

OnApp Cloud 6.7 Upgrade Guide

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Please note that CP should have at least twice as much free disk space as the size of a database to ensure the proper work of the database.

CentOS 6 reached End of Life and is no longer supported. That is why we recommend you upgrade to [CentOS 7](#).

This guide provides instructions on how to upgrade OnApp Cloud to the 6.7 version. You can update to OnApp 6.7 from OnApp 6.6. Refer to the following documentation set:

Upgrade from OnApp 6.6

- [Upgrade Guide for Control Panel Server \(from 6.6\)](#)
- [Upgrade Cloud with CloudBoot and Static Servers \(from 6.6\)](#)
- [Upgrade Cloud with Static Servers \(from 6.6\)](#)
- [Upgrade Cloud with Integrated Storage Static Servers \(from 6.6\)](#)
- [Upgrade Cloud with CloudBoot Servers \(from 6.6\)](#)
- [Upgrade Backup Plugin for Veeam](#)

1 What's New

The OnApp Cloud 6.7 provides new features and improvements. You can find the list of all key enhancements at [Release Notes](#).

Please note that CP should have at least twice as much free disk space as the size of a database to ensure the proper work of the database.



1.1 Updated UI

We updated the user interface with the new look and feel for a number of pages. This version of the user interface is aimed to improve the user experience.



1.2 DB Partitioning

Added month-based range partitioning to the `billing_statistics_hourly` database table, which reduces the time for processing billing statistics queries up to five times as much and decreases the probability of issues related to the performance of the database.



1.3 User Accounts and User Groups

Now, you can view the list of IP addresses assigned to a user and a user's virtual servers, as well as the list of IP addresses assigned to a user within a particular user group and the list of IP addresses assigned to all the virtual servers of users within a user group.



1.4 Manage SSH Keys

Improved the [SSH keys](#) functionality with the option to view an SSH key's name and creation date at the SSH-Keys page and added the *Name* option at the Create SSH-Key and Edit SSH-Key pages.



1.5 Virtual Server Disks

Now, you can make the [vDisk size smaller](#) than the template's disk size the VS is built on.



1.6 Virtual Server Recovery Points

After creating a Veeam recovery point, you can see its size synchronized from Veeam to OnApp Control Panel.



1.7 Bucket and Access Control

Now, the user with the Administrator role and the *Show Empty Values* permission turned on can view empty values in the access control and rate card of any bucket.



1.8 NSX-T Edge Gateway

In the Allocated IPs step of the NSX-T edge gateway creation wizard, added the *IP Range* option allowing you to select the range of available IP addresses and the *Available IPs* option you can use to configure sub-allocated IPs.



1.9 NSX-T IPSec VPN

Added the new functionality [NSX-T IPSec VPN tunnels](#) that allows using the secure connection between private and cloud networks.



1.10 NSX-T NAT Rules

Improved the NSX-T NAT rules functionality with the option to edit an [NSX-T NAT rule](#) and added a new group of the [NSX-T NAT Rules](#) permissions, which allow creating, updating, deleting, and viewing NSX-T NAT rules.



1.11 Orchestration Models

Added the ability to apply NSX-T provider resource pools in [orchestration models](#) that allows using NSX-T technology when creating and deploying orchestration models.



1.12 Migrate VM from vCenter to KVM with Windows Server 2022

Added the *Windows Server 2022* option which you can select in the *Distribution* box at the Migrate to KVM page when migrating a virtual server from a vCenter instance to a KVM compute resource.

2 Upgrade Notes

You can update to OnApp 6.7 from OnApp 6.6. Before upgrading to OnApp 6.7, read these upgrade notes to get ready for the upgrade.

CP should have at least twice as much free disk space as the size of a database to ensure the proper work of the database.

Please note that CentOS 6 reached End of Life and is no longer supported. You may upgrade to [CentOS 7](#).

To test the upgrade, you may first simulate the upgrade process in the test environment. For the instructions, refer to the [Configuring Control Panel Environment for Simulation Purposes](#) page.

2.1 Control Panel Server

- Check the Activity Log on your OnApp CP dashboard if no transactions are running on your cloud. Wait until all transactions are completed before proceeding to the upgrade.
- Make sure no Control Panel files are open for editing under the root user account.
- If you use an isolated license, you need to manually sync with the dashboard by downloading a validation request and then uploading a validation response after the Control Panel upgrade. For more information on how to do this, refer to the [License](#) page.
- If you use custom languages on your CP, after the upgrade, run the following tasks to import a custom language to Control Panel:

```
su onapp
cd /onapp/interface; RAILS_ENV=production rake onapp:language:sync
RAILS_ENV=production rake onapp:language:import
```

- If you plan to deploy Accelerator, refer to the [RabbitMQ Configuration for Accelerator](#) document for more details.

2.2 Compute Resources

Starting with OnApp 6.4, you can migrate from old compute resources to the newly introduced vCenter servers, where the cloud architecture will be reproduced automatically.

- A cluster is treated as a compute resource and named after it, placed in a separate compute zone, also named after the cluster.
- The networks and data store are in the same network zones and data store zones they used to before the update.
- The relations between networks, compute resources, and data stores are the same as in vCenter.

2.3 Backup Resource Zones

If you are using the Veeam plugin, your compute zone will be split into different zones after the upgrade and will not be joined to the backup resource zone with the Veeam plugin.

You should add the newly created zones to the backup resource zone with the Veeam plugin after the upgrade.

To do that:

1. Go to **Settings > Compute Zones**, click the label of a compute zone you are interested in > **Tools > Manage Backup Resource Zones**.
2. On the page that loads, pick the needed Backup Resource Zone from the dropdown.
3. Click **Submit** to save the changes.

2.4 Data Store Zones

If you are using vCenter 7 and OnApp integration, after the upgrade, the resync task with vCenter might fail with the error *Validation failed: DataStore and Target should be in the same Location Group*.

To solve the issue, follow the next procedure:

1. [Unassigned data stores from location groups](#).
2. Run resync task.
3. [Assign data stores to the correct location groups](#) again.

