Hitachi Virtual Storage Platform Gx00 and Fx00 Release Notes

DKCMAIN 83-03-21-*x*0/01, SVP 83-03-21-*x*0/00, NAS OS 12.6.4150.02, SMU 12.6.4150.02

Contents

About this document

This document provides information about the Hitachi Virtual Storage Platform Gx00 and Fx00 firmware (DKCMAIN and SVP) and NAS module firmware (NAS OS and SMU), including new features and functions and changes.

Revision	Date
RN-830321-M024-00	May 16th, 2016

Intended audience

This document is intended for Hitachi Data Systems customers and authorized service providers who install, configure, operate, and maintain the Hitachi Virtual Storage Platform Gx00 and Fx00 storage systems.

Getting help

Hitachi Data Systems Support Connect is the destination for technical support of products and solutions sold by Hitachi Data Systems. To contact technical support, log on to Hitachi Data Systems Support Connect for contact information:
https://support.hds.com/en_us/contact-us.html

About this release

This document describes the differences between the following versions:

Product	Firmware/software	New version	Previous version
VSP G800 VSP F800	DKCMAIN	83-03-21-60/01	83-03-03-60/00
	SVP	83-03-21-60/00	83-03-02-60/00
VSP G400, G600 VSP F400, F600	DKCMAIN	83-03-21-40/01	83-03-03-40/00
	SVP	83-03-21-40/00	83-03-02-40/00
VSP G200	DKCMAIN	83-03-21-20/01	83-03-03-20/00
	SVP	83-03-21-20/00	83-03-02-20/00
NAS Module	NAS OS	12.6.4150.02	-
	SMU	12.6.4150.02	-

Note: An external SMU is not required but can be used to manage VSP Gx00 models with NAS modules.

Supported features and functions

The following table lists the new features and functions in this DKCMAIN firmware release. For additional details (for example, affected components, operational notes), contact your Hitachi Data Systems representative.

No	Title and description
1	Support for NAS module (VSP G400, G600, G800). The optional NAS modules (provide native NAS functionality) are supported. With this support, the following are supported: (1) System option mode (SOM) 318 New SOM 318 is available to report SIM=491000 along with SSB=13DC. Restricted Mode – Technical Support Permission Required to Use. (2) Putty Putty is added to SVP/MPC. The following functions, which are supported with 83-03-21-x0/01 or higher and work when the NAS module firmware is installed, use putty: - NAS dump collection (including Auto dump) - NAS module firmware configuration information backup Documented: Maintenance Manual
2	Support for relocation log export from CCI. Relocation log export from CCI using the report configuration/relocation log tool is available. Documented: System Administrator Guide

No	Title and description
3	Support for Tiering Policy in increments of 1 percent. The Tiering Policy threshold value can be set in increments of 1 percent.
4	Support for iSCSI connection between VSP Gx00/Fx00 models and VSP G1000 for TC/UR. iSCSI connection between VSP Gx00/Fx00 models and VSP G1000 for TrueCopy and Universal Replicator is supported. Documented: TrueCopy User Guide, Universal Replicator User Guide
5	Support for tiering policy name setting function. Documented: Provisioning Guide
6	Support for setting SPM information from CCI and RAID Manager Library. The function to set Server Priority Manager (SPM) information to LDEVs on command control interface and RAID Manager Library is supported. In particular, the following functions are available: - Setting SPM information to combinations of LDEV and WWN, and LDEV and iSCSI name - Deleting combinations of LDEV and WWN, and LDEV and iSCSI name from SPM - Collecting monitoring information of combinations of LDEV and WWN, and LDEV and iSCSI name - Displaying SPM information of combinations of LDEV and WWN, and LDEV and iSCSI name Documented: CCI Command Reference, CCI User and Reference Guide
7	Support for Force Delete of GAD pair using command control interface (CCI). Force Delete from CCI for GAD pairs is available. Documented: Global-Active Device User Guide, Command Control Interface Command Reference
8	Support for new drive box and expander buffering off for All Flash Array (AFA). The following are supported for All Flash Array (AFA): - New drive box (DBF2 (DBF 4-port)) - Expander buffering off Documented: Maintenance Manual
9	Support for remaining battery lifetime display on Maintenance Utility (GUM). Remaining lifetime of battery mounted on BKM or BKFM is displayed on Maintenance Utility. Documented: Maintenance Manual

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No	Title and description
10	Support for system option mode (SOM) 1097. SOM 1097 is available to disable Warning LED to blink when any of the following SIM messages is reported: SIM=452XXX, 462XXX, 3077XY, 4100XX, or 410100 Public Mode – No Permission Required to Use Documented: Maintenance Manual
11	Support for Google Chrome. Google Chrome is supported to display Storage Navigator and GUM windows. Google Chrome support version: 48.0.2564.97m (64bit) and later Support OS: Windows 8.1 (64bit), Windows 10 (64bit) Documented: System Administrator Guide
12	Improvement for messages displayed at GUM/HUB reboot. The reboot target GUM (GUM on CTLx) is indicated in the message at GUM reboot on Maintenance Utility. The reset target HUB (HUB on LANx) is indicated in the messages at HUB reset on Maintenance Utility.
13	Support for unread alert indication. An indication for unread alert information is added. When alert information that is not read exists while the storage system status displayed on Maintenance Utility is Power-on in progress, Power-off in progress, or Unknown, "Unread alerts exist." is displayed.
14	Improvement for wording in audit log. Wordings in audit logs when a network setting is performed from Maintenance Utility are changed. Documented : Audit Log User Guide
15	Support for error code 21841-007008. Error code 21841-007008 is added to be reported when the microcode update tool is run from setup.exe with an unsupported Supervisor software version (earlier than 83-01-21-x0/00)
16	Support for Supervisor software version display. The Supervisor software version is displayed on the Storage Device list.

No	Title and description
17	Change to one-time password for maintenance login.

The type of password to be entered on the pop-up for entering the maintenance password opened by selecting System Management and then Boot System Safe Mode on Maintenance Utility is changed from the user password to a one-time password.

With the change, the guidance message appears in the pop-up is also changed as follows.

[Warning] This operation can cause a serious error such as a system down or a data loss. Ask the technical support division about the appropriateness of the operation, and then input the password after getting an approval of making the operation. |
| 18 | Support for warning message at firmware update with media without NAS firmware.

The warning message below is displayed when the media file that does not contain NASFW is specified at firmware update in NAS environment.

Warning message:
The NASFW update cannot be performed because the specified media file does not contain NASFW.

Unless instructions are given by customer support, click [Cancel] to cancel the firmware update, specify a media file containing NASFW, and then update the firmware again. |
| 19 | Change for program product name of Remote Replication Extended.

The name of Disaster Recovery Extended is changed to Remote Replication Extended.

Documented: Maintenance Manual, System Administrator Guide, Device Manager - Storage Navigator Messages |
| 20 | Support for new chip equipped FMC.

The Flash Module Compression drive (FMC drive, NFHAE-Q) equipped with a new flash memory chip is supported. |
| 21 | Patch available for vulnerability of Bug 8411.

