMM 1</slot>
 <size units="bytes">2147483648</size>
 <width units="bits">64</width>
 <clock units="Hz">800000000</clock>
 </node>
 <node id="bank:1" claimed="true" class="memory" handle="DMI:1101">
 <description>DIMM DDR2 Synchronous 800 MHz (1,2 ns)/description>
 <vendor>Kingston</vendor>
 <physid>1</physid>
 <serial>4B10349D</serial>
 <slot>DIMM 3</slot>
 <size units="bytes">2147483648</size>
 <width units="bits">64</width>
 <clock units="Hz">800000000</clock>
 </node>
 <node id="bank:2" claimed="true" class="memory" handle="DMI:1102">
 <description>DIMM DDR2 Synchronous 800 MHz (1,2 ns)/description>
 <vendor>Kingston</vendor>
 <physid>2</physid>
 <serial>4910369D</serial>
 <slot>DIMM 2</slot>
 <size units="bytes">2147483648</size>
 <width units="bits">64</width>
 <clock units="Hz">80000000</clock>
 </node>
 <node id="bank:3" claimed="true" class="memory" handle="DMI:1103">
 <description>DIMM DDR2 Synchronous 800 MHz (1,2 ns)/description>
 <vendor>Kingston</vendor>
 <physid>3</physid>
 <serial>FE1CEE3A</serial>
 <slot>DIMM 4</slot>
 <size units="bytes">2147483648</size>
 <width units="bits">64</width>
 <clock units="Hz">800000000</clock>
 </node>
</node>
<node id="pci" claimed="true" class="bridge" handle="PCIBUS:0000:00">
<description>Host bridge</description>
oroduct>4 Series Chipset DRAM Controller/product>
```







```
<vendor>Intel Corporation</vendor>
 <physid>100</physid>
 <businfo>pci@0000:00:00.0/businfo>
 <version>03</version>
 <width units="bits">32</width>
 <clock units="Hz">33000000</clock>
<configuration>
  <setting id="driver" value="agpgart-intel" />
 </configuration>
 <resources>
  <resource type="irq" value="0" />
 </resources>
  <node id="pci:0" claimed="true" class="bridge" handle="PCIBUS:0000:01">
  <description>PCI bridge</description>
  <vendor>Intel Corporation</vendor>
  <physid>1</physid>
  <businfo>pci@0000:00:01.0</businfo>
  <version>03</version>
  <width units="bits">32</width>
  <clock units="Hz">33000000</clock>
  <configuration>
   <setting id="driver" value="pcieport" />
  </configuration>
  <capabilities>
   <capability id="pci" />
   <capability id="pm" >Power Management</capability>
   <capability id="msi" >Message Signalled Interrupts</capability>
   <capability id="pciexpress" >PCI Express/capability>
   <capability id="normal decode" />
   <capability id="bus master" >bus mastering</capability>
   <capability id="cap_list" >PCI capabilities listing</capability>
  </capabilities>
  <resources>
   <resource type="irg" value="45" />
   <resource type="memory" value="fe500000-fe5fffff" />
  </resources>
  </node>
  <node id="display:0" claimed="true" class="display" handle="PCI:0000:00:02.0">
  <description>VGA compatible controller</description>
  <vendor>Intel Corporation</vendor>
  <physid>2</physid>
```







```
<businfo>pci@0000:00:02.0</businfo>
<version>03</version>
<width units="bits">64</width>
<clock units="Hz">33000000</clock>
<configuration>
 <setting id="driver" value="i915" />
 <setting id="latency" value="0" />
</configuration>
<capabilities>
 <capability id="msi" >Message Signalled Interrupts
 <capability id="pm" >Power Management</capability>
 <capability id="vga controller" />
 <capability id="bus master" >bus mastering</capability>
 <capability id="cap list" >PCI capabilities listing</capability>
 <capability id="rom" >extension ROM</capability>
</capabilities>
<resources>
 <resource type="irq" value="50" />
 <resource type="memory" value="fe800000-febfffff" />
<resource type="memory" value="d0000000-dfffffff" />
 <resource type="ioport" value="ec90(size=8)" />
</resources>
</node>
<node id="display:1" class="display" handle="PCI:0000:00:02.1">
<description>Display controller</description>
<vendor>Intel Corporation</vendor>
<physid>2.1</physid>
<businfo>pci@0000:00:02.1
<version>03</version>
<width units="bits">64</width>
<clock units="Hz">33000000</clock>
<configuration>
 <setting id="latency" value="0" />
