

STANDARD OPERATING PROCEDURE

REV: 1.0

TITLE: Troubleshooting Server Issues

Affected Location(s): IST Infrastructure
Originating Dept & Location: Data Center Services - DDC
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1.0 PURPOSE AND SCOPE

- 1.1 To guide Technicians in troubleshooting the most common errors detected from servers across the organization
- 1.2 To establish consistent methods for handling common hardware errors to expedite problem analysis and resolution

2.0 DEFINITIONS

- 2.1 DCS – Data Center Services
- 2.2 DIMM – Dual In-line Memory Module
- 2.3 DOM(SA) – Dell OpenManage (Server Administrator); each server has this tool installed to show the status of many server functions
- 2.4 HDD – Hard Disk Drive
- 2.5 MBE – Multi-Bit Error
- 2.6 PO – Purchase Order
- 2.7 RAID – Redundant Array of Independent Disks; a virtual disk made from physical disks
- 2.8 RAM – Random Access Memory
- 2.9 SBE – Single-Bit Error
- 2.10 SCOM – System Center Operations Manager; system that monitors, alerts, and reports on server status; system sends tickets to appropriate support teams in response to server errors or alerts
- 2.11 Technician – A team member that performs the server-related procedures and tasks

3.0 RESPONSIBILITIES

- 3.1 Technicians are responsible for
 - 3.1.1 Physically monitoring server status
- 3.2 When a problem with a server has been detected, Technicians are responsible for
 - 3.2.1 Responding quickly and appropriately to SCOM tickets reporting server issues

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- 3.2.2 Scheduling a maintenance window of down time with the server owner for any changes requiring a reboot, shutdown, or loss of network connectivity

4.0 PROCEDURE

NOTE: This process and its corresponding diagram present the worst-case scenario, ultimately resulting in hardware replacement or decommissioning. However, you may resolve the server issue at any point along the way without having to proceed any further.

- 4.1 Receive SCOM Ticket/ View Alert on Server – Most server problems are identified by a SCOM ticket generated automatically by the server's DOM. Another indicator of server trouble is the lights on the server itself. Most servers in the organization are Dell™ with LED status indicator lights on the front. Refer to [Dell Drive Carrier LED Indicators](#) for a diagram and reference table for various states of these lights and their meanings.
- 4.2 Attempt to Log in to Server – Once a server problem is detected, the first step in troubleshooting the error is attempting to log in to the server itself. The inability to log in may be caused by a power issue. If you cannot log in to the server, rule out any problems with the server receiving power.
 - 4.2.1 Check Power Supply – Make sure that the power supply cable is plugged in securely to the device, as well as to a source of power.
 - 4.2.2 Swap Cables – Change out the server's power cable with one you know is functioning appropriately.
 - 4.2.3 Change Power Source – Move the server to another location with a different power source or plug the server into another source of power.
 - 4.2.4 Replace Power Supply/ Source – Attempt to power on the server with different power cables using a different power source.
- 4.3 Log in to DOM – If you can log in to the server, you need to identify the error using the server's instance of DOM. Log in to DOM, check the system's health, and then check the logs. (Refer to [DOM Problem Identification](#).) DOM will indicate where the problem lies. The most common errors found in the organization are listed in this section.
 - 4.3.1 Power Supply – Refer to steps 4.2.1 through 4.2.4 of this document to troubleshoot power issues.
 - 4.3.2 RAID Error – The most common RAID errors are
 - 4.3.2.1 Hard Drive

