

Intel® RAID Web Console 2 and StorCLI Command Line Tool

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Instant access, intuitive configuration/navigation, easy standard storage management and advanced features/software options.

Intel® RAID Web Console 2

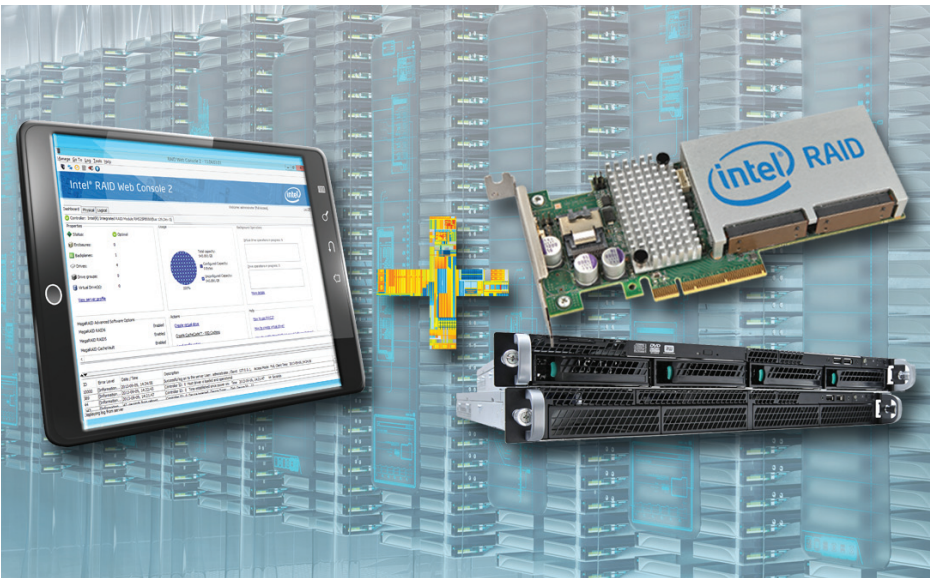
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The Intel® RAID Web Console 2 provides IT administrators with an easy-to-use tool for managing storage of all sizes. It empowers administrators to optimize storage application performance and data protection. This intuitive GUI enables system administrators to easily deploy all critical system storage functions, including creating and managing virtual drives, adding a drive to a RAID virtual drive and on the fly RAID migration. The Intel RAID Web Console 2 is a HTML-based, object-oriented GUI utility that configures and monitors RAID systems locally or over a network and runs on both Microsoft Windows and Linux operating systems.

The Dashboard View brings the most critical operations and reporting to the administrator's fingertips at the beginning of each Intel RAID Web Console 2 session. It makes it easier to check hardware status, storage utilization and health, RAID5/6 enabling and advanced software feature enabling. Server operations are also allowed, including creating a virtual drive, load configuration, firmware updating, silence alarm, and unlocking advanced software options. The quick links feature detailed "help" tutorials for any questions that may arise.

The Intel RAID Web Console 2 offers RAID 0, 1, 5, and 6 configurations (hardware dependent) and associated spans (10, 50 and 60), while allowing end-users to define specific properties for drive READs and WRITES. Administrators can easily upgrade RAID levels through a simple user interface. If a drive failure occurs, the Intel RAID Web Console 2 will alert the Administrator through a pop-up and email, and provides the option to initiate a rebuild to a hot spare remotely. The Intel RAID Web Console 2 empowers administrators through system health monitors, event logs, system controls and more.

All Intel solutions are thoroughly tested and validated across multiple platforms to ensure they perform at their best. The Intel RAID Web Console 2 performs on both Microsoft Windows and Linux operating systems.



- Instant access via dashboard view
- Intuitive configuration/navigation
- Easy standard storage management
- Advanced features for data protection and monitoring
- Advanced software options - only available through electronic key activation

Intel® RAID Web Console 2

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Features and Benefits

Simplified RAID Management - Easy Standard Storage Management

The Intel RAID Web Console 2 features numerous improvements that help administrators spend less time configuring and managing their application's storage including: simplified RAID-level migration wizard, Patrol READ properties screen, VD reconstruction wizard and 45 percent reduction in background iterations for RAID 5 volume construction.

