

OnApp Cloud 6.2 Edge 1 Upgrade Guide

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This guide provides instructions on how to upgrade OnApp Cloud to the 6.1 version. You can update to OnApp 6.1 from OnApp 5.5, 6.0, 6.1 Edge 1 and 6.1 Edge 2. OnApp 6.1 is a new stable version that introduces a lot of new features, improvements, and fixes. Depending on the version that you have, refer to one of the following documentation sets.

Upgrade from OnApp 5.5

- [Upgrade Control Panel Server](#)
- [Upgrade Cloud with CloudBoot Servers](#)
- [Upgrade Cloud with Static Servers](#)
- [Upgrade Cloud with CloudBoot and Static Servers](#)
- [Upgrade Integrated Storage](#)

Upgrade from OnApp 6.0

- [Upgrade Control Panel Server](#)
- [Upgrade Cloud with CloudBoot Servers](#)
- [Upgrade Cloud with Static Servers](#)
- [Upgrade Cloud with CloudBoot and Static Servers](#)
- [Upgrade Integrated Storage](#)

Upgrade from OnApp 6.1 Edge 1/2

- [Upgrade Control Panel Server](#)
- [Upgrade Cloud with CloudBoot Servers](#)
- [Upgrade Cloud with Static Servers](#)
- [Upgrade Cloud with CloudBoot and Static Servers](#)
- [Upgrade Integrated Storage](#)

1 What's New

The OnApp Cloud 6.1 release provides numerous features and improvements. You can find the list of all key enhancements at [Release Notes](#).



1.1 New UI

New OnApp [user interface design](#) is better thanks to avoiding over-loaded menus and pages. This version of the user interface is more natural and helps to improve the user experience in general. All the components on the left sidebar are logically grouped into five separate tabs to facilitate navigation.



1.2 Clone VS

[Cloning a virtual server](#) allows users to create a copy based on the same resources as the origin virtual server. Enabling users to clone virtual servers with a one-click option facilitates the process of managing workloads.



1.3 Virtual Routers

[Virtual routers](#), a new type of virtual servers, are another part of improved OnApp networking model. Virtual routers allow users to setup routing for their private networking without asking cloud owner. After converting virtual servers to virtual routers, users can manage their IP nets routing on their own.



1.4 Private Networks

OnApp networking model has been improved with the introduction of [private networks](#). This functionality allows users to manage their private networks independently from the cloud owner.

It saves time spent on end user networking configuration and provides an additional level of security for private networks as all traffic inside SDN is isolated.



1.5 Integrated Storage on Static Compute Resources

Previously running [integrated storage](#) on CloudBoot compute resources was the only option that OnApp users had. Now they can run integrated storage not only on CloudBoot but also on [Static compute resources](#). Enabling this functionality is available for new static compute resources.



1.6 IP Reporting

[IP reporting](#) gives possibility to track the IP history, which is a legal requirement in some countries. With this feature, you can view when the IP addresses were assigned or unassigned to a particular user and so prevent the illegal activity such as spamming or hacking.



1.7 TRIM

[Trim](#) is a command that enables an operating system to inform an SSD that some blocks of data, such as deleted files, are no longer used and can be wiped internally. The Trim functionality is essential for budget oriented customers who want to decrease SSD (Solid State Drive) wear level by reducing the amount of writes to blocks.



1.8 VS Fluidity

Now you can [migrate virtual servers](#) between hypervisors that don't share the same network and so enable workloads portability between hypervisors within any OnApp cloud. Before this option was available, OnApp allowed users to migrate virtual servers only between hypervisors that shared the same network.

2 Upgrade from OnApp 5.5

The guides in this section apply to upgrading to the OnApp 6.1 from the 5.5 version.

2.1 Upgrade Notes (5.5 to 6.1)

OnApp 6.1 is a new stable version that introduces a lot of new features, improvements, and fixes. Before upgrading to OnApp 6.1, read these upgrade notes to get ready for the upgrade.

On this page:

[Before You Upgrade](#)

[Important Notes](#)

[Billing Changes](#)

[Troubleshooting](#)

2.1.1 Before You Upgrade

2.1.2

If you feel that you need an assistance with any of the following steps, please get in touch with [OnApp Support](#) before you begin to upgrade.

Before you upgrade, we strongly recommend you to do the following:

1. Check the *character_set_database* and *collation_database* variables on your database server. If you have non-Latin values applied for character set and collation, edit the following parameters in the *my.cnf* file before the upgrade.

```
character-set-server=utf8
collation-server=utf8_general_ci
```

[Access the MySQL database server](#) and run the following SQL statement:

```
ALTER DATABASE onapp CHARACTER SET utf8 COLLATE utf8_general_ci;
```

After you save the changes, restart your SQL server.

2. Archive your billing statistics to speed up the upgrade process. This step is important if you have a lot of billing statistics records on your system. You can apply the following procedure to archive your statistics:
 - Edit the *Time of hourly statistics storage (months)* parameter at **Settings > Configuration > [System Configuration](#)** on your Control Panel. For example, if you set the parameter to 10, the hourly statistics is stored for the current month and the ten previous months, while everything older than ten months is archived.
 - Run the following commands to archive statistics for the period you specified in the previous step.

```
su -l onapp
cd /onapp/interface/
RAILS_ENV=production rake billing:archive_hourly_stats
```

When the *rake billing:archive_hourly_stats* task is run, your Control Panel cannot be accessed. The longer the period to archive statistics is, the more time it takes to complete the rake task. If you want to archive statistics for a long period of time, please consider

repeating the procedure and set a short period for the *Time of hourly statistics storage (months)* parameter. In such a way, you could gradually archive statistics and the rake task would run faster for each short period of time.

2.1.3 Important Notes

Take into consideration the important notes related to the upgrade to OnApp 6.1:

2.1.3.1 Billing

- After the upgrade, your billing plans will be migrated into [buckets](#). The Master Bucket and Master Template were removed. Buckets consist of Access Control where you can give users access to cloud resources and Rate Card where you can set prices for the usage of these resources. The Access Control and Rate Card are arranged according to the types of resources available in your cloud, such as virtual, smart, baremetal, and others.
- If your buckets are empty after the upgrade, users have no access to resources available in your cloud. Add resources to Access Control to make them available to users. For more information about the logic of migration from billing plans to buckets, see [Billing Changes](#).

2.1.3.2 API

- If you have an API integration, please test your upgrade in a non-production environment before upgrading your production environment.
- The API requests related to [billing plans](#) can be applied to plans that were created before the upgrade. If you create new buckets after the upgrade, please use [new API requests](#).

2.1.3.3 Control Panel Server

- To avoid issues with the lack of free space during the upgrade, make sure that you run your Control Panel server on two SSD disks (2 x 500 GB). For more information, see [Hardware Specifications](#).
- You need to run the latest patch of OnApp 5.5 to upgrade to the 6.1 version. If you are using an earlier version, please [upgrade to 5.5](#) first.
- Check the Activity Log in your OnApp CP if there are no transactions running in your cloud. If so, wait until all transactions are complete.
- Make sure no Control Panel files are open for editing under the root user account.
- If you use custom languages on your CP, after the update follow the procedure at [How to import custom languages after an upgrade](#) to import a custom locale.
- We strongly recommend that you test all your custom scripts before upgrading your production environment.

2.1.3.4 Huge Pages

- During OnApp testing and improvement process, we have found differences between qemu-kvm versions with Huge Pages enabled. Earlier qemu-kvm versions ignored the absence of Huge Pages reserved on the compute resource and allowed to run or migrate virtual servers. Recent qemu-kvm versions do not allow to run virtual servers if Huge Pages are not reserved.
- To resolve differences, Huge Pages were replaced by Transparent Huge Pages that are enabled by default on static compute resources.
- To hot migrate VSs with Huge Pages enabled during upgrade to 6.1, configure Huge Pages [manually](#) on the destination compute resource. Once a VS have been rebooted or power cycled via the OnApp UI/API post 6.1, you do not have to configure Huge Pages manually since Transparent Huge Pages will be used. It only applies to VSs which had Huge Pages enabled before upgrade until they have been power cycled.

2.1.3.5 CloudBoot Servers

- If you use Integrated Storage, refer to the [OnApp IS Upgrade Paths](#) for more information about the upgrade details.
- When upgrading CloudBoot CentOS 7 KVM compute resources, you may face dangling device mappers. This is a known issue that doesn't affect the upgrade and that will be fixed in the future OnApp releases.
- When upgrading Xen-based compute resources from 4.4 to 4.8, only the cold migration option is available.
- If you use the [auto-healing](#) functionality for Integrated Storage, make sure to disable it before the upgrade.
- Drives assigned for use by Integrated Storage are identified using a disk signature that is generated by the SCSI page query mechanism to the device. Please note that disk signatures may change across different kernel versions following an upgrade and reboot. If this occurs, go to the compute resource edit page to re-identify and select the correct drives. Please contact support if you have any concerns regarding this operation.
- To enable Transparent Huge Pages for CentOS 6 and CentOS 7 CloudBoot KVM compute resources, run the following command in the custom config file:

```
echo always > /sys/kernel/mm/transparent_hugepage/enabled
```

2.1.3.6 Static Servers

- When upgrading Xen-based compute resources from 4.4 to 4.8, only the cold migration option is available.
- OnApp does not support UEFI on static compute resources. You should disable UEFI on your compute resources before upgrading.

2.1.3.7 Known Issues

See the list of [Known Issues](#) related to OnApp 6.1.

2.1.4 Billing Changes

In OnApp 5.6, billing plans were substituted by buckets. Buckets enable you to set up resources allocation and pricing separately; the master bucket and master template have been removed. Buckets are subdivided into two tabs:

- *Access Control* - in this section you configure the resources allocation for the users under this bucket. If you assign a bucket to a user, that user will have access only to those resources which you have added to the bucket. If no resources are added to a section of the Access Control, e.g. compute zones, the user under the bucket will not have access to any of the compute zones in the cloud.
- *Rate Card* - in this section you set up prices for the resources and the amount of resources users can request for free. Users under the bucket will be billed according to the prices you configure in the Rate Card.

