Hitachi Dynamic Link Manager (for AIX) 8.8.1-01 Release Notes

Contents

About this document

This document (RN-00HS271-64, February 2022) provides late-breaking information about Hitachi Dynamic Link Manager (for AIX) 8.8.1-01. It includes information that was not available at the time the technical documentation for this product was published, as well as a list of known problems and solutions.

Intended audience

This document is intended for customers and Hitachi Vantara partners who license and use Hitachi Dynamic Link Manager (for AIX).

Getting help

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About this release

This is a minor release that adds new features.

Product package contents

Medium	CD-ROM	Revision	Release Type
Software	Hitachi Dynamic Link Manager (for AIX)	8.8.1-01	Full Package

New features and important enhancements

8.8.1-00 Additional Functions and Modifications

- Hitachi Virtual Storage Platform 5200, 5200H, 5600 and 5600H are now supported.
- PowerHA 7.2.5 is now supported.
- Hitachi Virtual Storage Platform E1090 and E1090H are now supported.

8.8.1-01 Additional Functions and Modifications

- The following restriction has been lifted:

  If the functionality that performs retries when an I/O timeout occurs is to be used, the HDLM path health checking functionality must be set to OFF..

System requirements

Refer to Chapter 3. Creating an HDLM environment of the Hitachi Dynamic Link Manager (for AIX) User Guide.

Host

For details on supported hosts, refer to the following manual:

- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 3. Creating an HDLM environment - HDLM system requirements - Host and OS support for HDLM

Host bus adapter (HBA)

For information on supported HBAs and drivers, refer to Appendix A - Host Bus Adapter (HBA) Support Matrix.

Storage

For details on supported storage systems, refer to the following manual:

- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 3. Creating an HDLM environment - HDLM system requirements - Storage systems supported by HDLM

Virtualization

For details on supported virtualization environment, refer to the following manual:

- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 3. Creating an HDLM environment - HDLM system requirements - Host and OS support for HDLM

Operating systems requirements

For details on supported operating system, refer to the following manual:

- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 3. Creating an HDLM environment - HDLM system requirements - Host and OS support for HDLM

Each OS Patch for applicable OSs can be downloaded from IBM official website or FTP site (ftp://ftp.software.ibm.com/aix/efixes/).

Prerequisite programs

For details on related programs, refer to the following manual:

- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 3. Creating an HDLM environment - HDLM system requirements - Host and OS support for HDLM

Related programs

For details on related programs, refer to the following manual:

- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 3. Creating an HDLM environment - HDLM system requirements - Storage systems supported by HDLM - When handling intermediate volumes managed by Hitachi RapidXchange
- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 3. Creating an HDLM environment - HDLM system requirements - Cluster software supported by HDLM

Memory and disk capacity requirements

For details on memory and disk capacity requirements, refer to the following manual:

- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 3. Creating an HDLM environment - HDLM system requirements - Memory and disk capacity requirements

HDLM supported configurations

For details on the condition that HDLM can manage space requirements, refer to the following manual:

- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 3. Creating an HDLM environment - HDLM system requirements - Number of LUs and paths that are supported in HDLM

Resolved problems

The following problem has been corrected:

(1) When the refresh operation of the HDLM command is performed, instead of “ConfigurationAccess”, “Authentication” is set in the audit event category for the KAPL15121-I or KAPL15122-W message, which is output to the audit log.

Known problems

1) Precautions when deleting all HDLM devices on a server:

   When deleting all devices managed by HDLM[a] in local boot disk environment[b], note the following two items:
   If Auto Failback is set to ON, set it to OFF before the deletion processing. After the deletion processing completes, reset it back to ON. Without this process, a server may crash due to an OS issue.
   Do not execute the following procedures while deleting the devices managed by HDLM. If executed, a server may crash due to an OS issue.

   - Online operation
   - lspath/chpath/rmpath of the OS command execution

   Notes:

   a) This operation will be performed when performing the following procedures:
      - The upgrade installation, re-installation or uninstallation
      - The deletion of all HDLM devices by dlmrmdev or rmdev command in deleting LU.

   b) If using HDLM in the boot disk environment, these precautions are not applicable.