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- 4.3.2.1.1 Fail – If the RAID error indicated in the DOM is *Fail*, you should try to reseal the drive in the slot; then execute the rebuild command in DOMSA.
 - 4.3.2.1.2 Predictive Fail – If the RAID error indicated is *Predictive Fail*, the hard disk drive (HDD) needs to be replaced.
 - 4.3.2.2 Firmware – If the error RAID indicates is a firmware problem, contact the owner of the device to schedule a window of down time, and then upgrade the firmware as scheduled.
 - 4.3.2.3 Battery – If the RAID error is *Battery*, recheck the battery status. Sometimes the battery is charging or undergoing a learning cycle and will function normally afterwards. If the status of the battery does not improve, the battery is bad and needs to be replaced.
- 4.3.3 Log Full – If the DOM indicates that the log is full, save the log, and then clear it. (Refer to [DOM Clearing System Event Log](#) information.)
- 4.3.4 Memory (RAM) – If memory is indicated as the problem, it will be reported as either a single-bit (SBE) or multi-bit (MBE) error.
 - 4.3.4.1 Single-Bit Error (SBE) – For single-bit errors, run “dcicfg32.exe” from the command line to clear the memory log. (Refer to [Addressing Memory Errors \(RAM\) Failures](#).) If executing this command does not resolve the error, contact the server’s owner, schedule down time, and swap out the DIMM.
 - Multi-Bit Error (MBE) – for multi-bit errors, contact the drive’s owner, schedule down time, and swap out the DIMM.
 - 4.3.4.1.1 If the DIMM works in another slot but not the current one, the mother board is bad and needs to be replaced.
 - 4.3.4.1.2 If the DIMM does not work in this or other slots, the DIMM is bad and needs to be replaced.
- 4.4 Find out if the server is under warranty by entering the serial number on Dell’s Web site.
 - 4.4.1 If the hardware is under warranty, contact Dell to send a replacement.
 - 4.4.2 If the hardware is not under warranty, the DCS technician notifies the owner for direction.

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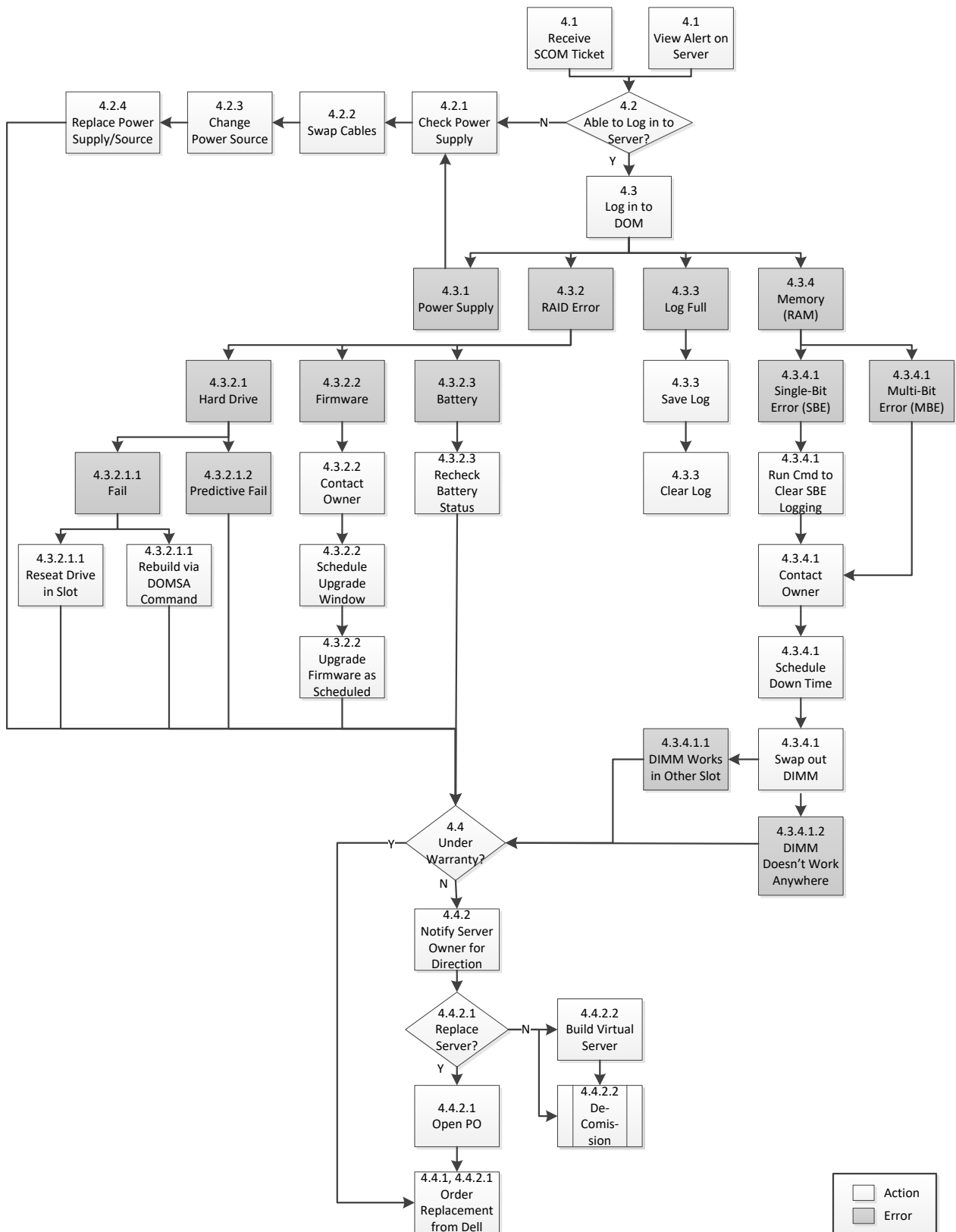
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4.4.2.1 If the owner wants to replace the hardware, he or she opens a purchase order (PO) and, once the PO approved, orders a replacement from Dell.

