

# Networking

## Performance Metrics

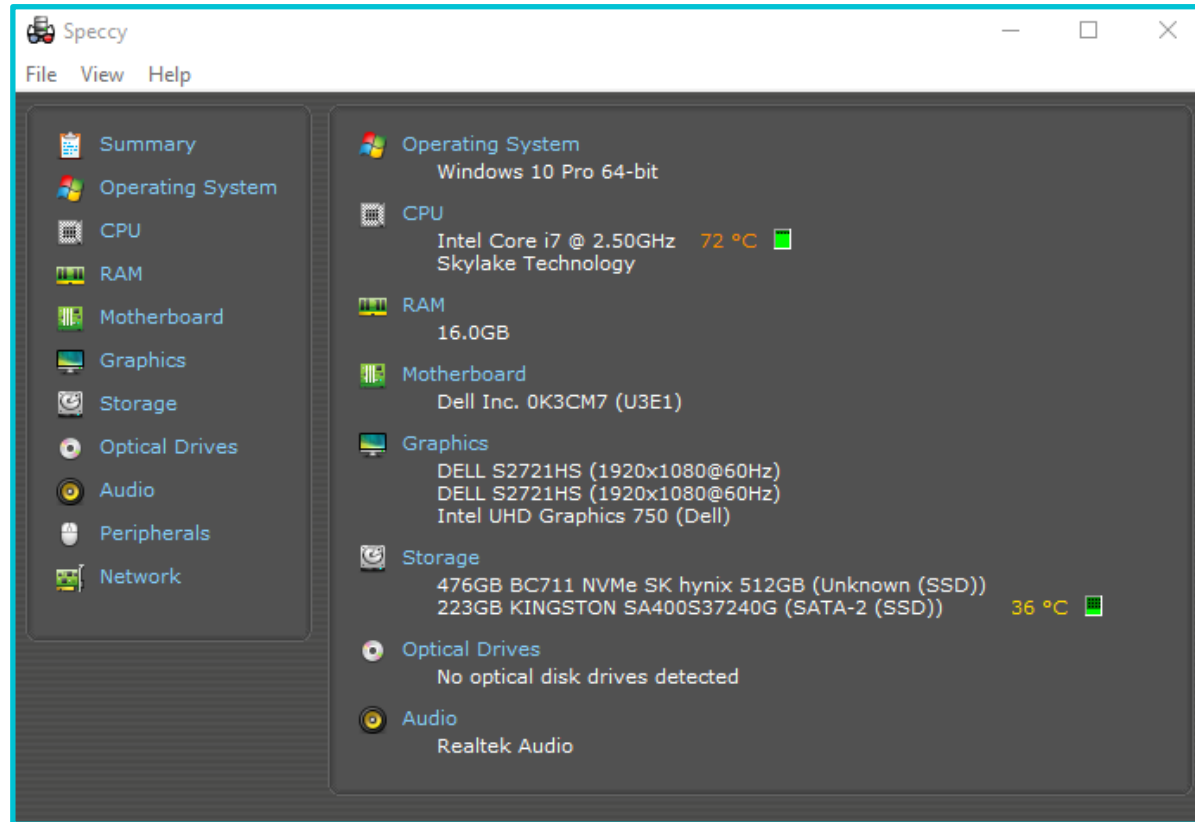


# Device Performance Metrics

- Temperature – How hot can the device get?
  - System should throttle when it reaches a certain temperature
- CPU Usage – How much can the CPU handle?
  - Too many processes and applications can overload a CPU
- Memory – How much can the RAM handle?
  - What's the size and frequency that RAM can handle?



