BullSequana Edge

Technical
Service
Bulletin

Maintenance & Support

CUSTOMER SERVICE

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SUBJECT: BullSequana Edge Sound Level Measurements Protocol			DOSSIER BSE	2022-A02	REV 2

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This document describes the protocol for measuring BullSequana Edge machine sound level on customer's site, prior to set suitable actions' plan for addressing the customer concerns about sound level on a incriminated server.

Bull Sequana Edge Sound Level Measurements Protocol

1 Determine the fans speed (RPM) and status at the customer site

The sound level of servers is highly dependent on the speed of the fans (expressed in RPM for Rotations Per Minute). To be able to estimate if the sound level of a system is in the expected value range, it is important to know the RPM values of fans from incriminated system at the customer site. RPM values of the fans are very likely to be available from the BMC, either via IPMI or the BMC web interface (SHC – Server Hardware Console).

1.1 By using ipmitool:

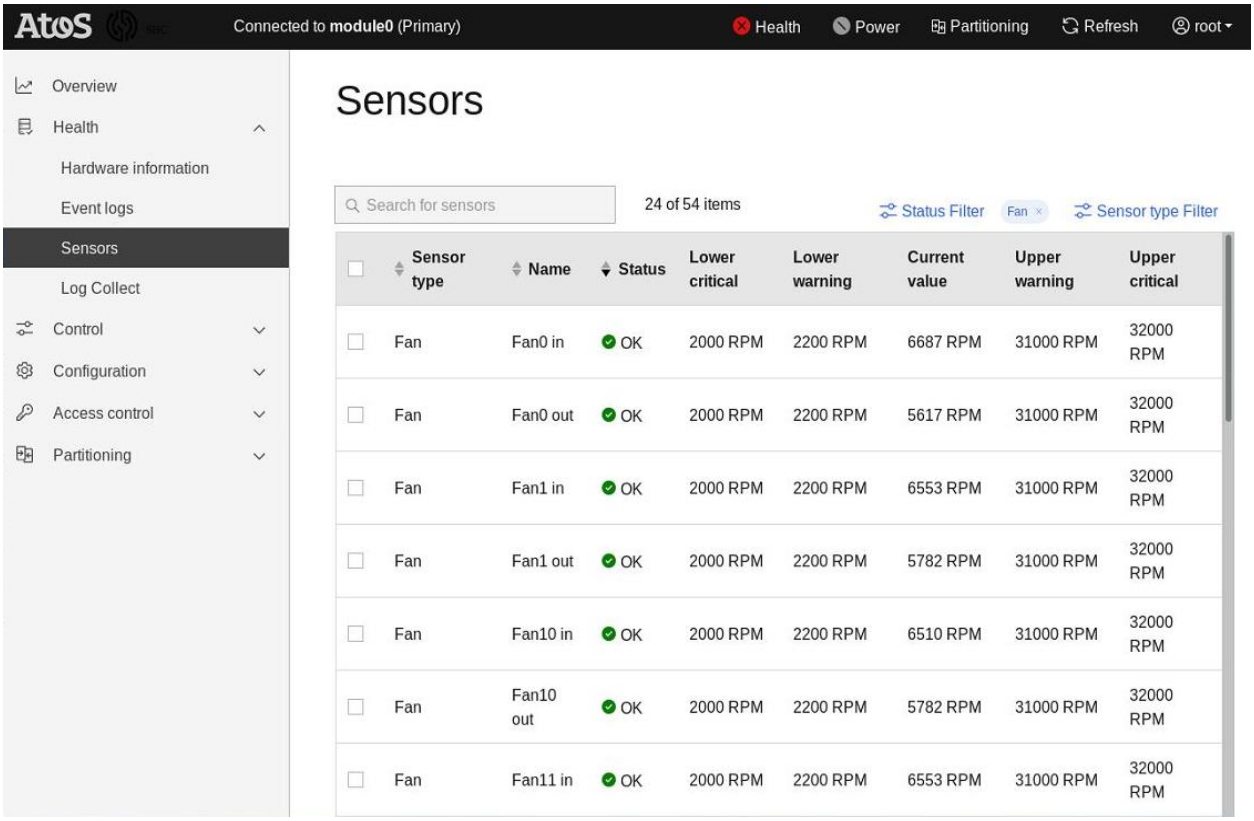
```
# ipmitool -I lanplus -C 17 -U  <username> -P <pass> -H 10.22.89.190 sensor
```

```
[...]

FAN1              | 0.000       | RPM         | nr     | 300.000    | 500.000    |
700.000    | 25300.000 | 25400.000 | 25500.000
FAN2              | 1700.000    | RPM         | ok     | 300.000    | 500.000    |
700.000    | 25300.000 | 25400.000 | 25500.000
[...]
```

(values at customer site won't be the same as above)

1.2 By using SHC:



If the RPM of the fans are equal or beyond the "Upper warning" threshold, there is a technical problem with the server to investigate, and sound level will probably be higher than it should be.

If a fan's status is not "OK", Support needs to investigate what is going wrong.

2 Measure the sound level

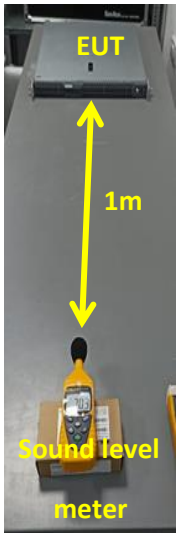
2.1 Using a sound level meter

This method is applicable for sound level measurements on customer's site.

A Sound Meter with A-Weighting measurement and conforming to at least one of IEC651 Type 2, ANSI S1.4 Type 2 or JISC150 standards must be used (no measure with smartphones).

(ex: *Fluke 945* Sound Meter)

We can record sound level using a sound level meter at a distance of 1m away in front of the Equipment Under Test (EUT) and record the sound level with A-weighting as dB(A), which will give the sound level as perceived by a human ear.



2.2 Measuring in a Datacenter (noisy environment)

In a noisy environment, the sound level of the EUT will be deduced with the help of two measures:

1. The sound level of the environment with the EUT being turned **off**
2. The sound level of the environment with the EUT being turned **on**

"Subtracting" the latter sound level from the former will then provide the sound level of the EUT. An online calculator can be used for this as sound level/pressure unit *dB* or *dBA* is based on a logarithm scale, thus adding or subtracting sound levels is not a single arithmetic operation (example: 80dB+80dB=83dB).

2.2.1 Measure the noise level of the environment with server turned off

Switch **off** the server you want to evaluate and record the sound level.

2.2.2 Measure the noise level of the environment with server turned on

Switch **on** the server and record the sound level with the server running.

2.2.3 Deduce noise level using online calculator

An online calculator can be used to deduce the server noise level from both measurements, for example: https://www.noisemeters.com/apps/db-calculator/

Use this calculator to substract the sound level with server powered off from the sound level with server powered on to deduce the sound level of the server.

3 Comparison with specifications of the server

Once the sound level of the server has been measured on customer's site, it must be checked against the maximum sound level provided according to the server model and configuration.

If measured sound level is above 1.5dB(A) of the theoretical sound level of the server, Support may provide an action plan to the customer, depending on findings on customer's site and the type of incriminated servers. The action plan must be agreed internally before being provided to the customer.

For Bull Sequana Edge, the standard measures are the following:

PWM	Average Sound Pressure Level (SPL) dB(A)
30%	53
40%	56
50%	59
60%	61
70%	63
80%	65
90%	67
100%	68

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