- Covers all RAID levels: 0, 1, 10, 5, 50, 6, 60
- READ/WRITE properties
- RAID-level Migration that creates almost limitless adaptability and expansion of any virtual drive
- Email/Pop-up Alerts notify for monitoring failures
- Event Notification/Logging reports

Advanced Features for Data Protection and Monitoring

For those who seek enhanced data protection, the Intel RAID Web Console 2 version 9.00 delivers advanced monitoring features and premium upgrades. It helps avoid potential drive failures with scheduled consistency checks and patrol reads, while delivering monitoring failures via email or a pop-up screen. The RAPID Recovery Snapshot Application extends protection through snapshots, while the Drive Encryption Management provides a user environment for managing self-encrypting drive keys.

- Consistency Checks protects against potential drive failures
- Patrol READs notify of drive failures
- Rapid Recovery Snapshot provides snapshot capabilities
- Drive Encryption Management provides a user environment for managing self-encrypting drive keys

Advanced Performance Options with SSD Cache and Fastpath I/O

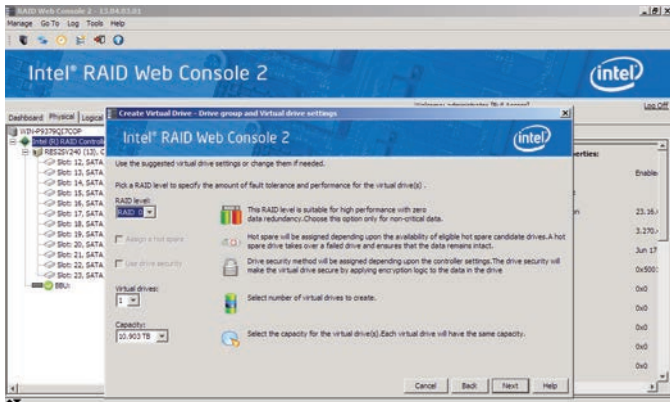
Application performance is significantly increased through the SSD Cache with Fastpath I/O, which uses a smaller quantity of Solid State Drives (SSDs) as a large extended READ cache. The Fastpath I/O increases MAX IOP performance by creating an optimized datapath. Intel's Premium Feature option provides improved response times for their data center and small office applications.

- SSD Cache uses a smaller quantity of SSDs as a large extended READ cache in boost application performance
- Fastpath I/O increases MAX IOP performance by creating an optimized datapath



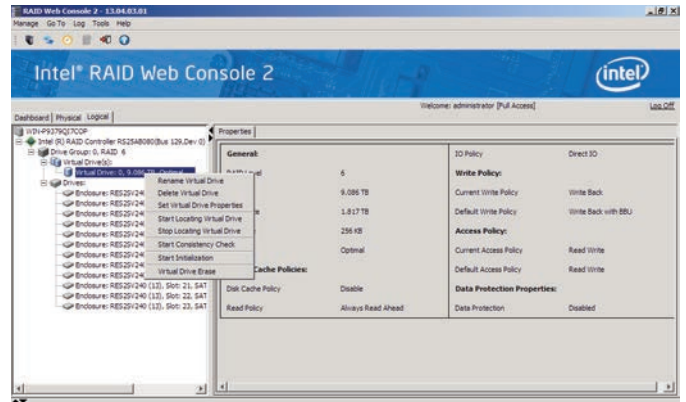
Intel® RAID Web Console 2

Easy to use graphical interface feature highlights



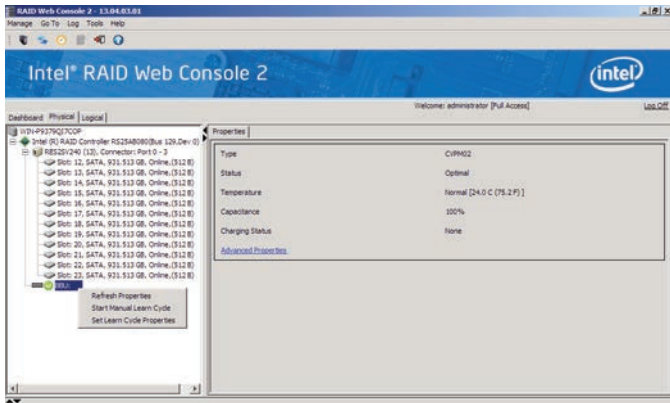
1. Create a Virtual Drive

Create, change, add or delete a virtual drive. Make a spanned disk group and hot spares. Remove a drive or change the RAID level of a virtual disk and much more.



