

Linux WBEM providers of HPE Integrity Superdome X Release Notes

Version 1.38

2018/04/09

Web site: <http://downloads.linux.hpe.com/SDR/repo/bl920-wbem/>

Linux WBEM providers Products

This is a release notes of the Linux Manageability Stack (aka Linux WBEM providers) on RHEL6/7, SLES11/12 and later version.

Linux Web Based Enterprise Management (WBEM) providers are based on the SMX 3.0 technology for RHEL 6/7 and SLES 11/12 running on HPE Integrity Superdome X. This release includes a variety of WBEM providers, tools, required registration files and installation scripts bundled into several RPM packages for easy installation on Linux systems.

There are five distributions for this release:

- hpmgmtbase-VV.UU.RR-BB.distro.arch.rpm
- hp-smx-VV.UU.RR-BB.distro.arch.rpm
- hpsmx-webapp.VV.UU.RR-BB.distro.noarch.rpm
- hpshd-VV.UU.RR-BB.distro.arch.rpm
- hp-smx-EnableWsmn-VV.UU.RR-BB.distro.arch.rpm

For VV.UU.RR-BB, VV is the major version number, UU is the minor version/update number, RR is the release/fix number and BB is build number; distro is the OS distribution, rhel6, rhel7, sles11, sles12; and arch is the system arch i386, i586, x86_64. These distributions are available at:

<http://downloads.linux.hpe.com/SDR/repo/bl920-wbem/>

HP-Management-Base (hpmgmtbase) is a collection of software that includes driver modules, daemons, shared libraries, lookup files and utility support for WBEM providers.

HP-SMX (Server Manageability eXtensions) is a set of providers which reporting, monitoring and managing HPE Integrity Superdome X hardware, including server's CPUs, memory, network, attached storages.

HP-SMX-WEBAPP is a web application which deployed in HP SMH(*), it collect smx provider data and display it in HP-SMH web pages.

**HP-SMH (System Management Homepage) is a web-based interface that consolidates and simplifies single system management for HPE servers on HP-UX, Linux, and Windows operating systems.*

HP-SHD (System Health Daemon)

HP-SHD updates OS logs/events to OA using IPMI command to keep the consistency with OS and also acts as a WBEM client to receive SMX indications and transfers them to OA, one stop fault management.

HP-SMX-EnableWsman

This package provides the enablement of openwsman protocol for IRS connection. It depends on the openwsman-server package and after it installed, IRS can collect all the necessary information about this SDX partition.

Known Issues

[SLES 12 Only] HPSMX-WEBAPP might show blank screen and HPSHD might not be able to send the indications.

At times, the "Http Request Handler" process of sblim-sfcb hangs in SLES 12. This results in HPSHD unable to send indications and HPSMX providers unable to fetch Superdome X information.

Workaround

Restart sblim-sfcb and hpsfd using following commands:

```
systemctl restart sblim-sfcb  
systemctl restart hpsfd
```

HP SHD cannot send connection error indication after among physical NIC in to a group

If use "nmcli" command to create a teaming network of several physical NIC. When some of the ports disconnect, teaming will be relieved, NIC indication is expected to be sent. But HP SHD cannot send this indication at present.

Workaround

Use port disconnection indication instead at present.

[RHEL6.6 and later version] HPSMX cannot start Openwsman and IRS cannot connect with WBEM providers

HPSMX will start openwsman after the installation, and IRS will use SSL port to connect with WBEM provider to get Superdome X information. In RHEL6.6, HPSMX start openwsman will failed, and IRS cannot be used.

Workaround

Install openssl-devel

In RHEL6.6, install openssl-devel by yum.

[SLES11SP3 only]HP SHD need to be restarted manually when sfcb restarts

HP SHD will crash and need to restart if sfcb restarts. It's a bug of sfcb which is an open source CIMOM default on SLES11 SP3 about reconnection. For details, please refer to:

<https://sourceforge.net/p/sblim/bugs/2667/>

Workaround

Restart the HP SHD manually when restart sfcb.

HPSMX-WEBAPP will report no crontab for XXX if never configure cron before

When install HPSMX-WEBAPP, if never use 'crontab - e' to configure cron before, the error message 'no crontab for XXX' will be reported.

Workaround

- Use command ‘`crontab -e`’ to create a crontab file.
- This issue only occur once, SMX-WEBAPP will create a crontab file and the message will not report again.

