Cumulative Release Notes for DataCore Support for AIX MPIO 1.0.0.1

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

Release Notes: DataCore Support for AIX MPIO 1.0.0.1

These Release Notes include the following sections:

Operational Guidelines	Operational guidelines and pre-installation steps for this release.
Installation Instructions.	Installation Steps

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.
    * * *  A T T E N T I O N  * * *
    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
```

```
-----------------------------------------------------------------------------
datacore                1.0.0.1       USR       APPLY      SUCCESS
#
```

2. Reboot the AIX server.

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

   # lslpp -l datacore

```
  Fileset                    Level  State      Description
  ----------------------------------------------------------------------------
Path: /usr/lib/objrepos
  datacore                 1.0.0.1  COMMITTED  DataCore MPIO Support
#
```

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

```
hdisk0      0044cfaad2e3645d          rootvg      active
hdisk1      0044cfaab2fe268e          test1
hdisk2      0044cfaab2feaab6          test2
hdisk3      0044cfaab1e6ce11          test3
hdisk4      0044cfaab30446fd          test4
```

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

   # lsdev -Cc disk

```
hdisk0 Available 20-58-01  Other FC SCSI Disk Drive
hdisk1 Available 20-60-01  DataCore Fibre Channel Storage
hdisk2 Available 20-60-01  DataCore Fibre Channel Storage
hdisk3 Available           DataCore iSCSI Storage
hdisk4 Available           DataCore iSCSI Storage
```

   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

```
PCM             PCM/friend/dcfcpother   Path Control Module                False
algorithm       fail_over               Algorithm                          True
clr_q           no                      Device CLEARS its Queue on error   True
dist_err_pcnt   0                       Distributed Error Percentage       True
dist_tw_width   50                      Distributed Error SampleTime       True
hcheck_cmd      inquiry                 Health Check Command               True
hcheck_interval 60                      Health Check Interval              True
hcheck_mode     nonactive               Health Check Mode                  True
location                                Location Label                     True
```

```
lun_id          0x0                     Logical Unit Number ID                  False
max_transfer    0x40000                 Maximum TRANSFER Size                   True
node_name       0x210000e08b1067ed      FC Node Name                            False
pvid        0044cfaab2fe268e0000000000000000  Physical volume identifier        False
q_err           yes                     Use QERR bit                            True
q_type          simple                  Queuing TYPE                            True
queue_depth     16                      Queue DEPTH                             True
reassign_to     120                     REASSIGN time out value                 True
reserve_policy  single_path             Reserve Policy                          True
rw_timeout      70                      READ/WRITE time out value               True
scsi_id         0x604200                SCSI ID                                 False
start_timeout   60                      START unit time out value               True
unique_id  2608Aix1Vol10BSANsymphony08DataCorefcp Unique device identifier       False
ww_name         0x210000e08b1067ed      FC World Wide Name                      False
#
```

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 0x1000000000000 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 (hdisks):

   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
+-----------------------------------------------------------------------------+
                    Pre-de install Verification...
```

```
+-----------------------------------------------------------------------------+
Verifying selections...Deconfigure/remove DataCore disks
hdisk1 deleted
hdisk2 deleted
hdisk3 deleted
hdisk4 deleted
Success
done
Verifying requisites...done
Results...

SUCCESSES
---------
  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
--------------------
Name                      Level          Part       Event      Result
-------------------------------------------------------------------------------
datacore                  1.0.0.1        USR        DEINSTALL  SUCCESS
#
```