These tabs are further subdivided into sections that depend on the server types of resources you have in the cloud:

- *Virtual* - the server type under which Xen, KVM, or CloudBoot compute, data store, network and backup server zones of the virtual server type can be created.
- *Smart* - the server type under which KVM compute, data store, network and backup server zones of the smart type can be added.

- *Baremetal* - the server type under which Xen compute and network zones of the baremetal type can be added.
- *VPC* - the server type that *includes* vCloud Director compute, data store and network zones.
- *Other* - the resources that relate to the system and do not have a server type. This section includes template stores, edge groups, recipes, and service add-on groups.

For detailed information, refer to [Buckets](#).

Your billing plans from OnApp 5.5 have been merged into buckets. The billing stats tables have been arranged in a new way. Sometimes, due to some table discrepancies your data for certain months can differ from the actual data in DB tables. Nonetheless, the final total amount before and after upgrade will be the same.

are merged into buckets, following the logic described in the table below.

Server type	Case	Migration behavior
Virtual	Empty billing plan	<p>Access Control:</p> <ul style="list-style-type: none"> • all resources in the <i>Miscellaneous</i> section (these were previously the <i>User VS Limits</i>) will be added and their limits will be set to <i>unlimited</i> • all template stores, recipe groups and service add-on groups in the cloud will be added to the corresponding sections in the <i>Other</i> tab of the Access Control • none of the edge groups in the system will be added to the Access Control • all data store zones which have SolidFire will be added to the <i>Guaranteed minIOPS</i> section with all limits set to <i>unlimited</i> • all resources of the <i>virtual</i> type will be added to the Access Control with all limits set to <i>unlimited</i>. These resources include XEN/KVM/vCenter compute zones, data store, network, and backup server zones of the <i>virtual</i> type <p>Rate Card:</p> <ul style="list-style-type: none"> • the prices for individual templates will be set according to the prices you have previously configured for these templates in the template store • the prices for individual service add-ons will be set according to the prices you have previously configured for these service add-ons in the service add-on groups • for all other resources (IPs, CPU, RAM, etc.) prices and free limits will be set to '0', meaning that the resource usage is free
	Filled-in billing plan	<p>Access Control:</p> <ul style="list-style-type: none"> • Only the resources you have previously added will be added to the Access Control. The same limits that were configured prior to the upgrade to 6.1 will be set in the bucket.

Server type	Case	Migration behavior
		<p>Rate Card:</p> <ul style="list-style-type: none"> Only the resources for which the prices were previously configured will be added to the Rate Card. The same prices and free limits that were configured prior to the upgrade to 6.1 will be set in the bucket.
	Master Bucket	<p>If there was only the master bucket and no other compute zones added to the billing plan:</p> <ul style="list-style-type: none"> all compute zones of the <i>virtual</i> type will be added to the bucket with the same prices and limits as those that were set in the master bucket <p>If there were some compute zones that used the master bucket and other which had custom limits and prices:</p> <ul style="list-style-type: none"> the compute zones that used the master bucket will be added with the same prices and limits as those that were set in the master bucket the compute zones which had custom limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1 <p>If the master bucket was not used and there were only compute zones with custom limits and prices:</p> <ul style="list-style-type: none"> all the compute zones which had custom limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1
	Master template	<p>If there was only the master template and no other data store/network zones added to the billing plan:</p> <ul style="list-style-type: none"> all data store/network zones of the <i>virtual</i> type will be added to the bucket with the same prices and limits as those that were set in the master template <p>If there were some network/data store zones that used the master template and other which had custom limits and prices:</p> <ul style="list-style-type: none"> the network/data store zones that used the master bucket will be added with the same prices and limits as those that were set in the master template the network/data store zones which had custom limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1 <p>If the master template was not used and there were only network/data store zones with custom limits and prices:</p> <ul style="list-style-type: none"> all the network/data store zones which had custom

Server type	Case	Migration behavior
		<p>limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1</p>
Smart	Empty billing plan	<p>Access Control:</p> <ul style="list-style-type: none"> all resources in the <i>Miscellaneous</i> section (smart servers, templates, ISO's & backups storage and backups) will be added and their limits will be set to <i>unlimited</i> all template stores, recipe groups and service add-on groups in the cloud will be added to the corresponding sections in the <i>Other</i> tab of the Access Control none of the edge groups in the system will be added to the Access Control all resources of the <i>smart</i> type will be added to the Access Control with all limits set to <i>unlimited</i>. These resources include KVM compute zones, data store, network, and backup server zones of the <i>smart</i> type <p>Rate Card:</p> <ul style="list-style-type: none"> the prices for individual templates will be set according to the prices you have previously configured for these templates in the template store the prices for individual service add-ons will be set according to the prices you have previously configured for these service add-ons in the service add-on groups for all other resources (IPs, CPU, RAM, etc.) prices and free limits will be set to '0', meaning that the resource usage is free
	Filled-in billing plan	<p>Access Control:</p> <ul style="list-style-type: none"> Only the resources you have previously added will be added to the Access Control. All resources in the <i>Miscellaneous</i> section (smart servers, templates, ISO's & backups storage and backups) will be set to <i>unlimited</i>. All the other resources of the <i>smart</i> type that were configured prior to the upgrade to 6.1 will be set in the bucket as they were set in the billing plan. <p>Rate Card:</p> <ul style="list-style-type: none"> Only the resources for which the prices were previously configured will be added to the Rate Card. All resources in the <i>Miscellaneous</i> section (templates, ISO's & backups storage and backups) will be migrated without prices. Prices for other resources of the <i>smart</i> type that were configured prior to the upgrade to 6.1 will be set in the

Server type	Case	Migration behavior
		<p>bucket as they were set in the billing plan.</p> <p>After the upgrade, you can configure limits and prices for resources in the <i>Miscellaneous</i> section of the bucket by following instructions from the Configure Resource Allocation And Prices section of the Administration Guide.</p>
	Master Bucket	<p>If there was only the master bucket and no other compute zones added to the billing plan:</p> <ul style="list-style-type: none"> all compute zones of the <i>smart</i> type will be added to the bucket with the same prices and limits as those that were set in the master bucket <p>If there were some compute zones that used the master bucket and other which had custom limits and prices:</p> <ul style="list-style-type: none"> the compute zones that used the master bucket will be added with the same prices and limits as those that were set in the master bucket the compute zones which had custom limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1 <p>If the master bucket was not used and there were only compute zones with custom limits and prices:</p> <ul style="list-style-type: none"> all the compute zones which had custom limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1
	Master template	<p>If there was only the master template and no other data store/network zones added to the billing plan:</p> <ul style="list-style-type: none"> all data store/network zones of the <i>smart</i> type will be added to the bucket with the same prices and limits as those that were set in the master template <p>If there were some network/data store zones that used the master template and other which had custom limits and prices:</p> <ul style="list-style-type: none"> the network/data store zones that used the master bucket will be added with the same prices and limits as those that were set in the master template the network/data store zones which had custom limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1 <p>If the master template was not used and there were only network/data store zones with custom limits and prices:</p> <ul style="list-style-type: none"> all the network/data store zones which had custom limits and pricing will be added to the bucket with the

Server type	Case	Migration behavior
		<p>same limits and prices as those that were set prior to the upgrade to 6.1</p>
Baremetal	Empty billing plan	<p>Access Control:</p> <ul style="list-style-type: none"> • all resources in the <i>Miscellaneous</i> section (baremetal servers) will be added and their limits will be set to <i>unlimited</i> • all template stores, recipe groups and service add-on groups in the cloud will be added to the corresponding sections in the <i>Other</i> tab of the Access Control • none of the edge groups in the system will be added to the Access Control • all resources of the <i>baremetal</i> type will be added to the Access Control with all limits set to <i>unlimited</i>. These resources include XEN compute and network zones of the <i>baremetal</i> type. <p>Rate Card:</p> <ul style="list-style-type: none"> • the prices for individual templates will be set according to the prices you have previously configured for these templates in the template store • the prices for individual service add-ons will be set according to the prices you have previously configured for these service add-ons in the service add-on groups • for all other resources (IPs) prices and free limits will be set to '0', meaning that the resource usage is free
	Filled-in billing plan	<p>Access Control:</p> <ul style="list-style-type: none"> • Only the resources you have previously added will be added to the Access Control. The same limits that were configured prior to the upgrade to 6.1 will be set in the bucket. <p>Rate Card:</p> <ul style="list-style-type: none"> • Only the resources for which the prices were previously configured will be added to the Rate Card. The same prices per IP for powered-on baremetal servers and free limits that were configured prior to the upgrade to 6.1 will be set in the bucket. Prices per IP for powered-off baremetal servers are not migrated and not configured in the bucket. <p>After the upgrade, you can configure limits in the <i>Miscellaneous</i> section of the bucket by following instructions from the Configure Resource Allocation And Prices section of the Administration Guide.</p>
	Master	If there was only the master bucket and no other compute

Server type	Case		Migration behavior
	Bucket		<p>zones added to the billing plan:</p> <ul style="list-style-type: none"> all compute zones of the <i>baremetal</i> type will be added to the bucket with the same prices and limits as those that were set in the master bucket <p>If there were some compute zones that used the master bucket and other which had custom limits and prices:</p> <ul style="list-style-type: none"> the compute zones that used the master bucket will be added with the same prices and limits as those that were set in the master bucket the compute zones which had custom limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1 <p>If the master bucket was not used and there were only compute zones with custom limits and prices:</p> <ul style="list-style-type: none"> all the compute zones which had custom limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1
	Master template		<p>If there was only the master template and no other network zones added to the billing plan:</p> <ul style="list-style-type: none"> all network zones of the <i>baremetal</i> type will be added to the bucket with the same prices and limits as those that were set in the master template <p>If there were some network zones that used the master template and other which had custom limits and prices:</p> <ul style="list-style-type: none"> the network zones that used the master bucket will be added with the same prices and limits as those that were set in the master template the network zones which had custom limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1 <p>If the master template was not used and there were only network zones with custom limits and prices:</p> <ul style="list-style-type: none"> all the network zones which had custom limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1
VPC	User billing plan	Empty billing plan	<p>Access Control:</p> <ul style="list-style-type: none"> the <i>Virtual Server</i> limit in the <i>Miscellaneous</i> section of the Access Control will be set to unlimited the <i>Application Server</i> limit in the <i>Miscellaneous</i>

