

# Virtual IO Server (VIOS) Performance Advisor

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<https://www.ibm.com/developerworks/community/wikis/home?lang=en#!/wiki/Power%20Systems/page/Virtual%20IO%20Server%20%28VIOS%29%20Performance%20Advisor>

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## Introduction

Customers are increasingly leveraging virtualization on Power Systems to efficiently use resources through workload consolidation and cloud deployments. As a result of the adoption of PowerVM for virtualization, performance management for virtualization has become much more important, specifically understanding performance on the Virtual I/O Server.

There are existing tools available to monitor VIOS but they tend to provide lots of data that is hard and complex to analyze. What our customers are looking for is a simple tool that provides guidance and advice without having to crawl through all the details. This tool for VIOS is the PowerVM VIOS Performance Advisor, which is included with all PowerVM Editions starting with version 2.2.2.0.

Following is the summary of information and guidance provided by VIOS Performance Advisor:

1. Summarizes the overall health of VIOS
2. Identifies potential performance bottlenecks and performance inhibitors
3. Proposes actions that can be taken to address these bottlenecks.

The initial VIOS Performance Advisor was made available at the VIOS 2.2.2.0 level and has been enhanced over time with information for Shared Storage pools and Shared Ethernet adapters which was added at the VIOS 2.2.3.0 level.

The VIOS Performance Advisor is run using the “*part*” command from the VIOS restricted shell or can be automated using PowerVP which is part of the PowerVM Enterprise Edition. This tool provides the above mentioned details in a xml file enabling report rendering in a web browser. The included functionality provides reports based on the *nmon* recording done on VIOS. The advisor can be started in one of two modes:

1. On Demand monitoring mode OR
2. Post processing mode.

### On Demand Monitoring Mode

The user can specify the duration for which the system needs to be monitored. The specific value can range between 10 and 60 minutes.

The “*part*” (p-Art : Performance Analysis and reporting tool ) command based on *nmon*, monitors the data and collects samples every 15 seconds and provides the report in a *<short-hostname\_yymmdd\_hhmmss>.tar*. This tar file contains the xml file, which can be viewed in a browser to see the advisories report and proposed actions.

## Post Processing Mode

The *nmon* file is provided as input to the “*part*” command. Depending on the data collected in the *nmon* performance file, there might not be enough data available to give a full advisory report as the “On Demand” mode of processing. The size of the input *nmon* file will affect the time taken to post process the data.

## How to use the VIOS Performance Advisor

### On Demand Mode

Run the following command on a VIOS using the restricted shell

```
part -i 30
```

This will cause the VIOS Performance Advisor to run for 30 minutes and generate the advisory reports.

### Post Processing Mode

Run the following command on a VIOS using the restricted shell

```
part -f <nmon input file>
```

This will process the *nmon* input file and generate the advisory reports.

Advisory reports (*<short-hostname\_yymmdd\_hhmmss>.tar*) are generated in the current working directory.

Contents of the tar file are extracted and *vios\_advisor\_report.xml* file is opened in a web browser to get the different advisory reports view. XML schema definition for this is present in */usr/perf/analysis/vios\_advisor.xsd*.

## Sample Advisories

### 1) Overall Health Summary in a Single View

Figure 1 above covers the view of multiple subsystems in the VIOS (CPU, Memory, Storage)

### 2) Performance Inhibitors

In Figure 2 above CPU resources are not an issue; everything is fine (green color tick mark in CPU Capacity). Since average CPU consumption is less than 0.5 processing units and total allocation is 2 Processors, it means the system resources available to VIOS are not fully utilized. The performance advisor tool suggests enabling processor donation so that unused resources can be shared. This is not a performance issue but a useful suggestion for the administrator to optimize the system resources.

Risk and Impact columns also need to be considered along with testing of the changes in a controlled test environment before implementing the proposed changes.

### 3) Suggestions

In Figure 3 above there is red mark in Long I/O Latency. This gives an indication to the administrator to check the storage subsystem for any issues.

## PowerVP and VIOS Performance Advisor

Power® Virtualization Performance (PowerVP™) is a performance monitoring solution that provides detailed and real-time information about virtualized workloads that are running on IBM® Power Systems™ servers (Refer to [Using PowerVM to access the VIOS Performance Advisor tool in KnowledgeCenter](#) for more details). PowerVP allows running VIOS performance advisor directly from its GUI and displays the report in the browser.

In Figure 4 above, “Run Advisor” present in the left hand side needs to be clicked to enable performance advisor collection for that VIOS. After the collection is completed, PowerVP GUI automatically opens a new tab in the web browser and displays the VIOS performance advisor report. For more details refer to "[Using PowerVP to access the VIOS Performance Advisor tool](#)".

## Conclusion

The VIOS Performance Advisor guidance for administrators is simple to operation and simple to understand. This allows customers to see the VIOS performance health and proactively adjust performance settings which enables workloads to run more efficiently on Power Systems.

## Reference Links

["part" command details in KnowledgeCenter](#)

[POWER8 Vrtual I/O Server Performance Advisor information in KnowledgeCenter](#)

[Virtual I/O Server Performance Advisor reports in KnowledgeCenter](#)

[Virtual I/O Server Performance Advisor details in KnowledgeCenter](#)

[Nigel Griffiths Youtube video on \*part\* command](#)

[Chris Gibson's blog on the VIOS Advisor performance tool](#)