



Installation Guide

This guide only applies to installations of the full (paid) version of OnApp Cloud v2.3.3.

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	document revisions

ⓘ PLEASE NOTE:

- *You must have a valid license before beginning your install! If you don't have a valid license, contact the OnApp Sales team or your integration specialist.*

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1. Server config reminder

OnApp Cloud runs on CentOS 5 or (for the OnApp Controller Server) CentOS 6. Please note that the CentOS versions required can vary depending which virtualization method you choose, Xen or KVM:

- **XEN Hypervisors** CentOS 5.x x64
- **KVM Hypervisors** CentOS 5.x x64
- **OnApp Control Panel Server** CentOS 5.x x86/X64 or CentOS 6.x x86/64
- **OnApp Backup Server** CentOS 5.x x64

ⓘ The installation processes described in this document require servers to have a base installation of CentOS (versions described above) with the standard repositories enabled. If you have additional repositories enabled, please disable them before continuing.

2. Control Panel Installation

① If mysql server is already installed, it must not have a password configured: this will be configured by our installer. Any password that is already configured will cause an installer error.

① Installer output is redirected to `./onapp-cp-install.log`

① All installer critical errors are in `/var/log/messages`

① Once the installation of the control panel is complete, your default OnApp login will be **admin / changeme**. The password can be changed via the Control Panel's Users and Groups menu.

① If you're replacing an existing Control Panel with a new install, please dump your current mysql database. Once you've installed your new control panel, overwrite its database with the previous one. You can find details about the database by running `cat /onapp/interface/config/database.yml` and looking at the connection details located under 'production'.

1. Update your server using YUM:

```
OnApp-CP#> yum -y update
```

① If anything was updated, reboot the server.

2. Download OnApp YUM repository file (for CentOS 5.x x86 64):

```
OnApp-CP#> wget http://rpm.repo.onapp.com/repo/centos/5/onapp-  
repo.noarch.rpm  
OnApp-CP#> rpm -ivh onapp-repo.noarch.rpm  
OnApp-CP#> yum clean all
```

3. Install OnApp Control Panel installer package:

```
OnApp CP#> yum install onapp-cp-install
```

4. Custom Control Panel configuration

Edit the `/onapp/onapp-cp.conf` file to set Control Panel custom values, such as:

- OnApp to MySQL database connection data: connection timeout, pool, encoding, unix socket
- MySQL server configuration data (if MySQL is running on the same server as the CP): wait timeout, maximum number of connections
- The maximum number of requests queued to a listen socket (net.core.somaxconn value for `sysctl.conf`)

- The root of OnApp database backups directory (temporary directory on the CP box where MySQL backups are placed)

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

ⓘ Custom values must be set before the installer script runs.

5. **Run Control Panel installer:**

```
OnApp CP#> /onapp/onapp-cp-install/onapp-cp-install.sh
```

6. **Install OnApp License to activate the Control Panel:**

Enter a valid license key via the Web UI (you'll be prompted to do so).

ⓘ PLEASE NOTE: once you have entered a license it can take up to 15 minutes to activate. If you experience license problems after entering a valid license key, please contact support.

3. Hypervisor Installation

① Once the control panel server has been installed successfully, you can follow the process below to install each hypervisor and add it to the Control Panel server.

1. Add the hypervisor to your cloud using the OnApp Control Panel:

Settings --> Hypervisors --> Add New Hypervisor

Make sure the hypervisor is visible in the Control Panel, and at this point showing as inactive.

2. Make sure your OS is up to date:

```
bash#> yum -y update
```

3. Enable IPv6:

① This step is required regardless of whether you'll be using IPv6 or not.

Edit /etc/modprobe.conf and comment out the following strings:

```
alias ipv6 off
options ipv6 disable=1
```

Next, edit /etc/sysconfig/network and replace

```
NETWORKING_IPV6=no
```

with

```
NETWORKING_IPV6=yes
```

① These settings won't take effect until you reboot, but do not reboot now. We'll do that later.

4. Download the OnApp repository:

```
bash#> wget http://rpm.repo.onapp.com/repo/centos/5/onapp-
repo.noarch.rpm
bash#> rpm -ivh onapp-repo.noarch.rpm
bash#> yum clean all
```

5. Install the OnApp hypervisor installer package:

```
bash#> yum install onapp-hv-install
```

6. Edit custom hypervisor configuration

Edit the /onapp/onapp-hv.conf file to set hypervisor custom values, such as NTP time sync server, Xen Dom0 memory configuration data & number of loopback interfaces:

```
# vi /onapp/onapp-hv.conf
```

① Custom values must be set before the installer script runs.

7. Run the OnApp hypervisor installer script:

For Xen hypervisors:

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

For KVM hypervisors:

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

8. Configure the hypervisor for your cloud:

```
bash#> /onapp/onapp-hv-install/onapp-hv-config.sh -h <CP_HOST_IP> -f  
<FILE_TRANSFER_SERVER_IP>
```

① Ignore any errors stating stats and vmon services aren't running. This is expected at this stage.

<CP_HOST_IP> is the IP addresses of the Control Panel server.

