



Zadara Storage Cloud

15.7 Release Notes

September 2017

Revision 22

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1. Scope

This document describes the Zadara Storage Cloud release notes.

Section 3 describes new functionality and list of changes per release.

Section 4 describe scalability specifications.

Section 5 lists limitations and known issues

2. Revision History

Date	Revision	Released packages	Description
August 2015	1	VPSA image: 15.07-1905-90 SN package: 15.07-1905-90	15.07 GA
October 2015	3	VPSA image: 15.07-1905-123 SN package: 15.07-1905-123	Maintenance release
December 2015	4	VPSA image: 15.07-1905-146 SN package: 15.07-1905-146	Maintenance release
January 2016	5	VPSA image: 15.07-1905-158 SN package: 15.07-1905-158	Maintenance release
February 2016	6	VPSA image: 15.07-1905-162 SN package: 15.07-1905-162	Maintenance release
February 2016	7	VPSA image: 15.07-1905-162 SN package: 15.07-1905-162	Separate issues by latest releases
February 2016	8	VPSA image: 15.07-1905-162 SN package: 15.07-1905-162	Added #7328
March 2016	9	VPSA image: 15.07-1905-167 SN package: 15.07-1905-167	Maintenance release
March 2016	10	VPSA image: 15.07-1905-172 SN package: 15.07-1905-172	Maintenance release
April 2016	11	VPSA image: 15.07-1905-175 SN package: 15.07-1905-175	Maintenance release
April 2016	12	VPSA image: 15.07-1905-176 SN package: 15.07-1905-176	Maintenance release
May 2016	13	VPSA image: 15.07-1905-180 SN package: 15.07-1905-180	Maintenance release
June 2016	14	VPSA image: 15.07-1905-185 SN package: 15.07-1905-185	Maintenance release
August 2016	15	VPSA image: 15.07-1905-180 SN package: 15.07-1905-180	Added #8232
August 2016	16	VPSA image: 15.07-1905-190 SN package: 15.07-1905-190	Maintenance release
September 2016	17	VPSA image: 15.07-1905-190 SN package: 15.07-1905-190	Added #6661
September 2016	18	VPSA image: 15.07-1905-192 SN package: 15.07-1905-192	Maintenance release Added 8901
December 2016	19	VPSA image: 15.07-1905-197 SN package: 15.07-1905-197	Maintenance release
February 2017	20	VPSA image: 15.07-1905-199 SN package: 15.07-1905-199	Maintenance release
May 2017	21	VPSA image: 15.07-1905-187 SN package: 15.07-1905-187	Added missing build 187
May 2017	22	VPSA image: 15.07-1905-208 SN package: 15.07-1905-208	Maintenance release

3. New Functionality and change list

What's New in Zadara Storage Cloud

New Zadara Container Service (ZCS) Engines

With the introduction of the new ZCS service (see below), we are introducing a new set of ZCS Engines types with the following characteristics:

Engine	vCPU	Memory
01	2	512 MB
02	2	1 GB
04	4	2 GB
06	6	4 GB
08	8	8 GB

A VPSA is then defined by a combination of an IO Engine and a ZCS Engine. Container running within the VPSA can consume CPU and memory resources only from the ZCS Engine. IO Engine is dedicated to serving IO workloads.

User can change the VPSA's ZCS Engine model orthogonal to the IO Engine model via the Provisioning Portal.

By default, newly created VPSAs have no ZCS Engine unless explicitly selected. The default can be modified via Django Admin.

New IO Engine names and types

The following table describes the new IO Engines names and types:

Engine	Previous Name	vCPU	Memory	Max #drives
200	Baby	2	4 GB	5
400	Basic	4	8 GB	10
600	Boost	6	16 GB	20
800	Blast	8	24 GB	30
1000	Blazing	10	32 GB	40
1200	New	12	48 GB	60
1600	New	16	64 GB	80

Stronger Password Rules (Provisioning Portal, Command Center and VPSA GUI)

The following rules are enforced:

- Passwords must contain alphabetic and numeric characters
- Passwords must change every 90 days (first change is required 90 days after new VPSA creation or upgrade to 15.07)
- Enforce a password history of 8 previously used passwords
- Enforce temporary account lockouts after 5 failed attempts within a 24-hour period.
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What's New in VPSA

Zadara Container Service (ZCS)

Zadara Container Services (ZCS) open up new possibilities by putting Docker containers inside the storage for lightning-fast performance, task automation, and application high availability. The solution achieves high converged performance without sacrificing storage features, sharing, or availability.