2.5 Downgrade OnApp Version

Unfortunately, it is not possible to downgrade your version of OnApp once it has been upgraded. The only way to return to a previous version is to do a fresh [install](#) of the OnApp software using the version you would like to use again. You will also need to restore your database from a database dump before the installation.

3 Upgrade from 6.6 to 6.7

The guides in this section apply to upgrade to OnApp 6.7 from the 6.6 version.

3.1 Upgrade Guide for Control Panel Server (from 6.6)

- Please note that we updated the name and structure of the OnApp [database dump file](#).
- CentOS 6 reached End of Life and is no longer supported. You may upgrade to [CentOS 7](#).
- To test the upgrade, you may first simulate the upgrade process on the test environment. For the instructions, refer to the [Configuring Control Panel Environment for Simulation Purposes](#) page.
- CP should have at least twice as much free disk space as the size of a database to ensure the proper work of the database.

This guide provides an instruction on how to upgrade your Control Panel server from OnApp Cloud 6.6 to 6.7. Please follow the complete procedure of the upgrade process.

All packages must belong to the same major version to ensure the best performance of your cloud. If you do not complete an upgrade procedure, you may face issues with standard functions such as VS creation, VS migration, etc.

Before upgrading, make sure that enough free disk space in MySQL is available. The main recommendation is to prepare three times as much space before starting partitioning.

3.1.1 Upgrade Control Panel Server

- Installer output is redirected to `./onapp-cp-install.log`
- All installer critical errors are in located at `/var/log/messages`

To upgrade your Control Panel server:

1. Download the OnApp YUM repository file

```
rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.7.noarch.rpm
```

2. Upgrade OnApp Control Panel installer package

```
yum update onapp-cp-install
```

3. Update your server OS components (if required)

```
/onapp/onapp-cp-install/onapp-cp-install.sh -y
```

4. *(Optional)* If you need some custom Control Panel configuration, set the values before the installer script runs

The list of custom configuration options for Control Panel.

```
vi /onapp/onapp-cp.conf
```

Template server URL

```
TEMPLATE_SERVER_URL='http://templates-manager.onapp.com';
```

IPs (separated with coma) list for the SNMP to trap. This is the list of Control Panel IP addresses on which the traps sent from the compute resources are processed.

```
SNMP_TRAP_IPS=""
```

OnApp Control Panel custom version

```
ONAPP_VERSION=""
```

OnApp MySQL/MariaDB connection data (database.yml)

```
ONAPP_CONN_WAIT_TIMEOUT=15
ONAPP_CONN_POOL=30
ONAPP_CONN_RECONNECT='true'
ONAPP_CONN_ENCODING='utf8'
```

MySQL/MariaDB server configuration data (in case of local server)

```
MYSQL_WAIT_TIMEOUT=604800
MYSQL_MAX_CONNECTIONS=500
MYSQL_LIMITNOFILE=8192
```

[Use MariaDB instead of MySQL as OnApp database server](#) (Deprecated parameter. If you set any values for this parameter, they will not take effect)

```
WITH_MARIADB=0
```

#Configure the database server relative amount of available RAM

```
PUNE_DB_SERVER=1
```

The number of C data structures that can be allocated before triggering the garbage collector. It defaults to 8 million. Only change this value if you understand what it does.

```
RUBY_GC_MALLOC_LIMIT=16000000
```

sysctl.conf net.core.somaxconn value

```
NET_CORE_SOMAXCONN=2048
```

The root of OnApp database dump directory (on the Control Panel box)

```
ONAPP_DB_DUMP_ROOT=""
```

Remote server's (to store database dumps) IP, user, path, openssh connection options and number of dumps to keep

```
DB_DUMP_SERVER=""
DB_DUMP_USER="root"
DB_DUMP_SERVER_ROOT="/onapp/backups"
DB_DUMP_SERVER_SSH_OPT="-o StrictHostKeyChecking=no -o
    UserKnownHostsFile=/dev/null -o PasswordAuthentication=no"
KEEP_DUMPS=168
DB_DUMP_CRON='40 * * * *'
```

[Enable monit - tool for managing and monitoring Unix systems](#)

```
ENABLE_MONIT=1
```

If enabled (the 1 value is set) - install (if local box) and configures RabbitMQ Server (messaging system) for the vCloud support. (Deprecated parameter. If you set any values for this parameter, they will not take effect)

```
ENABLE_RABBITMQ=1
```

Rotate transactions' log files created more than TRANS_LOGS_ROTATE_TIME day(s) ago

```
TRANS_LOGS_ROTATE_TIME=30
```

Maximum allowed for uploading file size in bytes, from 0 (meaning unlimited) to 2147483647 (2GB). Default is 0.

```
MAX_UPLOAD_SIZE=0
```

Timeout before ping Redis Server to check if it is started. Default is 10 sec.

```
REDIS_PING_TIMEOUT=10
```

OnApp Control Panel SSL certificates (please do not change if you aren't familiar with SSL certificates)

* The data below to generate self-signed PEM-encoded X.509 certificate

```
SSL_CERT_COUNTRY_NAME=UK
SSL_CERT_ORGANIZATION_NAME='OnApp Limited'
SSL_CERT_ORGANIZATION_ALUNITNAME='OnApp Cloud'
SSL_CERT_COMMON_NAME=`hostname --fqdn 2>/dev/null`
```

SSLCertificateFile, SSLCertificateKeyFile Apache directives' values

ssl_certificate, ssl_certificate_key Nginx directives' values

```
SSLCERTIFICATEFILE=/etc/pki/tls/certs/ca.crt
SSLCERTIFICATECSRFILE=/etc/pki/tls/private/ca.csr
SSLCERTIFICATEKEYFILE=/etc/pki/tls/private/ca.key
```

* PEM-encoded CA Certificate (if custom one exists)

SSLCACertificateFile, SSLCertificateChainFile Apache directives' values

ssl_client_certificate Nginx directives' values

```
SSLCACERTIFICATEFILE=""  
SSLCERTIFICATECHAINFILE=""
```

SSLCipherSuite, SSLProtocol Apache directives' values

ssl_ciphers, ssl_protocols Nginx directives' values

```
SSLCIPHERSUITE=""  
SSLPROTOCOL=""
```

5. Run the Control Panel installer:

```
/onapp/onapp-cp-install/onapp-cp-install.sh --quick-update
```

Please, answer 'yes' when the installer prompts to initiate images, templates, and ISOs download.