Server type	Case		Migration behavior
			<p>section of the Access Control will be set to unlimited</p> <ul style="list-style-type: none"> all the compute zones of the <i>vpc</i> type will be added to the Access Control and the <i>VS CPU Cores</i> and <i>VS RAM</i> parameters in these zones will be set to unlimited all the data store zones of the <i>vpc</i> type will be added to the Access Control and the <i>VS Disk Size</i> parameter in these zones will be set to unlimited all the network zones of the <i>vpc</i> type will be added to the Access Control and the <i>VS IP Addresses</i> parameter in these zones will be set to unlimited <p>Rate Card:</p> <ul style="list-style-type: none"> no prices and free limits will be set for vCloud Director resources in the Rate Card meaning that resource usage is free
		Filled-in billing plan	<p>Access Control:</p> <ul style="list-style-type: none"> The <i>Virtual Server</i> limit in the <i>Miscellaneous</i> section of the Access Control will be set to the value configured prior to the upgrade to 6.1. If this value was not configured previously, it will be set to <i>unlimited</i>. The <i>Application Server</i> limit in the <i>Miscellaneous</i> section of the Access Control will be set to the value configured prior to the upgrade to 6.1. If this value was not configured previously, it will be set to <i>unlimited</i>. The compute zones that were previously in the user billing plan will be added to the Access Control and the <i>VS CPU Cores</i> and <i>VS RAM</i> parameters in these zones will be set to the value configured prior to the upgrade to 6.1. All the data store zones that were previously in the user billing plan will be added to the Access Control and the <i>VS Disk Size</i> parameter in these zones will be set to the value configured prior to the upgrade to 6.1. All the network zones that were previously in the user billing plan will be added to the Access Control and the <i>VS IP Addresses</i> in these zones will be set to the value configured prior to the upgrade to 6.1. <p>Rate Card:</p> <ul style="list-style-type: none"> Only the resources for which the prices were previously configured will be added to the Rate Card. The same prices and free limits that were configured prior to the upgrade to 6.1 will be set in the bucket.
		Master bucket	<p>If there was only the master bucket and no other compute zones added to the billing plan:</p>

Server type	Case		Migration behavior
			<ul style="list-style-type: none"> all compute zones of the <i>virtual</i> type will be added to the bucket with the same prices and limits as those that were set in the master bucket <p>If there were some compute zones that used the master bucket and other which had custom limits and prices:</p> <ul style="list-style-type: none"> the compute zones that used the master bucket will be added with the same prices and limits as those that were set in the master bucket the compute zones which had custom limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1 <p>If the master bucket was not used and there were only compute zones with custom limits and prices:</p> <ul style="list-style-type: none"> all the compute zones which had custom limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1
		Master Template	<p>If there was only the master template and no other data store/network zones added to the billing plan:</p> <ul style="list-style-type: none"> all data store/network zones of the <i>virtual</i> type will be added to the bucket with the same prices and limits as those that were set in the master template <p>If there were some network/data store zones that used the master template and other which had custom limits and prices:</p> <ul style="list-style-type: none"> the network/data store zones that used the master bucket will be added with the same prices and limits as those that were set in the master template the network/data store zones which had custom limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1 <p>If the master template was not used and there were only network/data store zones with custom limits and prices:</p> <ul style="list-style-type: none"> all the network/data store zones which had custom limits and pricing will be added to the bucket with the same limits and prices as those that were set prior to the upgrade to 6.1
	Company Billing Plan	Empty billing plan	<p>If no resources were added to the company billing plan, no resource will be added to the bucket's Access Control and Rate Card. This means that a user under this bucket will have no access to any of the resources in the cloud.</p>

Server type	Case	Migration behavior
	Filled-in billing plan	<p>Access Control:</p> <ul style="list-style-type: none"> the <i>Virtual Server</i> limit in the <i>Miscellaneous</i> section of the Access Control will be set to unlimited the <i>Application Server</i> limit in the <i>Miscellaneous</i> section of the Access Control will be set to unlimited only the compute zones which were previously added will be present in the Access Control with the limits that were set in the billing plan only the network zones which were previously added will be present in the Access Control with their previously set limits only the network zones which were previously added will be present in the Access Control with their previously set limits <p>Rate Card:</p> <ul style="list-style-type: none"> the prices and free limits will be set according to the prices and free limits configured prior to the upgrade to OnApp 6.1

2.1.5 Troubleshooting

You may face an error during the upgrade to OnApp 6.1 if there are inconsistencies within the OnApp database. For example, there can be a template or another entity that is assigned to a non-existing user. Please remove an entity or assign it to a valid user and run the CP updaters again. For more information on how to handle inconsistencies within the OnApp database, see [Knowledge Base](#). If you can't fix the errors that you face, please contact our support team.

2.2 Upgrade Guide for Control Panel Server (5.5 to 6.1)

This guide presents the complete walk-through on how to upgrade your Control Panel server from OnApp Cloud 5.5 to 6.1. 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 you upgrade your Control Panel server, we strongly recommend you to do the following:

Check the *character_set_database* and *collation_database* variables on your database server. If you have non-Latin values applied for character set and collation, edit the following parameters in the *my.cnf* file before the upgrade.

```
character-set-server=utf8
collation-server=utf8_general_ci
```

[Access the MySQL database server](#) and run the following SQL statement:

```
ALTER DATABASE onapp CHARACTER SET utf8 COLLATE utf8_general_ci;
```

After you save the changes, restart your SQL server.

2.2.1 Upgrade Control Panel Server

2.2.2

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

See also:

[Known Issues on Control Panel Upgrade](#)

[Installation Guide](#)

[Upgrade Guide for Cloud with CloudBoot Servers](#)

[Upgrade Guide for Cloud with Static Servers](#)

[Upgrade Guide for Cloud with CloudBoot and Static Servers](#)

To upgrade your Control Panel server under CentOS 6.x from OnApp 5.5 to 6.1:

1. Download and install the OnApp Control Panel update package:

```
bash# rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-cp-update-6.1.noarch.rpm
```

Before running the OnApp Control Panel update script, apply the following changes to the `/onapp/onapp-cp.conf` file to avoid the RC4 Cipher Suite ([CVE-2015-2808](#)) vulnerability.

```
SSLCIPHERSUITE="EECDH+ECDSA+AESGCM:EECDH+aRSA+AESGCM:EECDH+ECDSA+SHA384:EECDH+ECDSA+SHA256:EECDH+aRSA+SHA384:EECDH+aRSA+SHA256:EECDH+aRSA+RC4:EECDH:EDH+aRSA:RC4:!aNULL:!eNULL:!LOW:!3DES:!MD5:!EXP:!PSK:!SRP:!DSS:!RC4:!3DES"
SSLPROTOCOL="all -SSLv2 -SSLv3 -TLSv1"
```

2. Run the update script:

```
# /onapp/onapp-cp-update/onapp-cp-update.sh
```

The update script is interrupted if any inconsistencies are detected on your system. See [Upgrade Notes](#) for more details.

If the update script has failed, you can:

- Manually solve the reason of the failure.
- Continue updating to a certain version with the Control Panel

installer by running the following command:

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

If the CP installer command is run successfully, please remove `/onapp/onapp-cp-update/.failed.<major>.<minor>`, where `<major>.<minor>` is the Control Panel current version. Then you can continue with the update script.

3. Check that the cloud has been successfully updated through the OnApp versions 5.7-6.1:

```
# ls -l /onapp/onapp-cp-update/.installed.*
/onapp/onapp-cp-update/.installed.5.7
/onapp/onapp-cp-update/.installed.5.8
/onapp/onapp-cp-update/.installed.5.9
/onapp/onapp-cp-update/.installed.5.10
/onapp/onapp-cp-update/.installed.6.0
/onapp/onapp-cp-update/.installed.6.1
```

The update to 5.6 is skipped on purpose since the code from 5.6 was ported to 5.7 that is a cumulative update.

4. If the update has been completed successfully, run the following command:

```
# service onapp start && service httpd start
```

5. Ensure that all services are working:

```
# service onapp status && service httpd status
```

2.3 Upgrade Guide for Cloud with CloudBoot Servers (5.5 to 6.1)

This guide presents the complete walk-through on how to upgrade OnApp Cloud 5.5 to 6.1 for the cloud configuration where all servers are CloudBoot except for the Control Panel server. Please follow the complete procedure of the upgrade process. All the packages (Control Panel, CloudBoot, and compute resources) 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.

2.3.1 Upgrade Control Panel Server

Follow the procedure at [Upgrade Guide \(5.5 to 6.1\)](#) to upgrade your Control Panel server.

2.3.2 Upgrade CloudBoot Packages

- Create a backup of the /tftpboot directory in case the storage packages rollback is needed.
- Power off Windows virtual servers before proceeding to the following procedures.

To upgrade the OnApp Storage packages:

1. Upgrade the repo:

```
CP_host# rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.1.noarch.rpm
```

2. Update the *onapp-store-install* package:

```
# yum update onapp-store-install
```

3. Update the following packages:

```
# yum update onapp-ramdisk-tools
# yum update onapp-ramdisk-centos6-xen
# yum update onapp-ramdisk-centos6-kvm
# yum update onapp-ramdisk-centos7-kvm
# yum update onapp-ramdisk-centos7-default
```

4. Install the following new package:

```
# yum install onapp-ramdisk-centos7-xen
```

After the packages installation, go to the Control Panel's **Settings** menu > **Configuration** and click the **Save Configuration** button.