A patch for the following vulnerability is provided:

Bug 8411 - tar: directory traversal via crafted tar file which contains a symlink pointing outside of the current directory. |
| 22 | Support for Openssl 1.0.1r, JRE 1.8.0_74, and Flash 20.

Openssl 1.0.1r, JRE 1.8.0_74, and Flash 20 are supported for SVP/MPC.

For the update procedure, refer to Maintenance Manual (08 MAINTENANCE PC SECTION) and Hardware Reference Guide for SVP. |
| 23 | Support for RAID Manager/LIB Ver. 01-22-03/00.

This release includes the following functions:

- Added support for SPM for LDEVs. |

No	Title and description
24	Support for command control interface (CCI) version 01-37-03/04. This release includes the following functions: - Added support for SPM for LDEVs. - Added support for VSP G400, VSP G600, VSP G800 with NAS modules. - Added support for encrypted communication between CCI and GUM. - Improved communication performance between CCI and GUM. - Added the license and system_opt options for the raidcom -h command. - Added the options to forcibly delete GAD pairs. - Added the -lm option to the raidqry command. - Improved the raidcom modify port command to make the command able to change attributes of ports other than universal or target ports. Documented: Command Control Interface Command Reference
25	Support for system option mode (SOM) 1021. System option mode 1021 is available to automatically recover blocked external volumes in Not Ready status, regardless of the external storage system model. Public Mode – No Permission Required to Use Documented: Universal Volume Manager User Guide
26	Addition of Normal End (Optimization remains) to Result Status. "Normal End (Optimization remains)" is added to Result Status of relocation logs. The above is output when tier relocation is canceled during optimization after tier relocation. Documented: Provisioning Guide
27	Support for drive microcode (DKS5H-J). The DKS5H-JxxxSS drive microcode (version 00-7F-A9) is supported.
28	Enhancement for storage model display on SMI-S Provider. Storage system model names displayed on SMI-S Provider are enhanced as follows: - XL model with All Flash Array installed: VSP F800 - XL model without All Flash Array installed: VSP G800 - L model with Model upgrade license and All Flash Array installed: VSP F600 - L model with Model upgrade license but without All Flash Array installed: VSP G600 - M model without Model upgrade license but with All Flash Array installed: VSP F400 - M model without Model upgrade license and All Flash Array installed: VSP G400 - S model with Model upgrade license installed: VSP G200
29	Support for new warning messages and icon. When the reduction rate against the compression rate of an FMC drive is not valid compared to the recommended expansion rate, warning messages and an icon are displayed to notify the user.

No	Title and description
30	Support for encryption communication with Hitachi Command Suite (HCS) REST API.
	Encryption communication between Hitachi Command Suite REST API and VSP Gx00/Fx00 is supported.
	Documented: Hitachi Command Suite Configuration Manager REST API Reference Guide

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Fixed problems

The following table lists the bug fixes in this DKCMAIN firmware release. For additional details (for example, conditions of occurrence, severity, probability), contact your Hitachi Data Systems representative.

No	Category	Title and symptoms
1	Performance Monitor	Unintentional SVP reboot. When the memory in the SVP was depleted while the monitoring switch of Performance Monitor was enabled, the SVP rebooted by mistake.
2	Open	Failure of LDEV recovery. When LDEV recovery was performed in accordance with the Maintenance Manual to restore LDEVs blocked due to multiple-PDEV blockage, message 03005-002511 was displayed and the recovery failed.
3	TrueCopy, Universal Replicator, global-active device	Display failure of TC/UR/GAD pair capacity. When a pair created with an LDEV without attribute specified from the local storage system was displayed on the TC Pairs, UR Pairs, or GAD Pairs tab, "-" was displayed for capacity.
4	Thin Image	Unintentional attribute column displayed by default. When the TI Primary Volumes tab was displayed, the attribute column that should not have been displayed by default setting was displayed in the table.
5	Open	Inadequate SVP message ONL0117E reported for a communication error. SVP message ONL0117E that was reported when a communication error occurred during cache removal on MPC was not adequate.
6	Open	SSB=39BA wrongly logged. When GUM firmware exchange failed, SSB=39BA (0xE7) was logged wrongly.
7	Open	Message displayed at failure of online GUM firmware exchange or controller replacement. Online GUM firmware exchange or controller replacement failed and message 33361-2033BF or 33361-2033C3 was displayed. In addition to the above messages, SSB=39BA was logged.
8	Open	Loss of information necessary for problem analysis. The maintenance record trace table was erased so that the information necessary for problem analysis might not remain.

No	Category	Title and symptoms
9	Open	DKB/SAS port/drive port blockage at MP freeze. When a 2-sec freeze occurred in an MP due to an MPU or microcode failure, a time-out was detected in the communication with DKB. In this case, the following failures occurred depending on the access command types at failure threshold exceedance: - DKB blockage (SSB=AA3C, F7D5, F7D6, or 1609, SIM=CF10XX) - SAS port blockage (SSB=AB45, AB03, AB06, AB0F, AB10, F7D5, F7D6, or 1609, SIM=CF12XX) - Drive port blockage (SSB=AB0F, AB10, F7D5, F7D6, or 1609, SIM=DF8XXX or DF9XXX)
10	Open	Unable to set a domain name starting or ending with "_". When a domain name starting or ending with "_" (underscore) was specified for DNS Domain Name of Option in the Set Up Network Settings dialog displayed by selecting Network Settings and then Set Up Network Settings on the Maintenance Utility window, and then a value was entered in a different setting item or [Apply] was clicked, a message (Invalid Domain Name Format) was displayed and the name could not be set.
11	Open	Lower copy speed of XCOPY and ODX. In a concatenated parity group configuration consisting of LDEVs that were not DP volumes, the speed of XCOPY and ODX copy might be slower than that of the copy by read/write.
12	Open	Spelling error in audit log. At E-mail setting on the Set Up Notifications window of Maintenance Utility, if Identifier was selected for Main Server, "Identifer" was displayed in an actual audit log.
13	Open	Grammatical error in message on dialog to enter password. A message on the dialog to enter the maintenance password, which was displayed at a maintenance operation on Maintenance Utility performed by maintenance personnel of vendor, was grammatically wrong.
14	Open	Incorrect message at controller board replacement (Type Change). The message below that was displayed on the Replace Controller Board (Type Change) window after the blockage processing was complete was not correct. "The CTLx has been blocked. Replace the part in accordance with the procedure in the manual. When the part replacement is complete, click [Restore]."