The full list of installer options for Control Panel.

Usage:

```

# /onapp/onapp-cp-install/onapp-cp-install.sh -h
Usage: /onapp/onapp-cp-install/onapp-cp-install.sh [-c CONFIG_FILE] [-
--mariadb | --mariadb-custom | --community | --percona | --percona-
cluster] [-m MYSQL_HOST] [--mysql-port=MYSQL_PORT] [--mysql-
sock=MYSQL_SOCKET] [-p MYSQL_PASSWD] [-d MYSQL_DB] [-u MYSQL_USER]
[-U ADMIN_LOGIN] [-P ADMIN_PASSWD] [-F ADMIN_FIRSTNAME] [-L
ADMIN_LASTNAME] [-E ADMIN_EMAIL] [-v ONAPP_VERSION] [-i
SNMP_TRAP_IPS] [--redis-host=REDIS_HOST] [--redis-bind[=REDIS_BIND]
[--redis-passwd[=REDIS_PASSWD] [--redis-port=REDIS_PORT] [--redis-
sock[=REDIS_SOCKET] [--rbthost RBT_HOST] [--vcdlogin VCD_LOGIN] [--
vcdpasswd VCD_PASSWD] [--vcdvhost VCD_VHOST] [--rbtlogin RBT_LOGIN]
[--rbtpasswd RBT_PASSWD] [-a] [-y] [-D] [-t] [--noservices] [--ha-
install] [--rake=RAKE_TASKS] [--quick|--quick-update[=SERVICE] [--
accept-eula] [-w] [-h]

```

Database server options:

Default database SQL server is MySQL Server.

Please use one of the following option to install LOCALLY:

```

--mariadb           : MariaDB Server
--mariadb-custom   : MariaDB Server (custom for CentOS
7.x only)
--community       : MySQL Community Server
--percona          : Percona Server
--percona-cluster  : Percona Cluster

-m MYSQL_HOST      : MySQL host. Default is
'localhost'
--mysql-port=MYSQL_PORT : TCP port where
MySQL Server serves connections.
Default values
is 3306 for the local installation
--mysql-sock[=MYSQL_SOCKET] : Unix socket on
which MySQL Server serves connections.
Default values
is /var/lib/mysql/mysql.sock. Used if local server only
The socket is
unset if the option's argument isn't specified.
-p MYSQL_PASSWD : MySQL password. Random is
generated if is not set or specified.
-d MYSQL_DB      : OnApp MySQL database
name. Default is 'onapp'
-u MYSQL_USER    : MySQL user. Default is
'root'

```

Redis Server options:

--redis-host=REDIS_HOST : IP address/FQDN where Redis Server runs. It is used by Control Panel to connect to Redis Server.

The Redis Server will be installed and configured on the current box if localhost/127.0.0.1 or box's public IP address (listed in SNMP_TRAP_IPS) is specified.

Default value is 127.0.0.1.

If local Redis, it will serve as well on the unix socket 'PORT' (if --redis-sock without argument isn't specified)

--redis-bind[=REDIS_BIND] : The IP address for Redis Server to serve connections (to listen)

The option isn't mandatory.

```

--redis-port=REDIS_PORT : Redis Server
listen port.
Defaults are:
0 - if local
server
6379 - if
remote server
--redis-passwd[=REDIS_PASSWD] : Redis
Server password to authenticate.
Random
password is generated if the option's argument isn't specified.
By default
no password is used for local Redis.
--redis-sock[=REDIS SOCK] : Path to the
Redis Server's socket. Used if local server only.
Default is
/var/run/redis/redis.sock
The socket is
unset if the option's argument isn't specified.

```

Options to manage OnApp Control Panel administrator account:
Please note, that
these options are for NEW INSTALL only and not for upgrade

```

-P ADMIN_PASSWD : CP administrator
password
-F ADMIN_FIRSTNAME : CP administrator first
name
-L ADMIN_LASTNAME : CP administrator last
name
-E ADMIN_EMAIL : CP administrator e-
mail

```

RabbitMQ Server and vCloud options:

```

--rbthost RBT_HOST : IP address/FQDN
where RabbitMQ Server runs.
The RabbitMQ will
be installed and configured on the current box if
localhost/127.0.0.1 or box's public IP address (enlisted in
SNMP_TRAP_IPS)
Default values is
127.0.0.1.

```

VCD_* : Options are usefull if
vCloud/RabbitMQ are already installed and configured.

```

--vcdlogin VCD_LOGIN : RabbitMQ/vCloud
user. Default value is 'rbtvcd'.
--vcdpasswd VCD_PASSWD : RabbitMQ/vCloud
user password. The random password is generated if isn't specified.
--vcdvhost VCD_VHOST : RabbitMQ/vCloud
vhost. Default value is '/'

```

RBT_* : Options are used to
configure RabbitMQ manager account. If local RabbitMQ server.

```

--rbtlogin RBT_LOGIN : RabbitMQ manager
login. The default value is 'rbtmgr'.
--rbtpasswd RBT_PASSWD : RabbitMQ manager
password. The random password is generated if isn't specified.