</configuration>
<capabilities>
 <capability id="pm" >Power Management</capability>
 <capability id="bus master" >bus mastering</capability>
 <capability id="cap_list" >PCI capabilities listing</capability>
</capabilities>
<resources>
 <resource type="memory" value="fe700000-fe7fffff" />
</resources>
</node>
```

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```
<node id="communication:0" claimed="true" class="communication"
handle="PCI:0000:00:03.0">
   <description>Communication controller</description>
   <vendor>Intel Corporation</vendor>
   <physid>3</physid>
   <businfo>pci@0000:00:03.0</businfo>
   <version>03</version>
   <width units="bits">64</width>
   <clock units="Hz">33000000</clock>
   <configuration>
    <setting id="driver" value="mei" />
    <setting id="latency" value="0" />
    </configuration>
    <capabilities>
    <capability id="pm" >Power Management</capability>
    <capability id="msi" >Message Signalled Interrupts
    <capability id="bus_master" >bus mastering</capability>
    <capability id="cap list" >PCI capabilities listing</capability>
   </capabilities>
   <resources>
    <resource type="irg" value="16" />
    <resource type="memory" value="f0000800-f000080f" />
   </resources>
   </node>
   <node id="ide" claimed="true" class="storage" handle="PCI:0000:00:03.2">
   <description>IDE interface</description>
   <vendor>Intel Corporation</vendor>
   <physid>3.2</physid>
   <businfo>pci@0000:00:03.2
   <version>03</version>
   <width units="bits">32</width>
   <clock units="Hz">66000000</clock>
   <configuration>
    <setting id="driver" value="ata generic" />
    <setting id="latency" value="0" />
    </configuration>
    <capabilities>
    <capability id="ide" />
    <capability id="pm" >Power Management</capability>
    <capability id="msi" >Message Signalled Interrupts
    <capability id="bus_master" >bus_mastering</capability>
    <capability id="cap_list" >PCI capabilities listing</capability>
```







```
</capabilities>
    <resources>
    <resource type="irq" value="18" />
    <resource type="ioport" value="fe80(size=8)" />
    <resource type="ioport" value="fe90(size=4)" />
    <resource type="ioport" value="fea0(size=8)" />
    <resource type="ioport" value="feb0(size=4)" />
    <resource type="ioport" value="fef0(size=16)" />
   </resources>
   </node>
   <node id="communication:1" claimed="true" class="communication"</p>
handle="PCI:0000:00:03.3">
   <description>Serial controller</description>
   <vendor>Intel Corporation</vendor>
   <physid>3.3</physid>
   <businfo>pci@0000:00:03.3</businfo>
   <version>03</version>
   <width units="bits">32</width>
   <clock units="Hz">66000000</clock>
   <configuration>
    <setting id="driver" value="serial" />
    <setting id="latency" value="0" />
    </configuration>
    <capabilities>
    <capability id="pm" >Power Management</capability>
    <capability id="msi" >Message Signalled Interrupts
    <capability id="16550" />
    <capability id="bus_master" >bus mastering</capability>
    <capability id="cap list" >PCI capabilities listing</capability>
    </capabilities>
    <resources>
    <resource type="irq" value="17" />
    <resource type="ioport" value="ec98(size=8)" />
    <resource type="memory" value="fe6d8000-fe6d8fff" />
   </resources>
   </node>
   <node id="network" claimed="true" class="network" handle="PCI:0000:00:19.0">
   <description>Ethernet interface</description>
   <vendor>Intel Corporation/vendor>
   <physid>19</physid>
   <businfo>pci@0000:00:19.0</businfo>
   logicalname>eth0</logicalname>
```







```
<version>02</version>
<serial>00:23:ae:5a:68:97
<size units="bit/s">10000000</size>
<capacity>100000000</capacity>
<width units="bits">32</width>
<clock units="Hz">33000000</clock>
<configuration>
 <setting id="autonegotiation" value="on" />
 <setting id="broadcast" value="yes" />
 <setting id="driver" value="e1000e" />