<FILE_TRANSFER_SERVER_IP> is the IP address of the server that will hold your backups and templates.

9. Reboot the hypervisor to complete the installation:

```
bash#> shutdown -r now
```

4. Data store installation

ⓘ PLEASE NOTE:

- *This process assumes you have already configured a hypervisor to see the ISCSI/ATAoE block device it is connecting to, and that the SAN disk will be shown when running a fdisk -l.*
- *All hypervisors need access to the same datastore. Ensure that you have the block device visible on all hypervisors.*
- *VERY IMPORTANT: only perform this procedure once per data store!*
- *ALSO IMPORTANT: take care when choosing the disk/partition you wish to use for storing VM data!*

1. **Add the new data store to OnApp via the WebUI:**

Go to `http://xxx.xxx.xxx.xxx/settings/data_stores/new`

Add a unique label and the disk size of the data store.

2. **Find the data store's unique identifier (this is needed to create your volume group in step# 4):**

Go back to the data stores page and read the IDENTIFIER.

`http://xxx.xxx.xxx.xxx/settings/data_stores`

3. **SSH into a hypervisor that is able to connect to this datastore. Create the physical volume:**

```
bash#> pvcreate --metadatasize 50M /dev/xxx
```

ⓘ *Replace xxx with the real device.*

4. **Create the volume group:**

```
bash#> vgcreate onapp-IDENTIFIER /dev/xxx
```

ⓘ *Replace xxx with the real device and IDENTIFIER with the info from the datastore page in the UI.*

5. **Test hypervisor/volume group visibility:**

Now you have the new datastore formatted you should be able to see the volume group from all hypervisors. To test this, run `pvscan` and `vgscan` on all hypervisors. Make sure you can see all identifiers on all hypervisors.

5. Backup Server Installation

1. Add a backup server to the webUI:

- Log into your Control Panel.
- Go to the *Settings* menu and click the Backup Servers icon.
- Click the Add New Backup Server button.
- Fill in the form that appears:
 - Give your backup server a label.
 - Enter the backup server IP address (IPv4).
 - Set the backup server capacity (in GB).
- Tick the Enabled box to enable the backup server.
- Click the Add Backup Server button to finish

2. Download the OnApp repository:

```
bash# wget http://rpm.repo.onapp.com/repo/centos/5/onapp-  
repo.noarch.rpm  
bash# rpm -Uvh onapp-repo.noarch.rpm  
bash# yum clean all
```

3. Install OnApp Backup Server installer package:

For a new installation:

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

If you're upgrading the previous version:

```
bash# yum clean all  
bash # yum install onapp-bk-install
```

4. Check and set Backup Server default settings

Edit Backup Server default settings (such as templates and backups directories, and ntp server) by editing the `/onapp/onapp-bk.conf` file:

```
bash# vi /onapp/onapp-bk.conf
```

5. Run the installer:

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

6. Generate SSH keys

① *OnApp requires SSH keys to access various elements of the cloud. The script provided will generate and transfer keys as necessary.*

- *The script needs to run on your Control Panel server.*
- *The script will overwrite any keys that already exist, so if you have custom keys already installed you will need to add them again after running the script.*
- *The script will ask you for login details to various servers during the execution. Please follow the onscreen instructions.*

1. SSH into your Control Panel server

2. Download and run the script:

```
bash#> wget http://downloads.repo.onapp.com/install-all-keys.sh  
bash#> /bin/sh install-all-keys.sh
```

① *Do not specify passphrases - just leave them blank!*

7. Control Panel cloud configuration

Once you've set up your hardware, the final step is to configure your cloud in your Control Panel. This chapter explains how to configure a basic cloud – if you complete these steps you should be in a position to create VMs.

7.1 Create hypervisors and hypervisor zones

1. **Create a new hypervisor zone:**

- Go to your Control Panel's *Settings* menu and click the *Hypervisor Zones* icon.
- Click the *Add New Hypervisor Zone* button.
- On the screen that follows, give your hypervisor zone a name (label).
- Make sure that the *disable failover* option is selected.
- Click the *Save* button to finish.

2. **Add your new hypervisor to the control panel:**

- Go to your Control Panel's *Settings* menu and click the *Hypervisors* icon.
- Click the *Add New Hypervisor* button and fill in the form on the screen that appears:
 - The hypervisor's IP address should be its IP on the management network
The memory overhead is determined by the output of the hypervisor installation script.
ⓘ The value you noted when installing the hypervisor.
 - Make sure that "disable failover" is selected
 - Make sure that you select the "Enable" option
- Click the *Add Hypervisor* button to finish. You can view the hypervisor under the main *Hypervisors* menu.

3. **Add that hypervisor to your new hypervisor zone:**

- Go to your Control Panel's *Settings* menu and click the *Hypervisor Zones* icon.
- Click the label of the zone you want to add a hypervisor to.
- The screen that appears will show you all hypervisors in the cloud, organized into two lists – those assigned to the zone already, and those that are unassigned.
- In the unassigned list, find the hypervisor you want to add to the zone, and click the *Add* icon next to it.