```

```

General options:

--ha-install : Proceed with Control Panel
and Hight Availability components installation
                RHEL/CentOS 7.x is supported only!

--rake RAKE_TASKS : List of OnApp Control
Panel rake tasks (separated with space) to run at the very end of
install or upgrade

-v ONAPP_VERSION : Install custom OnApp CP
version

-i SNMP_TRAP_IPS : IP addresses separated
with coma for snmp to trap

-y : Update OS packages (except of OnApp
provided) on the box with 'yum update'.

-a : Do not be interactive. Process with
automatic installation.
                Please note, this will continue OnApp
Control Panel install/upgrade even there is transaction currently
running.

-t : Add to the database and download Base
Templates. For new installs only.

--noservices : Do not start OnApp services:
monit, onapp and httpd
                Please note, crond and all
OnApp's cron tasks remain running. They could be disabled by
stopping crond service manually for your own risk.

-D : Do not make database dump, and make
sure it is disabled in the cron and not running at the moment

-w : Do not disable iptables service.
                Is applicable on fresh installs only.

--quick|--quick-update[=SERVICE] : Proceed
with quick update procedure.
                This will skip update
and configure for services, like: system packages, MySQL database,
Redis Server, RabbitMQ Server, Monit service
                Set the SERVICE
parameter (space separated list of statements) to define services,
which update is needed.
                Possible reserved
statements are:
                rpms - for
'system packages' upgrade;
                mysql - for MySQL
database upgrade and configuring;
                redis - for Redis
Server upgrade and configuring;
                rabbitmq - for
RabbitMQ Server upgrade and configuring;
                monit - for Monit
upgrade and configuring.

--accept-eula : Automatically accept OnApp's End User
License Agreement
                (DEPRICATED)

```



```

-c CONFIG_FILE : Custom installer
configuration file. Otherwise, preinstalled one is used.

-h : print this info

```

Where:	
Database server options:	Default database SQL server is MySQL Server. Please use one of the following option to install LOCALLY.
--mariadb	MariaDB Server
--community	MySQL Community Server
--percona	Percona Server
--percona-cluster	Percona Cluster
MYSQL_*	Options are useful if MySQL is already installed and configured.
-m MYSQL_HOST	MySQL host. Default is 'localhost'
--mysql-port=MYSQL_PORT	TCP port where MySQL Server serves connections. Default values is 3306 for the local installation
--mysql-sock[=MYSQL_SOCKET]	Unix socket on which MySQL Server serves connections. Default values is /var/lib/mysql/mysql.sock. Used if local server only. The socket is unset if the option's argument isn't specified.
-p MYSQL_PASSWD	MySQL password. Random is generated if is not set or specified.
-d MYSQL_DB	OnApp MySQL database name. Default is 'onapp'
-u MYSQL_USER	MySQL user. Default is 'root'
REDIS_*	Options are useful if Redis Server is already installed and configured.
--redis-host=REDIS_HOST	IP address/FQDN where Redis Server runs. It is used by Control Panel to connect to Redis Server. The Redis Server will be installed and configured on the current box if localhost/127.0.0.1 or box's public IP address (listed in SNMP_TRAP_IPS) is specified. Default value is 127.0.0.1. If local Redis, it will serve as well on the unix socket 'PORT' (if --redis-sock without argument isn't specified).
--redis-bind[=REDIS_BIND]	The IP address for Redis Server to serve connections (to listen). The option isn't mandatory.
--redis-port=REDIS_PORT	Redis Server listen port. Defaults are: 0 - if local server 6379 - if remote server

Where:	
--redis-passwd[=REDIS_PASSWD]	Redis Server password to authenticate. Random password is generated if the option's argument isn't specified. By default no password is used for local Redis.
--redis-sock[=REDIS_SOCKET]:	Path to the Redis Server's socket. Used if local server only. Default is /var/run/redis/redis.sock. The socket is unset if the option's argument isn't specified.
ADMIN_*	Options are used to configure OnApp Control Panel administrator data. Please note, that these options are for NEW INSTALL only and not for upgrade
-P ADMIN_PASSWD	CP administrator password
-F ADMIN_FIRSTNAME	CP administrator first name
-L ADMIN_LASTNAME	CP administrator last name
-E ADMIN_EMAIL	CP administrator e-mail
--rbthost RBT_HOST	IP address/FQDN where RabbitMQ Server runs. The RabbitMQ will be installed and configured on the current box if localhost/127.0.0.1 or box's public IP address (enlisted in SNMP_TRAP_IPS) Default value is 127.0.0.1.
VCD_*	Options are usefull if vCloud/RabbitMQ are already installed and configured.
--vcdlogin VCD_LOGIN	RabbitMQ/vCloud user. Default value is 'rbtvcd'.
--vcdpasswd VCD_PASSWD	RabbitMQ/vCloud user password. The random password is generated if isn't specified.
--vcdvhost VCD_VHOST	RabbitMQ/vCloud vhost. Default value is '/'
RBT_*	Options are used to configure RabbitMQ manager account. If local RabbitMQ server.
--rbtlogin RBT_LOGIN	RabbitMQ manager login. The default value is 'rbtmgr'.
--rbtpasswd RBT_PASSWD	RabbitMQ manager password. The random password is generated if isn't specified.
--rake RAKE_TASKS	List of OnApp Control Panel rake tasks (separated with space) to run at the very end of install or upgrade.
-v ONAPP_VERSION	Install custom OnApp CP version. Please note that if there were significant changes in packages between the version you want to install and the current OnApp version, the installation might be unsuccessful.
-i SNMP_TRAP_IPS	IP addresses separated with coma for snmp to trap

Where:	
-y	Update OS packages (except of OnApp provided) on the box with 'yum update'.
-a	Is not interactive. Process with automatic installation. Please note, this will continue OnApp Control Panel install/upgrade even if there is transaction currently running.
-t	Add to the database and download Base Templates. For new installs only. If this option is not used, then only the following mandatory System Templates will be added by default during fresh install: OnApp CDN Appliance; Load Balancer Virtual Appliance; Application Server Appliance.
--noservices	Do not start OnApp services: monit, onapp and httpd. Please note, crond and all OnApp's cron tasks remain running. They could be disabled by stopping crond service manually for your own risk.
-D	Do not make database dump, and make sure it is disabled in the cron and not running at the moment.
--quick --quick-update[=SERVICE]	Proceed with quick update procedure. This will skip update and configuration for services, such as system packages, MySQL database, Redis Server, RabbitMQ Server, and Monit service. Set the SERVICE parameter (space separated list of statements) to define services, which need to be updated. Possible reserved statements are: <i>rpms</i> - for 'system packages' upgrade; <i>mysql</i> - for MySQL database upgrade and configuring; <i>redis</i> - for Redis Server upgrade and configuring; <i>rabbitmq</i> - for RabbitMQ Server upgrade and configuring; <i>monit</i> - for Monit upgrade and configuring.
--accept-eula	Automatically accept OnApp's End User License Agreement.
-c CONFIG_FILE	Custom installer configuration file. Otherwise, preinstalled one is used.
-h	Print this info

6. If required, start OnApp-related services.

3.2 Upgrade Cloud with CloudBoot and Static Servers (from 6.6)

To test the upgrade, you may first simulate the upgrade process on the test environment. For the instructions, refer to the [Configuring Control Panel Environment for Simulation Purposes](#) page.

