

HP ZCentral Connect Hardware Monitor User Guide

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1. Overview

The **HP ZCentral Connect Hardware Monitor** is an optional ZCentral software component that enhances System Events experience. When installed, ZCentral Connect can monitor the state of Power Supply units for ZCentral 4R systems and notify state changes to the Manager. These notifications will be sent in the form of System Events through the Intel® AMT interface.

1.1. Prerequisites

Some items are required before deploying the Hardware Monitor:

1. A supported hardware platform. Currently only HP ZCentral 4R workstations are supported.
2. The most up-to-date Intel® AMT Firmware
3. Supported operating systems for the Hardware Monitor include:
 - Windows 10
 - Red Hat Enterprise 7
 - Red Hat Enterprise 8
 - Ubuntu 18.04
 - Ubuntu 20.04

If installing on Windows the following are also required:

1. Intel® Management Engine Interface Driver (Intel® Management Engine Software [Chipset Driver] softpaq from the HP Drivers website)
2. Microsoft Visual C++ 2015-2019 Redistributable

2. Installation

To install the Hardware Monitor, download and run the ZCentral Connect Agent installer package for one of the following supported platforms:

- [Windows \(signature file\)](#)
- [RHEL7-RHEL8 \(signature file\)](#)
- [Ubuntu-18.04-Ubuntu-20.04 \(signature file\)](#)

The package will include the Hardware Monitor installer as well as an install script.

Install Scripts

The Agent packages come with an installation script (install.cmd for Windows and install.sh for Linux) which will determine if the platform is supported by HP ZCentral Connect Hardware Monitor. If supported, then both Hardware Monitor and the Agent will be installed. The installers can still be run manually if desired.

Linux Script: To upgrade a package, instead of performing a fresh install, the script can be passed the **--upgrade** argument. This will ensure that on a Red Hat based Linux OS the rpm command will use the upgrade command. On a Debian OS the dpkg command does not change.

Windows Script: The script will, by default, only call *msiexec /i MSI*. Any additional arguments can be passed in as an argument to the script. This can be done for both installers or individually. Run install.cmd with --help to view the available arguments.

2.1. Signature Verification

Key Details:

- [Download public key](#)
- Key ID: HP ZCentral Connect hpss-admin@hp.com
- Fingerprint: 66CF 5025 AA35 1EB7 CC78 136F C75F B106 E198 51F0

To verify the signature of an RPM or DEB Hardware Monitor installer or the TGZ or ZIP packages, download the following files to your Host: the RPM, DEB, TGZ or ZIP, the accompanying signature file (For DEB installers and TGZ or ZIP packages only), and the public key. Next, execute the following commands for the specific file type:

RPM Installers

Import the public key to the RPM key ring:

```
rpm --import GPG-KEY-hpzcentralconnect
```

Verify the signature of the RPM file by running the following:

```
rpm --checksig hpzcentralconnecthardwaremonitor.x86_64.rpm
```

Console output:

```
hpzcentralconnecthardwaremonitor.x86_64.rpm: rsa sha1 (md5) pgp md5 OK
```

DEB Installers and TGZ or ZIP packages

NOTE To verify the signature on a Windows OS a 3rd party tool such as GPG4Win will be required to add GPG support.

Import the public key to the gpg key ring:

```
gpg --import GPG-KEY-hpzcentralconnect
```

Console output:

```
gpg: key E19851F0: public key "HP ZCentral Connect <hpss-admin@hp.com>" imported
gpg: Total number processed: 1
gpg:          imported: 1 (RSA: 1)
```

Verify the signature of the DEB, TGZ or ZIP file by passing in the DEB, TGZ, or ZIP and its corresponding signature file (the signature file ends in the .asc extension):

```
gpg --verify hpzcentralconnecthardwaremonitor.deb.asc hpzcentralconnecthardwaremonitor.deb
```

Console output:

```
gpg: Signature made XXX XX XXX 2020 XX:XX:XX XX MST using RSA key ID E19851F0
gpg: Good signature from "HP ZCentral Connect <hpss-admin@hp.com>"
gpg: WARNING: This key is not certified with a trusted signature!
gpg:          There is no indication that the signature belongs to the owner.
Primary key fingerprint: 66CF 5025 AA35 1EB7 CC78 136F C75F B106 E198 51F0
```

NOTE If you'd like to remove the warning message regarding the trustworthiness of the key, you can mark the key trusted using the following commands (more details can be found [here](#)):

```
gpg --edit-key "HP ZCentral Connect"
gpg> trust
gpg> <Select your level of trust>
gpg> quit
```