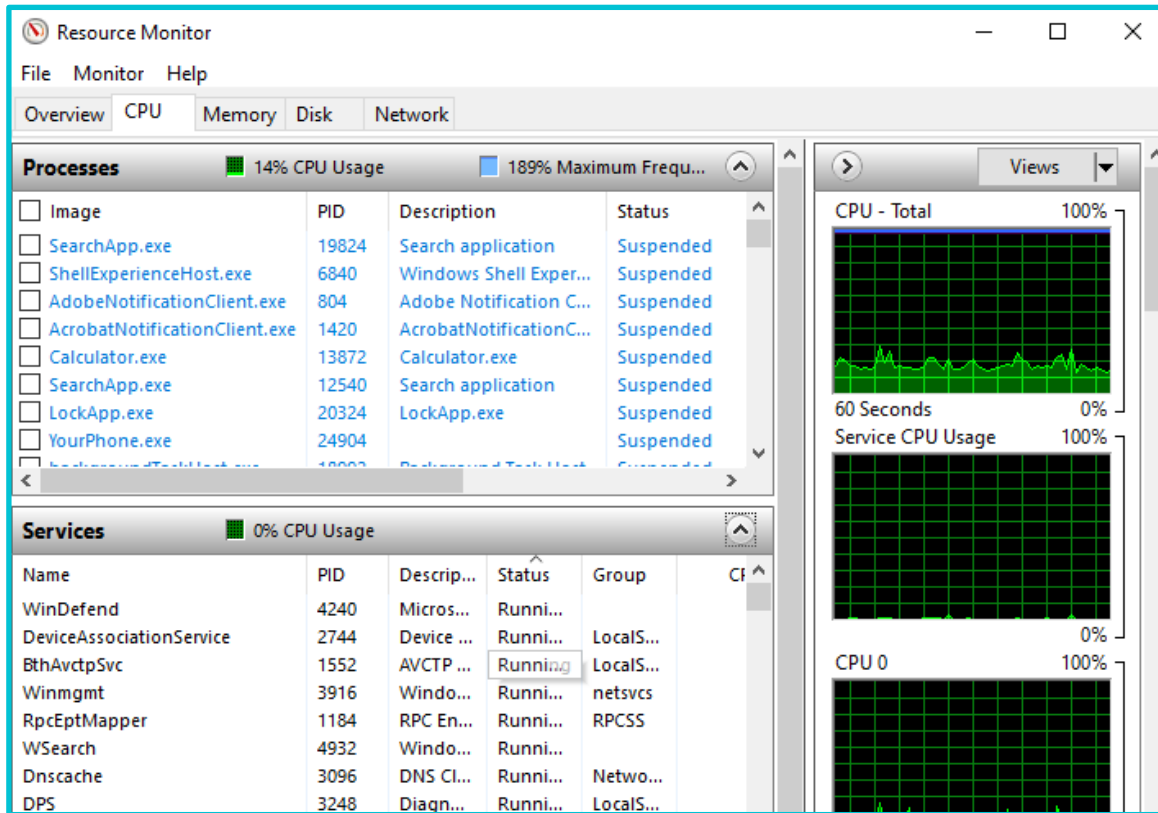
# Temperature Metric



- Here is a screenshot of Speccy
  - Speccy is an application that shows information about hardware and software
- Notice, the CPU temperature is currently 72<sup>o</sup> Celsius
- Notice, the storage temperature is currently 36<sup>o</sup> Celsius



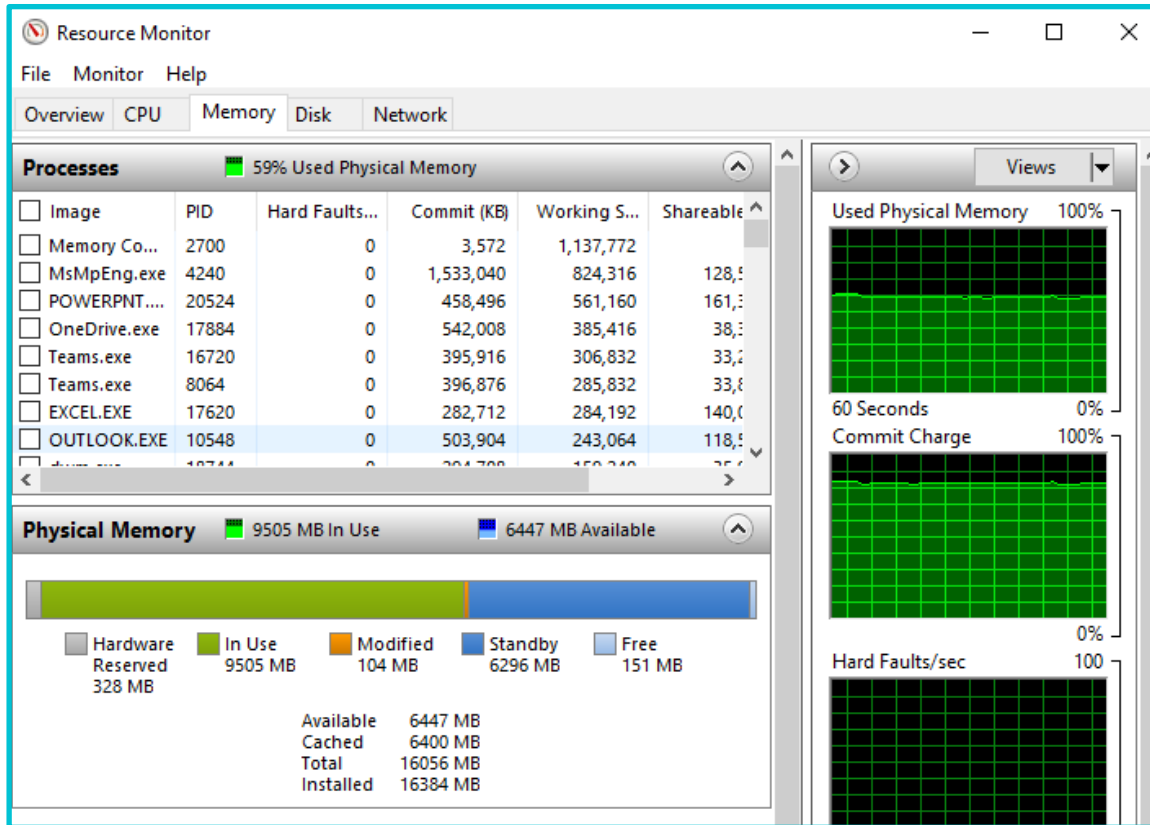
# CPU Usage Metric



- Here is a screenshot of the Resource Monitor
  - The Resource Monitor helps monitor the usage of resources on a system
- Notice, around 14% of the CPU is being used at this time



