Cumulative Release Notes for DataCore Support for AIX MPIO 1.0.0.1

<table>
<thead>
<tr>
<th>Release Notes Cumulative Change Summary</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original release</td>
<td>June 9, 2009</td>
</tr>
<tr>
<td>Added update for SANsymphony-V compatibility</td>
<td>March 6, 2013</td>
</tr>
<tr>
<td>Additional edits to steps for clarification; removed two unnecessary steps</td>
<td>March 14, 2013</td>
</tr>
<tr>
<td>Removed support for SANmelody servers</td>
<td>May 5, 2014</td>
</tr>
<tr>
<td>Updated for SANsymphony 10.X, removed references to older versions of SANsymphony</td>
<td>July 27, 2016</td>
</tr>
<tr>
<td>Removed obsolete version information; added a reference to the AIX Host Configuration Guide</td>
<td>July 13, 2017</td>
</tr>
</tbody>
</table>

Release Notes: DataCore Support for AIX MPIO 1.0.0.1

These Release Notes include the following sections:

Operational Guidelines

Installation Instructions

Operational Guidelines and Pre-installation Instructions

- Included in the download package are:
  - DataCore Support for AIX MPIO 1.0.0.1
  - These Release Notes

This product allows an AIX application server to manage mapped multi-path disks from a DataCore SANsymphony-V or SANsymphony storage server.

Supported Version Information

See the AIX Host Configuration Guide for versions of SANsymphony that are supported with AIX.

Installation Instructions – New Installations

The install package is named "datacore.image". It is installable using the installp command (or alternatively SMIT). Follow these steps to install this package and configure the system for its use:

1. Copy the "datacore.image" fileset to the AIX system and cd to the directory where it resides. Issue the following command to start the installation:

   "installp -aYd datacore.image all"

   Note: the -Y option indicates that you accept the license agreement. Alternatively, use the -E option preview the license agreement.

   An example of the screen output is shown below:

   # installp -aYd datacore.image all
Pre-installation Verification...

Verifying selections...done
Verifying requisites...done
Results...

SUCCESSES
--------

Filesets listed in this section passed pre-installation verification and will be installed.

Selected Filesets
-----------------
datacore 1.0.0.1 # DataCore MPIO Support

<< End of Success Section >>

BUILDDATE Verification ...

Verifying build dates...done
FILESET STATISTICS
----------
1 Selected to be installed, of which:
   1 Passed pre-installation verification
   1 Total to be installed

Installing Software...

installp: APPLYING software for:
datacore 1.0.0.1

Install DataCore.cat message catalog
Finished processing all filesets. (Total time: 28 secs).
0503-409 installp: bosboot verification starting...
installp: bosboot verification completed.
0503-408 installp: bosboot process starting...
bosboot: Boot image is 32461 512 byte blocks.
0503-292 This update will not fully take effect until after a system reboot.
   *** ATTENTION ***
   System boot image has been updated. You should reboot the system as soon as possible to properly integrate the changes and to avoid disruption of current functionality.
installp: bosboot process completed.

Summaries:

Installation Summary
--------
Name Level Part Event Result

---
2. Reboot the AIX server.

3. Use the `lslpp` command to verify the datacore fileset is installed.

```
# lslpp -l datacore
```

<table>
<thead>
<tr>
<th>Fileset</th>
<th>Level</th>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>datacore</td>
<td>1.0.0.1</td>
<td>COMMITTED</td>
<td>DataCore MPIO Support</td>
</tr>
<tr>
<td>Path: /usr/lib/objrepos datacore</td>
<td>1.0.0.1</td>
<td>COMMITTED</td>
<td>DataCore MPIO Support</td>
</tr>
</tbody>
</table>

4. In the DataCore Management Console, set the host type to IBM AIX.

5. Map virtual volumes from DataCore Servers. **Important Note**: Virtual volume names **MUST** be at least 8 characters long and the first 8 characters must be unique for each volume.