3. Supported Events

The ZCentral Connect Hardware Monitor will monitor the health of the Power Supply Units on HP ZCentral 4R workstations while the OS is running. The dual PSUs on a 4R can each be in 1 of 3 states: Uninstalled, Installed and Providing Power, and Installed and Not Providing Power. Additionally, when 2 Power Supply Units are installed, they can be configured in Redundant or Non-redundant (Aggregate) mode depending on the workload of the workstation. This configuration is done through BIOS and the Hardware Monitor gathers this information during start-up. The following is a list of states that the Hardware Monitor is aware of:

- 2 Power Supplies installed and providing power running in redundant mode. (Good State)
- 2 Power Supplies installed and providing power running in non-redundant mode. (Good State)
- 1 Power Supply installed and providing power. (Good State)
- 2 Power Supplies installed but only 1 providing power running in redundant mode. (Error State)
- 2 Power Supplies installed but only 1 providing power running in non-redundant mode. (Error State)

4. Troubleshooting

4.1. Logs

The logs for ZCentral Connect Hardware Monitor can be found in the following locations:

- On Windows: `%PROGRAMDATA%\HP\ZCentralConnectHardwareMonitor\HardwareMonitor.log`.
- On Linux®: `/var/log/hpzcentralconnecthardwaremonitor/HardwareMonitor.log`.

To change the level of information displayed in the log files edit the log4net.config file and change the `<level value="INFO">` line. `log4net.config` can be found in the following locations:

- On Windows (by default): `%PROGRAMFILES%\HP\ZCentralConnectHardwareMonitor\bin\log4net.config`.
- On Linux®: `/opt/hp/zcentralconnecthardwaremonitor/log4net.config`.

The Hardware Monitor will also log to the *Windows Event Log* under *Application* logs.

4.2. ZCentral Connect Hardware Monitor Installation Errors and Warnings

Error: This application requires Microsoft Visual C++ 2015-2019 Redistributable

The Windows installer and the Hardware Monitor requires the Visual C++ 2015-2019 Redistributable. Installation will not be able to be performed without this installed. The `vc_redist.x64.exe` package will need to be downloaded from Microsoft and installed before reattempting installation.

Warning: HP ZCentral Connect Hardware Monitor requires the Intel® Management Engine Interface driver to be installed

Without the Intel® Management Engine Interface driver the Hardware Monitor service will be unable to be started, but it will still be able to be installed. The driver can be installed by installing the Intel® Management Engine Software (Chipset Driver) softpaq for the platform. This can be downloaded from the HP Drivers website (<https://www.hp.com/drivers>). Once the driver is installed the service can be started.

4.3. ZCentral Connect Hardware Monitor Errors

| Error Code | Error Message | Resolution |
|------------|---|--|
| 2 | Logger could not be configured. Ensure log4cpp.config is present and correctly formatted. | Ensure the file exists and has not been corrupted. To recreate this file, please reinstall the Hardware Monitor. |
| 3 | Unable to access SMBIOS information. | Ensure service is running with administrator permissions and BIOS is up to date. |
| 4 | SMBIOS does not contain System Info (Type 1) table. | Ensure the most current version of the supported BIOS is in use. |
| 5 | SMBIOS does not contain Power Supply (Type 39) table. | Ensure the most current version of the supported BIOS is in use. |
| 6 | The number of Power Supply (Type 39) SMBIOS tables is not expected. | Ensure the most current version of the supported BIOS is in use. |
| 7 | The Unit Group values of the power supplies do not match. | Ensure the most current version of the supported BIOS is in use. |
| 9 | Power supply monitoring is not supported on this platform. Initialization failed. | Ensure platform is a ZCentral 4R workstation. |
| 10 | The SWTools Driver failed to be initialized. | Ensure service is running with administrator permissions. |
| 11 | The Power Supply Monitor was unable to be initialized. | Ensure service is running with administrator permissions. |
| 12 | The Power Supply Monitor was unable to map physical memory. | Ensure service is running with administrator permissions. |
| 13 | The Power Supply Monitor was unable to unmap physical memory. | Ensure service is running with administrator permissions. |
| 14 | The Power Supply Monitor Driver was unable to be cleaned up. | Ensure service is running with administrator permissions. |
| 15 | HP ZCentral Connect Hardware Monitor is not supported on the current platform. | Ensure platform is a ZCentral 4R workstation. |
| 16 | Failed to enumerate installed drivers. | Ensure service is running with administrator permissions. |
| 17 | The Intel® Management Engine Interface driver is not installed. The Intel® Management Engine Software (Chipset Driver) softpaq for this platform can be downloaded from the HP Drivers website (https://www.hp.com/drivers). | Install Intel® Management Engine Software (Chipset Driver) softpaq. |

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