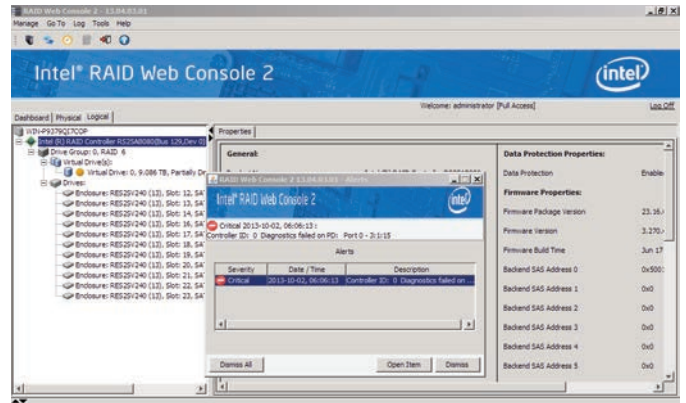
2. Replace, duplicate or monitor status

Replace a controller or duplicate an existing storage configuration on a new controller. Monitor the status of disk drives, virtual disks, enclosures and other devices.



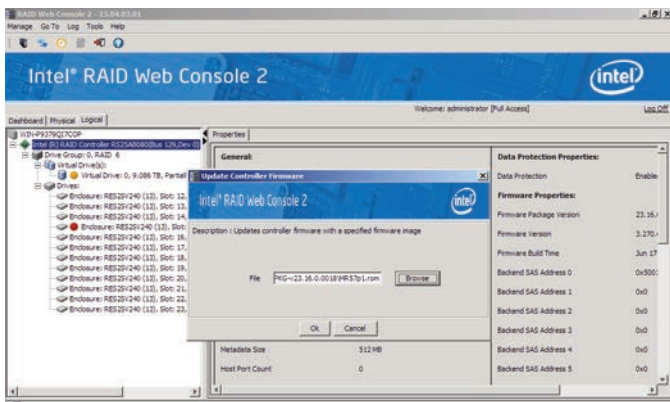
3. Schedule Battery Learn Cycle

Battery calibration can be performed automatically or manually to determine the condition of the battery.



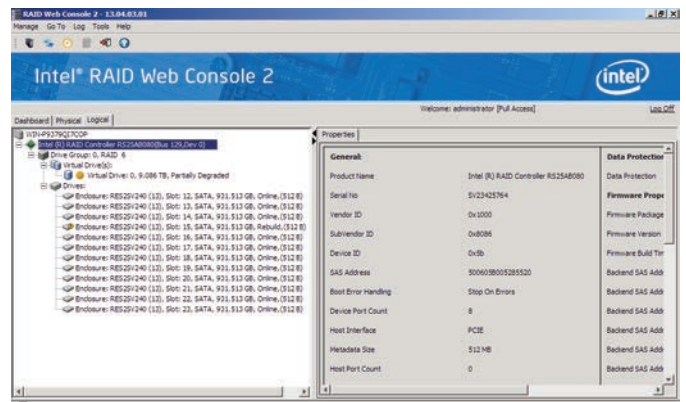
4. Monitor Rebuilds

Monitor the progress in the Group Show Progress window. Operations including: Initializing a Virtual Disk, Rebuild, Reconstruction and Consistency Check.