# Memory Usage Metric



- Here is a screenshot of the Resource Monitor
  - The Resource Monitor helps monitor the usage of resources on a system
- Notice, around 59% of the memory is being used at this time

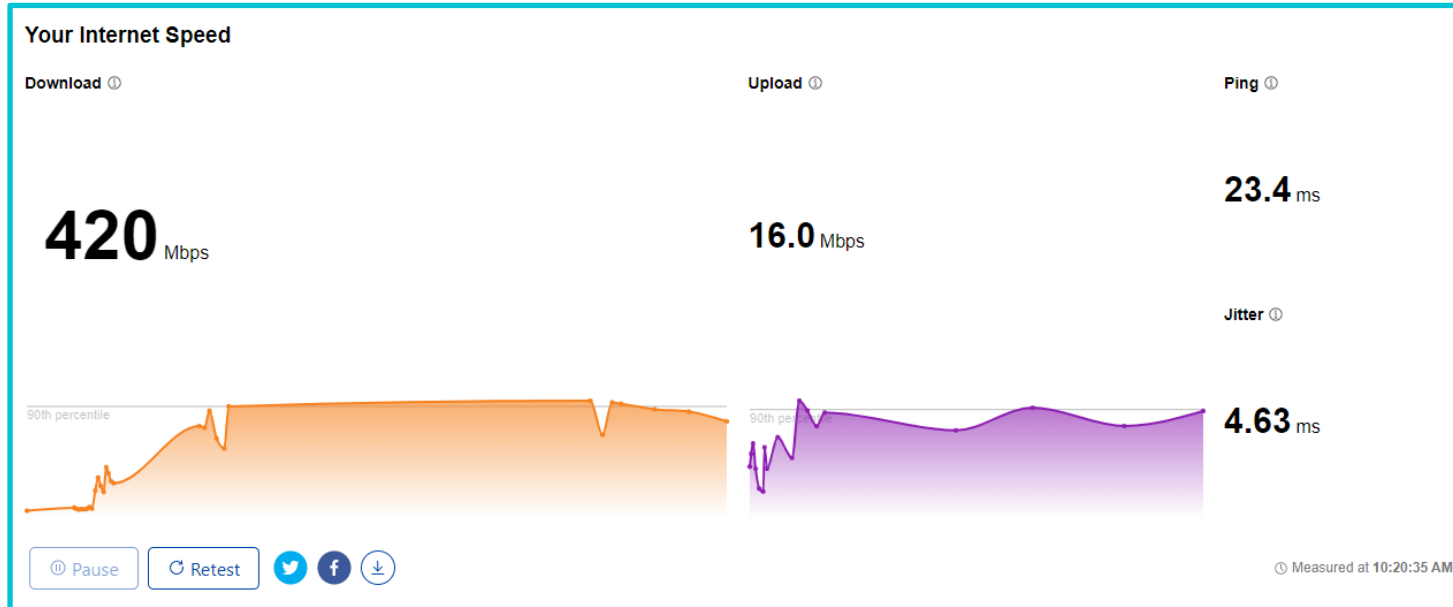


# Network Performance Metrics

- Bandwidth – Maximum transfer speeds
  - Measured in bps, Mbps, or Gbps
- Latency – Speed of the transmission
  - How fast did the packet get from the source to the destination
- Jitter – The difference in packet delay
  - Often caused by network congestion



# Network Performance Metrics



- Here is a screenshot a Cloudflare online network test
  - Cloudflare has a free online network test ([speed.cloudflare.com](https://speed.cloudflare.com))
- Notice the download and upload bandwidth test
  - Download bandwidth is 420 Mbps
  - Upload bandwidth is 16 Mbps
- Notice the ping latency test
  - The latency is 23.4 ms
- Notice the jitter test
  - The jitter is 4.63 ms



# Other Metrics

- **Baseline** – The standard level of performance
  - Used for both devices and networks
- **NetFlow Data** – All the TCP/IP traffic being collected
  - Helps create a picture of network traffic
- **Uptime/Downtime** – How long a system is up or down
  - Uptime – How long/what percentage of time the system is running
  - Downtime – How long/what percentage of time the system is not running