No	Category	Title and symptoms
15	Open	Message indicating normal end displayed regardless of maintenance operation failure.
		At controller maintenance, if a maintenance operation for some DKBs failed, message 32261-209028 (normal end) was displayed instead of message 30762-208331 (failure).
		Even though normal end was reported, DKBs on which maintenance operations failed were blocked.
16	Open	No TOKEN information collected.
		For the ODX function, the information at TOKEN operation was not collected so that the analysis might be difficult in some cases.
17	Open	No output of CHBB failure.
		A failure on Channel Board Box (CHBB) was not output in the information that could be obtained by SNMP Get/Walk.
18	Open	Drive overload and drive port blockage caused by excessive commands.
		When excessive commands were run for a drive at a time, the drive was overloaded.
		Depending on the number of commands to the drive, SSB=A410 was logged and the drive port might be blocked (SSB=A4B2).
19	Open	All-MP blockage at LAN board failure.
		When a hardware failure occurred on a LAN board (including LAN board removal) during MP booting, all MPs on the controller where the LAN board was mounted were blocked. SIM=3991XX was reported.
20	Open	Unable to solve DKCMAIN version inconsistency.
		When performing volatile PS ON to start a storage system, the DKCMAIN microcode version differed between controllers. After that, the controller with older microcode version was replaced but the version inconsistency could not be solved.
21	Universal Volume Manager	Display failure of external path at Discover External Target Ports.
		When a Discover External Target Ports operation was performed for a port with 257 or more iSCSI paths set, some external paths were not displayed.
22	Universal Volume Manager	Failure of UVM path setting.
		UVM path setting failed and SSB=BEB6 or BEB3 was logged.
23	Dynamic Provisioning, Dynamic Tiering	Fluctuation of DP VOL usage rate.
		When Storage Navigator window was refreshed during I/O or initial copy processing, the usage rate of DP volumes with Full Allocation enabled fluctuated.

No	Category	Title and symptoms
24	Open	Grammatical error in message. An error message displayed when firmware was updated while a different user was performing a maintenance operation contained grammatical error.
25	Universal Replicator	UR pair failure suspension at delta resync. When a delta resync operation was performed for a UR pair without suspending the pair in 3DC configuration using UR, a mirror changed from a HOLD mirror to a UR mirror, and then the pair was suspended due to failure with SSB=8E11 logged.
26	Universal Replicator	UR pair failure suspension at MP failure. When an MP failure occurred while UR was in use, SSB=EF10 was logged and the UR pair was suspended due to failure.
27	Open	Abend of shellbat.exe on MPC connected to controller2. When shellbat.exe was run on the MPC connected to a maintenance LAN of controller2, a message (Initial process of Network port error has occurred. (error code: 10093)) was displayed and the processing might end abnormally.
28	Open	Abend of online GUM firmware update. During online GUM firmware update, the following message appeared and the operation ended abnormally: The processing cannot continue due to an internal logical contradiction.
29	Open	No warning display at invalid date and time setting. Date and time that could be set on the Set Up Date & Time window of Maintenance Utility was of after 2000/1/1, but if date and time within range from 1970/1/1 to 1999/12/31 was entered, no warning was displayed. (After setting the date and time outside the setting range, when [Apply] was clicked, an error message was displayed.)
30	Open	Invalid error message at iSCSI target discovery. When multiple ports were specified on the Discover iSCSI Targets window and the target discovery operation was applied, error message 01205-007310 was displayed.
31	Open	Error on Java console at firmware update. When a firmware update was performed while Java console was active, an OutOfIndex error was displayed on the Java console.
32	Open	I/O time-out and Check Condition returned in high load I/O environment. When an I/O was stopped while I/O load to an iSCSI PCB was high, some I/O tasks in process timed out and Check Condition might be returned.

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No	Category	Title and symptoms
33	Open	Inadequate error message displayed at error in communication with storage system.
		When the alert list was displayed, if an error occurred in the communication with the storage system, a message indicating an internal contradiction might be displayed.
34	Open	SSBs wrongly displayed.
		The following SSBs that should not have been displayed were displayed in the List-SSB dialog:
		SSB=1560, 2080, 461D, 75FE, 94FE, 94FF, B468, B95F, B97E
35	Open	CHK2 wrongly reported.
		CHK2 (SSB=B2FF, B2CB) might occur wrongly.
36	Open	Wrong SSB logged at path removal.
		When paths between storage systems were removed, SSB=B731 and 14EB were logged wrongly.
37	Open	Unable to cancel disabling I/O at reset.
		Phenomenon 1
		When a reset (*) occurred during drive firmware exchange, the status where I/Os were disabled remained, and the processing to cancel the restriction (to disable I/Os) that worked in the periodic processing did not work as per the specification (within 13.5 seconds after the I/O was disabled).
		If the status that I/Os were disabled continued, time-out (SSB=DD84) frequently occurred, and eventually abnormal response was returned to the host.
		Phenomenon 2
		When Phenomenon 1 occurred while SOM 875 to 882, or SOM 1025 to 1032 were set to ON, disabling I/O could not be canceled on odd-numbered MPs and I/Os continued to be disabled wrongly. In this case, time-out (SSB=DD84) frequently occurred, and eventually abnormal response was returned to the host.
		* Reset: CHK1B (SSB=1607), CHK3 (SSB=160F), hang-up reset (SSB=1609), SCSI reset (SSB=1619)
38	Open	Failure of status display at error detection in CFM diagnosis.
		When an error was detected in CFM diagnosis at controller replacement, SSB=3306 and SIM=760000 were reported, but the status displayed on Maintenance Utility remained "Ready".
39	Dynamic Provisioning, Dynamic Tiering	Failure of SN refresh or dump collection.
		When SSB=3303 or 336A was logged, Storage Navigator could not be refreshed or PM Dump, LM Dump or Trace Dump could not be collected.

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No	Category	Title and symptoms
40	Dynamic Provisioning, Dynamic Tiering	Delay in zero data page reclamation. When rebalance processing and zero data page reclamation of Write Same conflicted, the processing of zero data page reclamation was delayed.
41	Dynamic Provisioning, Dynamic Tiering	Incorrect display of used capacity for physical capacity. Phenomenon 1 The used capacity of physical capacity displayed on Storage Navigator and CCI did not contain reserved page capacity. Phenomenon 2 If the used capacity of physical capacity containing reserved page capacity was larger than the threshold, the following problems occurred: - Threshold could be changed. - Rebalance could not be stopped. - Rebalance by pool shrinking could not be stopped. - Tier relocation could not be stopped.
42	LUN Manager	LUN security information wrongly displayed. When a CHB was removed and then installed, the LUN security information set before the removal was displayed.
43	Open	DKB, switch, and CHB blocked and operations unavailable from GUM. When CFM recovery failed in controller maintenance, message 30762-208331 was displayed and the following failures occurred. - DKB, switch, and CHB were blocked on the maintenance target controller. - Operations from GUM of the maintenance target controller were disabled.
44	Open	Inadequate message displayed at controller replacement recovery failure. Message 30762-208331, which was displayed when controller replacement recovery failed, was not adequate.
45	Open	Inadequate message displayed at login failure. After Maintenance Utility was started on MPC and then the refresh button (or F5 key) was clicked, as the one-time password that had been used at the first login was used again, the login failed as per the specification, but the recommended action of message 30662-205056 displayed at the time was not adequate (asking the user to contact customer support).
46	Open	Grammatical error in message 32061-209027. Fixed grammatical error in message 32061-209027.

