

**Guide to Selecting an AIX or VIOS  
Multi-Pathing Path Control Module**

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## Introduction

When determining the path control module to use for AIX and VIOS multi-path I/O supported devices there are two choices that can be made by the system administrator and the storage administrator. The one being SDDPCM (Subsystem Device Path Control Module and the other the AIX default MPIO PCM (Multi-Pathing Input/Output Path Control Module.)

The SDDPCM product is provided by most IBM storage products for subsequent installation on the various server operating systems that the device supports. The AIX and VIOS default MPIO (AIXPCM) is provided as an integrated part of the base VIOS POWERVM firmware and AIX operating system product distribution.

In this document the term SDDPCM will be used to refer to the Subsystem Device Path Control Module and AIXPCM will be used for both the AIX and VIOS default MPIO module. The term PCM will be used when path control modules are being discussed generically.

From a high level viewpoint the SDDPCM provides many common functions and interfaces across various operating systems as an additional downloadable software entity for most IBM storage devices. The AIXPCM is a fully integrated component in the AIX and VIOS licensed program product and provides integrated device support for the AIX/VIOS environment allowing existing AIX/VIOS device and upper level commands to be used regardless of the storage device. Both IBM and some Non-IBM storage devices are supported. Depending on your environment and mix of vendor products and server/storage support alignment responsibilities one PCM over the other may be a better choice for you.

This document is intended to provide an understanding of the capabilities of them both.

## OS Integration and Product considerations

The AIXPCM is included as part of the base AIX and VIOS licensed program product on the system p platform. This enables a tighter integration of software levels in terms of coexistence of various software and device firmware levels as there is one less part to integrate in the environment. The AIXPCM update levels are provided and are updated and migrated as a main line part of the all the normal AIX and VIOS service strategy and upgrade/migration paths. Thus, by simply upgrading either VIOS or AIX the AIXPCM is automatically updated to the appropriate level without the need to install any additional modules or filesets.

The SDDPCM is an add-on software entity and has its own update strategy and process for obtaining fixes. The customer must manage coexistence levels between both the mix of devices, operating system levels and VIOS levels. SDDPCM is not a licensed program product. The customer also has additional responsibilities in performing operating system migrations in an SDDPCM environment.

The AIXPCM provides full fileset level APAR tracking, AIX software Vital Product Database command support and formal PTFs as part of the AIX and VIOS licensed program products. SDDPCM provides a list of items fixed in the software entity release documentation and full replacement file sets and additional scripts.

## **Devices Supported**

The SDDPCM software entity is provided for specific IBM devices and is referenced by the particular device support statement. The supported devices differ between AIX and POWERVM VIOS as well.

AIXPCM supports all devices that the AIX operating system and VIOS POWERVM firmware support including selected third-party devices.

## **Path Selection Algorithm Options**

Both PCMs provide Fail Over and Round Robin algorithms.

The SDDPCM provides additional algorithms called Load Balancing and Load Balancing Port which will take into account load statistics based on the number of currently outstanding I/O operations of the server adapters in selecting the next path for an I/O operation. In the case of Load Balancing and in the case of Load Balancing Port, it also incorporates target port I/O statistics as well.

While AIXPCM doesn't offer a "load balancing" attribute, load balancing using the AIX PCM can be accomplished through a "round\_robin" algorithm, combined with user-customizable path priorities.

The default option for SDDPCM is Load Balance. The default option for AIXPCM is Fail Over

SDDPCM allows for dynamic selection of path selection algorithm options while the AIXPCM requires each hdisk be reconfigured in order for a new path selection algorithm to take affect.

## **Dynamic Path Configuration Capabilities**

Both PCMs provide for the ability to dynamically add paths to a device, dynamically remove or replace physical adapters and support AIX and VIOS fibre channel dynamic device tracking.

Both PCMs provide an automated means of reclaiming failed paths of opened devices via kernel processes. In addition, SDDPCM provides a health check daemon to provide an automated method of reclaiming failed paths to a closed device. AIXPCM has

a path health checker built into its functionality to automatically reclaim failed paths. Both PCM's provide user-customizable health check intervals.

## **Clustered License Program Product Support**

Both PCMs provide support of POWERHA and GPFS clustered software products.

## **Device Reservation Policy**

Both PCMs provide the same device reservation policy capabilities.

## **SAN Boot Support, Dump Device and Paging Support**

Both PCMs support booting from SAN. Upon installation of AIX, the AIXPCM will be the PCM for the boot devices. If SDDPCM is desired to be used for the boot device, another restart of the system is required after installation of the SDDPCM software. If NIM installation is used and the SDDPCM software is included in the NIM repository environment then the second restart is not required.

Both PCMs allow for any MPIO device to be used as a paging device and a dump device.

## **Persistent Reserve Utilities**

The SDDPCM provides a robust set of persistent reserve utilities for examining and managing persistent reserves on devices.

## **Enhanced device utilities for SDDPCM supported devices**

The SDDPCM provides enhanced utilities (pcmpath commands) to show mappings from adapters, paths and devices as well as performance and error statistics than can be useful in SAN management for those supported devices.

Performance and error statistics when using the AIXPCM are gathered via standard performance monitoring tools which ship with AIX, such as iostat and festat.