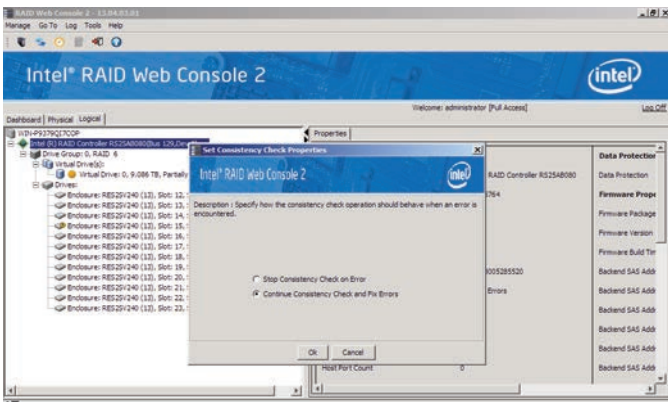
5. Manage Storage Configurations

Numerous functions can be performed including: Initialize a Virtual Disk, Run a Consistency Check, Rebuild a Drive, Remove a Drive and Flash Firmware.



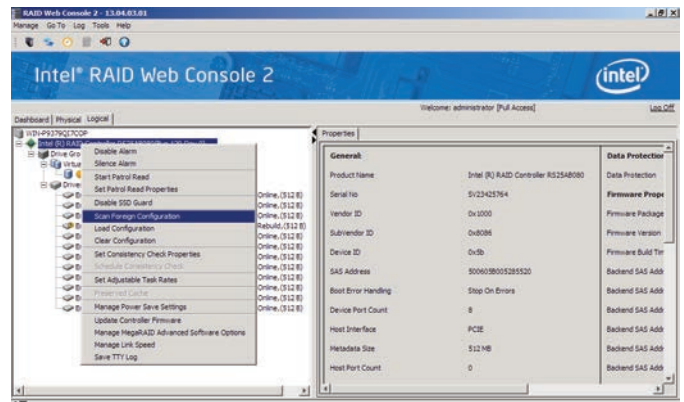
6. Monitor Controllers

View the status of all controllers in the left panel and see whether the controller is operating normally.



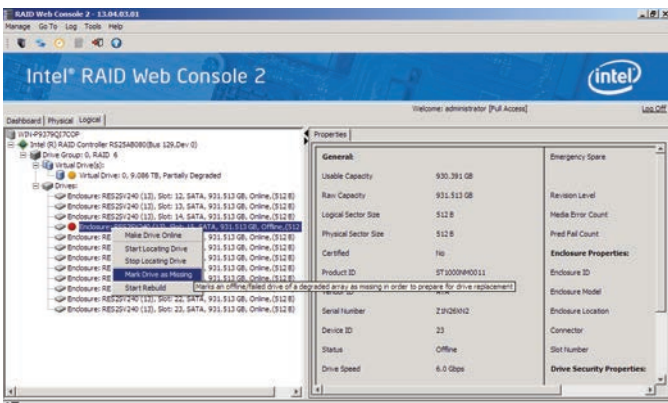
7. Run a Consistency Check

Consistency checks on fault-tolerant virtual disks scan the virtual disk to determine whether consistency data is corrupted and needs to be restored.



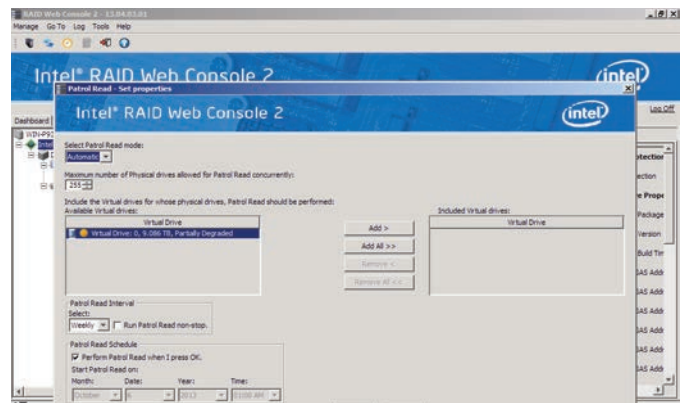
8. Scan for New Drives

The Intel RAID Web Console 2 normally detects newly installed disk drives and other storage devices. The **Scan for Foreign Configuration** feature can be used as well.