No	Category	Title and symptoms
47	ShadowImage	Failure of SI pair operation in In-band connection environment. When an SI pair operation was performed from Command Control Interface in an environment where CCI and storage system were connected with In-band, SSB=2310 was logged and the operation might end abnormally.
48	Open	Normal end message displayed even when end processing of firmware update failed. When the end processing of firmware update failed, a message indicating normal end was wrongly displayed. After that, if the firmware update was performed, the following message was displayed and the update could not be performed: 33361-0034C9:00000-200000 "The firmware could not be updated last time because the GUM1 firmware could not be updated."
49	Open	Soft Reset and login failure. While the internal WWN resource was depleted (SSB=BEAD), if a port was logged in 657 times or more, Soft Reset (SSB=BE83) occurred and login after that was disabled.
50	Open	iSCSI login on all ports disabled. In an iSCSI connection environment, when the internal WWN resource was depleted (SSB=BEAD) and the condition could not be restored, login with iSCSI was disabled on all ports.
51	Open	Continuous SIM=EFFEXX report. While a DB was powered off, if a SAS cable connection was changed and the cable was wrongly connected, SIM=EFFEXX for wrong connection continued to be reported until the wrong connection was corrected. SIM=AC50XX, EFFEXX SSB=A47B, AB72
52	Open	SAS port blockage at coincidence of DB power outage and SAS-CTL failure. When a DB power outage and a SAS-CTL failure occurred at the same time, a SAS port on the failed SAS-CTL side was blocked. SSB=AB33, AB28, A4B6, AB76, A4B1, and AB29, and 3250, 32FE, or 32FD SIM=AC50XX, CF12XX
53	Open	Display failure of mail server address on Maintenance Utility. With JSON API, up to 255 characters could be entered for mail server address in domain name format, but a mail server address exceeding 63 characters was not allowed for window display, so that a mail server address in domain name format exceeding 63 characters could not be displayed correctly on the Maintenance Utility window.

No	Category	Title and symptoms
54	Open	Login to Maintenance Utility disabled and no response to SNMPGet. After alert notification setting, the following failures occurred. - Login to Maintenance Utility was disabled. - No response was returned to SNMPGet.
55	Open	Wrong time stamp of SIM/SSB. The time stamp of SIM or SSB reported from DKCMAIN firmware within up to 23 hours and 59 minutes (*) from daylight saving starting time or ending time was 1-hour shifted. * GUM and DKCMAIN firmware are synchronized once a day, and the problem is solved at this timing.
56	Universal Replicator	UR pair failure suspension at delta resync and ownership migration. In 3DC multi-target configuration supporting delta resync, when a delta resync operation and ownership migration were performed, the UR pair was suspended due to failure. SSB=CDE0, SIM=DC1XYY
57	Universal Replicator	Failure suspension of UR pair. In 3DC cascade configuration with 3 UR sites supporting delta resync, when the UR pair between primary and intermediate sites was suspended and then a delta resync operation was performed for the UR for delta resync pair, the latter UR pair might be suspended due to failure. SSB=8E11, SIM=DC1XYY
58	Open	Failure of starting MP. When non-volatile power cycle was performed while the DKCMAIN version differed between controllers, starting MP on one controller failed and SSB=0004 was logged.
59	Open	Failure of maintenance operation. When the number of users connected to a storage exceeded the upper limit of session management on the storage system, a user could log into Maintenance Utility from Storage Navigator but a maintenance operation after that failed due to invalid session ID. Storage Navigator message 30762-204092
60	Open	Error message 33061-205201 wrongly reported at audit log setting. On the Audit Log Setting window of Maintenance Utility, if Disable was specified for Primary Server and Secondary Server, Location Identification Name is left blank, and then [Apply] was clicked, error message 33061-205201 occurred wrongly.

No	Category	Title and symptoms
61	Open	Failed spare/free drive seems to be restored. When failures occurred on a free drive or spare drive and both ENCs/DKBs are connected to the drive, if both ENCs/DKBs were restored by replacing them in accordance with the Maintenance Manual, the failed drive also seemed to be restored. SIM=DF8XXX Depending on the drive where the failure occurred, the following failure occurred. Spare drive: If copy processing worked, the copy processing failed. Free drive: If parity group creation was performed, the creation failed and the drive was blocked.
62	Open	Display failure of drive capacity on Maintenance Utility. Drive capacity of Data, Spare, Free, and Total displayed in the upper area of the Maintenance Utility main window was different from the total sum of capacity for each drive displayed in the lower area on the same window. (The difference was 2.4% at the maximum.)
63	Dynamic Provisioning, Dynamic Tiering	Smaller value displayed in Saving (%). The value displayed in Saving (%) of FMC Pool Volumes Capacity in the Pools tab on the Pools window was smaller than the expected value.
64	Open	Failure of controller replacement/PS OFF/microcode exchange. Controller maintenance, PS OFF, or microcode exchange failed.
65	Command Control Interface	Slower Out of Band CCI response. Response of CCI with Out of Band was 2 to 5 times slower compared to VSP G1000.
66	Open	No blockage of drive port at link speed down. When an ENC or drive failure occurred, the link speed of a drive linked up with 12G slowed down to 6G, but the drive port was not blocked.
67	Audit Log	No user name/host name/command information in audit log. Audit logs (Audit-DKCyyymmdd.txt) did not contain user name, host name, command information (command function name).
68	Open	Unnecessary SIMs and SSB reported at initial installation. At initial installation, unnecessary SIM=FFCDXX, FFCFXX, and SSB=35B5 might be reported.
69	Storage Navigator	Unclear SN message displayed when error occurs. On the Edit Encryption window of Storage Navigator, if the encryption was enabled or disabled for a parity group that contained a pool volume, an error occurred during the operation (as per specification), but the displayed Storage Navigator message 3005-5013 was not clear.

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No	Category	Title and symptoms
70	Open	Inadequate message displayed at system lock release failure. The message that was displayed when system lock release failed at firmware update was not adequate and did not mention procedures to forcibly release the system lock.
71	Open	FMC drive port not blocked at ADC activation, DKB replacement, or ENC replacement. When an FMC drive was linked up with the link speed of 3.0G at ADC activation, DKB replacement, or ENC replacement, the drive port was not blocked but continued to be used with slower link speed. SSB=F775
72	LUN Manager	No display of error details. When an operation on the Edit Ports window on Storage Navigator failed, Storage Navigator message 01205-207001 was displayed on the Task Status window, but the result of each change was not displayed so that users could not understand details of the error. The same phenomenon also occurred at an operation on the Add Hosts and Edit Hosts windows.
73	Universal Replicator	Inadequate recommended action in SN message 06505-008701. When a UR pair was created or resynchronized from Storage Navigator, the operation failed because the remote path was disabled and Storage Navigator message 06505-008701 was displayed, but the recommended action of the message was not adequate.
74	Open	No warning message causing failure of some maintenance operations. When MPC was rebooted while Starting Service was set to Auto on the Storage Device List, a warning message indicating that IIS/FTP server setting was not done was not displayed and some maintenance operations after that failed.
75	Open	Incorrect action code of SIM=1800000. When Content SIM of SIM=180000 was displayed, the action code that should be [58000000 (SEE MANUAL)] was displayed as [5f000000 (NO ACTION].
76	Open	Invalid termination of Storage Navigator. While the data direct mapping was enabled on all external volumes that met requirements for pool volume, if the Create Pools window was displayed on Storage Navigator, Storage Navigator message 03122-107007 was displayed and Storage Navigator was forcibly terminated.
77	Open	Normal end of maintenance operation without obtaining system/resource lock. When a maintenance operation that required system/resource lock was performed from Storage Navigator on SVP/MPC or RMI API, the operation ended normally even though system lock or resource lock was not obtained.