 <setting id="driverversion" value="1.3.10-k2" />
 <setting id="duplex" value="full" />
 <setting id="firmware" value="0.5-3" />
 <setting id="ip" value="193.147.87.205" />
 <setting id="latency" value="0" />
 <setting id="link" value="yes" />
 <setting id="multicast" value="yes" />
 <setting id="port" value="twisted pair" />
 <setting id="speed" value="100Mbit/s" />
</configuration>
<capabilities>
 <capability id="pm" >Power Management</capability>
 <capability id="msi" >Message Signalled Interrupts/capability>
 <capability id="bus master" >bus mastering</capability>
 <capability id="cap list" >PCI capabilities listing</capability>
 <capability id="ethernet" />
 <capability id="physical" >Physical interface/capability>
 <capability id="tp" >twisted pair/capability>
 <capability id="10bt" >10Mbit/s</capability>
 <capability id="10bt-fd" >10Mbit/s (full duplex)/capability>
 <capability id="100bt" >100Mbit/s</capability>
 <capability id="100bt-fd" >100Mbit/s (full duplex)/capability>
 <capability id="1000bt-fd" >1Gbit/s (full duplex)/capability>
 <capability id="autonegotiation" >Auto-negotiation/capability>
</capabilities>
<resources>
 <resource type="irg" value="48" />
 <resource type="memory" value="fe6e0000-fe6fffff" />
 <resource type="memory" value="fe6d9000-fe6d9fff" />
 <resource type="ioport" value="ecc0(size=32)" />
</resources>
</node>
<node id="usb:0" claimed="true" class="bus" handle="PCI:0000:00:1a.0">
<description>USB Controller</description>
```







```
<vendor>Intel Corporation/vendor>
   <physid>1a</physid>
   <businfo>pci@0000:00:1a.0</businfo>
   <version>02</version>
   <width units="bits">32</width>
   <clock units="Hz">33000000</clock>
   <configuration>
   <setting id="driver" value="uhci hcd" />
   <setting id="latency" value="0" />
   </configuration>
   <capabilities>
   <capability id="uhci" >Universal Host Controller Interface (USB1)
   <capability id="bus master"</pre>
>bus mastering</capability>
   <capability id="cap list" >PCI capabilities listing</capability>
   </capabilities>
   <resources>
   <resource type="irq" value="16" />
   <resource type="ioport" value="ff20(size=32)" />
   </resources>
  </node>
  <node id="usb:1" claimed="true" class="bus" handle="PCI:0000:00:1a.1">
   <description>USB Controller</description>
   <vendor>Intel Corporation</vendor>
   <physid>1a.1</physid>
   <businfo>pci@0000:00:1a.1
   <version>02</version>
   <width units="bits">32</width>
   <clock units="Hz">33000000</clock>
   <configuration>
   <setting id="driver" value="uhci hcd" />
   <setting id="latency" value="0" />
   </configuration>
   <capabilities>
   <capability id="uhci" >Universal Host Controller Interface (USB1)
   <capability id="bus master" >bus mastering</capability>
   <capability id="cap list" >PCI capabilities listing</capability>
   </capabilities>
   <resources>
   <resource type="irq" value="17" />
   <resource type="ioport" value="ff00(size=32)" />
   </resources>
```







```
</node>
<node id="usb:2" claimed="true" class="bus" handle="PCI:0000:00:1a.2">
<description>USB Controller</description>
<vendor>Intel Corporation</vendor>
<physid>1a.2</physid>
<businfo>pci@0000:00:1a.2</businfo>
<version>02</version>
<width units="bits">32</width>
<clock units="Hz">33000000</clock>
<configuration>
 <setting id="driver" value="uhci hcd" />
 <setting id="latency" value="0" />
</configuration>
<capabilities>
 <capability id="uhci" >Universal Host Controller Interface (USB1)
 <capability id="bus master" >bus mastering</capability>
 <capability id="cap list" >PCI capabilities listing</capability>
</capabilities>
<resources>
 <resource type="irg" value="22" />
 <resource type="ioport" value="fc00(size=32)" />
</resources>
</node>
<node id="usb:3" claimed="true" class="bus" handle="PCI:0000:00:1a.7">
<description>USB Controller</description>
<vendor>Intel Corporation</vendor>
<physid>1a.7</physid>
<businfo>pci@0000:00:1a.7</businfo>