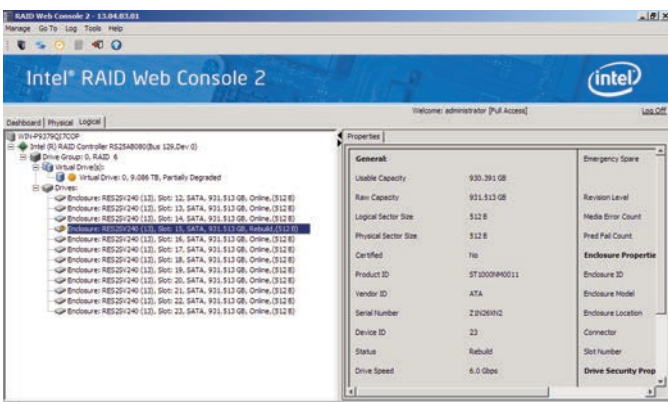
9. Remove a Drive.

Remove a non-failed drive that is connected to the controller safely and easily.



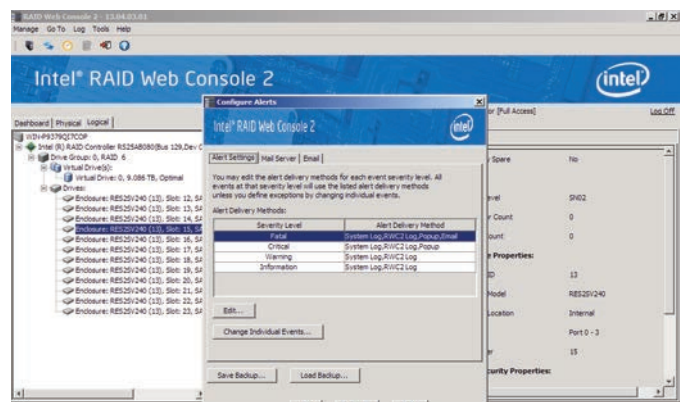
10. Run a Patrol Read.

Periodically verify all sectors of physical disks that are connected to a controller, including the system reserved area in the RAID configured drives.



11. Rebuild a Drive

When a drive fails, if dedicated or global hot-spare disks are available, the failed drive is rebuilt automatically without any user intervention.



12. Configure an Email Alert

From the menu bar, go to the tools, choose Monitor and then configure alerts. Then choose the mail server tab, and enter user name and password.

StorCLI Command Line Tool

The Storage Command Line Tool (StorCLI) is the command line management software adapted from legacy 3Ware and LSI* MegaCLI for the Intel® RAID product line. The Storage Command Line Tool allows for the same features described in the Intel RAID Web Console 2 section above to be implemented albeit without the Graphical User Interface. The StorCLI is a command line interface that is designed to be easy to use, consistent, and easy to script.

A complex StorCLI command along with the parameter descriptions is shown below in order to help convey the powerful capabilities of this tool.

Add Virtual Drives Commands

The Storage Command Line Tool supports the following commands to add virtual drives:

```
storcli /cx add vd type=raid[0|1|5|6|10|50|60][Size=<VD1_Sz>,<VD2_Sz>,...]*all
[name=<VDNAME1>,...] drives=e:s|e:s-x|e:s-x,y;e:s-x,y,z [PDperArray=x][SED]
[pdcache=on|off]*default|[pi] [DimmerSwitch(ds)=default|automatic(auto)
*none|maximum(max)|MaximumWithoutCaching(maxnocache)][cachevd]
[wt|*wb] [nora|*ra] [*direct|cached] [CachedBadBBU]*NoCachedBadBBU]
[Strip=<8|16|32|64|128|256|1024>] [AfterVd=X] [Spares = [e:]s|[e:]s-x|[e:]s-x,y]
[force]
```

```
storcli /cx add vd each type=raid0 [name=<VDNAME1>,...] [drives=e:s|e:s-x|e:s-x,y]
[SED] [pdcache=on|off]*default|[pi] [DimmerSwitch(ds)=default|automatic(auto)
*none|maximum(max)|MaximumWithoutCaching(maxnocache)] [wt|*wb] [nora|*ra]
[*direct|cached] [CachedBadBBU]*NoCachedBadBBU][Strip=<8|16|32|64|128|256|1024>
```

```
storcli /cx add VD cachecade|cc Type = raid[0,1,10] drives =
[e:]s|[e:]s-x|[e:]s-x,y [WT|WB [assignvds = 0,1,2
```

This command creates a RAID configuration. You can use the following options to create the RAID volume:

NOTE * indicates default values.