This guide provides instructions on how to upgrade to OnApp 6.7 for a cloud that runs CloudBoot and Static servers. Follow the procedure below in the presented order to upgrade your cloud. Please follow the complete procedure of the upgrade process. All the packages

(Control Panel, Static, and CloudBoot compute resources) must belong to the same major version to ensure the best performance of your cloud.

On this page:

- [Upgrade Control Panel Server](#)
- [Upgrade Static Compute Resources](#)
- [Upgrade CloudBoot Compute Resources](#)

3.2.1 Upgrade Control Panel Server

To upgrade the Control Panel server, follow the procedure at [Upgrade Guide for Control Panel Server](#).

3.2.2 Upgrade Static Compute Resources

To upgrade static compute resources, follow the procedure at [Upgrade Static Compute Resources](#).

3.2.3 Upgrade CloudBoot Compute Resources

To upgrade CloudBoot compute resources, follow the procedure at [Upgrade CloudBoot Compute Resources](#).

3.3 Upgrade Cloud with Static Servers (from 6.6)

- CentOS 6 reached End of Life and is no longer supported. You can upgrade to [CentOS 7](#).
- To test the upgrade, you may first simulate the upgrade process on the test environment. For the instructions, refer to the [Configuring Control Panel Environment for Simulation Purposes](#) page.

This guide explains how to upgrade OnApp Cloud 6.6 to 6.7 for a cloud with static servers. Follow the procedure listed below in the provided order to upgrade your cloud. All the packages (Control Panel and Static compute resources) must belong to the same major version to ensure the best performance of your cloud.

On this page:

- [Upgrade Control Panel Server](#)
- [Upgrade Static Compute Resources](#)
- [Upgrade Static Backup Servers](#)

3.3.1 Upgrade Control Panel Server

To upgrade the Control Panel server, follow the procedure at [Upgrade Guide for Control Panel Server](#).

3.3.2 Upgrade Static Compute Resources

To upgrade static compute resources, follow the next procedure:

1. Make sure your compute resource is visible and online on the Control Panel.
2. Download the OnApp YUM repository file:

```
rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.7.noarch.rpm
```

3. Run the installer:

```
/onapp/onapp-hv-install/onapp-hv-kvm-install.sh
```

3.3.3 Upgrade Static Backup Servers

To upgrade static backup servers, follow the next procedure:

1. Download the OnApp YUM repository file:

```
rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.7.noarch.rpm
```

2. Upgrade OnApp backup server packages:

```
yum update onapp-storageAPI
```

3.4 Upgrade Cloud with Integrated Storage Static Servers (from 6.6)

Upgrade can be performed only on IS static compute resources without virtual servers. If any VSs are added to a compute resource, it is necessary to have at least two IS static compute resources to perform the upgrade the following way:

1. [Migrate](#) all VSs from one compute resource to other available compute resource in the compute zone with the required capacity.
2. [Upgrade](#) another compute resource which is now empty.
3. Migrate VSs from the next compute resource to the upgraded compute resource.
4. Repeat the process for all remaining compute resources.

To test the upgrade, you may first simulate the upgrade process on the test environment. For the instructions, refer to the [Configuring Control Panel Environment for Simulation Purposes](#) page.

This guide explains how to upgrade OnApp Cloud 6.6 to 6.7 for a cloud with Integrated Storage static servers. Follow the procedure listed below in the provided order to upgrade your cloud. All the packages (Control Panel and Integrated Storage Static compute resources) must belong to the same major version to ensure the best performance of your cloud.

On this page:

- [Upgrade Control Panel Server](#)
- [Upgrade Static Compute Resources with Integrated Storage \(CentOS7 KVM only\)](#)
- [Upgrade Backup Server with Integrated Storage \(CentOS7 KVM only\)](#)

3.4.1 Upgrade Control Panel Server

To upgrade the Control Panel server, follow the procedure at [Upgrade Guide for Control Panel Server](#).

3.4.2 Upgrade Static Compute Resources with Integrated Storage (CentOS7 KVM only)

To upgrade static compute resources with integrated storage, follow the next procedure:

1. Download the OnApp YUM repository file:

```
rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.7.noarch.rpm
```

2. Upgrade installer package:

```
yum update onapp-hv-install
```

3. Disable services monitoring (by monit, if used), stop storage controller and libvirt related services:

```
monit unmonitor all
/etc/init.d/SANController stop
systemctl stop libvirtd
/etc/init.d/storageAPI stop
```

4. Update system packages (if required):

```
/onapp/onapp-hv-install/onapp-hv-kvm-install.sh -y
```

5. Run compute resource installer (to update OnApp, compute resource and Integrated Storage components):

```
/onapp/onapp-hv-install/onapp-hv-kvm-install.sh
```

6. Reboot compute resource if it is requested by the installer (on step 3).
7. If reboot isn't required, remove the onapp-storage-startup.lock file:

```
rm -f /run/onapp-storage-startup.lock
```

8. If reboot isn't required, run Storage startup script:

```
/onapp/onapp-storage-startup/onapp-storage-startup.sh
```

3.4.3 Upgrade Backup Server with Integrated Storage (CentOS7 KVM only)

To upgrade backup servers with Integrated Storage, follow the next procedure:

1. Download the OnApp YUM repository file:

```
rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.7.noarch.rpm
```

2. Stop storage controller related services:

```
/etc/init.d/SANController stop
/etc/init.d/storageAPI stop
```

3. Update system packages (if required):

```
/onapp/onapp-bk-install/onapp-bk-install.sh -y
```

4. Run Backup Server installer (to update OnApp Backup Server and Integrated Storage components):

```
/onapp/onapp-bk-install/onapp-bk-install.sh
```

5. If reboot isn't required (you are on the recent kernel): remove the onapp-storage-startup.lock file:

```
rm -f /run/onapp-storage-startup.lock
```

6. If reboot isn't required (you are on the recent kernel): run Storage startup script:

```
/onapp/onapp-storage-startup/onapp-storage-startup.sh
```

3.5 Upgrade Cloud with CloudBoot Servers (from 6.6)

- CentOS 6 reached End of Life and is no longer supported. You may upgrade to [CentOS 7](#).
- To test the upgrade, you may first simulate the upgrade process on the test environment. For the instructions, refer to the [Configuring Control Panel Environment for Simulation Purposes](#) page.