THE FOLLOWING STEPS (5-6) APPLY ONLY TO XEN-BASED COMPUTE RESOURCES:

5. Increase the Dom0 RAM for each Xen CloudBoot compute resource at least to 3 GB from the [Control Panel UI](#).
6. Power off all the virtual servers that run on a Xen compute resource.
7. Run the script:

```
CP_host# /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.

2.3.3 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 **Settings > Compute Resources** menu.
2. Click the label of the CloudBoot compute resource the backup server is based on.
3. On the compute resource details screen, click the **Actions** button, then click **Reboot Compute resource**.
4. 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.
5. When you're certain you want to proceed with the reboot, click the **Reboot** button.
6. Repeat these steps for all CloudBoot backup servers in your cloud.
7. Once all are rebooted, proceed to CloudBoot compute resources upgrade.

2.3.4 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	This method 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 For Xen only the <i>cold migrate</i> option is available.	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.

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.

For more information about upgrade scenarios, refer to the OnApp IS Upgrade Paths [5.5 to 6.1](#) or [6.0 to 6.1](#).

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

2.3.4.1 Simple Reboot

Follow the below procedure to upgrade the CloudBoot compute resources with a 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.

2.3.4.2 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 **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.

2.3.5 Local Read Policy

Enabling Local Read on a compute zone ensures that the locally stored copy of the data will always be used for reads. This significantly reduces read latency and improves overall storage

performance by reducing load on the SAN network. However, in order to use this policy every compute resource must have sufficient physical drives to be able to store the number of stripes specified in the data store. For example, in a 2R4S data store there must be at least 4 physical disks on the compute resource to use local read.

Changes to Local Read Policy Enforcement

Originally, when this policy was introduced OnApp did not enforce the requirement for the minimum number of drives. Consequently, some users who set the policy having insufficient drives may see the following error message:

```
Fatal: OnApp::Actions::Fatal Storage API Call failed: {"result"=>"FAILURE",
"error"=>"Local reads have been enabled on the zone - members required per
host: 4, required hosts: 2, available hosts: 0"}
```

The solution is to either add additional drives to that compute resource and then add them to the data store or to disable read local.

2.4 Upgrade Guide for Cloud with Static Servers (5.5 to 6.1)

This guide explains how to upgrade OnApp Cloud 5.5 to 6.1 for the cloud where all servers are static. Follow the procedure listed below in the correct order to upgrade your cloud. All the packages (Control Panel and Compute resources) 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.

2.4.1 Upgrade Control Panel Server

Follow the procedure at [Upgrade Guide \(5.5 to 6.1\)](#) to upgrade your Control Panel server.

On this page:

[Upgrade Control Panel Server](#)

[Upgrade Static Compute Resources](#)

See also:

[Installation Guide](#)

[Upgrade Guide for Control Panel Server](#)

[Upgrade Guide for Cloud with CloudBoot Servers](#)

[Upgrade Guide for Cloud with CloudBoot and Static Servers](#)

2.4.2 Upgrade Static Compute Resources

At first upgrade your static compute resources.

1. Make sure your compute resource is visible and online in the Control Panel.
2. If you have CentOS 7 Xen resources, remove the *centos-release-xen-46* package:

```
# rpm -e centos-release-xen-46
```

3. Download and install the latest OnApp YUM repository file:

```
# rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.1.noarch.rpm
```

4. Upgrade OnApp compute resource installer package:

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

5. If required, update your server OS components using the corresponding installer (Xen or KVM) with the '-y' parameter given:

Xen installer example

```
# /onapp/onapp-hv-install/onapp-hv-xen-install.sh -y
```

KVM installer example

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

6. Run the OnApp compute resource installer script, depending on the compute resource:

- o **Run the OnApp compute resource installer script for Xen compute resources:**

```
# /onapp/onapp-hv-install/onapp-hv-xen-install.sh
```

The full list of Xen installer options:

Usage:

```
/onapp/onapp-hv-install/onapp-hv-xen-install.sh [-c CONFIG_FILE] [-v HV_VERSION] [-p API_VERSION] [-a] [-y] [-t] [-s] [-x] [-h]
```

Where:

-c CONFIG_FILE	Custom installer configuration file. Otherwise, the pre-installed one is used.
-v HV_VERSION	Custom compute resource Tools version
-p API_VERSION	Custom StorageAPI version
-a	Do NOT be interactive. Process with automatic installation.
-y	Update OS packages (except for OnApp provided) with 'yum update'.
-t	Initiate Recovery templates and ISO(s), which are used to provision FreeBSD guests, download. The download is initiated if the '-a' option is used.
-s	Skip packages management: install, remove, upgrade. None of the packages are installed/updated/removed.
-x	Skip xen*, kernel*, and libvirt* (compute resource related RPM) packages management. Useful for

	update (not for fresh install).
-h	Print this info

- **Run the OnApp compute resource installer script for KVM compute resources:**

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

The full list of KVM installer options:

Usage:

```
/onapp/onapp-hv-install/onapp-hv-kvm-install.sh [-c CONFIG_FILE] [-a] [-y] [-t] [-s] [-x] [-v HV_VERSION] [-p API_VERSION] [-h]
```

Where:

-c CONFIG_FILE	Custom installer configuration file. Otherwise, the pre-installed one is used.
-a	Do NOT be interactive. Process with automatic installation.
-v HV_VERSION	Custom compute resource Tools version
-p API_VERSION	Custom StorageAPI version
-t	Initiate Recovery templates and ISO(s), which are used to provision FreeBSD guests, download. The download is initiated if the '-a' option is used.
-y	Update OS packages (except those provided by OnApp for a compute resource) with 'yum update'. Useful for update (not for fresh install).
-s	Skip packages management: install, remove, upgrade. Useful for update (not for fresh install).
- x	Skip kvm, kernel, and libvirt (compute resource related RPM) packages management. Useful for update (not for fresh install).
-h	Print this info

7. Reboot static compute resources.

For KVM compute resources only: the kernel package update is a part of the "Upgrade Static Compute Resources" default procedure. If the kernel package was upgraded, reboot KVM compute resources to use the new kernel package.

If you do not have the `/home/mq/onapp/messaging/credentials.yml` file on your compute resources and you plan to deploy an Accelerator, run the following command on the CP server:

- For all compute resources:

```
rake hypervisor:messaging:configure
```

- For certain compute resources only:

```
rake hypervisor:messaging:configure['11.0.50.111 11.0.50.112']
```

For information on manual configuration for Accelerator, refer to [RabbitMQ Configuration for Accelerator](#). To perform the configuration for a number of compute resources, separate their IPs with a space.

2.4.3 Upgrade Static Backup Servers

1. To upgrade your static backups servers, download and install the latest OnApp YUM repository file:

```
# rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.1.noarch.rpm
```

2. Update the package:

```
# yum update onapp-bk-install
```

3. If required, update your server OS components using installer with the '-y' parameter given:

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

4. Run the installer. It is recommended to download Base, Load Balancer, and CDN templates while running the installer. You may rerun the installer later with the -t option.

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

The full list of installer options:

Usage:

```
/onapp/onapp-bk-install/onapp-bk-install.sh [-c CONFIG_FILE] [-a] [-y] [-t]
[-b] [-v BK_VERSION] [-p API_VERSION] [-h]
```

Where:

-c CONFIG_FILE	Custom installer configuration file. Otherwise, the pre-installed one is used.
-a	Do NOT be interactive. Process with automatic installation.
-v BK_VERSION	Custom backup tools version
-p API_VERSION	Custom StorageAPI version
-y	Update OS packages (except for the ones provided by

	OnApp) with 'yum update'.
- t	Initiate the Load Balancer Virtual Appliance, OnApp CDN Appliance, and Application Server Appliance templates download. The download is initiated if the '-a' option is used.
- b	Initiate the Base templates download
-h	Print this info

2.5 Upgrade Guide for Cloud with CloudBoot and Static (5.5 to 6.1)

This guide explains how to upgrade OnApp Cloud 5.5 to 6.1 for the cloud where all servers are static. Follow the procedure listed below in the correct order to upgrade your cloud. All the packages (Control Panel and Compute resources) 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.

2.5.1 Upgrade Control Panel Server

Follow the procedure at [Upgrade Guide \(5.5 to 6.1\)](#) to upgrade your Control Panel server.

On this page:

[Upgrade Control Panel Server](#)
[Upgrade Static Compute Resources](#)
[Upgrade CloudBoot Compute Resources](#)
[Local Read Policy](#)

See also:

[Installation Guide](#)
[Upgrade Guide for Control Panel Server](#)
[Upgrade Guide for Cloud with CloudBoot Servers](#)
[Upgrade Guide for Cloud with Static Servers](#)

2.5.2 Upgrade Static Compute Resources

At first upgrade your static compute resources.

1. Make sure your compute resource is visible and online in the Control Panel.
2. If you have CentOS 7 Xen resources, remove the *centos-release-xen-46* package:

```
# rpm -e centos-release-xen-46
```

3. Download and install the latest OnApp YUM repository file:

```
# rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.1.noarch.rpm
```

4. Upgrade OnApp compute resource installer package:

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

5. If required, update your server OS components using the corresponding installer (Xen or KVM) with the '-y' parameter given:

Xen installer example

```
# /onapp/onapp-hv-install/onapp-hv-xen-install.sh -y
```

KVM installer example

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

6. Run the OnApp compute resource installer script, depending on the compute resource:

- o **Run the OnApp compute resource installer script for Xen compute resources:**

```
# /onapp/onapp-hv-install/onapp-hv-xen-install.sh
```

The full list of Xen installer options:

Usage:

```
/onapp/onapp-hv-install/onapp-hv-xen-install.sh [-c CONFIG_FILE] [-v HV_VERSION] [-p API_VERSION] [-a] [-y] [-t] [-s] [-x] [-h]
```

Where:

-c CONFIG_FILE	Custom installer configuration file. Otherwise, the pre-installed one is used.
-v HV_VERSION	Custom compute resource Tools version
-p API_VERSION	Custom StorageAPI version
-a	Do NOT be interactive. Process with automatic installation.
-y	Update OS packages (except for OnApp provided) with 'yum update'.
-t	Initiate Recovery templates and ISO(s), which are used to provision FreeBSD guests, download. The download is initiated if the '-a' option is used.
-s	Skip packages management: install, remove, upgrade. None of the packages are installed/updated/removed.
- x	Skip xen*, kernel*, and libvirt* (compute resource related RPM) packages management. Useful for update (not for fresh install).
-h	Print this info

- **Run the OnApp compute resource installer script for KVM compute resources:**

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

The full list of KVM installer options:

Usage:

```
/onapp/onapp-hv-install/onapp-hv-kvm-install.sh [-c CONFIG_FILE] [-a] [-y] [-t] [-s] [-x] [-v HV_VERSION] [-p API_VERSION] [-h]
```

Where:

-c CONFIG_FILE	Custom installer configuration file. Otherwise, the pre-installed one is used.
-a	Do NOT be interactive. Process with automatic installation.
-v HV_VERSION	Custom compute resource Tools version
-p API_VERSION	Custom StorageAPI version
-t	Initiate Recovery templates and ISO(s), which are used to provision FreeBSD guests, download. The download is initiated if the '-a' option is used.
-y	Update OS packages (except those provided by OnApp for a compute resource) with 'yum update'. Useful for update (not for fresh install).
-s	Skip packages management: install, remove, upgrade. Useful for update (not for fresh install).
- x	Skip kvm, kernel, and libvirt (compute resource related RPM) packages management. Useful for update (not for fresh install).
-h	Print this info

7. Gracefully reboot static compute resources from UI. To do so, log in to Control Panel and go to **Settings > Compute Resources**. Click the specific compute resource. When the page loads, click **Tools > Reboot Compute resource**. For KVM compute resources only: the kernel package update is a part of the "Upgrade Static Compute Resources" default procedure. If the kernel package was upgraded, reboot KVM compute resources to use the new kernel package.

If you do not have the `/home/mq/onapp/messaging/credentials.yml` file on your compute resources and you plan to deploy an Accelerator, run the following command on the CP server:

- For all compute resources:

```
rake hypervisor:messaging:configure
```

- For certain compute resources only:

```
rake hypervisor:messaging:configure['11.0.50.111 11.0.50.112']
```

To perform the configuration for a number of compute resources, separate their IPs with a space.

For information on manual configuration for Accelerator, refer to [RabbitMQ Configuration for Accelerator](#).

2.5.3 Upgrade Static Backup Servers

After you upgraded static compute resources, proceed to static backup servers upgrade.

1. Download the OnApp repository:

```
bash# rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.1.noarch.rpm
```

2. Update the package:

```
bash# yum update onapp-bk-install
```

3. If required, update your server OS components using installer with the '-y' parameter given:

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

4. Run the installer. It is recommended to download Base, Load Balancer, and CDN templates while running the installer. You may rerun the installer later with the -t option.

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

The full list of installer options:

Usage:

```
/onapp/onapp-bk-install/onapp-bk-install.sh [-c CONFIG_FILE] [-a] [-y] [-t]
[-b] [-v BK_VERSION] [-p API_VERSION] [-h]
```

Where:

-c CONFIG_FILE	Custom installer configuration file. Otherwise, the pre-installed one is used.
-a	Do NOT be interactive. Process with automatic installation.
-v BK_VERSION	Custom backup tools version
-p API_VERSION	Custom StorageAPI version

-y	Update OS packages (except for the ones provided by OnApp) with 'yum update'.
-t	Initiate the Load Balancer Virtual Appliance, OnApp CDN Appliance, and Application Server Appliance templates download. The download is initiated if the '-a' option is used.
-b	Initiate the Base templates download
-h	Print this info

2.5.4 Upgrade CloudBoot Packages

- Create a backup of the /tftpboot directory in case the storage packages rollback is needed.
- Power off Windows virtual servers before proceeding to the following procedures.

To upgrade the OnApp Storage packages:

1. Upgrade the repo:

```
CP_host# rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.1.noarch.rpm
```

2. Update the *onapp-store-install* package:

```
# yum update onapp-store-install
```

3. Update the following packages:

```
# yum update onapp-ramdisk-tools
# yum update onapp-ramdisk-centos6-xen
# yum update onapp-ramdisk-centos6-kvm
# yum update onapp-ramdisk-centos7-kvm
# yum update onapp-ramdisk-centos7-default
```

4. Install the following new package:

```
# yum install onapp-ramdisk-centos7-xen
```

After the packages installation, go to the Control Panel's **Settings** menu > **Configuration** and click the **Save Configuration** button.

THE FOLLOWING STEPS (5-6) APPLY ONLY TO XEN-BASED COMPUTE RESOURCES:

5. Increase the Dom0 RAM for each Xen CloudBoot compute resource at least to 3 GB from the [Control Panel UI](#).
6. Power off all the virtual servers that run on a Xen compute resource.
7. Run the script:

```
CP_host# /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.

2.5.5 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 **Settings > Compute Resources** menu.
2. Click the label of the CloudBoot compute resource the backup server is based on.
3. On the compute resource details screen, click the **Actions** button, then click **Reboot Compute resource**.
4. 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.
5. When you're certain you want to proceed with the reboot, click the **Reboot** button.
6. Repeat these steps for all CloudBoot backup servers in your cloud.
7. Once all are rebooted, proceed to CloudBoot compute resources upgrade.

2.5.6 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	This method 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 For Xen only the <i>cold</i> migrate option is available.	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.

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.

For more information about upgrade scenarios, refer to the OnApp IS Upgrade Paths [5.5 to 6.1](#) or [6.0 to 6.1](#).

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

2.5.6.1 Simple Reboot

Follow the below procedure to upgrade the CloudBoot compute resources with a 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.

2.5.6.2 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 **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.

2.5.7 Local Read Policy

Enabling Local Read on a compute zone ensures that the locally stored copy of the data will always be used for reads. This significantly reduces read latency and improves overall storage performance by reducing load on the SAN network. However, in order to use this policy every compute resource must have sufficient physical drives to be able to store the number of stripes specified in the data store. E.g. in a 2R4S data store there must be at least 4 physical disks on the compute resource to use local read.

Changes to Local Read Policy Enforcement

Originally, when this policy was introduced OnApp did not enforce the requirement for the minimum number of drives. Consequently, some users who set the policy having insufficient drives may see the following error message:

```
Fatal: OnApp::Actions::Fatal Storage API Call failed: {"result"=>"FAILURE",
"error"=>"Local reads have been enabled on the zone - members required per
host: 4, required hosts: 2, available hosts: 0"}
```

The solution is to either add additional drives to that compute resource and then add them to the data store or to disable read local.

2.6 OnApp IS Upgrade Paths (5.5 to 6.1)

IS Version upgrading to	5.0.0-21	5.1.0-5	5.2.0-5	5.3	5.4	5.5	5.6	5.7	5.8	5.9	5.10	6.0	6.1 Edge1	6.1 Edge2	6.1
Upgrade by "Simple Reboot"	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upgrade by "Migrate and Reboot"	Yes	Yes	Yes	Yes	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upgrade by "Live Upgrade"	N/A	N/A	Yes	N/A	Yes*	Yes	No	No	No	No	No	No	No	No	No

* Applicable only for CentOS 6 KVM/XEN

Yes - recommended by OnApp

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

No - not available in the corresponding release

- For versions < 5.0 please use only "Simple Reboot" upgrade method. Use "Migrate and Reboot" only if you are running 4.2.1-8.
- For information about the upgrade of versions previous to 5.0.0-21, refer to the [OnApp IS Upgrade Paths \(4.0.0-3 - 4.2.1-11 versions\)](#) section.

2.6.1 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 the CloudBoot OS, as this platform is very 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 the CloudBoot compute resource to be rebooted after upgrade. However, in case of critical updates and fixes it can be required to reboot the CloudBoot compute resource for them to take full effect. Currently, only version 4.1 requires to be rebooted after Integrated Storage update. OnApp will notify in future release notes if the Simple Reboot method is the recommended way to upgrade.

2.6.1.1 Each upgrade procedure explanation:

Simple Reboot

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

Migrate and Reboot

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

Live Upgrade

This upgrade method upgrades the Integrated Storage platform only. Your VSs 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.

Starting from OnApp 5.3, each CloudBoot OS image is divided into a

separate package for better a experience and support. 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 procedure, saving internet traffic and time.

Please contact our Support team if you are unsure regarding the right upgrade path for you to ensure you choose the right path for you and your clients.

2.7 Getting Support for Upgrade (5.5 to 6.1)

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. The Support team can run the upgrade and other activities related to it during business hours, that is from Monday to Friday 8:00 am - 4:00 pm UTC.

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

2.7.1 Professional Services

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

2.7.2 OnApp Community

Visit [OnApp Community](#) that is a public forum where you can share your feedback and product ideas. Only OnApp customers can give suggestions but anyone can explore them.

2.7.3 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.

2.7.4 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.

3 Upgrade from OnApp 6.0

The guides in this section apply to upgrading to the OnApp 6.1 from the 6.0 version.

3.1 Upgrade Notes (6.0 to 6.1)

OnApp 6.1 is a new stable version that introduces a lot of new features, improvements, and fixes. Before upgrading to OnApp 6.1, read these upgrade notes to get ready for the upgrade.

3.1.1 Control Panel Server

- Check the Activity Log on your OnApp CP dashboard if there are no transactions 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](#) guide.
- If you use custom languages on your CP, after the update follow the procedure at [How to import custom languages after an upgrade](#) to import a custom locale.
- If you plan to deploy Accelerator, refer to the [RabbitMQ Configuration for Accelerator](#) document for more details.

