

MpStat

Christian Külker

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1 Introduction

The `mpstat` command, part of the `sysstat` package like `iostat`, is a tool designed for monitoring CPU activity in Linux systems. It can be used on both single processor (UP) and multi-processor (SMP) machines. By default, `mpstat` displays CPU utilization reports, and if no specific activity is selected, it provides the global average CPU usage since the system's startup. The utility is capable of reporting detailed statistics for each processor or for the processors as a group.

2 Installation

As with `iostat`, the installation of `mpstat` is straightforward:

```
aptitude install sysstat
```

3 Usage

Executing `mpstat` without any parameters provides a snapshot of the CPU activities across all processors since boot. The command can be customized with various parameters to alter its output for more specific monitoring needs.

Basic Command Usage:

- **Interval and Count:** Specifying an interval and count (in seconds), such as `mpstat 2 5`, will result in the command producing CPU activity reports every two seconds, five times in total and calculate the average.

```
mpstat 2 5
Linux 6.1.0-18-amd64 (v2)    03/05/2024    _x86_64_    (4 CPU)

01:22:02 PM CPU  %usr %nice %sys %iowait %irq %soft %steal %guest %gnice
↳ %idle
01:22:04 PM all 20.97  0.00 5.99    0.00 0.00  1.87  0.00  0.00  0.00
↳ 71.16
01:22:06 PM all 21.12  0.00 5.98    0.00 0.00  1.53  0.00  0.00  0.00
↳ 71.37
01:22:08 PM all 24.17  0.00 5.98    0.13 0.00  0.89  0.00  0.00  0.00
↳ 68.83
01:22:10 PM all 22.26  0.00 5.53    0.00 0.00  1.51  0.00  0.00  0.00
↳ 70.69
01:22:12 PM all 24.34  0.00 5.14    0.00 0.00  1.63  0.00  0.00  0.00
↳ 68.88
Average:    all 22.57  0.00 5.73    0.03 0.00  1.49  0.00  0.00  0.00
↳ 70.19
```

- **Processor Specific Statistics:** Using `-P` followed by a processor number (e.g., `-P 1` for the first processor) or `ALL` (e.g., `-P ALL`), you can view statistics for specific processors or for all processors, respectively.

```
mpstat -P ALL
Linux 6.1.0-18-amd64 (v2)    03/05/2024    _x86_64_    (4 CPU)

01:25:40 PM CPU  %usr %nice %sys %iowait %irq %soft %steal %guest %gnice
↳ %idle
01:25:40 PM all 17.14  0.00 5.06    0.03 0.00  0.81  0.00  0.28  0.00
↳ 76.67
```

```

01:25:40 PM  0 17.38  0.00 4.98   0.03 0.00  0.91  0.00  0.26  0.00
↳ 76.46
01:25:40 PM  1 17.28  0.00 4.84   0.03 0.00  1.32  0.00  0.31  0.00
↳ 76.22
01:25:40 PM  2 17.38  0.00 4.97   0.03 0.00  0.61  0.00  0.33  0.00
↳ 76.69
01:25:40 PM  3 16.53  0.00 5.47   0.03 0.00  0.42  0.00  0.24  0.00
↳ 77.32

```

- **Interrupts Statistics:** The `-I` option (e.g., `-I SCPU`, `-I CPU`, `-I SUM`, or `-I ALL`) is used for reporting different types of interrupts statistics per second by CPU.

```

mpstat -I SUM
Linux 6.1.0-18-amd64 (v2)    03/05/2024    _x86_64_    (4 CPU)

01:26:57 PM  CPU    intr/s
01:26:57 PM  all    2164.37

```

```

mpstat -I ALL
Linux 6.1.0-18-amd64 (v2)    03/05/2024    _x86_64_    (4 CPU)

01:41:52 PM  CPU    intr/s
01:41:52 PM  all    2167.22

01:41:52 PM  CPU    0/s    1/s    4/s    8/s    9/s ...
01:41:52 PM  0    0.00  0.00  0.00  0.00  0.00 ...
01:41:52 PM  1    0.00  0.00  0.00  0.00  0.00 ...
01:41:52 PM  2    0.00  0.00  0.00  0.00  0.00 ...
01:41:52 PM  3    0.00  0.00  0.00  0.00  0.00 ...

01:41:52 PM  CPU    HI/s    TIMER/s  NET_TX/s  NET_RX/s  BLOCK/s ...
01:41:52 PM  0    0.05    18.67    0.01    149.59    0.00 ...
01:41:52 PM  1    416.58  16.47    0.00    0.30    0.00 ...
01:41:52 PM  2    0.04    27.01    0.00    0.35    6.51 ...
01:41:52 PM  3    0.03    17.14    0.00    0.32    0.00 ...

```

Advanced Usage:

1. **JSON Output:** For programmatically parsing the output, the `-o JSON` option formats the statistics in JSON (JavaScript Object Notation). See [loStat](#) for ideas on how to use this format.

- Utilization of Specific Processors:** To focus on particular processors, use `mpstat -P 0,2,3` specifying the processors of interest.

```
mpstat -P 0,2,3
Linux 6.1.0-18-amd64 (v2)      03/05/2024      _x86_64_      (4 CPU)

01:41:12 PM CPU  %usr %nice %sys %iowait %irq %soft %steal %guest %gnice
↪ %idle
01:41:12 PM  0 17.39  0.00  4.98    0.03 0.00  0.91  0.00  0.26  0.00
↪ 76.44
01:41:12 PM  2 17.38  0.00  4.97    0.03 0.00  0.61  0.00  0.33  0.00
↪ 76.69
01:41:12 PM  3 16.53  0.00  5.47    0.03 0.00  0.42  0.00  0.24  0.00
↪ 77.32
```

- Reporting with NUMA Node Placement:** Employ `mpstat -N ALL` for statistics based on NUMA node placement.

```
mpstat -P 0,2,3 -N ALL
Linux 6.1.0-18-amd64 (v2)      03/05/2024      _x86_64_      (4 CPU)

01:40:28 PM CPU  %usr %nice %sys %iowait %irq %soft %steal %guest %gnice
↪ %idle
01:40:28 PM  0 17.38  0.00  4.98    0.03 0.00  0.91  0.00  0.26  0.00
↪ 76.44
01:40:28 PM  2 17.38  0.00  4.97    0.03 0.00  0.61  0.00  0.33  0.00
↪ 76.69
01:40:28 PM  3 16.53  0.00  5.47    0.03 0.00  0.42  0.00  0.24  0.00
↪ 77.32

01:40:28 PM NODE %usr %nice %sys %iowait %irq %soft %steal %guest %gnice
↪ %idle
01:40:28 PM  all 17.15  0.00  5.06    0.03 0.00  0.81  0.00  0.28  0.00
↪ 76.66
01:40:28 PM  0 17.15  0.00  5.06    0.03 0.00  0.81  0.00  0.28  0.00
↪ 76.66
```

4 Links

- Home page <https://sysstat.github.io/>
- Source <https://github.com/sysstat/sysstat>

5 History

Version	Date	Notes
0.1.0	2024-03-05	Initial release

6 Disclaimer of Warranty

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