No	Category	Title and symptoms
78	ShadowImage	SI pair failure suspension. When split copy was performed in a configuration where an SI S-VOL was a DP volume, SSB=2115, 2150, or AF51, and SIM=47DXXX were reported and the pair might be suspended due to failure.
79	Open	Incorrect action code in SIM=2153XX/2154XX. The action code of SIM=2153XX and 2154XX, which should have indicated to replace a specific PECB and PCI cable at a time, indicated to replace all PECBs and PCI cables on the entire cluster.
80	Open	Delay in I/O response with SSB=DCC8 logged. SSB=DCC8 was logged wrongly and I/O response was delayed.
81	Open	Insufficient information for root cause analysis at CHK2 during I/O. When CHK2 (SSB=B2CB) occurred during I/O, the information for root cause analysis was insufficient so that the cause for the failure could not be identified.
82	Open	Failure of path setting and path blockage. While an external path could not be connected due to unstable status of line, path setting failed and the path was blocked. If the path setting was retried several times after the path blockage, SSB=ADEA was logged.
83	Open	Incorrect name of Migration Recovery option of Local Replica Option. The name of Migration Recovery option of Local Replica Option was "Non-disruptive Migration Data Consistency", which was not correct.
84	Universal Volume Manager	Dirty data on cache and failure of PS OFF/maintenance operation. When a DP volume was formatted or TC, UR, or GAD initial copy was performed, invalid dirty data was generated on the cache and SSB=F47F, AF21, and 89F9 were logged. After the SSBs were logged, PS OFF and maintenance operations failed.
85	Open	SSB=1761 logged continuously. When a LAN board was removed, SSB=1761 indicating a CRC error was continuously logged.
86	Open	No alert notification report to server. After setting alert notification to the syslog server, if a LAN board on controller2 was removed, an alert notification of SIM was not reported to the server.
87	Open	Failure of data de-staging from cache to drive. When the data on cache was de-staged to a drive, SSB=9216 was logged and the de-staging processing might fail.

No	Category	Title and symptoms
88	Open	Failure of report folder deletion causing installation folder to remain. When the SVP/MPC software was removed, an installation folder remained because the report folder below could not be deleted. (The report folder also could not be deleted manually.) - \DKC200\diff\Report
89	Volume Shredding	Unable to suspend shredding and to update information. During shredding from Storage Navigator, the following phenomena might occur. - When trying to suspend the shredding on the Task Properties window, Storage Navigator message 03022-105273 was displayed and the task could not be suspended. - The information displayed on Storage Navigator was not updated.
90	Open	Remote path blockage due to link-down. When a link-down occurred, a remote path was blocked. (SSB=CA32, CA33)
91	Open	SN message and SSBs logged at multiple-drive removal. When multiple drive boxes were removed at a time; (1) Storage Navigator message 30863-200030 was displayed, and (2) SSB=391A, 38E0, and 3929 were logged.
92	TrueCopy, Universal Replicator	Failure of UR pair status change. In a TC-UR 3DC configuration in which SOM 976 was set to ON at all sites, when the TC pair was suspended and then the UR pair was split, the UR pair remained in the Copying/Deleting/Suspending status.
93	Open	Failure of LDEV removal. Due to repeated de-staging processing, LDEV removal might fail.
94	Universal Volume Manager, TrueCopy, Universal Replicator, global-active device	SSB=8BB0 logged at I/O. When an I/O was issued in UVM, TC, UR, or GAD configuration, SSB=8BB0 might be logged.

No	Category	Title and symptoms
95	Open	Failure of CHIP reset/port blockage or iSCSI CHB blockage. When an MP that had been blocked due to WCHK1 was restored while a resource was locked by the MP, the resource lock could not be kept and the following phenomena might occur: (1) A CHIP reset of the iSCSI port failed and the setting change on the iSCSI port could not be reflected. (2) The iSCSI port blockage processing failed and the port seemed to be in normal status. (3) At port information change such as MTU value change, the iSCSI CHB was blocked. (SIM=2120XX)
96	Open	No audit log output at forcible termination of Maintenance Utility. When a maintenance operation or setting was performed from Maintenance Utility, the information of the operation by the user was logged (Audit log) after the maintenance operation or setting was complete, but if Maintenance Utility was forcibly terminated during the maintenance operation or setting, audit logs were not output.
97	Open	Spelling errors in audit log. When a maintenance operation or setting was performed from Maintenance Utility, the information of the operation by the user was logged (Audit log) after the maintenance operation or setting was complete, but the audit logs contained spelling errors.
98	Open	Failure of report name display. When creating a report by running raidinf command, if symbols were used for the report name, the following phenomena occurred. (1) The command contained a parameter error. (20825-107003) (2) Twice as many characters as the number of symbols used in the report name are lost from the end of the report name. (For example, if the specified name was #report, the report name was displayed as #repo.)
99	Open	Failure of login to Maintenance Utility/maintenance operation from Storage Navigator. When the connection sessions on a storage system exceeded the upper limit (192), login to Maintenance Utility or a maintenance operation from Storage Navigator failed. Message: 32061-205006
100	Open	Internal trace wrapped at SSB=B234. Due to a delay in I/O, SSB=B234 was logged. Internal phenomenon: SSB=B234 was logged as per the specification, but the trace that was a proof for the phenomenon was wrapped.

No	Category	Title and symptoms
101	Thin Image	Failure of Invisible protection setting. When the Invisible protection was set to a TI volume as an Open LDEV guard volume, SSB=B9BF and B9C4 were logged and the setting failed.
102	Drive	HDD microcode enhanced to reduce replacements and recovery. The following phenomena occurred so that frequency of HDD replacement or recovery increased. (1) After continuous Head Health Check errors, a drive always reported an error to any command. (2) An HDD might be blocked suddenly due to continuous "Write & Verify" even though the data was still available to be read. (3) A temporary error could result in unnecessary running of Dynamic Sparing. (4) The probability of weak write might increase.
103	Storage Navigator	Resource group lock error and output failure of user/host name. When a task registered on Storage Navigator was run, a resource group lock error might occur with Storage Navigator message 3005-87777 displayed. Also, user name and host name were not output in an audit log.
104	Open	Application errors of ADTRcv.exe. Application errors of ADTRcv.exe were registered in Windows event logs on SVP or MPC every minute.
105	Open	SSB=AE30 and B278 logged at offline firmware exchange. When offline firmware exchange was performed while FMC drives were installed, SSB=AE30 and B278 were logged. (The offline firmware exchange was complete successfully.) The SSBs were logged 4 times as many as the number of installed FMC drives.
106	Open	Wrong update of CHAP authentication information disabling external system to be recognized. When a TCP port number that was different from the one in the registered iSCSI target information was specified and then the CHAP authentication information update of RMI API (iSCSIupdateRemoteTargetUsers) was performed, the operation ended normally, so that the CHAP authentication information was updated wrongly and the registered external systems could not be recognized.