3.1.2 Static Compute Resources

- Be aware that OnApp does not support UEFI on static compute resources. You should disable UEFI on your compute resources before the upgrade.

3.1.3 CloudBoot Compute Resources

- If you use Integrated Storage, refer to [Upgrade Integrated Storage](#) for more information about the upgrade details.
- If you use the [auto-healing](#) functionality for Integrated Storage, make sure to disable it before the upgrade.
- Drives assigned for use by Integrated Storage are identified, using a disk signature that is generated by the SCSI page query mechanism to the device. Please note that disk signatures may change across different kernel versions following an upgrade and reboot. If this occurs, go to the compute resource edit page to re-identify and select the correct drives. Please contact support if you have any concerns regarding this operation.
- In OnApp 6.1 Edge 2, Huge Pages are replaced by Transparent Huge Pages by default on all CloudBoot compute resources.

3.2 Upgrade Guide for Control Panel Server (6.0 to 6.1)

This guide provides an instruction how to upgrade you Control Panel server from OnApp Cloud 6.0 to 6.1. 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.

See also:

[Upgrade Cloud with CloudBoot Servers](#)
[Upgrade Cloud with Static Servers](#)

3.2.1 Upgrade Control Panel Server

3.2.2

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

To upgrade your Control Panel server:

1. To update from 6.0 version, download and install the latest OnApp YUM repository file:

```
# rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.1.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

```
TUNE_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.

If you are running CloudBoot compute resources based on Xen and CentOS 6/7, increase the Dom0 memory to 4096 MB for upgrade to be successful.

Run the Control Panel installer:

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

Please, answer 'yes' when 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 [-c CONFIG_FILE] [--mariadb | --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] [-h]
```

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

Where:	
	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
--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.
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.

Where:	
--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
-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	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 ERedis 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.

Where:	
-c CONFIG_FILE	Custom installer configuration file. Otherwise, preinstalled one is used.
-h	Print this info

3.3 Upgrade Cloud with Static Servers (6.0 to 6.1)

This guide explains how to upgrade OnApp Cloud 6.0 to 6.1 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](#)

See also:

- [Upgrade Guide for Control Panel Server](#)
- [Upgrade Cloud with CloudBoot 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. To update from 6.0 version, download and install the latest OnApp YUM repository file:

```
# rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.1.noarch.rpm
```

3. Upgrade OnApp compute resource installer package:

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

4. Update your server OS components:

For Xen compute resources

```
# /onapp/onapp-hv-install/onapp-hv-xen-install.sh -y
```

For KVM compute resources

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

5. Run the compute resource installer:

For Xen compute resource:

```
# /onapp/onapp-hv-install/onapp-hv-xen-install.sh
```

The full list of Xen installer options

Usage:

```
/onapp/onapp-hv-install/onapp-hv-xen-install.sh [-c CONFIG_FILE] [-v HV_VERSION] [-p API_VERSION] [-a] [-y] [-t] [-s] [-x] [-h]
```

Where:

-c CONFIG_FILE	Custom installer configuration file. Otherwise, the pre-installed one is used.
-v HV_VERSION	Custom compute resource Tools version
-p API_VERSION	Custom StorageAPI version
-a	Do NOT be interactive. Process with automatic installation.
-y	Update OS packages (except for OnApp provided) with 'yum update'.
-t	Initiate Recovery templates and ISO(s), which are used to provision FreeBSD guests, download. The download is initiated if the '-a' option is used.
-s	Skip packages management: install, remove, upgrade. None of the packages are installed/updated/removed.
- x	Skip xen*, kernel*, and libvirt* (compute resource related RPM) packages management. Useful for update (not for fresh install).

For KVM compute resource:

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

The full list of KVM installer options

Usage:

```
/onapp/onapp-hv-install/onapp-hv-kvm-install.sh [-c CONFIG_FILE] [-a] [-y] [-t] [-s] [-x] [-v HV_VERSION] [-p API_VERSION] [-h]
```

Where:

-c CONFIG_FILE	Custom installer configuration file. Otherwise, the pre-installed one is used.
-a	Do NOT be interactive. Process with automatic installation.
-v HV_VERS	Custom compute resource Tools version

ION	
-p API_VERSION	Custom StorageAPI version
-t	Initiate Recovery templates and ISO(s), which are used to provision FreeBSD guests, download. The download is initiated if the '-a' option is used.
-y	Update OS packages (except those provided by OnApp for a compute resource) with 'yum update'. Useful for update (not for fresh install).
-s	Skip packages management: install, remove, upgrade. Useful for update (not for fresh install).
-x	Skip kvm, kernel, and libvirt (compute resource related RPM) packages management. Useful for update (not for fresh install).
-d	Install OnApp Storage related packages. Applicable for CentOS 7.x only
-h	Print this info

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

6. Reboot static compute resources.

The kernel and Xen packages update is a part of the "Upgrade Static Compute Resources" default procedure. If the kernel or Xen packages were upgraded, reboot KVM/Xen compute resources to use the new kernel and/or Xen packages.

If you do not have the `/home/mq/onapp/messaging/credentials.yml` file on your compute resources and you plan to deploy Accelerator, run the following command on the CP server:

- For all compute resources:

```
rake hypervisor:messaging:configure
```

- For certain compute resources only:

```
rake hypervisor:messaging:configure['11.0.50.111 11.0.50.112']
```

For information on manual configuration for Accelerator, refer to [RabbitMQ Configuration for Accelerator](#). To perform the configuration for a number of compute resources, separate their IPs with a space.

3.3.3 Upgrade Static Backup Servers

To upgrade static compute resources, follow the next procedure:

1. To update from 6.0 version, download and install the latest OnApp YUM repository file:

```
# rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-repo-6.1.noarch.rpm
```

2. Upgrade OnApp Backup Server installer package:

```
# yum update onapp-bk-install
```

3. Update your server OS components:

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

4. Run Backup Server installer:

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

The full list of Backup Server installer options.

Usage:

```
/onapp/onapp-hv-install/onapp-hv-xen-install.sh [-c CONFIG_FILE] [-v BK_VERSION] [-p API_VERSION] [-a] [-y] [-t] [-b] [-d] [-h]
```

Where:

-c CONFIG_FILE	Custom installer configuration file. Otherwise, the pre-installed one is used.
-v BK_VERSION	Custom Backup Tools version
-p API_VERSION	Custom StorageAPI version
-a	Do NOT be interactive. Process with automatic installation.
-y	Update OS packages (except for OnApp provided) with 'yum update'.
-t	Initiate Load Balancer Virtual Appliance, OnApp CDN Appliance and Application Server Appliance templates download. The download is initiated if '-a' option is used.
-b	Initiate Base templates download
-d	Install OnApp Storage related packages. Applicable for CentOS 7.x only.
-h	Print this info

3.4 Upgrade Cloud with CloudBoot Servers (6.0 to 6.1)

This guide provides a walk-through on how to upgrade OnApp Cloud 6.0 to 6.1 for a cloud where all servers are CloudBoot. Please follow the complete procedure of the upgrade process.

All the packages (Control Panel 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 CloudBoot Packages](#)
- [Upgrade CloudBoot Backup Servers](#)
- [Upgrade CloudBoot Compute Resources](#)
- [Local Read Policy](#)

See also:

- [Upgrade Guide for Control Panel Server](#)
- [Upgrade Cloud with Static Servers](#)

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 CloudBoot Packages

Before you begin:

- Create a backup of the /tftpboot directory in case the storage packages rollback is needed.
- Power off Windows virtual servers before proceeding to the following procedures.
- Make sure to run all the commands on the Control Panel host.

To upgrade the OnApp Storage packages:

1. Update the *onapp-store-install* package:

```
# yum update onapp-store-install
```

2. Update the following packages:

```
# yum update onapp-ramdisk-centos6-xen
# yum update onapp-ramdisk-centos6-kvm
# yum update onapp-ramdisk-centos7-xen
# yum update onapp-ramdisk-centos7-kvm
# yum update onapp-ramdisk-centos7-default
```

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

3. Run the script:

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

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

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

3.4.3 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 **Settings > Compute Resources** menu.
2. Click the label of the CloudBoot compute resource the backup server is based on.
3. On the compute resource details screen, click the **Actions** button, then click **Reboot Compute resource**.
4. 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.
5. When you're certain you want to proceed with the reboot, click the **Reboot** button.
6. Repeat these steps for all CloudBoot backup servers in your cloud.
7. Once all are rebooted, proceed to CloudBoot compute resources upgrade.

3.4.4 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	This method 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 For Xen only the cold migrate option is available.	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.

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.

For more information about upgrade scenarios, refer to the [OnApp Integrated Storage](#).

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

3.4.4.1 Simple Reboot

If you are using Xen compute resources, we recommend to reboot them only from the Control Panel interface.

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.

3.4.4.2 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 to connect via SSH to compute resources:

```
CP_host# liveUpdate listHVs
```

If there is an unknown host, a dialog box appears for you to confirm that the Control Panel server can connect to the host. To allow the Control Panel server to connect to unknown hosts without your confirmation, run `liveUpdate listHVs` with the `-nc` option as follows:

```
CP_host# liveUpdate listHVs -nc
```

Ensure that you can trust all the unknown hosts before you run `liveUpdate listHVs` with the `-nc` option.

If the command `liveUpdate` is not available, then the list of available compute resources 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.
3. After that, go to your Control Panel **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.

3.4.5 Local Read Policy

Enabling Local Read on a compute zone ensures that a locally stored copy of data will always be used for reads. This significantly reduces read latency and improves overall storage

performance by reducing load on a SAN network. However, in order to use this policy, every compute resource must have sufficient physical drives to be able to store the number of stripes specified in the data store. For example, in a 2R4S data store, there must be at least four physical disks on the compute resource to use Local Read.

Changes to Local Read Policy Enforcement

Originally, when this policy was introduced, OnApp did not enforce the requirement for the minimum number of drives. Consequently, some users who set the policy, having insufficient drives may see the following error message:

```
Fatal: OnApp::Actions::Fatal Storage API Call failed: {"result"=>"FAILURE",
"error"=>"Local reads have been enabled on the zone - members required per
host: 4, required hosts: 2, available hosts: 0"}
```

The solution is to add additional drives to the compute resource and then add them to the data store or to disable Local Read.

3.5 Upgrade Cloud with CloudBoot and Static Servers (6.0 to 6.1)

This guide provides instructions on how to upgrade from OnApp 6.0 to OnApp 6.1 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](#)

3.5.1 Upgrade Control Panel Server

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

3.5.2 Upgrade Static Compute Resources

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

3.5.3 Upgrade CloudBoot Compute Resources

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

3.6 Upgrade Integrated Storage (6.0 to 6.1)

IS version upgrading to	5.5	5.6	5.7	5.8	5.9	5.10	6.0	6.1 Edge1	6.1 Edge2	6.1
Upgrade by Simple Reboot	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upgrade by Migrate and Reboot	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upgrade by Live Upgrade	Yes	No	No	No	No	No	No	No	No	No

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

3.6.1 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 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.

3.6.2 Update Methods

Simple Reboot

This upgrade method requires to reboot 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 to reboot 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 reboot.

Please contact our Support team if you are not sure which upgrade method is right for you.

4 Upgrade from OnApp 6.1 Edge 1/2

The guides in this section apply to upgrading to the OnApp 6.1 from the 6.1 Edge 1 and 6.1 Edge 2 versions.

4.1 Upgrade Notes (6.1 Edge 1/2 to 6.1)

OnApp 6.1 is a new stable version that introduces a lot of new features, improvements, and fixes. You can update to OnApp 6.1 from OnApp 6.1 Edge 1 or from OnApp 6.1 Edge 2. Before upgrading to OnApp 6.1, read these upgrade notes to get ready for the upgrade.

4.1.1 Control Panel Server

- Check the Activity Log on your OnApp CP dashboard if there are no transactions 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](#) guide.
- If you use custom languages on your CP, after the update follow the procedure at [How to import custom languages after an upgrade](#) to import a custom locale.
- If you plan to deploy Accelerator, refer to the [RabbitMQ Configuration for Accelerator](#) document for more details.

4.1.2 Static Compute Resources

- Be aware that OnApp does not support UEFI on static compute resources. You should disable UEFI on your compute resources before the upgrade.

4.1.3 CloudBoot Compute Resources

- If you use Integrated Storage, refer to [Upgrade Integrated Storage \(6.1 Edge 1/2 to 6.1\)](#) for more information about the upgrade details.
- If you use the [auto-healing](#) functionality for Integrated Storage, make sure to disable it before the upgrade.
- Drives assigned for use by Integrated Storage are identified, using a disk signature that is generated by the SCSI page query mechanism to the device. Please note that disk signatures may change across different kernel versions following an upgrade and reboot. If this occurs, go to the compute resource edit page to re-identify and select the correct drives. Please contact support if you have any concerns regarding this operation.
- In OnApp 6.1, Huge Pages are replaced by Transparent Huge Pages by default on all CloudBoot compute resources.

4.2 Upgrade Guide for Control Panel Server (6.1 Edge 1/2 to 6.1)

- OnApp 6.1 is a new stable version that introduces a lot of new features, improvements, and fixes.

- You can update to OnApp 6.1 from OnApp 6.1 Edge 1 or from OnApp 6.1 Edge 2.

This guide provides an instruction how to upgrade you Control Panel server from OnApp Cloud 6.1 Edge 1 or 6.1 Edge 2 to 6.1. 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.

See also:

[Upgrade Cloud with CloudBoot Servers \(6.1 Edge 1/2 to 6.1\)](#)
[Upgrade Cloud with Static Servers \(6.1 Edge 1/2 to 6.1\)](#)

4.2.1 Upgrade Control Panel Server

4.2.2

- 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. Upgrade OnApp Control Panel installer package

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

2. Update your server OS components (if required):

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

3. (*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

```
TUNE_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=""
```

4. Run the Control Panel installer:

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

Please, answer 'yes' when 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 [-c CONFIG_FILE] [--mariadb | --community | --percona | --percona-cluster] [-m MYSQL_HOST] [--mysql-port=MYSQL_PORT] [--mysql-sock[=MYSQL_SOCKET]] [-p MYSQL_PASSWORD] [-d MYSQL_DB] [-u MYSQL_USER] [-U ADMIN_LOGIN] [-P ADMIN_PASSWORD] [-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_PASSWORD]] [--redis-port=REDIS_PORT] [--redis-sock[=REDIS_SOCKET]] [--rbthost RBT_HOST] [--vcdlogin VCD_LOGIN] [--vcdpasswd VCD_PASSWORD] [--vcdvhost VCD_VHOST] [--rbtlogin RBT_LOGIN] [--rbtpasswd RBT_PASSWORD] [-a] [-y] [-D] [-t] [--noservices] [--ha-install] [--rake=RAKE_TASKS] [-h]
```

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_PASSWORD	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.

Where:	
--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.
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
-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

4.3 Upgrade Cloud with CloudBoot Servers (6.1 Edge 1/2 to 6.1)

- OnApp 6.1 is a new stable version that introduces a lot of new features, improvements, and fixes.
- You can update to OnApp 6.1 from OnApp 6.1 Edge 1 or from 6.1 Edge 2.

This guide provides a walk-through on how to upgrade OnApp Cloud 6.1 Edge 1 or 6.1 Edge 2 to 6.1 for a cloud where all servers are CloudBoot. Please follow the complete procedure of the upgrade process. All the packages (Control Panel 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 CloudBoot Packages](#)
- [Upgrade CloudBoot Backup Servers](#)
- [Upgrade CloudBoot Compute Resources](#)
- [Local Read Policy](#)

See also:

- [Upgrade Guide for Control Panel Server](#)
- [Upgrade Cloud with Static Servers](#)

4.3.1 Upgrade Control Panel Server

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

4.3.2 Upgrade CloudBoot Packages

Before you begin:

- Create a backup of the /tftpboot directory in case the storage packages rollback is needed.
- Power off Windows virtual servers before proceeding to the following procedures.
- Make sure to run all the commands on the Control Panel host.

To upgrade the OnApp Storage packages:

1. Update the *onapp-store-install* package:

```
# yum update onapp-store-install
```

2. Update the following packages:

```
# yum update onapp-ramdisk-centos6-xen
# yum update onapp-ramdisk-centos6-kvm
# yum update onapp-ramdisk-centos7-xen
# yum update onapp-ramdisk-centos7-kvm
# yum update onapp-ramdisk-centos7-default
```

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

3. Run the script:

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

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

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

4.3.3 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 **Settings > Compute Resources** menu.
2. Click the label of the CloudBoot compute resource the backup server is based on.
3. On the compute resource details screen, click the **Actions** button, then click **Reboot Compute resource**.
4. 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.
5. When you're certain you want to proceed with the reboot, click the **Reboot** button.
6. Repeat these steps for all CloudBoot backup servers in your cloud.
7. Once all are rebooted, proceed to CloudBoot compute resources upgrade.

4.3.4 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	This method 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 For Xen only the cold migrate option is available.	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.

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.

For more information about upgrade scenarios, refer to the [OnApp Integrated Storage](#).

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

4.3.4.1 Simple Reboot

If you are using Xen compute resources, we recommend to reboot them only from the Control Panel interface.

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.

4.3.4.2 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 to connect via SSH to compute resources:

```
CP_host# liveUpdate listHVs
```

If there is an unknown host, a dialog box appears for you to confirm that the Control Panel server can connect to the host. To allow the Control Panel server to connect to unknown hosts without your confirmation, run `liveUpdate listHVs` with the `-nc` option as follows:

```
CP_host# liveUpdate listHVs -nc
```

Ensure that you can trust all the unknown hosts before you run `liveUpdate listHVs` with the `-nc` option.

If the command *liveUpdate* is not available, then the list of available compute resources 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.
3. After that, go to your Control Panel **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.

4.3.5 Local Read Policy

Enabling Local Read on a compute zone ensures that a locally stored copy of data will always be used for reads. This significantly reduces read latency and improves overall storage performance by reducing load on a SAN network. However, in order to use this policy, every compute resource must have sufficient physical drives to be able to store the number of stripes specified in the data store. For example, in a 2R4S data store, there must be at least four physical disks on the compute resource to use Local Read.

Changes to Local Read Policy Enforcement

Originally, when this policy was introduced, OnApp did not enforce the requirement for the minimum number of drives. Consequently, some users who set the policy, having insufficient drives may see the following error message:

```
Fatal: OnApp::Actions::Fatal Storage API Call failed: {"result"=>"FAILURE",
"error"=>"Local reads have been enabled on the zone - members required per
host: 4, required hosts: 2, available hosts: 0"}
```

The solution is to add additional drives to the compute resource and then add them to the data store or to disable Local Read.

4.4 Upgrade Cloud with Static Servers (6.1 Edge 1/2 to 6.1)

- OnApp 6.1 is a new stable version that introduces a lot of new features, improvements, and fixes.
- You can update to OnApp 6.1 from OnApp 6.1 Edge 1 or from OnApp 6.1 Edge 2.

This guide explains how to upgrade OnApp Cloud 6.1 Edge 1 or 6.1 Edge 2 to 6.1 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 Compute Resources with Integrated Storage](#)
- [Upgrade Static Backup Servers](#)
- [Upgrade Static Backup Servers with Integrated Storage](#)

See also:

- [Upgrade Guide for Control Panel Server \(6.1 Edge 1/2 to 6.1\)](#)
- [Upgrade Cloud with CloudBoot Servers \(6.1 Edge 1/2 to 6.1\)](#)

4.4.1 Upgrade Control Panel Server

To upgrade the Control Panel server, follow the procedure at [Upgrade Guide for Control Panel Server \(6.1 Edge 1/2 to 6.1\)](#).

