

配置步骤

This document describes the rules for Redundant Storage Sets (RSSs) within the EVA firmware.

Details

RSS Rules RSS always contains > 5 members Unless the Disk Group drops below 6

Usually followed by a merge of two RSSs

RSS contains always < 12 members

Unless during a split operation RSS prefers 8 members

RSS prefers even (6-8-10) members

Data is not moved around to achieve the preferred 8 members

Maximum of 1 odd RSS (7-9-11)

On Disk Group creation, multiple RSSs are automatically created and allocated: $n * (\text{even number}) + 1 * (\text{odd number})$ This leads to a few best practices:

Use disk groups with an even number of members, especially in case of Vraid1 virtual disks.

Use disk groups with a multiple of 8 members, so 8, 16, 24, 32, 48, and so forth. When the disk group is created, it will consist of RSSs of 8 members each.

To be resilient for complete disk drive enclosure failures:

For systems with < 8 shelves: Use Vraid1 virtual disks (minimum of two shelves). Use an even number of members in the disk group. Make sure that the odd and even RSS members are located in different disk drive enclosures directly after the disk group creation.

When adding drives to the disk group, always add them in multiples of two. Also ensure that each disk drive enclosure contains at least one Quorum Drive.

For systems with ≥ 8 shelves: Use Vraid5 or Vraid1 virtual disks. Use multiples of eight members in the disk group. Make sure that no disk drive enclosure contains another member of the same RSS. After a drive replacement, check the physical RSS distribution again. When adding drives to the disk group, always add them in multiples of eight. Also ensure that the number of Quorum Drives is balanced across both loop-pairs. Complete Disk Drive Enclosure failures are extremely rare, as the enclosure contains redundancy in the I/O-path, power, and cooling. The EMU is not involved in the data path; the back-plane does not contain any active components.

Redundant Storage Set (RSS) states:

Unknown - Unknown shelves, or possibly the EMU is malfunctioning, preventing the RSS state from being known.

None - Indicates that all disks are located in the same disk drive enclosure. On complete disk enclosure loss, access to Vraid0, Vraid1, and Vraid5 virtual disks is lost. Mirrored - No mirrored pairs in a RSS are in the same disk drive enclosure.

On complete disk enclosure loss, access to Vraid0 and Vraid5 virtual disks is lost. Vraid1 virtual disks remain accessible. Parity - No two members of a RSS are in the same disk drive enclosure.

On complete disk enclosure loss, access to Vraid0 virtual disks is lost. Vraid1 and Vraid5 virtual disks remain accessible.

Unavailable - The command sent to get the RSS state information failed.

The RSS state can be viewed from Command View (but not from V7.0 and later); Disk Group properties page, SSSU, and several utilities (such as Event View EVA, HPCC, and Navigator).