Please note that for CloudBoot images, the default **ethX** style of the network interface naming scheme changed to the **BIOS** naming scheme, which can affect your custom_configs with custom bonds settings. To revert a network interface to its initial name, add the `net.ifnames=0` and `biosdevname=0` kernel parameter values to the `/tftpboot/pxelinux.cfg/template-centos7-kvm` template file.

This guide explains how to upgrade OnApp Cloud 6.6 to 6.7 for a cloud with static servers. Follow the procedure listed below in the provided order to upgrade your cloud. All the packages (Control Panel and Static compute resources) must belong to the same major version to ensure the best performance of your cloud.

On this page:

- [Upgrade Control Panel Server](#)
- [Upgrade CloudBoot Packages](#)
- [Upgrade CloudBoot Backup Servers](#)
 - [Simple Reboot](#)
 - [Migrate and Reboot](#)
 - [Live Upgrade](#)

3.5.1 Upgrade Control Panel Server

To upgrade the Control Panel server, follow the procedure at [Upgrade Guide for Control Panel Server](#).

3.5.2 Upgrade CloudBoot Packages

Create a backup of the /ftptboot directory in case the storage packages rollback is needed.

To upgrade the CloudBoot, proceed with the steps from one to six (1-3) on Control Panel box:

1. Upgrade the repo:

```
rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.7.noarch.rpm
```

2. Update the corresponding package(s):

```
yum update onapp-ramdisk-centos7-kvm onapp-store-install
```

After the packages installation, go to your Control Panel > **Admin** > **Settings** > **Configuration** icon and click the **Save Configuration** button.

3. Run the script:

```
/onapp/onapp-store-install/onapp-store-install.sh
```


Be aware that the disk-less nodes password is the root password for the CloudBoot compute resources. By default it is blank.

When run in the interactive mode, enter the required information.

3.5.3 Upgrade CloudBoot Backup Servers

Make sure to update CloudBoot packages on your Control Panel server before proceeding to the upgrade of CloudBoot backup servers.

CloudBoot backup servers are CloudBoot KVM compute resources that can be used as backup servers. The CloudBoot backup server upgrade procedure is almost the same as the CloudBoot compute resource upgrade. Follow the instructions provided in this section to upgrade CloudBoot backup servers in your cloud.

Once you have upgraded the CloudBoot dependencies, you have to reboot your CloudBoot compute resource to update the Cloud Boot RPM. You do not need to perform any backup server upgrade operations using console.

To do so:

1. Go to your Control Panel > **Admin** > **Settings** menu.
2. Click the **Compute Resources** icon.
3. Click the label of the CloudBoot compute resource the backup server is based on.
4. On the compute resource details screen, click the **Actions** button, then click **Reboot Compute resource**.
5. A new screen will open asking for confirmation before reboot:
 - **Are you sure you want to reboot this compute resource?** Confirm that you want the compute resource to reboot.
6. When you're certain you want to proceed with the reboot, click the **Reboot** button.
7. Repeat these steps for all CloudBoot backup servers in your cloud.
8. Once all are rebooted, proceed to CloudBoot compute resources upgrade.

Upgrade CloudBoot Compute Resources

Depending on the infrastructure, scale and needs of your cloud we suggest the following methods of upgrading CloudBoot compute resources:

Simple Reboot	It is the simplest method technically. It also ensures all tools are updated. However, it will result in some limited downtime (its duration depends on how many virtual servers are running on each compute resource).
Migrate and Reboot	This method involves migrating all virtual servers off each CloudBoot compute resource in turn. The compute resource can then be safely rebooted, picking up the upgraded Integrated Storage and CloudBoot packages. Virtual servers that do not support hot migrate will have to be stopped.
Live Upgrade	This method upgrades the Integrated Storage platform only. As no server rebooting is required, all virtual servers remain online during the upgrade. There is

almost no risk of data loss and zero downtime. However, this method does not update the CloudBoot OS.

In case you have applied any custom configuration to your CloudBoot servers, it is recommended to recheck that this customization does not break new cloud boot image version. For this, reboot a compute resource and run [Storage Health Check](#) and [Network Health Check](#). Make sure that vDisks hosted on a compute resource are redundant and healthy before rebooting a CloudBoot compute resource.

If you are using the [auto healing](#) functionality for Integrated Storage, make sure to disable it before an upgrade.

3.5.3.1 Simple Reboot

Follow the below procedure to upgrade the CloudBoot compute resources with reboot:

1. Upgrade CloudBoot Packages.
2. When the CloudBoot packages upgrade is complete, stop all virtual servers which reside on the CloudBoot compute resources.
3. Reboot all CloudBoot compute resources.

Once the compute resources are booted, the upgrade is complete. Before starting all virtual servers please ensure that the diagnostics page does not report any issue. In case of any issue, please click repair button to resolve it, then continue with starting virtual servers.

Note that virtual servers cannot be stopped simultaneously, but must be stopped in sequence. This can result in considerable downtime if there are a large number of virtual servers.

3.5.3.2 Migrate and Reboot

Use this procedure if you prefer migrating all virtual servers to another compute resource and conducting overall upgrade of your CloudBoot and Integrated Storage. Virtual servers that do not support hot migrate will have to be stopped.

Once you have upgraded the CloudBoot packages, you have to reboot your CloudBoot compute resources to update them.

To do so:

1. Run the following command from the Control Panel server terminal to display the list of compute resources with their IP addresses. Make a note of the list of IPs:

```
CP_host# liveUpdate listHVs
```

If the command *liveUpdate* is not available, then it may be located in the sbin directory instead (`cd /usr/local/sbin`).

