IBM Virtual Loaner Program

Active Memory Expansion: VLP User Guide

June 12, 2010

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Introduction

The following document provides direction on how to setup and modify the Active Memory Expansion (AME) feature with a VLP system.

Before you begin working with AME on VLP please review the IBM Active Memory Expansion User Guide to fully understand this technology - www.ibm.com/systems/power/hardware/whitepapers/am_exp.html

Keep this IBM AME User Guide handy while working with AME on your VLP system.

What is Active Memory Expansion?

IBM's POWER7™ systems with AIX® feature Active Memory™ Expansion, a new technology for expanding a system's effective memory capacity. Active Memory Expansion employs memory compression technology to transparently compress in-memory data, allowing more data to be placed into memory and thus expanding the memory capacity of POWER7 systems. Utilizing Active Memory Expansion can improve system utilization and increase a system's throughput.

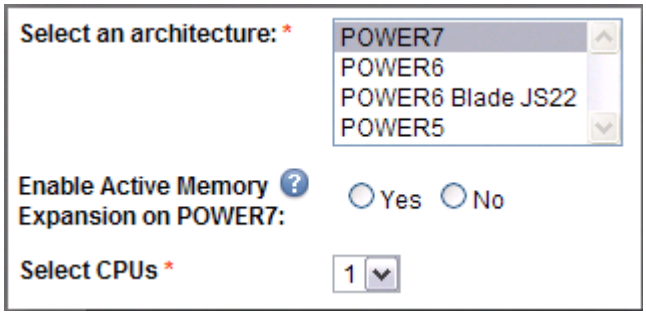
Major Steps:

1. **Activate AME on your VLP System**
2. **Setup and configure the system**
3. **Activate AME Planning Tool - amepat**
4. **Modify the Memory Expansion Factor**
5. **Monitor AME using amepat**

Step 1: Activate AME with your VLP System

Go to the VLP site to create a New Reservation – www.ibm.com/systems/vlp

AME must be turned on while the VLP system is initially provisioned. To do this, make sure to select **Yes** to **Enable Active Memory Expansion on POWER7** while defining system resources during the VLP reservation process.



Step 2: Setup and configure the system

Once your VLP system is ACTIVE, connect to the system then install/configure your application

Step 3: Activate AME Planning Tool

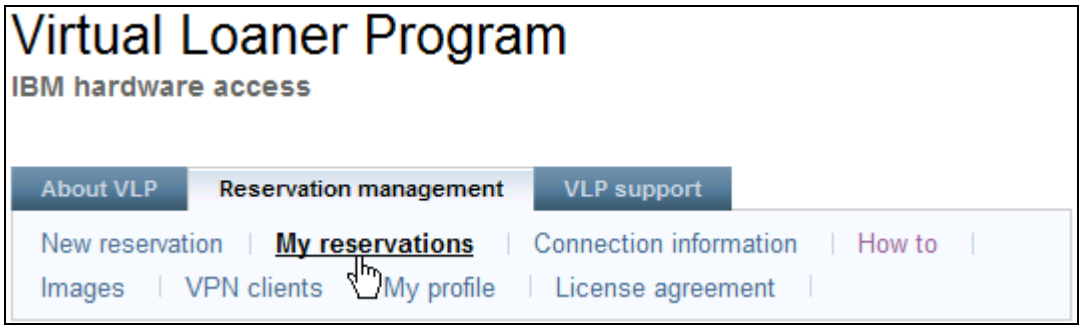
The AME planning is available as part of AIX starting with AIX 6.1 TL4 SP2. The name of the tool is amepat. It can be launched from the AIX SMIT interface or directly from the AIX command-line. The amepat tool should be run by the root user.

Refer to the IBM AME User Guide for instructions on how to launch amepat and interpret the report results which includes the optimal AME Memory Factor value.

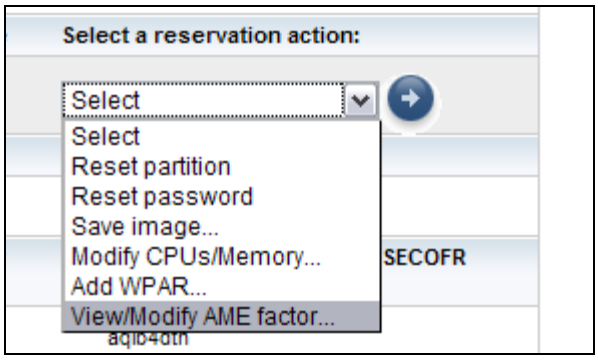
Step 4: Modify Memory Expansion Factor

Go to the Reservation management tab on the VLP site – www.ibm.com/systems/vlp

Select **My reservations** from the top menu



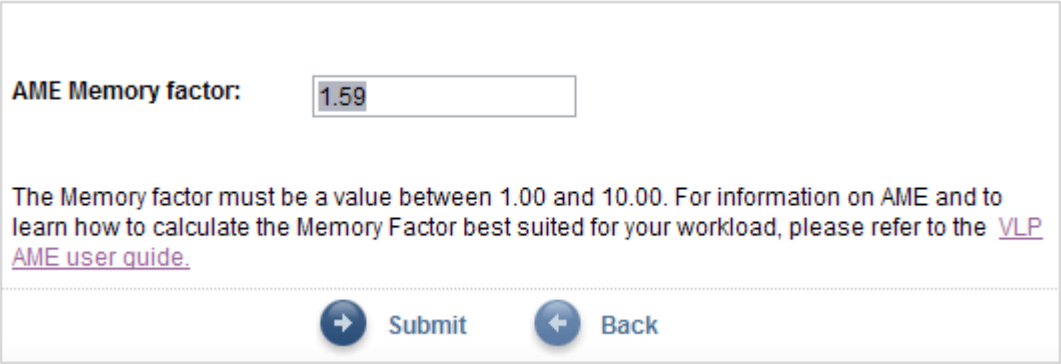
Select the reservation for your AME enabled system. Under the reservation action drop down, select **"View/Modify AME factor"**



A screen will appear with the AME Memory factor field. The value shown is the current memory factor setting.

Enter a desired Memory Factor value between 1.00 – 10.00. Remember to use the IBM AME User Guide as a reference for choosing the appropriate Memory Factor.

Click **Submit**. The screen will redirect to the My reservations page once the factor has been changed.



Step 5: Monitor AME using amepat

For basic monitoring of the AME environment, the amepat tool can be used. The amepat tool can be used to easily get a summary of the AME configuration and performance metrics for an AME-enabled LPAR. When the amepat tool is run without any options, it will report a snapshot of the LPAR's configuration and AME performance metrics.

When using the amepat tool to get a snapshot, the snapshot will include various CPU utilization metrics, including how much CPU has been used for AME. It is important to note that the CPU utilization metrics reported by the amepat tool are overall average utilization metrics since the LPAR was last booted. In order to do fine-grained monitoring of CPU utilization over specific intervals, other commands like lparstat or vmstat can be used. These commands are described further in the advanced monitoring section.