No	Category	Title and symptoms
107	Open	Unintentional default setting change. When a CHB was installed on CHB-2K, one of the following phenomena occurred on CL4-K port. Phenomenon 1 The default setting of LUN security, which was OFF, changed to ON. Phenomenon 2 If the installed CHB was DW-F800-2HF16 (16G FC), the default setting of Fabric ON and Point-to-Point connection changed to Fabric OFF and FC-AL. Phenomenon 3 If the installed CHB was DW-F800-4HF8 (8G FC), the default setting of Fabric OFF and FC-AL changed to Fabric ON and Point-to-Point.
108	Open	Failure of CHB removal. While a controller was blocked, if removing a CHB on the controller was performed, the operation failed and SSB=3902 and 39CF were logged.
109	Open	Unable to start storage system by power-on operation on GUM. After turning OFF the power switch on the panel, when the storage system was powered ON by an operation on GUM, the storage system could not start.
110	Open	SIM and SSB reported wrongly. Even though the setting operations, such as alert notification setting, date and time setting, and audit log setting, from Maintenance Utility to GUM were completed successfully, SIM=7D080X and SSB=33D8 were reported.
111	Open	Login failure. Login to Storage Navigator failed with the message "Failed to login". Login to MPC failed with SVP message SVP4250W.
112	Open	Error message displayed at login to Maintenance Utility or refresh on Maintenance Utility. When a user logged into Maintenance Utility or clicked the refresh button on Maintenance Utility during recovery from a drive failure, the following messages might be displayed: 32061-203003, 32061-204002
113	Global-active device	WCHK1 with SSB=1644 logged. In an iSCSI connection GAD configuration, WCHK1 occurred on the secondary site during I/O processing and SSB=1644 was logged.

No	Category	Title and symptoms
114	Open	Failure of controller maintenance.
		During controller maintenance, some MPs could not be restored and the maintenance failed.
		SSB=39B4
115	Open	Display failure of controller board ID.
		On Storage Navigator windows, controller board IDs were displayed as "CTL-0" and "CTL-1".
		In reports in graphical view, controller board IDs were displayed as "CTL-1" and CTL-2".
116	Open	Failure of ENC replacement.
		ENC replacement failed with message 30762-208192 reported.
117	Open	No display of registered IP address.
		When iSCSI was specified for Select Type on the Add Remote Paths window on Storage Navigator, an already registered IPv6 IP address was not displayed but the field remained blank.
118	Universal Replicator	UR pair failure suspension at cache failure.
		When a cache failure occurred in a UR configuration, the UR pair was suspended due to failure.
		SSB=EDC5, EDDC, EDDF
		SIM=DC1XYY
119	Open	Port blockage at data transfer time-out or link-down (1/2).
		When one of the following failures occurred on a 2HF16 CHB, a port might be blocked due to a chip fatal error (SIM=2120XX, SSB=B3D3 or B3D4):
		(1) Data transfer time-out (SSB=DDA1) during I/O
		(2) Link-down during I/O
120	Open	Port blockage at frequent stop of data transfer.
		When data transfer was frequently stopped on a 2HF16 CHB in high load environment, a port might be blocked due to a chip fatal error (SIM=2120XX, SSB=B3D3 or B3D4).
121	Open	Port blockage at data transfer time-out or link-down (2/2).
		When one of the following failures occurred on a 2HF16 CHB in a configuration where 2 or more hosts were connected to the CHB, a port might be blocked due to a chip fatal error (SIM=2120XX, SSB=B3D3 or B3D4):
		(1) Data transfer time-out (SSB=DDA1) during I/O
		(2) Link-down during I/O

No	Category	Title and symptoms
122	Open	Taking time to link up with SSBs logged. When a 2HF16 CHB was connected to an FC switch with Point-to-Point topology, SSB=B369 and B67F were logged at link-up and the link-up might take several seconds.
123	Open	Port blockage at CHB installation or replacement. While a 2HF16 CHB was connected to an FC switch, if a CHB was installed or replaced, a port might be blocked due to a chip fatal error (SIM=2120XX, SSB=B3D3 or B3D4).
124	Open	Port blockage when data transfer stopped. When data transfer was stopped during I/O on a port used as an Initiator port, the port might be blocked due to a chip fatal error (SIM=2120XX, SSB=B3D3 or B3D4).
125	Open	Failure of drive installation. If there were drives that could not be linked up at drive installation, the message below was displayed on GUM. SSB=A6EA, 39B8. "A new drive was not detected due to either of the following reasons. - The drive is not correctly inserted. - The inserted drive is not supported. Verify the inserted drive. To retry the new drive detection, click [Reload]."
126	Drive	Performance degradation of read/write I/O to FMC drive. Read or write I/O performance of an FMC drive degraded.
127	Drive	Failure of FMC drive activation. When the power switch of DBF was turned OFF and then ON, SSB=A404 was logged and starting FMC drive failed, and the FMC drive might be blocked. (SIM=EF0XXX, EF1XXX)
128	Open	No display of filechooser. When [Browse..] was clicked on the Update Firmware window, a filechooser (a window to choose files) might not be displayed.
129	Open	SIM=7D0800 and SSB=33D8 reported. SIM=7D0800 and SSB=33D8 were reported, but GUM worked normally.
130	Open	Communication error on Storage Device List. A communication error occurred on the Storage Device List window.
131	Open	Drive blocked at offline firmware exchange. When offline firmware exchange was performed during quick format while an FMC drive was installed, SSB=AE30, and B278 were logged, CHK1B occurred and the drive was blocked.

No	Category	Title and symptoms
132	Open	Taking time of storage system startup and following part blockage.
		When PS ON was performed while different versions of DKCMAIN firmware existed, it took an hour to start the storage system. Also, one controller and multiple MPs were blocked after the storage system started.
		SIM=3073XY, FFF4XX, FFE2XX, CF88XX
		SSB=3250, 34E3, 160F, 0007, 32FE
133	Global-active device	I/Os disabled at failure suspension due to LDEV blockage.
		When a failure suspension occurred due to LDEV blockage on a GAD pair that belonged to a consistency group, the I/O mode of the volume paired with the blocked volume changed to BLOCK so that I/Os might be disabled to both P-VOL and S-VOL.
134	Global-active device	SSB=FB15 logged frequently.
		When a resync operation was performed while GAD pairs whose volumes had different I/O modes coexisted in a consistency group, SSB=FB15 might be logged frequently until the pair status changed to PAIR.
135	Global-active device	Round trip reduction function not work.
		When HMO 51 was set to ON on a port used as RCU Target in GAD configuration, the round trip reduction function did not work.
136	Open	Inadequate message displayed when firmware update progress collection fails.
		The message below was displayed even though the firmware update was in progress when collecting firmware update progress failed.
		"The update progress of the GUM*x* firmware cannot be obtained.
		Click [OK], and then click the close button on the Update Firmware window.
		Connect to the GUM on the controller board *x*, select [System Management] under Menu and then [GUM Reboot] to reboot the GUM.
		Then, update the firmware again. If this problem persists, contact customer support."
137	Storage Navigator	Inadequate recommended action in message 01205-205041.
		When an iSCSI port was edited, an iSCSI target was edited, or an iSCSI path was deleted from Storage Navigator, if the operation target iSCSI port or iSCSI path was used for an external path, message 01205-205041 was displayed and the operation was disabled, but the recommended action in the message could not solve the problem.
138	Open	Display failure of drive box type on the Tasks window.
		When [Detail] was clicked to check the detailed information on the Create Parity Groups window, an expected value was displayed in Drive Box Type, but a hyphen (-) was displayed in Drive Box Type on the Tasks window.