When restart the OS, SMH pages will become slow before saveCache.py complete

When restart OS, all the memcached data will be removed, so HPSMX-WEBAPP will not speed up until all the smx provider data push in memcached

Workaround

Wait for all the smx provider data push into memcached.

[SLES12 only] Error message will occur when install, upgrade or uninstall HPSMX

During install, upgrade, uninstall HPSMX SLES 12, sfcb will be started, if OpenSLP is not started, message ‘Error registering service with slp -20’ will be shown.

Workaround

This is because OpenSLP service did not start, start OpenSLP and this error message will not occur.

[RHEL7 SLES12 only] Install HPSMX-WEBAPP will show remove executable permission in system log

When install SMX-WEBAPP in RHEL 7 or SLES12, message ‘Configuration file /usr/lib/systemd/system/Webapp-memcached-XXX.service is marked executable. Please remove executable permission bits. Proceeding anyway.’ will be shown in system log.

Workaround

This issue has no influence to anything, and it will be fixed in next release.

[SLES11SP3 only]In 8-blade Superdome X server, when restart sfcb with SMX Provider installed, "stop sfcb" sometimes fail

Sometimes, the following phenomenon will occur

E.g.

```
# service sfcb restart
```

```
Shutting down
```

```
sfcb:                failed
```

```
Starting
```

```
sfcb:                done
```

When stopping sfcb,"killproc" will send signal "SIGTERM" and "SIGKILL" to kill all sfcb processes.

To kill the related process needs more time. When the kill process has not finished yet, use "rc_status" to check the return status, get wrong result. Then "stop sfcdb fail" happens.

Solution

A.Restart sfcdb again.

B.Modify /etc/init.d/sfcdb, add option "-t" for "killproc". For

example:

Change

```
stop() {  
    echo -n "Shutting down sfcdb: "  
    killproc sfcdb  
    rc_status -v  
}
```

To

```
stop() {  
    echo -n "Shutting down sfcdb: "  
    killproc -t 20 sfcdb  
    rc_status -v  
}
```

Upgrading from the version below 56 will be prohibited

When use command 'rpm -Uvh' to upgrade smx-webapp from the version below 56, the upgrade process will be prohibited because it will shut down the memcached.

Workaround

When upgrade from the version below version 56, use uninstall/install to update smx-webapp.

or

Execute these commands if memcached shut down.

RHEL6

```
# service Webapp-memcached-rhel6 start
```

RHEL7

```
# systemctl start Webapp-memcached-rhel7.service
```

SLSE11

```
# /etc/init.d/Webapp-memcached-sles11sp3 start
```

SLSE12

```
# systemctl start Webapp-memcached-sles12.service
```

When hp-smx package is upgraded to version56, there will be some warning messages displayed in installation process

Since we use a new uninstall method from version56, you will see some warning message like following.

```
“Usage: /opt/hp/hp-smx/bin/rpm_install.sh {install|uninstall} {base directory}”
```

You can just ignore it and it will not impact the real install/uninstall process.

This phenomenon only occur when you upgrade the hp-smx-X.X.X rpm from early version to version56. If you upgrade this package from version56 to later one, it will not occur.

Invalid CIM indication subscription will be left when HP SHD is upgraded from a version below 56

When you update the packages with “rpm -Uvh ...” , and then stopped hpsd by /etc/init.d/hpsd, all subscriptions should be deleted by hpsd, but some unexpected subscriptions will be left like below.

```
# cimsub -ls
```

NAMESPACE	FILTER	HANDLER	STATE
root/cimv2	root/cimv2:hpsd	root/cimv2:CIM_IndicationFilter.hpsd	Enabled
root/hpq	root/hpq:hpsd	root/hpq:CIM_IndicationFilter.hpsd	Enabled

Workaround

Run below command to delete them.

```
#cimsub -ra -n root/cimv2 -F root/cimv2:hpsd - H root/cimv2:CIM_IndicationFilter.hpsd  
#cimsub -ra -n root/hpq -F root/hpq:hpsd - H root/hpq:CIM_IndicationFilter.hpsd
```

Indication info is not correct when a network down in a bonding

If you install the WBEM56 (or later) with SDX FW 7.6.0(or earlier) are installed, eventID 4003(A hardware error has been detected) message will be generated on OA CAE instead of EventID 16(Ethernet Team Failed).