4.4.2.2 The owner may also choose to make the server a virtual machine or decommission the server. If the machine becomes virtualized, the device will be decommissioned once virtualization has been completed. (Refer to [WI 33-300-5201: Physical Server Decommissioning](#), [WI 33-300-5202: Physical-to-Virtual Server Decommissioning](#), and [WI 33-300-5203: Virtual Server Decommissioning](#))

5.0 REFERENCES AND REQUIREMENTS

- 5.1 [Addressing Memory Errors \(RAM\) Failures](http://mkwiki/index.php/DOM_DIMM_Errors) (http://mkwiki/index.php/DOM_DIMM_Errors)
- 5.2 [Dell Drive Carrier LED Indicators](http://mkwiki/index.php/Dell_Drive_Carrier_LED_Indicators) (http://mkwiki/index.php/Dell_Drive_Carrier_LED_Indicators)
- 5.3 [DOM Clearing System Event Log Information](http://mkwiki/index.php/DOM_Clearing_System_Event_Log) (http://mkwiki/index.php/DOM_Clearing_System_Event_Log)
- 5.4 [DOM Problem Identification](http://mkwiki/index.php/DOM_Problem_Identification) (http://mkwiki/index.php/DOM_Problem_Identification)
- 5.5 [WI 33-300-5201: Physical Server Decommissioning](http://teammk/IST/ISTGlobalProcesses/FunctionalOrganization/33-300-5201_SOP_Physical_Server-Decommission.docx) (http://teammk/IST/ISTGlobalProcesses/FunctionalOrganization/33-300-5201_SOP_Physical_Server-Decommission.docx)
- 5.6 [WI 33-300-5202: Physical-to-Virtual Server Decommissioning](http://teammk/IST/ISTGlobalProcesses/FunctionalOrganization/33-300-5202_SOP_Physical_to_Virtual_Server-Decommission.docx) (http://teammk/IST/ISTGlobalProcesses/FunctionalOrganization/33-300-5202_SOP_Physical_to_Virtual_Server-Decommission.docx)
- 5.7 [WI 33-300-5203: Virtual Server Decommissioning](http://teammk/IST/ISTGlobalProcesses/FunctionalOrganization/33-300-5203_SOP_Virtual_Server-Decommissioning.docx) (http://teammk/IST/ISTGlobalProcesses/FunctionalOrganization/33-300-5203_SOP_Virtual_Server-Decommissioning.docx)
- 5.8 Refer to the diagram on the next page of this document for the Troubleshooting Server Issues work flow.



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DOCUMENT HISTORICAL INFORMATION

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