The persistent reserve commands are incompatible with the earlier reserve or release mechanism. Also, target devices can support only reservations from the earlier mechanism or the new mechanism. Attempting to mix persistent reserve commands with earlier reserve or release commands results in the target device returning a reservation conflict error.

Earlier reserve and release mechanisms (SCSI-2) reserved the entire LUN (volume) for exclusive use down a single path. This approach prevents access from any other host or even access from the same host that uses a different host adapter. The persistent reserve design establishes a method and interface through a reserve policy attribute for SCSI disks. This design specifies the type of reservation (if any) that the operating system device driver establishes before it accesses data on the disk.

The following possible values are supported for the reserve policy:

- No_reserve: No reservations are used on the disk.
- Single_path: Earlier reserve or release commands are used on the disk.
- PR_exclusive: Persistent reservation is used to establish *exclusive host access* to the disk.
- PR_shared: Persistent reservation is used to establish *shared host access* to the disk.

When a device is opened (for example, when the AIX **varyonvg** command opens the underlying hdisks), the device driver checks the object data manager (ODM) for a `reserve_policy` and a `PR_key_value`. The driver then opens the device. For persistent reserve, each host that is attached to the shared disk must use a unique registration key value.

6.5.1 Clearing reserves

It is possible to accidentally leave a reserve on the IBM Spectrum Virtualize volume or on the IBM Spectrum Virtualize MDisk during migration into IBM Spectrum Virtualize, or when disks are reused for another purpose. Several tools are available from the hosts to clear these reserves. The easiest tools to use are the **pcmquerypr** (AIX SDDPCM host) commands. Another tool is a menu-driven Windows SDDDSM tool.

The Windows Persistent Reserve Tool is called `PRTool.exe` and is installed automatically when SDDDSM is installed in the `C:\Program Files\IBM\Subsystem Device Driver\PRTool.exe` directory. You can clear the IBM Spectrum Virtualize volume reserves by removing all the host mappings.

Example 6-7 shows a failing **pcmquerypr** command to clear the reserve and the error.

Example 6-7 Output of the pcmquerypr command

```
# pcmquerypr -ph /dev/hdisk232 -V
connection type: fscsi0
open dev: /dev/hdisk232
couldn't open /dev/hdisk232, errno=16
```

Use the AIX `errno.h` include file to determine what error number 16 indicates. This error indicates a busy condition, which can indicate a legacy reserve or a persistent reserve from another host (or that this host is from a different adapter). However, some AIX technology levels have a diagnostic open issue that prevents the **pcmquerypr** command from opening the device to display the status or to clear a reserve.

For more information about older AIX technology levels that break the **pcmquerypr** command, see *IBM Support*, which is available at this website:

IBM Support