No	Category	Title and symptoms
139	Open	Setting operation available even when there is no available parity group. When there were 2 or more drive boxes from which drives were specified for parity group creation, and there were not enough drives to constitute the parity group other than the initial drive box, there was 0 parity group available to specify. At this time, if a value other than 0 was specified, an error message "Please input a value less than or equal to 0." was displayed. In this case, if 0 was entered in the field, the [Add] button became active, but when [Add] was clicked, all settings on the window were initialized.
140	Storage Navigator	Inadequate message 5305-78117. Clarified message 5305-78117.
141	Open	Communication error causing operation failure on GUM. A communication error occurred due to an internal GUM# setting failure, which might cause a failure such as abnormal end of firmware update on GUM.
142	Open	Inadequate message displayed when communication with GUM fails. When communication with GUM failed during firmware update, the following message was displayed regardless of whether the cause for the failure was an HTTP status error from web server or not. "The web server is in the abnormal HTTP status. Click [OK], and then click the close button on the Update Firmware window. Wait for five minutes or longer, and then update the firmware again. If this problem persists, contact customer support provided in the manual."
143	Storage Navigator	Failure of report downloading. When downloading a report whose name contained a consecutive-dot (..), message 20020-107035 was displayed and the download failed.
144	Storage Navigator	Failure of report creation. When creating a report by a raidinf command, if the report name contained spaces, ampersands (&), or tildes (~), the report could not be created.
145	Open	WCHK1, MP blockage and Discovery Login failure. Phenomenon 1 If a link-down and link-up occurred repeatedly in high load I/O environment, WCHK1 occurred and an MP was blocked. Phenomenon 2 When HMO 80 was set to ON, Discovery Login from a host to VSP Gx00/Fx00 failed with time-out and SSB=1408 and 1410 were logged.

No	Category	Title and symptoms
146	TrueCopy, Universal Replicator	Failure of reflecting differential data to S-VOL. When failures occurred on primary and secondary sites in TC-UR 3DC multi-target or cascade configuration, if a recovery operation that did not comply with the specified procedure was performed, the differential data might not be reflected to the S-VOL.
147	Universal Replicator	UR pair failure suspension and resync with all-data copy. When a delta resync operation was performed under the condition that a reset occurred continuously for a write I/O in GAD-UR delta configuration, the UR pair between L and R sites was suspended due to failure and a resync operation might work with all-data copy. SSB=EBE2
148	Global-active device	SSBs logged when UA returned. In GAD configuration where an HBA recognized both of P-VOL and S-VOL via a switch, when PGR OUT S.A=CLEAR was performed, UA might be returned wrongly. It caused SSB=D05E and D544 to be logged on the storage system that received PGR OUT S.A=CLEAR, and SSB=86D2 to be logged on the other storage system.
149	Open	Failure of GUM configuration information recovery with SIM and SSB reported. After a recovery operation was performed from Maintenance Utility at controller replacement, GUM configuration information recovery failed and SIM=7D080X and SSB=33D8 were reported.
150	Open	Failure of synchronization with NTP server. After rebooting GUM, synchronization with the NTP server failed and SIM=7FFA00 and SSB=33CF might be reported.
151	Open	Drive port failure. A drive port failure occurred. SIM=D6XXX, DF7XXX, DF8XXX, DF9XXX
152	Global-active device	High response time. During host I/O to a GAD pair, 300-msec high response time occurred due to a host reset (SSB=1699) or time-out of data transfer wait caused by a line failure (SSB=DDA1).
153	Global-active device	GAD I/O mode BLOCK/BLOCK at failure suspension of both MCU and RCU. When both MCU and RCU were suspended due to failure while paths between MCU and RCU were available only unidirectionally, the I/O mode of GAD pairs belonging to a CTG might become BLOCK/BLOCK. SIM=DD0XYY (X:CU#, YY:LDEV#) was reported.

No	Category	Title and symptoms
154	TrueCopy, global-active device	Temporary link-down due to time-out.
		When a failure or reset occurred on a port connected to a host in TC or GAD configuration, if multiple commands that ran on paths between storage systems were stopped at the same time, ABTS processing took time and a wait for ABTS completion timed out, so that paths were temporarily disconnected due to recovery processing.
		SSB=8906
155	Open	Unable to identify host from SSBs.
		When a time-out or missing-write data frame failure occurred in data transfer (SSB=DDA1, B65C), the host with which the failure occurred in data transfer could not be identified from the SSBs.
156	Open	Failure of ALUA/T10-PI setting.
		Phenomenon 1
		When a host group was specified and then the ALUA setting was changed from Storage Navigator on SVP/MPC or from RMI API, message 01005-205041 was displayed and the operation failed.
		Phenomenon 2
		When a port was specified and then the T10-PI setting was changed from Storage Navigator on SVP/MPC or from RMI API, message 06005-075027 or 06505-075027 was displayed and the operation failed.
157	Open	Drive capacity consumed by continuously output log file.
		The following log file that SVP App service used was not rotated, but continuously output, consuming drive capacity.
		C:\Mapp\wk\supervisor\comweb\logs\web\portmng.log
158	Global-active device	Unclear message at swap suspend with LDEV specified for GAD pair in CTG.
		Message 6205-208080 that was displayed when swap suspend was performed with LDEV specified from Storage Navigator for a GAD pair belonging to a consistency group did not clearly indicate the situation.
159	Global-active device	SSB=1293 logged at communication time-out.
		In GAD configuration, if communication between MCU and RCU turned to time-out, SSB=1293 might be logged.
160	Dynamic Tiering, active flash	Small amount page allocation to Tier1 causing performance degradation.
		In a DT pool using FMC drives, the amount of page allocation to Tier1 became small in the case of high load I/O, which caused the overall pool performance degradation.