This message will be generated if you configure bonding network interface and its bonding member ports are all down.

Workaround

Install SDX FW more than 7.6.0 or later.

HPSHD will not start if sblim-gather* rpms are installed

If you install sblim-gather* packages and then install WBEM54(or later), HPSHD will not cannot be started.

Workaround

Remove sblim-gather* packages.

[SLES 12] HP-SMX may not upgrade correctly from version 56 and above, if HPSHD is also installed on the system.

On a SLES 12 and above system, where hpshd is also installed, if hp-smx is upgraded from version 56 and above, the following error messages may be observed in the /var/log/messages

```
Sf format being used.  
bad property name "SequenceContext" for (null)  
backend error has occurred writing classSchemas  
Failed compiling the MOF files.
```

The WBEM indications do not show up in the System Management Homepage.

Workaround

Remove hp-smx and its dependent rpm packages and re-install them again for the WBEM indications to be captured correctly.

[SLES 12 SP2] Services related to the Linux WBEM Provider products fail after an OS upgrade from SLES 12 SP1 to SLES 12 SP2.

After an OS upgrade from SLES 12 SP1 to SLES 12 SP2, the following services fail to start correctly:

1. hpmgmtbase.service
2. sblim-sfcb.service
3. hpshd.service

The failures occur as the symbolic links used by Linux WBEM Provider products are not recreated after the OS upgrade.

Workaround

Apply one of the following alternatives.

Alternative 1: Before starting the OS upgrade from SLES 12 SP1 to SLES 12 SP2:

1. Uninstall the hpmgmtbase, hp-smx, hpshd, hp-smx-EnableWsman and hpsmx-webapp rpm packages from the SLES 12 SP1 system
2. Execute the OS upgrade from SLES 12 SP1 to SLES 12 SP2
3. Follow the install_guide_sles11_and_sles12.txt to install the WBEM Providers corresponding to SLES 12 SP2

Alternative 2: On detecting the above mentioned failed services, after the OS upgrade from SLES 12 SP1 to SLES 12 SP2:

1. Uninstall hpmgmtbase, hp-smx, hpshd, hp-smx-EnableWsman and hpsmx-webapp rpm packages from the upgraded system
2. Follow the install_guide_sles11_and_sles12.txt to re-install the WBEM Providers corresponding to SLES 12 SP2

[SLES 12 SP2] Issues with sblim-sfcb on SLES 12 SP2.

On SLES 12 SP2, the SMH webapp page may fail to load any content. The wbemcli commands on the system for any of the SMX_* or HP_* WBEM classes will not report any output. The inconsistent behavior is caused due to a known issue in sblim-sfcb – #1015155.

Workaround:

Update sblim-sfcb based on the following recommended update -
<https://www.suse.com/support/update/announcement/2017/suse-ru-20170040-1/>

Release Notes Details

04/09/2018(60)

- Enhancements
 - Enable support for Mellanox Infiniband providers for SLES 11 SP3 and SLES 11 SP4.
- Fix following defects:

Defect ID	Description
QXCR1001511556	SMX may miss transient NIC link down/up events.
QXCR1001539546	SMX crash seen in libSMXCmpiCpp.so rarely.
QXCR1001563446	HPSHD services shows memory leaks.

10/07/2016(59)

- Enhancements
 - QXCR1001473679 - Reinstate page refresh functionality for WBEM
With this enhancement, Auto Page Refresh for HPESMX-Webapp can be enabled or disabled. Auto Page Refresh Time Interval can be configured to 2, 5, 10, 20, 30 minutes. By default, Auto Page Refresh is enabled and set to 2 minutes of time interval to be consistent with the current behavior.
 - QXCR1001511341 - HP SHD does not detect SLES 12 SP1 for SAP - reports default Linux to CAE logs
 - SLES12 SP2 initial support
 - QXCR1001509388 - hpmgmtbase package fails to install on SLES12-SP2
 - RHEL 7.3 initial support
 - RHEL 6.9 initial support
- Fix following defects:

Defect ID	Description
QXCR1001496418	Installation of hp-smx generates error if SELinux is disabled
QXCR1001499864	On a SLES 12 SP1 system, IRS cannot gather the system details from the HP SMX Providers
QXCR1001505644	HPSHD service crashes in a system configuration having several IPv4/IPv6 network addresses.