The new Service (ZCS) leverages the modular VPSA architecture to run applications within the storage itself, rather than running code in compute servers. The benefit of this approach is extreme high performance, lower latency, reduced traffic between server and storage, and greater overall efficiency when compared to traditional approaches.

Docker containers run inside the active VC of a VPSA utilizing CPU and memory resources from the provisioned VPSA's ZCS Engine.

iSCSI, NFS or SMB Volumes can be attached to containers .

Backup to Object Storage

Zadara's Backup to Amazon S3 (B2S3) feature is an automatic, snapshot-based, continuous, incremental backup from Zadara VPSA storage to low-cost, S3 object storage. With pent-up demand for enterprise grade backup-and-restore options, Zadara's Backup to S3 enables a low-cost object storage target, and the flexibility of combining multiple storage vendors in their data storage architecture.

B2S3 enables backup of any volume, iSCSI, NFS or SMB to any Object Storage bucket with S3 interface, anywhere in the world.

Backup is continuous and incremental. After an initial full backup of the Volume's data, only modified data is backed up incrementally using VPSA snapshots according to a selected snapshot policy.

A Volume can have multiple back up jobs to different Object Storage endpoints in various regions. Recovery is possible from any Object Storage Snapshot. A restored Volume can be immediately available. Data from Object Storage is retrieved on demand when actually accessed, while the full data set is retrieved in the background.

All in-flight data (backup and restore) is compressed and encrypted.

Data can also be restored from Object Storage Snapshot into a user-supplied VM (outside a VPSA).

Flexible "Custom" Snapshot Creation Policy

A new flexible "Custom" Creation Policy is available for Snapshots Policies, where fine-grained creation policy can be defined in a "Cron"-like format.

Role Base Access Control (RBAC)

VPSA now manages a complete multi-user Role Base Access Control System, where the VPSA Admin can assign different Roles to different users. Each Role is defined as a while list of allowed operation.

Access Log

The access log provides detailed information of all incoming APIs with filtering and searching capabilities, for auditing purposes.

Major Changes & Bug fixes

#	Component	Description
3779	VPSA, Command Center	Time zone is shown in all components. VPSA allows changing the display time zone
4423	VPSA	Added an option to enable\disable root_squash on NFS shares
4619	Command Center	SN license changes are now logged in the Central Log
4736	VPSA	Set "allow trusted domains = no" by default to handle AD with forest domains. Can be changed via GUI\API
4759	VPSA	Cache metering charts now display hit rate
4954	VPSA	Stripe mode is automatically selected when creating a Pool with multiple Raid Groups.
4976	VPSA	A new "Settings" page was added to VPSA GUI
5009	VPSA	A scrollbar was added to every dialog that is larger than the browser window
5030	VPSA	An event log is now generated when attaching\detaching a snapshot policy
5109	Command Center	Command Center title now shows the cloud name
5126	Command Center	White spaces are supported in network label of Public IP
5182	VPSA, Command Center	For security reasons if a web session was not active for 30 minutes, it is terminated. Logging in again is required
5278	VPSA	Fix to SSL vulnerability known as CVE-2015-0204