The detailed description for each command follows.

```
storcli /cx add vd type=raid[0|1|5|6|10|50|60][Size=<VD1_Sz>,<VD2_Sz>,...]*all
[name=<VDNAME1>,...]
drives=e:s|e:s-x|e:s-x,y;e:s-x,y,z [PDperArray=x][SED] [pdcache=on|off]*default|[pi]
[DimmerSwitch(ds)=default|automatic(auto)
*none|maximum(max)|MaximumWithoutCaching(maxnocache)][cachevd]
[wt|*wb] [nora|*ra] [*direct|cached] [CachedBadBBU]*NoCachedBadBBU]
[Strip=<8|16|32|64|128|256|1024>]
[AfterVd=X] [Spares = [e:]s|[e:]s-x|[e:]s-x,y] [force]
```

Input example:

```
storcli /c0 add vd type=raid10 size=2gb,3gb,4gb names=tmp1,tmp2,tmp3
drives=252:2-3,5,7 pdperarray=2
storcli /cx add vd cc|cachecade type=[0,1,10] drives=[e:]s|[e:]s-x|[e:]s-x,y [[wt|*wb]
[assignvds=0,1,2]
```

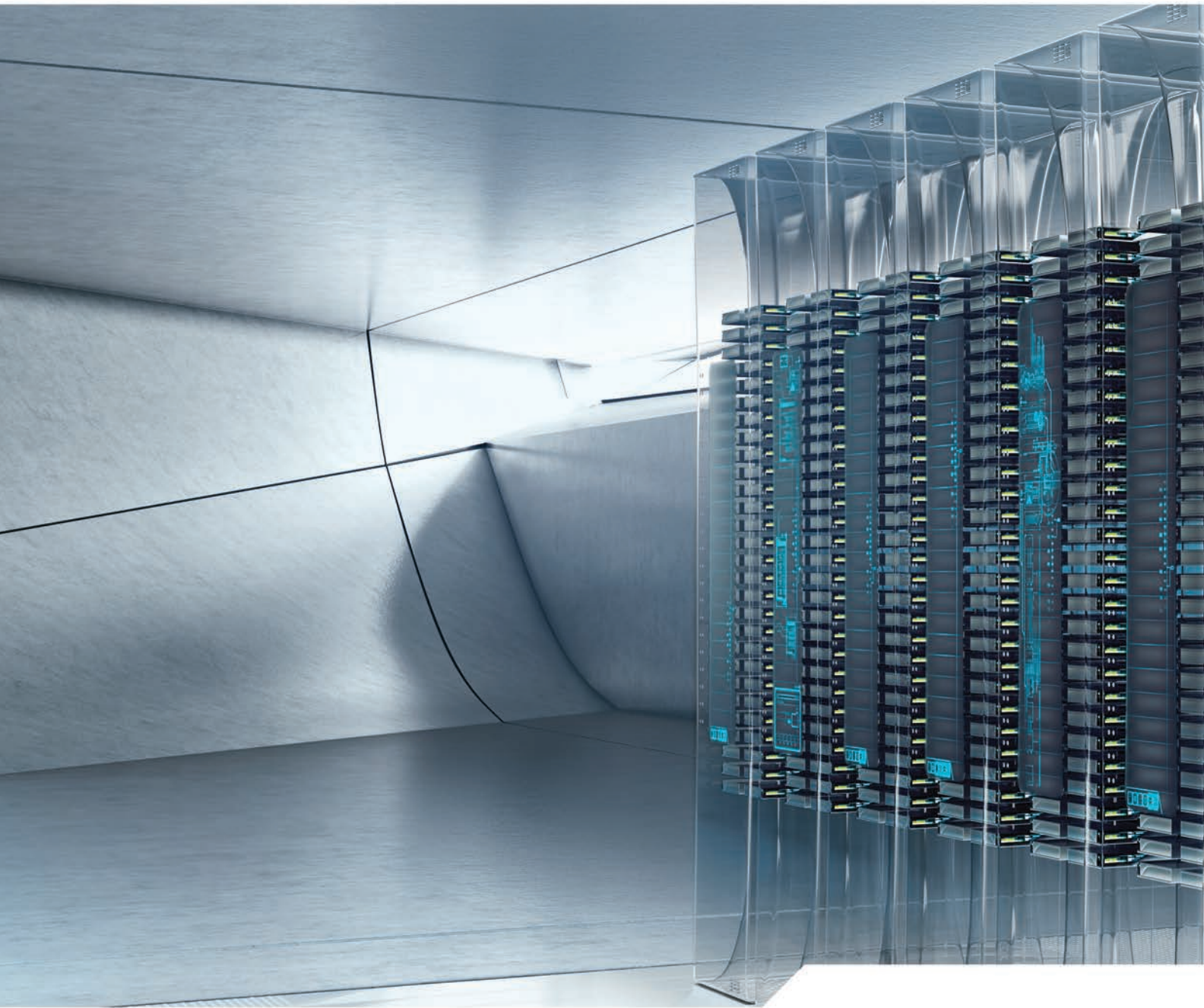
This command creates CacheCade virtual drives and associates existing virtual drives to CacheCade virtual drives. You can use the following options to create the CacheCade virtual drive.