2) Notes for executing DLMgetras utility:

If you specify a directory under an NFS mount point as an output destination and then execute DLMgetras utility, an empty directory named "DLMgetras_tmpdir.xxxx/the_specified_directory_name" may be created for the output destination directory ("xxxx" is an optional numeric value).
When the empty directory exists after executing DLMgetras utility, delete the directory.

3) Notes for run Live Update:

   If you want to run Live Update while a Hitachi storage system is connected, you must apply APAR IJ08437 in advance.

   To prevent the problem of AIX from occurring, before running Live Update, specify "no_reserve" for the reserve_policy attribute for the hdisk that is currently used as the rootvg.

4) Notes on using Virtual I/O Server:

   In a virtual I/O server environment where HDLM is installed, the following operation is not supported:
   - Using the viosupgrade command to migrate the virtual I/O server.

Closing known problems

(1) If the functionality that performs retries when an I/O timeout occurs is to be used, the HDLM path health checking functionality must be set to OFF.

Installation precautions

For details on HDLM installation, refer to the following manual:

- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 3. Creating an HDLM environment - Notes on creating an HDLM environment

Updating installation of HDLM precautions

For details on updating HDLM, refer to the following manual:

- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 3. Creating an HDLM environment - Notes on creating an HDLM environment - Notes on an upgrade installation or re-installation of HDLM

Uninstallation precautions

For details on HDLM uninstallation, refer to the following manual:

- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 3. Creating an HDLM environment - Removing HDLM

System generate precautions

For details on HDLM system generate, refer to the following manual:

- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 3. Creating an HDLM environment - Notes on creating an HDLM environment

Usage precautions

For details on usage Precautions when using HDLM, refer to the following manual:

- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 4. HDLM operation - Notes on using HDLM
- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter 4. HDLM operation - HDLM operations using commands
- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter A. Functional differences between versions of HDLM
- Hitachi Dynamic Link Manager (for AIX) User Guide Chapter B. Differences between HDLM version 5.9 or later and version 5.8.1 or earlier

Additional usage precautions

Function	Item	Version number
HDLM command (dlnkmgr)	HDLM version	8.8.1-01
	HDLM manager	8.8.1-01
	HDLM Alert Driver	8.8.1-01
	HDLM Driver	8.8.1-01

lslpp	Level	8.8.1.1

1) Version numbers to be displayed after this version of HDLM is installed are as follows:
2) The following example shows the text displayed when dlnkmgr view -sys is executed:

```
# /usr/DynamicLinkManager/bin/dlnkmgr view -sys
HDLM Version                  : 8.8.1-01
Service Pack Version          :
Load Balance                  : on(extended lio)
Support Cluster               :
Elog Level                    : 3
Elog File Size (KB)           : 9900
Number Of Elog Files          : 2
Trace Level                   : 0
Trace File Size (KB)          : 1000
Number Of Trace Files         : 4
Path Health Checking          : on(30)
Auto Failback                 : on(60)
Intermittent Error Monitor    : off
Dynamic I/O path Control      : off(10)
HDLM Manager      Ver         WakeupTime
Alive             8.8.1-01    2021/10/15 14:51:00
HDLM Alert Driver Ver         WakeupTime          ElogMem Size
Alive             8.8.1-01    2021/10/15 14:50:48 4000
HDLM Driver Ver         WakeupTime
Alive       8.8.1-01    2021/10/15 14:50:56
License Type Expiration
Permanent    -
KAPL01001-I The HDLM command completed normally. Operation name =
view, completion time = 2021/10/15 15:19:56
```

Documentation

Available documentation

Document name	Document number	Issue date
Hitachi Dynamic Link Manager (for AIX) User Guide	MK-92DLM111-51	October 2021

Appendix A: Host Bus Adapter (HBA) Support Matrix

Use the SCSI I/F adapter or Fibre Channel I/F adapters listed below. When using two or more adapters, use the same type of adapter. If you combine different types of HBA, HDLM may not be able to switch a path when an error occurs.

The combination of HBA which can exist together is as follows.

- FC5716, FC1977 and FC1957
- FC5758 and FC1905
- FC5759 and FC1910

Appendix B: Retry functionality when an I/O timeout occurs

If a Read/Write I/O timeout occurs, HDLM normally places the paths where the timeout occurred offline, and then switches the I/O to online paths by performing a failover. However, HDLM also provides functionality that leaves the paths where the timeout occurs in the online status, and retries I/O on the same paths for a specified number of times.

