



# IBM System Storage N series

## UPS Interoperability

**Covering:**

<b>N3000 System Hardware</b>	<b>N3150</b> 2857-(A15, A25) <b>N3220</b> 2857-(A12, A22), <b>N3240</b> 2857-(A14, A24) <b>N3300</b> 2859-(A10, A20), <b>N3400</b> 2859-(A11, A21) <b>N3600</b> 2862-(A10, A20), <b>N3700</b> 2863-(A10, A20)
<b>N5000 and N6000 System Hardware</b>	<b>N5200</b> 2864-(A10, A20, G10, G20), <b>N5500</b> 2865-(A10, A20, G10, G20) <b>N5300</b> 2869-(A10, A20, G10, G20), <b>N5600</b> 2868-(A10, A20, G10, G20) <b>N6040</b> 2858-(A10, A20), <b>N6060</b> 2858-(A12, A22), <b>N6070</b> 2858-(A11, A21) <b>N6210</b> 2858-(C10, C20), <b>N6240</b> 2858-(C21, E11, E21), <b>N6270</b> 2858-(C22, E12, E22) or with Gateway Feature Code 9551
<b>N7000 System Hardware</b>	<b>N7600</b> 2866-(A10, A20, G10, G20), <b>N7800</b> 2867-(A10, A20, G10, G20) <b>N7700</b> 2866-(A11, A21, G11, G21), <b>N7900</b> 2867-(A11, A21, G11, G21) <b>N7950T</b> 2867-E22 or with Gateway Feature Code 9551
<b>Disk Storage Expansion Units</b>	<b>EXN-1000</b> 2861-001, <b>EXN-2000</b> 2863-001, <b>EXN-4000</b> 2863-004 <b>EXN-3000</b> 2857-003, <b>EXN-3500</b> 2857-006
<b>N3000, N5000, N6000 and N7000 Licensed Functions</b>	2870-(571, 572, 573, 574, 581, 581, 582, 582, 583, 583, 584, 584, 585, 585, 586, 586, 58A, 58B, 58C, 58D, 58E, 58F, 58G, 58H, 591, 592, 593, 594, 621, 622, 631, 632, 641, 642, 645, 646, 651, 652, 655, 656, 661, 662, 663, 664, 665, 666, 667, 668, 671, 672, 673, 674, 675, 676, 677, 678, 67J, 681, 682, 685, 686, 691, 692, 695, 696)

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 IBM System Storage  
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**Data ONTAP 8.0 and earlier releases enable you to register and monitor the status of Uninterruptible Power Supply (UPS) devices you are using with your storage system. The `ups` command is deprecated in Data ONTAP 8.1 and N series monitoring support to UPS is limited. Alternatively, you can configure UPS with any SNMP Management Tool to view the UPS status notifications and run a script to shut down the storage system when the battery is critical. It is also possible to poll the UPS by way of SNMP.**

For ONTAP version 8.0 and earlier release, N series supports any model in the Smart-UPS or Symmetra families of APC UPSes. Starting with 7.3.2 N series will also support the Silcon family of UPSes.

Data ONTAP does not use SNMP traps from the UPS but instead uses *SNMP gets* to verify the UPS. This happens on a periodic basis from a controller that has been configured to listen to the specific UPS. Data ONTAP does check that the UPS is within the supported APC series (Smart-UPS, Symmetra, Silcon) and it is important to note that no other APC UPS series is supported. Support of APC UPS means Data ONTAP will perform a clean shutdown if indicated by a supported APC UPS. It does not mean that IBM sells, certifies, or supports the APC UPS.

Data ONTAP provides seamless integration with N series storage controllers and uninterruptible power supply (UPS), so that Data ONTAP can perform an orderly shutdown when UPS power is about to go down. Orderly Data ONTAP shutdown enables faster reboot when power is restored as NVRAM log replay is not required.

Modern UPS have networking connectivity and can remotely provide the status through standard interfaces such as SNMP, HTTP and telnet. Data ONTAP uses SNMP interface to regularly monitor UPS at 5 minute intervals.

For a configured UPS, Data ONTAP monitors:

- Whether UPS is getting the line power or running on battery
- UPS battery time left

Once a power failure is detected, the UPS monitor interval is reduced to 10 seconds for quick detection of critical battery status. The storage controller will generate an EMS message when UPS battery left status reaches warning-low. If the UPS battery time left reaches critical-low threshold, Data ONTAP will generate EMS message and initiate a clean shutdown.

Data ONTAP supports monitoring multiple UPS's, this enables clean shutdown if any UPS supplying power to the storage controller, disk shelves or network switch reaches critical-low threshold. The following are UPS monitoring requirements and recommendations:

- UPS should be on the same subnet as storage controller
- Network switch must also be on UPS power so that Data ONTAP can continue to monitor the UPS when power fails. Network switch does not need to be on the same UPS as the storage controller but network switch UPS should have at least the same or more reserve as the storage controller UPS.

## IBM System Storage N series Interoperability Matrix for UPS

The following APC UPS models are supported as specific non-family models prior to the CLI UPS change.

<b>Model</b>	<b>Minimum supported Data ONTAP version</b>
Smart-UPS 250	7.1
Smart-UPS 400	7.1
Smart-UPS 450	7.1
Smart-UPS 600	7.1
Smart-UPS 700	7.1
Smart-UPS 900	7.1
Smart-UPS 1000	7.1
Smart-UPS 1250	7.1
Smart-UPS 1500	7.2.1
Smart-UPS 1400	7.1
Smart-UPS 2000	7.1
Smart-UPS 2200	7.1
Smart-UPS 3000	7.1
Smart-UPS 5000	7.2.1
Smart-UPS 7500	7.2.1
Smart-UPS 10000	7.2.1
Smart-UPS 15000	7.2.1



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