<version>02</version>
<width units="bits">32</width>
<clock units="Hz">33000000</clock>
<configuration>
 <setting id="driver" value="ehci hcd" />
 <setting id="latency" value="0" />
</configuration>
<capabilities>
 <capability id="pm" >Power Management</capability>
 <capability id="debug" >Debug port</capability>
 <capability id="ehci" >Enhanced Host Controller Interface (USB2)
 <capability id="bus master" >bus mastering</capability>
 <capability id="cap list" >PCI capabilities listing/capability>
</capabilities>
```







```
<resources>
<resource type="irg" value="22" />
<resource type="memory" value="fe6da000-fe6da3ff" />
</resources>
</node>
<node id="multimedia" claimed="true" class="multimedia" handle="PCI:0000:00:1b.0">
<description>Audio device</description>
<vendor>Intel Corporation</vendor>
<physid>1b</physid>
<businfo>pci@0000:00:1b.0</businfo>
<version>02</version>
<width units="bits">64</width>
<clock units="Hz">33000000</clock>
<configuration>
<setting id="driver" value="HDA Intel" />
<setting id="latency" value="0" />
</configuration>
<capabilities>
<capability id="pm" >Power Management
<capability id="msi" >Message Signalled Interrupts</capability>
<capability id="pciexpress" >PCI Express/capability>
<capability id="bus master" >bus mastering</capability>
<capability id="cap list" >PCI capabilities listing</capability>
</capabilities>
<resources>
<resource type="irq" value="51" />
<resource type="memory" value="fe6dc000-fe6dffff" />
</resources>
</node>
<node id="pci:1" claimed="true" class="bridge" handle="PCIBUS:0000:02">
<description>PCI bridge</description>
<vendor>Intel Corporation</vendor>
<physid>1c</physid>
<businfo>pci@0000:00:1c.0</businfo>
<version>02</version>
<width units="bits">32</width>
<clock units="Hz">33000000</clock>
<configuration>
<setting id="driver" value="pcieport" />
</configuration>
<capabilities>
<capability id="pci" />
```







```
<capability id="pciexpress" >PCI Express/capability>
 <capability id="msi" >Message Signalled Interrupts</capability>
 <capability id="pm" >Power Management</capability>
 <capability id="normal decode" />
 <capability id="bus_master" >bus mastering</capability>
 <capability id="cap list" >PCI capabilities listing</capability>
</capabilities>
<resources>
 <resource type="irq" value="46" />
 <resource type="ioport" value="2000(size=4096)" />
 <resource type="memory" value="fe400000-fe4fffff" />
 <resource type="ioport" value="f0300000(size=2097152)" />
</resources>
</node>
<node id="pci:2" claimed="true" class="bridge" handle="PCIBUS:0000:03">
<description>PCI bridge</description>
<vendor>Intel Corporation</vendor>
<physid>1c.1</physid>
<businfo>pci@0000:00:1c.1
<version>02</version>
<width units="bits">32</width>
<clock units="Hz">33000000</clock>
<configuration>
 <setting id="driver" value="pcieport" />
</configuration>
<capabilities>
 <capability id="pci" />
 <capability id="pciexpress" >PCI Express/capability>
 <capability id="msi" >Message Signalled Interrupts
 <capability id="pm" >Power Management/capability>
 <capability id="normal decode" />
 <capability id="bus master" >bus mastering</capability>
 <capability id="cap list" >PCI capabilities listing</capability>
</capabilities>
<resources>
 <resource type="irg" value="47" />
 <resource type="ioport" value="1000(size=4096)" />
 <resource type="memory" value="fe300000-fe3fffff" />
 <resource type="ioport" value="f0100000(size=2097152)" />
</resources>
</node>
<node id="usb:4" claimed="true" class="bus" handle="PCI:0000:00:1d.0">
<description>USB Controller</description>
```







```
<vendor>Intel Corporation</vendor>
<physid>1d</physid>
<businfo>pci@0000:00:1d.0</businfo>
<version>02</version>
<width units="bits">32</width>
<clock units="Hz">33000000</clock>
<configuration>
<setting id="driver" value="uhci hcd" />
<setting id="latency" value="0" />
</configuration>
<capabilities>