6. On the AIX application server, execute the `cfgmgr` command to discover all DataCore disks. Use the `lspv` command to display the list of disks. See an example of the output below:

```
# cfgmgr
# lspv
```

<table>
<thead>
<tr>
<th>Device</th>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>hdisk0</td>
<td>active</td>
<td>Other FC SCSI Disk Drive</td>
</tr>
<tr>
<td>hdisk1</td>
<td>test1</td>
<td>DataCore Fibre Channel Storage</td>
</tr>
<tr>
<td>hdisk2</td>
<td>test2</td>
<td>DataCore Fibre Channel Storage</td>
</tr>
<tr>
<td>hdisk3</td>
<td>test3</td>
<td>DataCore iSCSI Storage</td>
</tr>
<tr>
<td>hdisk4</td>
<td>test4</td>
<td>DataCore iSCSI Storage</td>
</tr>
</tbody>
</table>

To list DataCore storage, use the `lsdev` command. See an example of the output below:

```
# lsdev -Cc disk
```

<table>
<thead>
<tr>
<th>Device</th>
<th>State</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>hdisk0</td>
<td>Available</td>
<td>DataCore Fibre Channel Storage</td>
</tr>
<tr>
<td>hdisk1</td>
<td>Available</td>
<td>DataCore Fibre Channel Storage</td>
</tr>
<tr>
<td>hdisk2</td>
<td>Available</td>
<td>DataCore iSCSI Storage</td>
</tr>
<tr>
<td>hdisk3</td>
<td>Available</td>
<td>DataCore iSCSI Storage</td>
</tr>
<tr>
<td>hdisk4</td>
<td>Available</td>
<td>DataCore iSCSI Storage</td>
</tr>
</tbody>
</table>

To display the device attributes for a newly installed device, use the `lsattr` command. See an example of the output below, using `hdiskN`, where `N` is the DataCore `hdisk` number obtained from the `lsdev -Cc disk` command:

```
# lsattr -l hdiskN -E
```

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM</td>
<td>False</td>
</tr>
<tr>
<td>PCM/friend/dcfcpother</td>
<td>Algorithm</td>
</tr>
<tr>
<td>algorithm</td>
<td>fail_over</td>
</tr>
<tr>
<td>clr_q</td>
<td>Device CLEARS its Queue on error</td>
</tr>
<tr>
<td>dist_err_pcnt</td>
<td>True</td>
</tr>
<tr>
<td>dist_tw_width</td>
<td>True</td>
</tr>
<tr>
<td>hcheck_cmd</td>
<td>inquiry</td>
</tr>
<tr>
<td>hcheck_interval</td>
<td>True</td>
</tr>
<tr>
<td>hcheck_mode</td>
<td>nonactive</td>
</tr>
<tr>
<td>location</td>
<td>True</td>
</tr>
</tbody>
</table>
7. Enable Fast IO Failure and Dynamic Tracking. For the fscsiN parameter, N is the fscsi device number.

    chdev -l fscsiN -a fc_err_recov=fast_fail -a dyntrk=yes

NOTE: If the fscsiN device is in use, the above command will fail. If this occurs, you will need to run:

    chdev -l fscsiN -a fc_err_recov=fast_fail -a dyntrk=yes -P

The –P flag changes the device's characteristics permanently in the Customized Devices object class without actually changing the device.

8. Adjust the Queue Depth

Disk Devices that are not marked as being from IBM storage may have their LUN Queue Depths set to 1. This will significantly affect Host performance when using DataCore Virtual Disks.