2. Migrate all the virtual servers from the CloudBoot compute resource to another compute resource. Follow the instructions described in the [Migrate Virtual Server](#) section of the Admin guide to migrate virtual servers.

Before you migrate, reboot, or start up virtual servers, please ensure that *grub2.img* is present on the destination compute resource in the */onapp/tools*

directory. To add the file to all compute resources, please run the following commands on the Control Panel server before the corresponding actions:

```
cd /onapp/;wget
http://templates.repo.onapp.com/Linux/grub2.img
for i in `cat /onapp/configuration/dhcp/dhcpd.conf | grep
fixed | sed 's/;/;' | awk '{print $2}'`; do echo -n "$i -
> "; scp /onapp/grub2.img $i:/onapp/tools/; done
```

3. After that, go to your Control Panel > **Admin** > **Settings** menu.
4. Click the **Compute Resources** icon.
5. Click the label of the CloudBoot compute resource you have migrated all VSs from.
6. On the compute resource details screen, click the **Actions** button, then click **Reboot Compute resource**.

Rebooting a compute resource assigned to a data store with a single replica (single-replica compute resource) or degraded virtual disks may result in data loss.

7. A new screen will open asking for confirmation (via two check boxes) before reboot:
 - **Stop all virtual servers that cannot be migrated to another compute resource?** Check this box if you want VSs that cannot be migrated to be powered off. When a compute resource is scheduled for a reboot, OnApp will first attempt to hot migrate all VSs it hosts. If hot migration is not possible for a VS, OnApp will attempt to cold migrate that VS. With this box checked, if cold migration fails, the VS will be stopped so the reboot may proceed. If you don't check this box, OnApp will attempt to hot and then cold migrate all VSs hosted by the compute resource being rebooted – but will stop the migration process if any VS cannot be migrated.
 - **Are you sure you want to reboot this compute resource?** A simple confirmation to confirm that you want the compute resource to reboot.

Before the reboot, please ensure that all vDisks are fully synced and redundant. If some of them are not fully synced, the virtual server, that is owner of a degraded (or non-redundant) vDisk, can loose access to the vDisk. It can be manifested as IO errors during writes or reads to/from the vDisk inside the virtual server.

8. When you're certain you want to proceed with the reboot, click the **Reboot** button.
9. Repeat these steps for all CloudBoot compute resources in your cloud.

3.5.3.3 Live Upgrade

Live Upgrade is only applicable if your cloud is running the latest 6.6 CloudBoot RPM.

- Live Upgrade with passthrough is currently unsupported. Passthrough to storage means that the network interface will be added to the Storage Controller Server without the bond and the Storage Controller Server will have complete control over this interface.

- During the CloudBoot compute resource live upgrade, only the control stack for managing integrated storage is upgraded. Other changes come into effect after the compute resource is next rebooted. Due to this, hot migration may fail between compute resource which is already rebooted and the one that hasn't.
- Do not make any changes to the cloud during the upgrade.
- Any offline CloudBoot compute resources should be removed from the CP server before running the live upgrade, as the scripts expect to be able to speak to all compute resources during these steps.
- Refer to [Upgrade Integrated Storage](#) to learn the minimum Integrated Storage version required for the current update to be performed in Live Upgrade mode.

Use this procedure to upgrade without rebooting your servers:

1. Make sure no disks are out of sync. To check the diagnostics page, go to your Control Panel > **Storage** > compute zone label > **Diagnostics** menu. Alternatively, log in to a compute resource and run the command below:

```
IV_host#> getdegradedvdisks
```

2. Repair all the degraded disks before proceeding to the upgrade process. To do so, go to your Control Panel > **Storage** > compute zone label > **Diagnostics** menu. Alternatively, run one of the following commands:

- o To repair a specific vDisk, use the following command:

```
IV_host#> onappstore repair uuid=
```

- o To repair all vDisks one by one, use the following command:

```
IV_host#>repairvdisks
```

- o To repair all vDisks in 10 threads simultaneously, use the following command:

```
IV_host#> parallelrepairvdisks
```

Please note that *parallelrepairvdisks* command performs the repairs much faster but impacts the Integrated Storage SAN network. The vDisk performance may be slower during the repair.

In case you have a Cloudboot backup server, you can perform these commands on the backup server. The repairs will be triggered across all CloudBoot compute zones.

3. Run the following command from the CP server to stop the OnApp service:

```
CP_host#> systemctl stop onapp
```

4. Stop the Apache server:

```
CP_host#> service httpd stop
```

5. Make sure to [update CloudBoot packages](#) before proceeding to the following steps.
6. Run the following command from the Control Panel server terminal to display the list of compute resources with their IP addresses. Make a note of the list of IPs:

```
CP_host#> liveUpdate listHVs
```

This command will also show whether compute resources are eligible for the live upgrade.

If the command *liveUpdate* is unavailable, it may be located in the *sbin* directory instead (`cd /usr/local/sbin`).

7. Run the following command for every compute resource:

```
CP_host#> liveUpdate updateToolstack <HV IP Addr>
```

Once all the toolstacks are updated, run the following command for every compute resource:

```
CP_host#> liveUpdate refreshControllers <HV IP Addr>
```

Wait several minutes for all degraded disks to come to a synchronized state. The synchronization will take approximately three minutes for each compute resource.

After each controller restart, check for any issues on the backup server (or on one compute resource from each zone):

1. Log on to the backup server (or compute resource) via SSH.
2. Run *getdegradednodes* from the SSH console.
3. Run *getdegradedvdisks* from the SSH console.

8. Restart the storage controllers. This command can be performed later at a more suitable time.

Run the following command for each compute resource in turn:

```
CP_host#> liveUpdate restartControllers <HV IP Addr>
```

Please make sure you restart all controllers and don't leave your cloud in a partially updated state for too long. Note that you cannot use the disk hot plug when operating in LiveUpdate mode (for example, with the tool stacks updated but before you have performed the controller restart).