<capability id="uhci" >Universal Host Controller Interface (USB1)
<capability id="bus master" >bus mastering</capability>
<capability id="cap list" >PCI capabilities listing</capability>
</capabilities>
<resources>
<resource type="irg" value="23" />
<resource type="ioport" value="ff80(size=32)" />
</resources>
</node>
<node id="usb:5" claimed="true" class="bus" handle="PCI:0000:00:1d.1">
<description>USB Controller</description>
<vendor>Intel Corporation</vendor>
<physid>1d.1</physid>
<businfo>pci@0000:00:1d.1
<version>02</version>
<width units="bits">32</width>
<clock units="Hz">33000000</clock>
<configuration>
<setting id="driver" value="uhci hcd" />
<setting id="latency" value="0" />
</configuration>
<capabilities>
<capability id="uhci" >Universal Host Controller Interface (USB1)
<capability id="bus master" >bus mastering</capability>
<capability id="cap list" >PCI capabilities listing/capability>
</capabilities>
<resources>
<resource type="irq" value="17" />
<resource type="ioport" value="ff60(size=32)" />
</resources>
</node>
```







```
<node id="usb:6" claimed="true" class="bus" handle="PCI:0000:00:1d.2">
   <description>USB Controller</description>
   <vendor>Intel Corporation</vendor>
   <physid>1d.2</physid>
   <businfo>pci@0000:00:1d.2
   <version>02</version>
   <width units="bits">32</width>
   <clock units="Hz">33000000</clock>
   <configuration>
   <setting id="driver" value="uhci hcd" />
   <setting id="latency" value="0" />
   </configuration>
   <capabilities>
   <capability id="uhci" >Universal Host Controller Interface (USB1)
   <capability id="bus master" >bus mastering</capability>
   <capability id="cap list" >PCI capabilities listing</capability>
   </capabilities>
   <resources>
   <resource type="irq" value="18" />
   <resource type="ioport" value="ff40(size=32)" />
   </resources>
  </node>
  <node
id="usb:7" claimed="true" class="bus" handle="PCI:0000:00:1d.7">
   <description>USB Controller</description>
   <vendor>Intel Corporation</vendor>
   <physid>1d.7</physid>
   <businfo>pci@0000:00:1d.7</businfo>
   <version>02</version>
   <width units="bits">32</width>
   <clock units="Hz">33000000</clock>
   <configuration>
   <setting id="driver" value="ehci hcd" />
   <setting id="latency" value="0" />
   </configuration>
   <capabilities>
   <capability id="pm" >Power Management</capability>
   <capability id="debug" >Debug port</capability>
   <capability id="ehci" >Enhanced Host Controller Interface (USB2)
   <capability id="bus master" >bus mastering</capability>
   <capability id="cap list" >PCI capabilities listing/capability>
   </capabilities>
```







```
<resources>
 <resource type="irg" value="23" />
 <resource type="memory" value="ff980000-ff9803ff" />
</resources>
</node>
<node id="pci:3" claimed="true" class="bridge" handle="PCIBUS:0000:04">
<description>PCI bridge</description>
oduct>82801 PCI Bridge/product>
<vendor>Intel Corporation</vendor>
<physid>1e</physid>
<businfo>pci@0000:00:1e.0
<version>a2</version>
<width units="bits">32</width>
<clock units="Hz">33000000</clock>
<capabilities>
 <capability id="pci" />
 <capability id="subtractive decode" />
 <capability id="bus master" >bus mastering</capability>
 <capability id="cap list" >PCI capabilities listing</capability>
</capabilities>
</node>
<node id="isa" claimed="true" class="bridge" handle="PCI:0000:00:1f.0">
<description>ISA bridge</description>
<vendor>Intel Corporation</vendor>
<physid>1f</physid>
<businfo>pci@0000:00:1f.0</businfo>
<version>02</version>
<width units="bits">32</width>
<clock units="Hz">33000000</clock>
<configuration>
 <setting id="latency" value="0" />
</configuration>
<capabilities>
 <capability id="isa" />
 <capability id="bus master" >bus mastering</capability>
 <capability id="cap list" >PCI capabilities listing</capability>
</capabilities>
</node>
<node id="storage" claimed="true" class="storage" handle="PCI:0000:00:1f.2">
<description>SATA controller</description>