In addition, if the I/O for checking paths during the following operations times out, HDLM normally places the paths offline. However, if this functionality is used, the paths where the timeout occurred remain in the online status.

- Path health checking functionality for paths in the online status
- Automatic failback functionality for paths in the offline status
- Online operation by using the HDLM command for paths in the offline status

The functionality prevents excessive degeneration in the redundancy of paths due to the occurrences of a temporary I/O timeout. Therefore, this functionality can be useful in a system that has a lower redundancy, such as when there are 2 to 4 paths for each LU. Also, the number of times to retry the same path should be set to 1, because of situations in which the cause of the I/O timeout is not a temporary factor.

The following shows HDLM behavior in the cases when the functionality is used and not used:

When the functionality is not used:

If a Read/Write I/O timeout occurs, HDLM places the paths where the I/O timeout occurred offline, and then performs a failover so that the I/O is performed on the online paths.

<Maximum time to complete the I/O>
number-of-paths-for-each-LU x I/O-timer-value (*)

If the I/O for checking paths during the following operations times out, HDLM places the paths offline:

- Path health checking functionality for paths in the online status
- Automatic failback functionality for paths in the offline status
- Online operation by using the HDLM command for paths in the offline status

When the functionality is used:

If a Read/Write I/O timeout occurs, the paths where the I/O timeout occurs remain in the online status, and HDLM retries I/O on the same paths.

If I/O timeouts occur in succession, the functionality retries the I/O for the specified number of times. If the number of I/O timeouts exceed the specified number of times, the paths are placed offline, and HDLM performs a failover so that the I/O is performed on the online paths.

<Maximum time to complete the I/O>
number-of-paths-for-each-LU x (number-of-times-to-retry-at-an-I/O-timeout +1) x I/O-timer-value (*)

If the I/O for checking paths during the following operations times out, HDLM places the paths online:
- Path health checking functionality for paths in the online status
- Automatic failback functionality for paths in the offline status
- Online operation by using the HDLM command for paths in the offline status

(*): Use the following command for each hdisk and check the underlined part for the I/O timer value in the system being used:

The following is an example of executing the command:

```
# lsattr -El hdisk-name -a rw_timeout
rw_timeout 60 READ/WRITE time out  TRUE
```

Notes:

a) If an I/O retry is performed, notifications of I/O completions or I/O failures to the I/O issuers (such as business applications) might be significantly slower than usual in cases where successive I/O timeouts occur on each path. Because of this, if you use the retry functionality, re-check the settings for the business applications as well.

b) When enabling the functionality, check also "HDLM path health" status "Off".

Perform the following procedure to check whether a timeout has occurred in the system being used:

- Check for the output of either of the following log entries in the HDLM manager log:

HDLM manager log: /var/DynamicLinkManager/log/ dlmmgr[1-16].log

Item to check:

Whether the messages includes the string “`Adapter Status = 0x3`” exists in the KAPL05509-I message

Example of output:

```
KAPL05509-I 1628148155 305e9198 800051fd 004 000a0010 Data for
maintenance(Adapter): Error Code = 6, Buffer Flag = 0xC900D,
Adapter Status = 0x3, Add Adapter Status = 0x0
```

Whether the KAPL05508-I message includes the string "`Status Code = 0x3`"

Example of output:

```
KAPL05508-I 1628148155 000a0000 800051fd 004 000a0010 Data for
maintenance(PathCheck): Error Code = 5, Status Validity = 2,
Status Code = 0x3, Sense Code = 0x0
```

If this functionality is used, change the following hdisk attribute:

Attribute name: timeout_retry

Attribute value: Set the number of times that a retry is to be performed.
Range of valid values: From 0 to 3
0: Initial value (This functionality is not used.)
1: Recommended value

The following is an example of changing the attribute value to 1:

```
# chdev -l hdisk-name -a timeout_retry=1
```

The following is an execution example of checking the attribute value:

```
# odmget -q "name=hdisk-name AND attribute=timeout_retry" CuAt | grep
value

value = "1"
```

Note: If the timeout_retry attribute value is not changed, the result is not displayed even if the above command is executed.

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