06/16/2016(58)

- Fix support issues of IB Provider on RHEL 6 and RHEL 7 for IRS
- Fix following defects:

Defect ID	Description
QXCR1001477605	WBEM install issue on NightHawk using SLES12 SP1

QXCR1001478211	Enable hpmgmtbase install on SLES 12 for SAP
QXCR1001487023	Events from FRUs on Enclosure/Chassis (Fan, USB) not reported in syslog in the version 56 release
QXCR1001485907	SMXIPMIRecordLog Provider core dump during processing FAN status change events.

04/08/2016(56)

- RHEL6.7, RHEL6.8, RHEL7.2, SLES11SP4 and SLES12SP1 support on NightHawk
- SLES12SP1 GM initial support
- Update IB of 57 version and fix some issues support Rhel6.6 and Rhel7.1
- Fix following defects:

Defect ID	Description
QXCR1001461683	After updating from BL54 to BL55 and the hpsd service don't send indication
QXCR1001442943	SMH delayed reporting bond port status change: CUSTOMER ISSUE SIE89242
QXCR1001415551	ER: Request that WBEM Ethernet Port Provider messages be more generic
QXCR1001477250	Continuous logging of messages in syslog after upgrading SMX package
QXCR1001439161	Property "IncludedInSolution" and "SolutionName" were both wrong
QXCR1001467065	WBEM56 incorrectly reported other nPar's events
QXCR1001469512	Upgrading WBEM55 to 56 Webapp-memcached-rhel6 does not support chkconfig
QXCR1001471076	service Webapp-memcached-rhel6 does not support chkconfig
QXCR1001471836	RHEL6.6-x64 - Superdome2 16s - SMX (WBEM) tog-pegasus "cimsub -ls" shows an unex
QXCR1001472097	RHEL6.6-x64 - Superdome2 16s - hpsd stop does not delete all existing subscript
QXCR1001474312	SMH webapp display NA on Memory type and wrong total system memory size
QXCR1001475886	Some indication value is empty, there is a problem
QXCR1001440808	SMH cannot report FC port status change: CUSTOMER ISSUE SIE89092
QXCR1001446092	EH: cimprovagt "Network Interface Connectivity Lost" message is improper
QXCR1001447848	umerous WBEM Indication logs cause SMH slow or hung: SIE91562
QXCR1001424488	BL920S Gen8 CAE confusing message OS run-time critical shutdown occurred

- Fix following documentation:

Defect ID	Description
QXCR1001491400	Refreshed Superdome-X WBEM Providers install guides for RHEL and SLES. The install guides for SLES 11 and SLES 12 have been merged into a single install guide for SLES.

12/03/2015(55)

- RHEL7.2 GM & SLES12SP1 RC3 initial support

- Fix following defects:

Defect ID	Description
QXCR1001450998	Update installation of hpsmx-webapp can't start memcache service
DE1184	Uninstall hpsmx-Enablewsman error
DE1183	Install hpsmx-webapp need the dependency of libxml2-python

10/29/2015(54)

- New support on IB 545M devices
- Fix following defects:

Defect ID	Description
QXCR1001442935	WBEM Providers cause SELinux error: CUSTOMER ISSUE SIE89391
QXCR1001448187	SMX cause lots of zombie processes
DE1178	Avoiding Service network is missed in the runlevels 4 to use service HP message; chkconfig 4 hpmgmtbase off

09/18/2015(53)

- Fix following defects:
 - Cimprovagt got segfault on SDX.
 - Cimprovagt(SMX) can't detect LAN Linkdown
 - Hpsdhd failed to write HP_Fibre_Channel indication to athena
 - Customer requests removal of openwsman dependency

08/14/2015(52)

- Support Partition IP Address display in events that forwarding to OA
- Support the "rpm -Uvh"
- Fix following defects:
 - Failed to start HP Mission Critical Linux System Health Daemon
 - Display wrong LocationInfoDesc value for PCI BLOM slot on DH
 - Segfault in libSMXCmpiCpp.so when testing SMX_ProcessorChip.py

07/24/2015(51)

- Hpmgmtbase, hp-smx, hpsmx-webapp, hpsdhd package can be upgraded by command 'rpm -Uvh' for the version 51 or later.
- Fix following defects:

•	• RHEL6.6-x64 - Superdome2 16s - WBEM Indication event lost by WBEM version update
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07/10/2015(50)

- Fix following defects:
 - [dhf2/rhel6]Uninstall hp-smx show libsemanage.semanage notfound
 - [IB] IB MAC address is weird
 - [Hawks/SMH] Hardware Location (Domain:Bus:Device.Function) display as Undefined for some Ethernet Port
 - Cimprovagt message isn't reported on /var/log/messages

06/25/2015(49)

- Enhancement: When OS or HPSMX service start, FC Port Status indication will not be sent to OA CAE no matter 'send' or 'ignore' selected.
- Fix following defects:
 - [RHEL6.X and SLES11] Need to update the http URL to https URL on opensman.conf
 - SMH should not show iLO URL hot link on systems

06/12/2015(48)

- RHEL6.7 S3 & SLES11SP4 RC2 initial support
- New function: Enable/disable indication detecting link down state of FC HBA port after OS boot
Note: Set Enable/disable indication by [HPSMH Home] -> [Storage] -> [FibreChannel HBA] -> Select one FC
- Fix following defects:
 - Install hpmgmtbase show dbus permission denied.

05/29/2015(47)

- Fix following defects:
 - Openwsman service can't start automatically after smx installed
 - SMXSELRecordLog - 3896 provider exiting due to a SIGSEGV signal
 - Install and uninstall hp-smx show segfault
 - The parstatus is OSBOOT
 - Install hpmgmtbase and hp-smx then reboot os, the status of openwsman was stopped.
 - Install hp-smx then the openwsman doesn't start up

05/15/2015(46)

- Fix following defects:

<ul style="list-style-type: none">• sfcdb has performance issues, causing poor SPECjbb performance
<ul style="list-style-type: none">• Bad system performance with sblim-sfcb for SPECjbb on Dragonhawk, SLES11
<ul style="list-style-type: none">• Indication event time is not correct
<ul style="list-style-type: none">• hpmgmtbase install failure of hpmgmtbase-3.2.0-45 on SLES 12
<ul style="list-style-type: none">• cimprovagt(SMXBladeSystemLiteModule) is killed by segfault• cimprovagt(SMXEthernetPortModule) is killed by segfault Completed• cimprovagt(SMXIPMIRecordLogsModule) is killed by segfault• settroubleshoot errors after installing Version 41 manageability rpms on RHEL7.1

- All the data time should be local time instead of UTC time
- SMH always shows minor degraded status for Fibre Channel HBA

04/10/2015(45)

- Release initial RHEL7.1 providers on Superdome X
- Fix following defects:

	<ul style="list-style-type: none"> • [SLES11/SLES12] Need to resolve dependency of memcache
	<ul style="list-style-type: none"> • Linux providers need to fill SystemFirmwareVersion for all events
	<ul style="list-style-type: none"> • SMH webapp need to update the system FW version from "Date" to "Bundle Version"
	<ul style="list-style-type: none"> • Indication event time isn't display as local time
	<ul style="list-style-type: none"> • 2P Fibre Channel only shows a single port on the SMH Storage Fibre Channel Menu
	<ul style="list-style-type: none"> • [RPM]: HP-SMX needs to check hp-fc-enablement package on pre-installation
	<ul style="list-style-type: none"> • cimprovagt fails to detect link down on bond iface disconnected on RH 6.6
	<ul style="list-style-type: none"> • WBEM provider doesn' t detect FC path Failure Event on RHEL 6.6
	<ul style="list-style-type: none"> • Parsing error during installing hp-smx

03/20/2015(44)

Initial release of RHEL7.1 support on Superdome X and RHEL6.6 support on Superdome X

02/16/2015(43)

- Release the fully SLES12 providers on Superdome X
- Fix following defects:
 - cimprovagt fails to detect link down on bond iface disconnected on RH 6.6
 - OA firmware version is populating OS events
 - The partition number of network and Fibel Channel is wrong

01/30/2015(42)

Fix following defects:

- cimprovagt: segfault after installing RHEL 7.0 WBEMproviders

- The CAE event in a partition is notified to RHEL of other partitions
- Blade number which WBEM logged is wrong

12/19/2014(41)

Fix following defects:

- The CAE event in a partition is notified to RHEL of other partitions

12/12/2014(39)

Fix following defects:

- Blade number which WBEM logged is wrong
- Settroubleshoot errors with cimprovagt

11/14/2014(36)

Fix following defects:

- Hpilo driver shows error message occasionally

11/07/2014(34)

Fix following defects:

- The partition number of network and Fibre Channel is wrong

10/24/2014(33)

- Release the fully support of RHEL7.0 WBEM providers
- Fix following defects:
 - Superdome X RHEL6.5 CAE reports critical shutdown; however partition is still up.
 - Superdome X RELIABILITY: on kirk OS_SHUTDOWN_ABNORMAL
 - Superdome X: hp-smx conflicts with hp-health

10/10/2014(30)

Initial release of the RHEL7.0 WBEM providers with parcon support only.

07/10/2014(27)

Fix following defects:

- Superdome X Parcon not reporting Active /UP after install of RHEL 6.5 M11y sprint25 rpm.
- Superdome X: unhandled Python exception in '/opt/hp/hp-smx/bin/config_logger'

04/30/2014(24)

- Fix following defects:
 - FC event from Hawk006oa1

- Part number for disk indication
- [hpshd]: part number need to be pushed to OA as well
- DragonHawk WBEM providers don't install correctly if OS has KVM installed
- Superdome X RELIABILITY WBEM/SMX&hpmgmtbase inducing high events daemon usage on OA.
- Fix the issue on SHD dead again due to too long indication properties which will cause SHD stack overflow.

04/10/2014(22)

- Fix following defects:
 - Open WS Man performance issue on *Hawk devices
 - sfcdb: segfault on sles 11sp3 maintenance update after hp-smx install
 - [SPP Snap7]: HP Insight Management WBEM Webapp via HP SMH fails to install on RH
 - OS hostname not changing in OS prompt level after sfcdb daemon restart
 - SLES's SIMIND tool: "phys loc" input issue
- Provide more details about FC/NIC/SA error indications.

03/07/2014(21)

- Verified the SMX features except indication related ones on SmartArray cards and external storage attached environment.
- Enhanced the Memory page display to be consistent with other platform.
- SMX will provide more details about disk indications in storage enclosure like “HBA=xx, Enclosure=xx, Port=xx, Slot=xx” .
- Each HBA related SMX indications (NIC HBA / FC HBA / SAS HBA / SA Controller) will contain the following property:
 - String HP_HardwareIndication::HWPartNumber will be populated to show HP defined Part Number.
 - Enclosure/Disk part number will be defined in “SMX Improvement - Disk ID” .
 - Dev/Ven/SubDev/SubVen ID will be used to look up PartNumber.
- Enhanced the indication inject tools "simind"
 - simind was using an internal number of WBEM indications, need to change the internal number to real WBEM event ID;
 - Need to check SMX internal event DB, to make it consistent with CEDB;
 - Need to ensure that simind could handle multiple indications at the same time.

02/21/2014(20)

Note: the following features are not verified with SmartArray/SAS storage device on Superdome X since no HW/device is available on the proto due to budget cut.

- Fixed several defects found in enabling the WBEM providers on RHEL6.5 and SLES11SP3 of Superdome X
 - Add the "libvirt-cim" conflicts to SMX on SLES
 - Delete the wrong display of PCI-X on SMH page
 - Delete the wrong display in webapp rpm installation
 - Fix the wrong PCI Slot type display
 - Add new directory block size 8192 to the constraint range.
- Reflect following Superdome X changes to Superdome X:
 - SHD and make sure it can forward indication to OA after upgrade
 - Fixed the OS shutdown indication to ignore that happened before SMX packages installation

01/24/2014(19)

Note: the following features are not verified with SmartArray/SAS storage device on Superdome X since no HW/device is available on the protos due to budget cut.

- First drop of enabling the WBEM providers on RHEL6.5 and SLES11SP3 of SuperdomeX
- Implement the new features from TS request:
 - Verify Ethernet Port and Team indication was sent at the same time.
 - Forward WBEM Providers Started event to OA
 - Include Enclosure ID in event description
 -
- Provide the mapping of physical/logical disk in indication
- HBA related SMX indications contain the HWSerialNumber and HWPhysicalLocation properties

To ask for help or notify, please write to: pdl-linux-providersdev@hpe.com