<vendor>Intel Corporation</vendor>
<physid>1f.2</physid>
```







```
<businfo>pci@0000:00:1f.2</businfo>
<logicalname>scsi2</logicalname>
<logicalname>scsi3</logicalname>
<version>02</version>
<width units="bits">32</width>
<clock units="Hz">66000000</clock>
<configuration>
<setting id="driver" value="ahci" />
<setting id="latency" value="0" />
</configuration>
<capabilities>
<capability id="storage" />
<capability id="msi" >Message Signalled Interrupts</capability>
<capability id="pm" >Power Management/capability>
<capability id="ahci 1.0" />
<capability id="bus master" >bus mastering</capability>
<capability id="cap list" >PCI capabilities listing</capability>
<capability id="emulated" >Emulated device</capability>
</capabilities>
<resources>
<resource type="irg" value="49" />
<resource type="ioport" value="fe00(size=8)" />
<resource type="ioport" value="fe10(size=4)" />
<resource type="ioport" value="fe20(size=8)" />
<resource type="ioport" value="fe30(size=4)" />
<resource type="ioport" value="fec0(size=32)" />
<resource type="memory" value="f0000000-f00007ff" />
</resources>
<node id="disk" claimed="true" class="disk" handle="SCSI:02:00:00:00">
 <description>ATA Disk</description>
 oduct>WDC WD1600AAJS-7
 <vendor>Western Digital</vendor>
 <physid>0</physid>
 <businfo>scsi@2:0.0.0</businfo>
 <logicalname>/dev/sda</logicalname>
 <dev>8:0</dev>
 <version>01.0</version>
 <serial>WD-WMAV30985562</serial>
 <size units="bytes">160000000000</size>
 <configuration>
 <setting id="ansiversion" value="5" />
 <setting id="signature" value="4dc5fddf" />
 </configuration>
 <capabilities>
```







```
<capability id="partitioned" >Partitioned disk</capability>
<capability id="partitioned:dos" >MS-DOS partition table/capability>
</capabilities>
<node id="volume:0" claimed="true" class="volume" handle="">
 <description>Windows FAT volume</description>
 <vendor>Winbond Electronics</vendor>
 <physid>1</physid>
 <businfo>scsi@2:0.0.0,1</businfo>
 logicalname>/dev/sda1
 <dev>8:1</dev>
 <version>FAT16</version>
 <serial>07d8-0c1e</serial>
 <size units="bytes">90413056</size>
 <capacity>90445824</capacity>
 <configuration>
 <setting id="FATs" value="2" />
 <setting id="filesystem" value="fat" />
 <setting id="label" value="DellUtility" />
 </configuration>
 <capabilities>
 <capability id="primary" >Primary partition</capability>
 <capability id="fat" >Windows FAT</capability>
 <capability id="initialized" >initialized volume</capability>
 </capabilities>
</node>
<node id="volume:1" claimed="true" class="volume" handle="">
 <description>Windows NTFS volume</description>
 <physid>2</physid>
 <businfo>scsi@2:0.0.0,2</businfo>
 <logicalname>/dev/sda2</logicalname>
 <dev>8:2</dev>
 <version>3.1</version>
 <serial>9e25b74d-0c50-8b44-b1fc-bf87a268a052</serial>
 <size units="bytes">19980507648</size>
 <capacity>20003880960</capacity>
 <configuration>
 <setting id="clustersize" value="4096" />
 <setting id="created" value="2008-12-31 05:04:06" />
 <setting id="filesystem" value="ntfs" />
 <setting id="label" value="OS" />
 <setting id="state" value="clean" />
 </configuration>
 <capabilities>
 <capability id="primary" >Primary partition</capability>
```







```
<capability id="bootable" >Bootable partition (active)</capability>
 <capability id="ntfs" >Windows NTFS</capability>
 <capability id="initialized" >initialized volume</capability>
</capabilities>
</node>
<node id="volume:2" claimed="true" class="volume" handle="">
<description>Extended partition</description>
<physid>3</physid>
<businfo>scsi@2:0.0.0,3</businfo>
<logicalname>/dev/sda3</logicalname>
<dev>8:3</dev>
<size units="bytes">69997101568</size>
<capacity>69997101568</capacity>
<capabilities>
 <capability id="primary" >Primary partition</capability>
 <capability id="extended" >Extended partition</capability>
 <capability id="partitioned" >Partitioned disk/capability>