Example (where hdisk2 is a DataCore virtual disk):

    # lsdev -Cc disk

    hdisk0 Available 10-80-00-4,0 16 Bit SCSI Disk Drive
    hdisk1 Available 10-80-00-5,0 16 Bit SCSI Disk Drive
    hdisk2 Available 10-90-01 Other FC SCSI Disk Drive

Use the 'hdisk' number to obtain the disk device's attributes:

    # lsattr -El hdisk2

    location Location Label True
    ww_name 0x210100e08b23fb22 FC World Wide Name False
    pvid none Physical volume identifier False
    queue_depth 1 Queue DEPTH True
    q_type simple Queuing TYPE True
    q_err yes Use QERR bit True clr_q no Device CLEARS its Queue on error True
    rw_timeout 30 READ/WRITE time out value True
    start_timeout 60 START unit time out value True
    reassign_to 120 REASSIGN time out value True
    scsi_id 0x614000 SCSI ID False
    lun_id 0x100000000000 Logical Unit Number ID False
    node_name 0x210100e08b23fb22 FC Node Name False

To modify the queue depth, use the 'chdev' command, set the queue_depth value to '16'

    # chdev -l hdisk2 -a queue_depth=16
Verify the setting by running the same 'lsattr' command listed above, repeat the 'chdev' command for any other DataCore Virtual Disks that have the queue_depth value of '1' set.
**Installation Instructions**

1. Stop services, applications or processes that access data on the virtual volumes provided by SANsymphony storage servers.

2. Unmount all file systems that reside on the DataCore virtual volumes (hdisk):
   
   `umount [filesystem name]`

3. Delete obsolete entries from the ODM. Note: There will be a message indicating that two entries have been deleted from the ODM.
   
   `odmdelete -o PdAt -q"attribute=mpio_model_map and deflt=0808DataCore”`

4. Copy the "datacore.image" file to the AIX system and `cd` to the directory where the file resides. Issue the following command to start the installation:

   `installp -aYd datacore.image all`

5. Reboot the AIX server.

6. In the DataCore Management Console, set the host type to **IBM AIX**.

7. On the AIX server, execute the `cfgmgr` command to discover all DataCore disks.

8. Use the `lspv` command to display the list of disks.

9. Execute the `lspath` command to confirm that both paths are enabled.

10. Mount all file systems.

11. Enable Fast IO Failure and Dynamic Tracking

    `chdev -l fscsiN -a fc_err_recov=fast_fail -a dyntrk=yes`

    **NOTE:** If the fscsiN device is in use, the above command will fail. If this occurs, run:

    `chdev -l fscsiN -a fc_err_recov=fast_fail -a dyntrk=yes -P`

    The `-P` flag changes the device’s characteristics permanently in the Customized Devices object class without actually changing the device.

12. Reboot the AIX server.

**Uninstall Instructions**

The uninstall process will remove DataCore AIX MPIO Support 1.0.0.1. Prior to uninstalling, any file systems on these disks should be unmounted and all volume groups should be in the inactive state (via the varryoffvg command). It is not necessary to run exportvg on any of the volume groups. The pre-uninstall process will check to make sure there are no “active” DataCore disks and remove the disks (if not previously done) before uninstalling. The command used to uninstall the DataCore fileset and an example of the screen output is below:

`# installp -u datacore`
Verifying selections...Deconfigure/remove DataCore disks
hdisk1 deleted
hdisk2 deleted
hdisk3 deleted
hdisk4 deleted
Success
done
Verifying requisites...done
Results...

SUCCESES
--------
Filesets listed in this section passed pre-deinstall verification and will be removed.

Selected Filesets
------------------
**datacore 1.0.0.1** # DataCore MPIO Support

<< End of Success Section >>

FILESET STATISTICS
-------------------
 1 Selected to be deinstalled, of which:
    1 Passed pre-deinstall verification
----
 1 Total to be deinstalled

Deinstalling Software...

installp: DEINSTALLING software for:
  **datacore 1.0.0.1**

Removing DataCore specific ODM entries
Removing DataCore message catalog
Finished processing all filesets. (Total time: 12 secs).

Summaries:

**Installation Summary**

<table>
<thead>
<tr>
<th>Name</th>
<th>Level</th>
<th>Part</th>
<th>Event</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>datacore</strong></td>
<td>1.0.0.1</td>
<td>USR</td>
<td>DEINSTALL</td>
<td>SUCCESS</td>
</tr>
</tbody>
</table>

#