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No	Category	Title and symptoms
161	Open	Unnecessary message displayed. The unnecessary message below was displayed on the Alert Detail window. SAS port 0 (SAS (DKB Number)-0) connects to ENC of cluster 1 (ENC (Drive Box Number)-1). SAS port 1 (SAS (DKB Number)-1) connects to ENC of cluster 2 (ENC (Drive Box Number)-2).
162	Open	SSB=BEA8 logged at logout and then login and reservation release disabled. In iSCSI configuration, when logging out from multiple hosts and MCUs at the same time and then trying to log in, SSB=BEA8 was logged. In this case, if a host that used a reserved command was used, the reservation could not be released.
163	Open	Failure of LDEV format. When LDEVs in a parity group that consisted of FMC drives and the accelerated compression was enabled were formatted, SSB=98C1 was logged and the format might fail.
164	Open	Display failure of buttons on MPC launcher if displayed on 4K monitor. When MPC launcher was displayed on a 4K monitor, buttons were overlapped.
165	Open	Unregistered storage system listed on Storage Device List. After the SVP/MPC software was removed and then installed again, a storage system that was not registered on the Storage Device List was included in the list wrongly and the status of the storage system might become Fatal Error.
166	Open	RMI API server in warning status after SVP update. After SVP software update, RMI API server might become in warning status.
167	Open	File for different application deleted unintentionally at SVP software removal. When the SVP software was removed, files for different applications were deleted.
168	Open	DKB blockage at CHK1/WCHK1/MP freeze. When CHK1, WCHK1, or MP freeze for 1 sec or longer occurred, SAS-CTL register was wrongly accessed, CHK3 occurred, the threshold for CHK3 was exceeded, and a DKB was blocked. SSB=32FD, 3250, 32FE, F7D5 or F7D6 SIM=2140XX

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No	Category	Title and symptoms
169	Open	WCHK1 during high load I/O. During high load I/O, WCHK1 might occur. SIM=3073XX, SSB=32FE and 1644
170	Open	Part or all of collected dump information lost. A part of collected dump information for WCHK1 was lost. (G800, F800) All of collected dump information for WCHK1 was lost. (G200, G400, G600, F400, F600)
171	Open	Failure of low-speed format with SSBs logged. When low-speed format was performed for a DP volume, SSB=7B7D and 7B0A were logged and the format failed.
172	Open	Unable to perform offline firmware update. When offline firmware update was performed while there was a blocked part and "Forcibly run without safety checks." was specified, messages 33361-201603 and 30461-200046 were displayed.
173	Global-active device, Universal Replicator	Performance degradation at UR M-JNL DATA FULL WARNING. Performance degraded when UR M-JNL DATA FULL WARNING occurred.
174	Global-active device	Failure of GAD delta resync or pair creation. Phenomenon 1 When a swap suspend operation was performed after offline microcode exchange in GAD-UR delta configuration, delta resync did not work. Phenomenon 2 After offline microcode exchange, GAD pair creation with a consistency group specified failed. (SSB=FB48)
175	Open	Failure of opening Update Firmware window. If Maintenance Utility was started while specifying an IPv6 address or host name, the Update Firmware window could not be opened when [Update] was clicked.
176	Open	Failure of offline microcode exchange. When WCHK1 occurred during offline microcode exchange, the alarm LED was turned ON and the operation might fail.
177	Open	Communication between SVP and GUM disabled. When a management port received a MAC layer jumbo frame, the communication between SVP and GUM was disabled. After that, Pause frame from GUM management port occurred and the Pause frame could not be stopped after the jumbo frame stopped.

No	Category	Title and symptoms
178	Command Control Interface	Incorrect error message/host group display failures/unnecessary role required.
		Phenomenon 1
		An error message displayed when the raidcom discover lun command was run while specifying an unregistered iSCSI name was wrong.
		Phenomenon 2
		The "Storage Administrator (Initial Configuration)" role was required to run the raidcom get license command.
		Phenomenon 3
		When the raidcom get host_grp -allports command was run, some host groups were not displayed.
179	Open	LDEV blockage due to multiple FMC blockage.
		The following phenomena may occur when using FMC drive.
		Phenomenon 1
		LDEV blockage may occur with SIM=EF9XXX reported because of multi-FMC drive blockage. After that Read/Write access from a host becomes unavailable and a customer operation is stopped.
		Phenomenon 2
		PG may lose redundancy because of FMC drive blockage with SIM=EF0XXX/DF1XXX reported.

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Acronyms and abbreviations

3DC	three data center
AMS	Hitachi Adaptable Modular Storage
ASP	authorized service provider
BEM	back-end module (also called disk adapter)
CCI	Command Control Interface
CL	cluster
CLI	command line interface
CM	cache memory
CRC	cyclical redundancy checking
CSV	Cluster Shared Volumes
CTG	consistency group
CU	control unit
CUDG	control unit diagnosis
DB	drive box
DF700	factory model number for Hitachi Adaptable Modular Storage 200, 500, 1000
DF800	factory model number for Hitachi Adaptable Modular Storage 2000
DF850	factory model number for Hitachi Unified Storage
DKA	disk adapter (another name for back-end director)
DKAF	DKA firmware
DKC	disk controller (refers to the entire storage system)
DKCMAIN	disk controller main (refers to the microcode/firmware)
DP	Hitachi Dynamic Provisioning
DP-VOL	Dynamic Provisioning V-VOL
DRU	Hitachi Data Retention Utility
DS	dynamic sparing
DT	Hitachi Dynamic Tiering
DW700	factory model number for Hitachi Unified Storage VM
DW800	factory model number for Hitachi Virtual Storage Platform Gx00 and Fx00
ECC	error checking and correction
ECN	engineering change notice
EQC	equipment check
FC	fibre channel
FCoE	fibre channel over ethernet
FEM	front-end module (also called channel adapter)
FMC	flash module compression (another name for the FMD DC2 drives)
FMD	flash module drive
FRS	Feature Release Schedule
GPFS	General Parallel File System
GUM	gateway for unified management (another name for the maintenance utility)
HA	high availability
HAM	Hitachi High Availability Manager
HCS	Hitachi Command Suite

HDD	hard disk drive
HDS	Hitachi Data Systems
HDP	Hitachi Dynamic Provisioning
HDT	Hitachi Dynamic Tiering
HDVM	Hitachi Device Manager
HM700	factory model number for Hitachi Unified Storage VM
HM800	factory model number for Hitachi Virtual Storage Platform Gx00 and Fx00
HMO	host mode option
HNAS	Hitachi Network-Attached Storage
HTI	Hitachi Thin Image
HUS VM	Hitachi Unified Storage VM

JNL	journal
JNLG	journal group

LBA	logical block address
LDEV	logical device
LU	logical unit
LUSE	logical unit size expansion

MCU	main control unit
MP	microprocessor
MPC	maintenance PC
MSCS	Microsoft Cluster Server

NASFW	NAS firmware

PDEV	physical device
PS, P/S	power supply
P-VOL	primary volume

RAID600	factory model number for Hitachi Universal Storage Platform V/VM
RAID700	factory model number for Hitachi Virtual Storage Platform
RAID800	factory model number for Hitachi Virtual Storage Platform G1000
RC	reference code
RCU	remote control unit

SAS	serial-attached SCSI
SI	Hitachi ShadowImage
SIM	service information message
SMU	system management unit
SOM	system option mode
SPM	Hitachi Server Priority Manager
SSB	sense byte
SSD	solid-state drive (also called flash drive)
S-VOL	secondary volume
SVP	service processor

TC	Hitachi TrueCopy
TI	Hitachi Thin Image
TOV	time-out value
TS	Technical Support

UR	Hitachi Universal Replicator
UVM	Hitachi Universal Volume Manager
VM	Volume Migration
VSP	Hitachi Virtual Storage Platform
VSP Fx00	Hitachi Virtual Storage Platform F400, F600, F800
VSP G1000	Hitachi Virtual Storage Platform G1000
VSP Gx00	Hitachi Virtual Storage Platform G200, G400, G600, G800
V-VOL	virtual volume
WWN	worldwide name

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