 <capability id="partitioned:extended" >Extended partition
</capabilities>
 <node id="logicalvolume:0" claimed="true" class="volume" handle="">
 <description>Linux filesystem partition</description>
 <physid>5</physid>
 <logicalname>/dev/sda5</logicalname>
 <dev>8:5</dev>
 <capacity>61993903104</capacity>
 </node>
 <node id="logicalvolume:1" claimed="true" class="volume" handle="">
 <description>Linux swap / Solaris partition</description>
 <physid>6</physid>
 logicalname>/dev/sda6</logicalname>
 <dev>8:6</dev>
 <capacity>8003165184</capacity>
 <capabilities>
  <capability id="nofs" >No filesystem</capability>
 </capabilities>
 </node>
</node>
<node id="volume:3" claimed="true" class="volume" handle="">
<description>EXT4 volume</description>
<vendor>Linux</vendor>
<physid>4</physid>
<businfo>scsi@2:0.0.0,4</businfo>
logicalname>/dev/sda4</logicalname>
logicalname>/</logicalname>
```







```
<dev>8:4</dev>
      <version>1.0</version>
      <serial>e444f949-94f5-4586-8686-49a00f89db2f</serial>
      <size units="bytes">69907513344</size>
      <capacity>69907513344</capacity>
      <configuration>
       <setting id="created" value="2012-03-05 11:43:26" />
       <setting id="filesystem" value="ext4" />
       <setting id="lastmountpoint" value="/" />
       <setting id="modified" value="2012-09-07 13:47:16" />
       <setting id="mount.fstype" value="ext4" />
       <setting id="mount.options" value="rw,relatime,errors=remount-</pre>
ro,user xattr,acl,barrier=1,data=ordered" />
       <setting id="mounted" value="2012-11-27 17:43:07" />
       <setting id="state" value="mounted" />
      </configuration>
      <capabilities>
       <capability id="primary" >Primary partition</capability>
       <capability id="journaled" />
       <capability id="extended_attributes" >Extended Attributes
       <capability id="large files" >4GB+ files</capability>
       <capability id="huge files" >16TB+
files</capability>
       <capability id="dir nlink" >directories with 65000+ subdirs</capability>
       <capability id="recover" >needs recovery</capability>
       <capability id="extents" >extent-based allocation
       <capability id="ext4" />
       <capability id="ext2" >EXT2/EXT3</capability>
       <capability id="initialized" >initialized volume</capability>
      </capabilities>
      </node>
    </node>
    <node id="cdrom" claimed="true" class="disk" handle="SCSI:03:00:00:00">
     <description>DVD-RAM writer</description>
     cproduct>DVD+-RW TS-H653F/product>
     <vendor>TSSTcorp</vendor>
     <physid>1</physid>
     <businfo>scsi@3:0.0.0
     logicalname>/dev/cdrom
     logicalname>/dev/cdrw</logicalname>
     <logicalname>/dev/dvd</logicalname>
     logicalname>/dev/dvdrw</logicalname>
     <logicalname>/dev/scd0</logicalname>
     logicalname>/dev/sr0</logicalname>
```







```
<dev>11:0</dev>
   <version>D200</version>
   <configuration>
   <setting id="ansiversion" value="5" />
   <setting id="status" value="nodisc" />
   </configuration>
   <capabilities>
   <capability id="removable" >support is removable/capability>
   <capability id="audio" >Audio CD playback/capability>
   <capability id="cd-r" >CD-R burning</capability>
   <capability id="cd-rw" >CD-RW burning</capability>
   <capability id="dvd" >DVD playback</capability>
   <capability id="dvd-r" >DVD-R burning</capability>
   <capability id="dvd-ram" >DVD-RAM burning</capability>
   </capabilities>
  </node>
 </node>
 <node id="serial" class="bus" handle="PCI:0000:00:1f.3">
 <description>SMBus</description>
 oduct>82801JD/DO (ICH10 Family) SMBus Controller/product>
 <vendor>Intel Corporation</vendor>
 <physid>1f.3</physid>
 <businfo>pci@0000:00:1f.3</businfo>
 <version>02</version>
 <width units="bits">64</width>
 <clock units="Hz">33000000</clock>
 <configuration>
  <setting id="latency" value="0" />
 </configuration>
 <resources>
  <resource type="memory" value="fe6db000-fe6db0ff" />