5320	Command Center	REST APIs support all user-management operations
5381	VPSA	Fixed an issue where Performance alert ticket showed no (zero) IOPS and no (zero) bandwidth, with real positive latency
5555	Command Center	Download Metering File is missing extension when VPSA GUI accessed from Command Center Download Metering File now has an extension indicating it is compressed in a zip format
5786	Command Center	Command Center's SN page allow to pin vCPU's to specific VPSA
5869	VPSA	Backup to S3 works via proxy (with/without authentication)
6019	VPSA	By default the system sends a high CPU alert when the CPU reaches 95% utilization
6056	VPSA	If a snapshot policy is used by a Mirror job and as a local policy, detaching the policy from the Mirror does not remove the local policy.
6220	Command Center	SN installation is possible in offline cloud
6234	VPSA	On some browsers it was impossible to join AD while pop ups were blocked on the browser. This limitation was removed.
6335	Command Center	An option to use customer's SSL certificate for CCVM was added to Command Center
6340	VPSA	Fixed an "out-of-space" error on root drive, as a result of Databases backups that are not cleaned up
6383	VPSA	fix a session timeout error in VPSA GUI
6408	VPSA	Dates are now displayed properly on Firefox browser
6414	Command Center	Cloud can be upgraded from Command Center even if the selected package is on remote repository.
6429	Provisioning Portal	Allow maximum of 80 drive for VPSA model 1600
6430	VPSA	Fixed permission issue with role based access control
6442	VPSA	SMB fix to support large IO size requests
6473	Command Center	It is now possible to install CCSlave through Command Center in a multi-zone configuration
6488	Command Center	Fixed a sync issue in a cloud where VPSA model does not have display name
6494	VPSA	Fixed an upgrade issue when setup volume latency is too long
6526	VPSA	Resolved a very narrow race condition in determining peer VC HA state during upgrade
6543	VPSA	Fixed a rare VPSA failover when upload to s3 fails
6546	VPSA	Support Multiple Sessions via SSH tunneling
6563	VPSA	Reduced VSPA failover time
6572	Provisioning Portal	Fixed a miscalculation in B2S3 billing
6592	VPSA	New NFS volumes are now created with root squash = NO
6610	VPSA	Fix for a very low probability issue in dm-btrfs that may cause BTRFS corruption during volume migration
6611	VPSA	VPSA GUI is now using cookies for session store
6620	VPSA	Fixed an issue of Mellanox iSER VPSA bonding failover issue on ports disconnection
6654	Provisioning Portal	When B2S3 is enabled or disabled, these events are logged for billing purposes, and e-commerce users with "Notify on Request" are notified by email
6661	VPSA	Fix for a problem with Windows 2012 R2 reporting bad block during format as a result of VPSA returning an error on non-aligned UNMAP request
7005	Provisioning Portal	B2S3 notifications are sent to VPSA's owner only

Major Changes & Bug fixes in Build 129

4980	VPSA	An issue of missing Share metering info when the share is exported via both SMB & NFS protocols to the same Server is fixed
6801	VPSA	A rare resource leak in Mellanox target SCSI driver is fixed
6736	VPSA	/api/vcontrollers REST API now returns VPSA UUID
6682	VPSA	Fixed an issue where "Detach Server" button on the Volumes page south panel would have detached all Servers.
6708	VPSA	A rare memory leak with hundreds of open sessions to SMB share is fixed

Major Changes & Bug fixes in Build 136

6645	VPSA	Rare VPSA crash during B2S3 is solved
6820	VPSA	Fixed a wrong calculation of VPSA cache hit rate

Major Changes & Bug fixes in Build 146

6236	Storage Node	Added support for HDD with 4K physical sector size (a.k.a 4K Native) with no 512-byte emulation
7173	Storage Node	Support AVAGO and Cisco rebrand of MR controller

Major Changes & Bug fixes in Build 158

7376	Storage Node	Support Lenovo/720i rebrand of MR controller
7362	VPSA	Fixed a bug in VPSA Events Log sort
7352	VPSA	Fixed an error in sorting Event Log
6268	VPSA	Added ability to remove failed drive from RAID Group with RAID1 3-way mirror
7118	VPSA	Fix a rare case where expanded share returns "not enough space" error
5307	VPSA	Send email notifications to the non-admin users in addition to the Zendesk ticket to admin, in the following cases: Forgot password, Reset password, Sending an initial password to user and Password expiration warning
5268	Storage Node	solved a rare case where a VC may lose its BE connectivity while spawning a new VC on the same SN with Mellanox NIC
7328	VPSA	Improvements to Password policy: - Ability turn the expiration policy on and off - Ability to change the Password expiration period - Ability to modify the number of passwords to remember

		- Display and send a warning message if the password will expire is less than 14 days
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Major Changes & Bug fixes in Build 162

7663	VPSA	Fixed a bug that generated false FileSystem corruptions alerts, and volume lock, on NAS volumes build over RAID5/6 pools
7649	VPSA	Fixed an issue where GUI login is blocked after changing the VPSA name
7376	VPSA	Default pool type is now repository
7672	VPSA	The minimal number of drives in RAID-6 group is now 4