Option	Value Range	Description
cachecade	-	Creates a CacheCade virtual drive.
type	0, 1, 10	Sets the RAID type of the CacheCade virtual drive.
drives	Valid enclosure number and valid slot number	See the drives row in the previous table for format.
wt wb	wt: Enables write through. wb: Enables write back.	Enables or disables write cache.
assignvds	Valid virtual drive number (0 to 63)	Specifies the list of virtual drives associated with the new CacheCade virtual drives.

Input example:

```
storcli /c0 add vd type=raid10 size=2gb,3gb,4gb names=tmp1,tmp2,tmp3
drives=252:2-3,7
```

Option	Value Range	Description
type	RAID [0 1 5 6 10 50 60].	Sets the RAID type of the configuration.
size	Maximum size based on the physical drives and RAID level.	Sets the size of each virtual drive. The default value is for the capacity of all referenced disks.
name	15 characters of length.	Specifies the drive name for each virtual drive.
drives	Valid enclosure number and valid slot numbers for the enclosure.	In e:s e:s-x e:s-x,y: <ul style="list-style-type: none"> e specifies the enclosure ID. s represents the slot in the enclosure. e:s-x is the range convention used to represent slots s to x in the enclosure e.
pdperarray	0 to 15.	Specifies the number of physical drives per array. The default value is automatically chosen.
sed	-	Creates security-enabled drives.
pdcache	on off default.	Enables or disables PD cache.
pi	-	Enables protection information.
dimmerswitch	default: Logical device uses controller default power-saving policy. automatic (auto): Logical device power savings are managed by firmware. none: No power-saving policy. maximum (max): Logical device uses maximum power savings. MaximumWithoutCaching (maxnocache): Logical device does not cache write to maximize power savings.	Specifies the power-saving policy. Sets to default automatically.
direct cached	cached: Cached I/O. direct: Direct I/O.	Sets the logical drive cache policy. Direct I/O is the default.
wt wb	wt: Write through. wb: Write back.	Enables write through. Write back is the default.
nora ra	ra: Read ahead. nora: No read ahead.	Disables read ahead. Enabled is the default.
cachedbadbbu nocachedbadbbu	cachedbadbbu: Enable bad BBU caching. nocachedbadbbu: Disable bad BBU caching.	Enables caching when BBU is not functioning. Disabled is the default.
cachevd	-	Enables SSD caching on the created virtual drive.
strip	8, 16, 32, 64, 128, 256, 512, 1024.	Sets the strip size for the RAID configuration.
aftervd	Valid virtual drive number.	Creates the VD in the adjacent free slot next to the specified VD.
spares	Number of spare physical drives present.	Specifies the physical drives that are to be assigned to a disk group for spares.
force	-	Forces a security-capable physical drive to be added to a drive group without security.




For more information about the Intel RAID Web Console 2 and StorLib Command Line Tool, please see the Software Users Guides available at www.intel.com/go/RAID

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