  <resource type="ioport" value="ece0(size=32)" />
 </resources>
 </node>
</node>
<node id="scsi:0" claimed="true" class="storage" handle="SCSI:10">
<physid>1</physid>
<businfo>usb@2:2</businfo>
logicalname>scsi10</logicalname>
<configuration>
 <setting id="driver" value="usb-storage" />
</configuration>
<capabilities>
 <capability id="emulated" >Emulated device</capability>
```

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```
<capability id="scsi-host" >SCSI host adapter
   </capabilities>
   <node id="disk" claimed="true" class="disk" handle="SCSI:10:00:00:00">
    <description>SCSI Disk</description>
    <physid>0.0.0</physid>
    <businfo>scsi@10:0.0.0
    logicalname>/dev/sdb
    <dev>8:16</dev>
    <size units="bytes">8127512576</size>
    <capabilities>
    <capability id="partitioned" >Partitioned disk</capability>
    <capability id="partitioned:dos" >MS-DOS partition table/capability>
    </capabilities>
    <node id="volume" claimed="true" class="volume" handle="">
     <description>Windows FAT volume</description>
     <vendor>MSWIN4.1
     <physid>1</physid>
     <businfo>scsi@10:0.0.0,1
     <logicalname>/dev/sdb1/logicalname>
     <logicalname>/media/KINGSTON</logicalname>
     <dev>8:17</dev>
     <version>FAT32</version>
     <serial>9560-705a</serial>
     <size units="bytes">8118312960</size>
     <capacity>8123383808</capacity>
     <configuration>
     <setting id="FATs" value="2" />
     <setting id="filesystem" value="fat" />
     <setting id="mount.fstype" value="vfat" />
     <setting id="mount.options"
value="rw,nosuid,nodev,relatime,uid=1000,gid=1000,fmask=0022,dmask=0077,codepage
=cp437,iocharset=iso8859-1,shortname=mixed,showexec,utf8,flush,errors=remount-ro" />
     <setting id="state" value="mounted" />
     </configuration>
     <capabilities>
     <capability id="primary" >Primary partition</capability>
     <capability id="bootable" >Bootable partition (active)/capability>
     <capability id="fat" >Windows FAT</capability>
     <capability id="initialized" >initialized volume</capability>
     </capabilities>
    </node>
   </node>
  </node>
  <node id="scsi:1" claimed="true" class="storage" handle="SCSI:09">
```







```
<physid>2</physid>
   <businfo>usb@2:5</businfo>
   <logicalname>scsi9</logicalname>
   <configuration>
   <setting id="driver" value="usb-storage" />
   </configuration>
   <capabilities>
   <capability id="emulated" >Emulated device</capability>
   <capability id="scsi-host" >SCSI host adapter/capability>
   </capabilities>
   <node id="disk" claimed="true" class="disk" handle="SCSI:09:00:00:00">
    <description>SCSI Disk</description>
    <physid>0.0.0</physid>
    <businfo>scsi@9:0.0.0</businfo>
    logicalname>/dev/sdc</logicalname>
    <dev>8:32</dev>
    <size units="bytes">1000204886016</size>
    <configuration>
    <setting id="signature" value="454c2d9e" />
    </configuration>
    <capabilities>
    <capability id="partitioned" >Partitioned disk</capability>
    <capability id="partitioned:dos" >MS-DOS partition table/capability>
    </capabilities>
    <node id="volume" claimed="true" class="volume" handle="">
     <description>Windows NTFS volume</description>
     <physid>1</physid>
     <businfo>scsi@9:0.0.0,1
     logicalname>/dev/sdc1
     <logicalname>/media/LaCie</logicalname>
     <dev>8:33</dev>
     <version>3.1</version>
     <serial>74b50f55-0672-8b4b-a849-2bc51a64720b</serial>
     <size units="bytes">1000202208256</size>
     <capacity>1000202241024</capacity>
     <configuration>
      <setting id="clustersize" value="4096" />
      <setting id="created" value="2008-09-12 13:48:05" />
      <setting id="filesystem" value="ntfs" />
      <setting id="label" value="LaCie" />
      <setting id="mount.fstype" value="fuseblk" />
      <setting id="mount.options"
value="rw,nosuid,nodev,relatime,user id=0,group id=0,default permissions,allow other,bl
ksize=4096" />
```









