

Description: An overview of the CPU and Memory Usage on a machine containing varying levels of configured Energy AnalytiX meters and Assets.

OS Requirement: Server 2008 x64/Windows 7 x64/Vista x64/Server 2008 R2 x64/Windows 8 x64

General Requirement: ICONICS Energy AnalytiX v10.7 (or later).

Introduction

After installing ICONICS Energy AnalytiX there will be an inherent CPU and Memory usage from running the associated applications. As more assets are defined there will be more information to be processed, and as a result the Memory and CPU usage will increase. The following application note will show the usage incurred on a varying number of different configurations.

Goal

The configurations will be split into several sections, and will have their memory and CPU usage monitored and recorded.

The following configurations will be tested:

1. Samples Configuration
 - a. No Assets or Meters
2. 1,000 Assets – 4:1 Meter to Asset ratio
 - a. 800 Meters, 200 Assets
3. 10,000 Assets – 4:1 Meter to Asset ratio
 - a. 8,000 Meters, 2,000 Assets

The initial configuration which is installed with Energy AnalytiX doesn't have any meters or assets predefined, so it will be an ideal test to see the base usage.

System Specification

The machine will have the following configured:

Intel Core i7 2600 @ 3.40GHz
4GB RAM
50GB Hard Drive
Windows Server 2008 R2 + SP1
SQL Server 2008 R2

All of the above will be hosted within a VMware Workstation 8 virtual environment.

Samples Configuration

When installing Energy AnalytiX it asks the user whether they wish to install the samples database, to get a baseline of the CPU and Memory Usage on the machine this database will be used as there are no Energy Assets or Meters defined.

No Meters/No Assets

Process	CPU (%)	Private Bytes (K)
IcoBizVizEAService.exe	0.05-0.12	125,756
sqlservr.exe	0.05	158,600
IcoFwxServer.exe	0.45	103,076

1,000 Assets

Following on from the base installation, 1,000 assets have been created with a 4:1 split where there will be 4 meters created per Asset. These 4 assets will then be used as the inputs of the calculations in the Asset (Consumption, Input, Output and Loss). The meters will use FrameWorX Simulator tags as their inputs, and will be multiplied to create the rest of the assets.

800 Meters/200 Assets

Process	CPU (%)	Private Bytes (K)
IcoBizVizEAService.exe	0.07-0.20	149,876
sqlservr.exe	0.05	335,928
IcoFwxServer.exe	0.50	267,964

10,000 Assets

Following on from the 1,000 EA asset configurations there will be 10,000 assets created with a 4:1 split where there will be 4 meters created per Asset. These 4 assets will then be used as the inputs of the calculations in the Asset (Consumption, Input, Output and Loss). The meters will use FrameWorX Simulator tags as their inputs, and will be multiplied to create the rest of the assets.

8,000 Meters/2,000 Assets

Process	CPU (%)	Private Bytes (K)
IcoBizVizEAService.exe	1.2-2.6	356,226
sqlservr.exe	0.45	1,485,238
IcoFwxServer.exe	1.05	742,895

Conclusion

In conclusion the results show that as the overall Energy AnalytiX asset count increases, as does the inherent memory and CPU usage on the machine. The biggest increase is the memory, which is logical as the tree gets larger there will be more items loaded into memory.

If more assets were planned to be used, then upgrading the machine to use more RAM would be preferable as the memory usage was reaching the upper limits.

The above tests were all on a machine which was purely the Energy AnalytiX server, so as a result Internet Explorer was not



Energy AnalytiX Performance



APPLICATION NOTE

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open during the running and the machine was rebooted after adding any assets to ensure any excess memory was released.