Major Changes & Bug fixes in Build 167

7798	VPSA	Users table shows the access key of the logged in user only
7649	VPSA	Improve upgrade mechanism to avoid timeout failures
7801	VPSA, Command Center	Fix security vulnerability CVE-2015-7547
7822	VPSA	Fix a rare case where a mirror destination share moves to a Maintenance mode once mirror is broken.
7857	Storage Node	Added support for LSI RAID 2208 rebrand of MR controller
7754	VPSA	Allow retrieving the access key through RestAPI

Major Changes & Bug fixes in Build 172

7950 7865 7825	SN	Fix in Mellanox NIC driver for better system stability
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Major Changes & Bug fixes in Build 175

8012	Storage Node	Fix in Mellanox NIC driver for better system stability in case of frequent network link up\down events
8100	VPSA	Fix for NFS hung rare cases of extremely large and fragmented files
8119	VPSA	Improvement in NAS share failover time
8218	Storage Node	Support LSI RAID SAS 6G 5/6 (D2616) rebrand of MR controller

Major Changes & Bug fixes in Build 176

8007	VPSA	Fix a rare case where VPSA crashes while backing up to Object Store (B2S3)
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Major Changes & Bug fixes in Build 180

8232	VPSA	A fix to prevent a very rare case of VC crash as a result of bad reference counting in ZCache
8329	VPSA	IQN can now be defined using Upper-Case
8077	VPSA	A fix to prevent a crash at the Mellanox NIC driver when the VPSA runs out of memory

Major Changes & Bug fixes in Build 185

8415	VPSA, Command Center	Fix security vulnerability CVE-2016-2107
8516	CCVM	Fix the local license server to allow SN re-activation with a new UUID for SN that was already activated
8657	VPSA	With RAID1 prevent metadata updates of blocks smaller than 4KB, to avoid performance issues experienced on some SSD drives.
8747	VPSA	Disable VMware VAAI xcopy API to solve VMotion stall when pool is overloaded

Major Changes & Bug fixes in Build 187

8739	VPSA VSS Provider	Add a new API to create a batch of snapshots in one API call for volumes consistency. Note: a new Zadara VSS Hardware provider version 1.0.11.28 is needed for VPSA version 15.07-1905-187 and newer
3124	VPSA	Don't lockdown VPSA if just the standby VC is constantly rebooting, and the active VC is healthy

Major Changes & Bug fixes in Build 190

8868	VPSA	Fix an issue where VPSA version upgrade from 15.07 to a newer version fails on a 16.05 cloud
8747	VPSA	Fix an issue with hosts like VMWare ESX that get into an IO Error recovery loop (Hang) when VPSA gets a SCSI command to abort an IO command that is already completed, and returns an error.

Major Changes & Bug fixes in Build 192

8796	Provisioning Portal	"app_engine" attribute was added to the output of GET /api/vpsas API command
8965	Command Center	Update Command Center SSL certificate
9198	VPSA	Assigning block volumes to Docker containers is no longer supported due a risk of data corruption. File shares assignment to Docker containers is supported and safe.

Major Changes & Bug fixes in Build 197

1987	Command Center, Storage Node, VPSA	Allow online update of VPSA SSL certificates
2332	VPSA	Avoid VPSA crash when metering database becomes too slow
7461 9386	VPSA	Avoid flood of warning messages which might cause Storage Node hung in rare cases.

Major Changes & Bug fixes in Build 199

9609	Cloud Controller, VPSA	Improved connection to AWS S3, to avoid failures in metadata backups
9777	Command Center	A new Wildcard TLS Certificate for CCVM (expires on 31.01.2019)

Major Changes & Bug fixes in Build 208

10750	Cloud Controller Command Center	At VPSA creation the new VPSA's domain name is registered using DNSimple API V2 (V1 will be discontinued on October 1st, 2017)
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4. Known issues

#	Component	Description
2409	VPSA	<p>Microsoft Limitation: If you are creating a clone of a Microsoft cluster volume/disk resource through the VPSA GUI and assign the clone to the same cluster nodes, the disk will come online as Reserved on both nodes. Hence, you will not be able to access the disk or add it as a new disk resource.</p> <p>Workaround: To prevent this from happening you can change the disk id from within diskpart. Please follow the steps below:</p> <ol style="list-style-type: none"> 1) Assign the clone to a non-clustered server. 2) Login to the server and online the drive through Disk Management utility. 3) Open a command line and type "diskpart" 4) Now follow the next diskpart commands: DISKPART> list disk DISKPART> select disk [type here the disk number of your clone] DISKPART> uniqueid disk id=[type here a unique ID, should be 8 digits] 5) Goto VPSA GUI, detach the clone from the non-clustered servers and attach it to your clustered servers.