After each controller restart, check for any issues on the backup server or one compute resource from each zone:

1. Log on to the backup server (or compute resource) via SSH.
 2. Run *getdegradednodes* from the SSH console.
 3. Run *getdegradedvdisks* from the SSH console.
- If there are any issues seen, please rectify them before continuing with the next controller restart.

9. Run the following command on each compute resource to make sure the package versions are upgraded:

```
IV_host#> cat /onapp/onapp-store-install.version
```

10. Start the Apache server:

```
CP_host#> service httpd start
```

11. Start the OnApp service:

```
CP_host#> service onapp start
```

3.6 Upgrade Backup Plugin for Veeam

If you use a Veeam backup plugin, run the following:

1. Log into your Control Panel box via ssh as a root.
2. Update Veeam backup plugin package:

```
# yum update onapp-cp-backups-veeam
```

3. Restart OnApp services:

```
# systemctl restart httpd onapp
```

4 Upgrade Integrated Storage.

IS version upgrading to	6.0	6.1	6.2	6.3	6.5	6.6	6.7
Upgrade by Simple Reboot	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upgrade by Migrate and Reboot	Yes	Yes	Yes	Yes	No	Yes	Yes
Upgrade by Live Upgrade	No	No	No	No	No	No	Yes

Yes - recommended by OnApp

N/A - not recommended by OnApp, will not update properly CloudBoot OS or Integrated Storage

No - not available in the corresponding release

4.1 General information and recommendations about CloudBoot OS and Integrated Storage upgrades

Starting with OnApp 5.0 LTS, we have made some changes to updates for CloudBoot OS and Integrated Storage. CloudBoot OS upgrades that include security patches, kernel upgrades, and updated drivers will be released on a regular basis. If a security patch was released by CentOS, it will be included in the next released RPM. These releases may not include updates for Integrated Storage, a component of CloudBoot OS, as this platform is stable and does not require changes with every release.

For the best experience, stability, and security, OnApp recommends that the CloudBoot compute resources should be upgraded by reboot at a convenient time if a new CloudBoot RPM is released. This is required to completely apply the security patches, kernel upgrades, and updated drivers.

Integrated Storage as a platform does not strictly require a CloudBoot compute resource to be rebooted after the upgrade. However, in case of critical updates and fixes, it may be required to reboot a CloudBoot compute resource for them to take full effect.

4.2 Update Methods

Simple Reboot

This upgrade method requires rebooting CloudBoot compute resources with all virtual servers powered off to apply security patches, kernel upgrades, and updated drivers to CloudBoot OS. Simple Reboot is the fastest and the safest way to upgrade but does result in some downtime for virtual servers. Integrated Storage virtual disks do not become degraded. This upgrade method also upgrades the Integrated Storage platform as a component of CloudBoot OS.

Migrate and Reboot

This upgrade method requires rebooting CloudBoot compute resources to apply security patches, kernel upgrades, and updated drivers to CloudBoot OS and Integrated Storage. Your virtual servers will remain online. You only need to migrate them from CloudBoot compute resources that will be rebooted. Keep in mind that it is required to repair any degraded virtual disks before proceeding with the reboot.

Live Upgrade

This upgrade method upgrades the Integrated Storage platform only. The procedure provides that your virtual servers will remain online. There is almost no risk of data loss and zero downtime. However, this method does not update the CloudBoot OS. You will not get the security patches, kernel upgrades, and updated drivers if they are included in the release.

Each CloudBoot OS image is divided into a separate package for better experience and support, starting with the 5.3 version. For example, if the CentOS 6 Xen CloudBoot OS image receives a security patch, it will be updated and released by OnApp. Only this image will be downloaded during the upgrade, saving internet traffic and time.

Please contact our Support team if you are unsure which upgrade method suits you.

5 Getting Support for Upgrade

You can use the instructions in this guide to upgrade your OnApp Cloud. If you have a full OnApp Cloud license, you can receive free upgrade support from the OnApp Support team. If you prefer to have the Support team perform the upgrade for you, [submit a request](#) to schedule the upgrade.

All installation, upgrade, and integration requests are fulfilled in the order they are received. The OnApp teams that take care of these activities are based in GMT+2 (GMT+3 during the Daylight Saving Time) time zone, which means that install, upgrade and integration work happens during UK office hours.

We do everything we can to accommodate your preferred date and time for these services, but we regret that it is not always possible to complete these activities at the specific time you request. However, if you have a critical requirement to conduct maintenance during a specific time window, we will be happy to provide an additional quote for the work that needs doing – please contact your account manager to get started.

You can also refer to the following sources when you need help:

5.1 Professional Services

Get in touch with our [Professional Services](#) to get expert help from launch to production and beyond.

5.2 Community

Visit [Community](#) where you can share your feedback and product ideas.

5.3 Knowledge Base

Visit [Knowledge Base](#) where you can find a lot of how-to articles to resolve questions that you may face while working with OnApp.

5.4 Documentation

You are now located in one of the OnApp documentation spaces that is [Upgrade Guide](#). Go to [Documentation Home](#) to browse other available spaces.

6 Estimated Time for Upgrade

The information below is a guidance of how long each section of the OnApp upgrade process will potentially take for an upgrade between a single sequential release. It should not be taken as a guarantee of upgrade time. There is a number of factors which affect this timing in either direction.

Preupgrade checks

20 minutes

Upgrade of OnApp Storage/CloudBoot tools

15 minutes with fast download speed

45 minutes with medium download speed

90+ minutes with slow download speed

Upgrade of CloudBoot Compute Resources (liveupgrade method)

10 minutes per compute resource

1 minute per Windows-based virtual server (to cover stopping/starting)

Upgrade of CloudBoot Compute Resources (reboot method)

1 minute per virtual server (to cover stopping/starting)

30 minutes to reboot compute resources and perform the required checks

Upgrade of Static Compute Resources

10 minutes per compute resource (in some cases can be run in parallel)

Upgrade of Static Backup Servers

10 minutes per backup server

Upgrade of CloudBoot Backup Servers

10 minutes for a reboot

Upgrade of OnApp CP

OnApp database size:

Up to 1 GB = 15 minutes

Up to 3 GB = 40 minutes

Up to 6 GB = 70 minutes

Up to 10 GB = 120 minutes