4.4.2 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. Upgrade OnApp compute resource installer package:

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

3. Update your server OS components:

For Xen compute resources

```
# /onapp/onapp-hv-install/onapp-hv-xen-install.sh -y
```

For KVM compute resources

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

4. Run the compute resource installer:

For Xen compute resource:

```
# /onapp/onapp-hv-install/onapp-hv-xen-install.sh
```

The full list of Xen installer options

Usage:

```
/onapp/onapp-hv-install/onapp-hv-xen-install.sh [-c CONFIG_FILE] [-v HV_VERSION] [-p API_VERSION] [-a] [-y] [-t] [-s] [-x] [-h]
```

Where:

-c CONFIG_FILE	Custom installer configuration file. Otherwise, the pre-installed one is used.
-v HV_VERSION	Custom compute resource Tools version
-p API_VERSION	Custom StorageAPI version
-a	Do NOT be interactive. Process with automatic installation.
-y	Update OS packages (except for OnApp provided) with 'yum update'.
-t	Initiate Recovery templates and ISO(s), which are used to provision FreeBSD guests, download. The download is initiated if the '-a' option is used.
-s	Skip packages management: install, remove, upgrade. None of the packages are installed/updated/removed.
- x	Skip xen*, kernel*, and libvirt* (compute resource related RPM) packages management. Useful for update (not for fresh install).

For KVM compute resource:

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

The full list of KVM installer options

Usage:

```
/onapp/onapp-hv-install/onapp-hv-kvm-install.sh [-c CONFIG_FILE] [-
```

```
a] [-y] [-t] [-s] [-x] [-v HV_VERSION] [-p API_VERSION] [-h]
```

Where:

-c CONFIG_FILE	Custom installer configuration file. Otherwise, the pre-installed one is used.
-a	Do NOT be interactive. Process with automatic installation.
-v HV_VERSION	Custom compute resource Tools version
-p API_VERSION	Custom StorageAPI version
-t	Initiate Recovery templates and ISO(s), which are used to provision FreeBSD guests, download. The download is initiated if the '-a' option is used.
-y	Update OS packages (except those provided by OnApp for a compute resource) with 'yum update'. Useful for update (not for fresh install).
-s	Skip packages management: install, remove, upgrade. Useful for update (not for fresh install).
-x	Skip kvm, kernel, and libvirt (compute resource related RPM) packages management. Useful for update (not for fresh install).
-d	Install OnApp Storage related packages. Applicable for CentOS 7.x only
-h	Print this info

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

5. Reboot static compute resources.

The kernel and Xen packages update is a part of the "Upgrade Static Compute Resources" default procedure. If the kernel or Xen packages were upgraded, reboot KVM/Xen compute resources to use the new kernel and/or Xen packages.

If you do not have the `/home/mq/onapp/messaging/credentials.yml` file on your compute resources and you plan to deploy Accelerator, run the following command on the CP server:

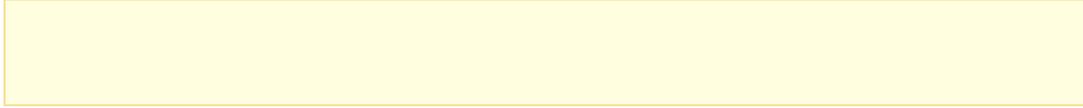
- For all compute resources:

```
rake hypervisor:messaging:configure
```

- For certain compute resources only:

```
rake hypervisor:messaging:configure['11.0.50.111 11.0.50.112']
```

For information on manual configuration for Accelerator, refer to [RabbitMQ Configuration for Accelerator](#). To perform the configuration for a number of compute resources, separate their IPs with a space.



4.4.3 Upgrade Static Compute Resources with Integrated Storage

To upgrade static compute resources with Integrated Storage, follow the next procedure:

1. Initiate recovery images/iso download by running installer with -t option:

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

2. Update static compute resources tools by running the following command:

```
# yum update onapp-hv-tools-kvm onapp-install onapp-messaging
```

4.4.4 Upgrade Static Backup Servers

To upgrade static compute resources, follow the next procedure:

1. Upgrade OnApp Backup Server installer package:

```
# yum update onapp-bk-install
```

2. Update your server OS components:

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

3. Run Backup Server installer:

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

The full list of Backup Server installer options.

Usage:

```
/onapp/onapp-hv-install/onapp-hv-xen-install.sh [-c CONFIG_FILE] [-v BK_VERSION] [-p API_VERSION] [-a] [-y] [-t] [-b] [-d] [-h]
```

Where:

-c CONFIG_FILE	Custom installer configuration file. Otherwise, the pre-installed one is used.
-v BK_VERSION	Custom Backup Tools version
-p API_VERSION	Custom StorageAPI version

-a	Do NOT be interactive. Process with automatic installation.
-y	Update OS packages (except for OnApp provided) with 'yum update'.
-t	Initiate Load Balancer Virtual Appliance, OnApp CDN Appliance and Application Server Appliance templates download. The download is initiated if '-a' option is used.
-b	Initiate Base templates download
-d	Install OnApp Storage related packages. Applicable for CentOS 7.x only.
-h	Print this info

4.4.5 Upgrade Static Backup Servers with Integrated Storage

To upgrade static compute resources, install Pipe Viewer tool with the following command:

```
# yum -y install pv
```

4.5 Upgrade Cloud with CloudBoot and Static Servers (6.1 Edge 1/2 to 6.1)

- OnApp 6.1 is a new stable version that introduces a lot of new features, improvements, and fixes.
- You can update to OnApp 6.1 from OnApp 6.1 Edge 1 or from 6.1 Edge 2.

This guide provides instructions on how to upgrade to OnApp 6.1 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](#)

4.5.1 Upgrade Control Panel Server

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

4.5.2 Upgrade Static Compute Resources

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

4.5.3 Upgrade CloudBoot Compute Resources

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

4.6 Upgrade Integrated Storage (6.1 Edge 1/2 to 6.1)

IS version upgrading to	5.5	5.6	5.7	5.8	5.9	5.10	6.0	6.1 Edge1	6.1 Edge2	6.1
Upgrade by Simple Reboot	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upgrade by Migrate and Reboot	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Upgrade by Live Upgrade	Yes	No	No	No	No	No	No	No	No	No

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

4.6.1 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 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.

4.6.2 Update Methods

Simple Reboot

This upgrade method requires to reboot 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 to reboot 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 reboot.

Please contact our Support team if you are not sure which upgrade method is right for you.

4.7 Getting Support for Upgrade (6.1 Edge 1/2 to 6.1)

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.

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

4.7.1 Professional Services

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

4.7.2 OnApp Community

Visit [OnApp Community](#) that is a public forum where you can share your feedback and product ideas. Only OnApp customers can give suggestions but anyone can explore them.

4.7.3 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.

4.7.4 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.

5 Upgrade Control Panel Server (5.0 to 5.5)

This guide presents the complete walk-through on how to upgrade your Control Panel server from OnApp Cloud 5.0 to 5.5. 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 you upgrade your Control Panel server, we strongly recommend you to do the following:

Check the *character_set_database* and *collation_database* variables on your database server. If you have non-Latin values applied for character set and collation, edit the following parameters in the *my.cnf* file before the upgrade.

```
character-set-server=utf8
collation-server=utf8_general_ci
```

[Access the MySQL database server](#) and run the following SQL statement:

```
ALTER DATABASE onapp CHARACTER SET utf8 COLLATE utf8_general_ci;
```

After you save the changes, restart your SQL server.

5.1 Upgrade Control Panel Server

5.2

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

This upgrade is not applicable if you are running CentOS 5. Please, contact OnApp support to discuss your options.

To upgrade your Control Panel server under CentOS 6.x from OnApp 5.0 to 5.5:

1. Download and install the OnApp Control Panel update package:

```
# rpm -Uvh http://rpm.repo.onapp.com/repo/onapp-cp-update-6.0.noarch.rpm
```

Before running the OnApp Control Panel update script, apply the following changes to the `/onapp/onapp-cp.conf` file to avoid the RC4 Cipher Suite ([CVE-2015-2808](#)) vulnerability.

```
SSLCIPHERSUITE="EECDH+ECDSA+AESGCM:EECDH+aRSA+AESGCM:EECDH+ECDSA+SHA384:EECDH+ECDSA+SHA256:EECDH+aRSA+SHA384:EECDH+aRSA+SHA256:EECDH+aRSA+RC4:EECDH:EDH+aRSA:RC4:!aNULL:!eNULL:!LOW:!3DES:!MD5:!EXP:!PSK:!SRP:!DSS:!RC4:!3DES"
SSLPROTOCOL="all -SSLv2 -SSLv3 -TLSv1"
```

2. Run the update script:

```
# /onapp/onapp-cp-update/onapp-cp-update.sh -v 5.5
```

The update script is interrupted if any inconsistencies are detected on your system. See [Upgrade Notes](#) for more details.

If the update script has failed, you can:

- Manually solve the reason of the failure.
- Continue updating to a certain version with the Control Panel installer by running the following command:

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

If the CP installer command is run successfully, please remove `/onapp/onapp-cp-update/.failed.<major>.<minor>`, where `<major>.<minor>` is the Control Panel current version. Then you can continue with the update script.

3. Check that the cloud has been successfully updated through the OnApp versions 5.1-5.5:

```
# ls -l /onapp/onapp-cp-update/.installed.*
/onapp/onapp-cp-update/.installed.5.1
/onapp/onapp-cp-update/.installed.5.2
/onapp/onapp-cp-update/.installed.5.3
/onapp/onapp-cp-update/.installed.5.4
/onapp/onapp-cp-update/.installed.5.5
```

4. If the update has been completed successfully, run the following command:

```
# service onapp start && service httpd start
```

5. Ensure that all services are working:

```
# service onapp status && service httpd status
```