		6) Now you can use the clone as a cluster disk resource.
455	VPSA	VPSA GUI is not support on IE-8
542	VPSA	Failure of both active controller and a drive at the same time may result in a temporary failure of RAID5 group. To recover, either wait for the drive to come back online, or issue "Force Recover" from the VPSA GUI.
661	VPSA	Linux Server LVM limitation: It is required to de-activate LV before issuing iSCSI logout. Failing to do so will result in a failure to re-login to a VPSA iSCSI Target.
867	VPSA	Enabling IPSec may affect IO throughput in some Windows machines
1186	VPSA	The option to replace a drive in a 'rebuild' state is blocked Workaround: Replace the drive once rebuild completed
1257	VPSA	"Server Connect" requires open-iscsi initiator on Linux-based Servers
1614	VPSA	Servers behind a NAT are not supported (for NFS or iSCSI connectivity).
1795	VPSA	For a proper NFS functionality, need to run Server Connect after NFS client is installed on the Server
2048	VPSA	Multiple drives removal through VPSA GUI may fail if one or more of those drives store VPSA Boot data. Workaround: Remove the drives one by one
2273	Storage Node	When adding a first drive of a new drive type to the Zadara Cloud (HDD, SSD or Cache SSD), you must wait 1 minute before allocating such a drive type to a VPSA. Please note that removing the last drive of a given drive type removes this drive type from the Cloud.
2382	VPSA	IO onto an NFS share may be suspended up to 2 min following a VC failover or shutdown due to slow retry logic on the NFS client side.
2433	VPSA	Adding a new drive to an existing VPSA may very rarely fail. VPSA will present the drive in a Failed state and will generate a support ticket. Workaround: Initiate a VC failover through the VPSA GUI
2471	VPSA	A new snapshot will not be created by Snapshot Manager for a snapshot Policy if there is another Snapshot being deleted on the same Volume.
2593	VPSA	If a RAID-5 rebuild of a new or replaced Drive is aborted, when it is resumed - it will restart from the beginning.
2829	VPSA	Spawning a new VC can be slow when the SN is highly provisioned with VCs (i.e tight on memory and\or cpu).
2920	VPSA	VPSA GUI is presenting wrong metering values for controller's cache and system if Read or Write chart are disabled
3350	VPSA	If a VPSA does not expose LUN 0 and LUN 1 (but exposes other LUNs), Linux iscsiadm will not present any other VPSA LUNs. Windows Hosts will not present VPSA LUNs greater than 7.
4246	Command Center	On iSER configs, VPSA FE vlan always shows 0 (displayed issue)
4275	VPSA	There is a rare race in RaidGroup dirty bitmap handling that may cause a full resync following an unclean VC shutdown
4363	ALL	Moving from local license server to public license server and vice versa is not supported
4916	Command Center	"Add Drive" operation (via Command Center) can be performed only against VPSA with software version 14.11 or newer.
4975	VPSA	VPSA can't leave AD if AD server is unavailable or if AD was replace

5033	SN	Maximum 10 VCs are supported on a Storage Node with Mellanox NICs
5315	Command Center	Hibernated VPSAs are displayed in degraded state
5562	VPSA	VC using Mellkanox iSER may rarely crash when there are multiple port disconnections
5578	SN	Disk is not removed from SN drives list upon ejection if previously it was moved between different slots
5639	VPSA	VC failover may fail if HB network is down
5766	VPSA	In some cases, VC may crash when Pool runs out of free space
5851	VPSA	IOs from Containers are not counted in Volume's performance metering
5908	VPSA	Private Docker repositories are not supported
6099	Command Center	GUI session will not timeout if auto-refresh is enabled in performance charts
6242	Command Center	"Install" button is displayed after SN installation is completed
6266	VPSA	IF you are logged into the VPSA using your email rather than username, you cannot change your password
6371	VPSA	Cannot change Object Storage connection to use Proxy after it was created using public IP. Need to delete the object storage entity and recreate it.
6409	Command Center	VPSA=>Information page show resources of a single VC
8901	VPSA	B2S3 uses its own mechanism to maintain its backups, do not delete any of the objects stored by the B2S3 service, nor archive them to Glacier