7.2 Create networks and network zones

1. Create a new network zone

- Go to your Control Panel's *Settings* menu and click the *Network zones* icon.
- Click the *Add New Network zone* button.
- On the screen that follows, give your network zone a name (label) and then click the *Save* button.

2. Create a new network

- Go to your Control Panel's *Settings* menu and click the *Networks* icon.
- Click the *Add New Network* button at the end of the list.
- On the screen that follows, give the new network a name (label), a VLAN number, and assign it to a network zone if required.
- Click the *Add Network* button to finish.

① The network label is simply your choice of a human-readable name – “public”, “external”, “1Gb”, “10Gb” etc.

① The VLAN field only needs to be given a value if you are tagging the IP addresses you will add to this network with a VLAN ID (IEEE 802.1Q). If you plan to tag IP addresses in this way, you need to make sure the link to the public interface on the hypervisors is a trunked network port. If you are not VLAN tagging addresses, this field can be left blank and the public port on the hypervisor can be an access port.

3. Add that network to your new network zone

- Go to your Control Panel's *Settings* menu and click the *Network Zones* icon.
- Click the label of the zone you want to add a network to.
- The screen that appears will show you all networks in the cloud, organized into two lists – those assigned to the zone already, and those that are unassigned.
- In the unassigned list, find the network you want to add to the zone, and click the *Add* icon next to it.

4. Add a range of IP addresses to the new network

- Go to your Control Panel's *Settings* menu.
- Click the *Networks* icon: the screen that appears shows every network available in your cloud.
- Click the name (label) of the network you want to add addresses to. On the screen that follows you'll see a list of all IP addresses currently assigned to this network.
- Click the *Add New IP Address* button at the bottom of the screen, and complete the form that appears:
 - *IP Address* – add a range of addresses. For example:
 - '192.168.0.2-254' or '192.168.0.2-192.168.0.254' (IPv4)
 - '2001:db8:8:800:200C:417A-427A' (IPv6).

- *Netmask* – for example: '255.255.255.0' (IPv4) or '24' (IPv6).
- *Gateway* – enter a single IP to specify a gateway. If you leave this blank the address will be added without a gateway.
- *Don't use as primary during VM build* – If you tick this box, the IP addresses you add will never be assigned as primary IPs. Primary IPs are only allocated to VMs when the VM is built, so with this box ticked, the address range will never be assigned to a newly built VM.
- Click the *Add New IP Address* button to finish.

ⓘ You can add up to 1,000 IP addresses at once. To add more than 1,000 addresses, repeat the procedure again.

7.3 Create data stores & data store zones

1. Create a new data store zone

- Go to your Control Panel's *Settings* menu and click the *Data store zones* icon.
- Click the *Add New Data store zone* button.
- On the screen that follows, give your data store zone a name (label) and then click the *Save* button.

2. Create a new data store

- Go to your Control Panel's *Settings* menu and click the *Data Stores* icon.
- Click the *Add New Data Store* link at the bottom of the screen that appears.
- Fill in the form on the next screen:
 - *Label* – give the data store an appropriate name (eg HV1-SSD)
 - *Size* – you can get this by doing `fdisk -l /dev/sdaX`, for example
 - *IP address*
 - Select "local hypervisor" (since this will be local storage)
 - Leave the hypervisor zone field blank
 - Don't disable the data store
 - Assign the data store to the data store zone you just created using the drop-down menu.
- When you've finished configuring the store, click the *Add Data Store* button.

ⓘ Follow these steps for each local storage block on the hypervisor.

3. Configure the data store on your hypervisor

① *The commands below use /dev/sda5 as an example. You can find the volume group identifier we're using in the second command, from the DataStores screen in the Control Panel.*

```
bash#> pvcreate --metadatasize=50M /dev/sda5
bash#> vgcreate onapp-ar0akk2wyer3tf /dev/sda5
```

4. Update necessary sysctl variables and reload

Edit your /etc/sysctl.conf file. If the netfilter.ip_conntrack_max entry exists, update the value: if it doesn't exist, add it.

```
net.ipv4.netfilter.ip_conntrack_max = 256000
bash#> sysctl -p
```

7.4 Join networks and datastores to hypervisors

1. Join datastores to hypervisors

- Go to your Control Panel's *Settings* menu and click the *Hypervisors* icon.
- Click the label of the hypervisor you want to manage data stores for.
- On the screen that appears, click the *Manage Data Stores* link in the *Actions* section.
- On the screen that follows, you'll see a list of all data stores currently associated with this hypervisor:
 - To add a data store join, choose a data store from the drop-down menu and click the *Add Data Store* button.
 - To remove a data store join, click the *Delete* icon next to it. You'll be asked for confirmation before the store is removed.

2. Join networks to hypervisors

- Go to your Control Panel's *Settings* menu and click the *Hypervisors* icon.
- Click the label of the hypervisor you want to manage networks for.
- On the screen that appears, click the *Manage Networks* link in the *Actions* section.
- On the screen that follows, you'll see a list of all networks currently associated with this hypervisor:
 - To add a new network join, choose a network from the drop-down menu, enter its interface name (eth0, eth1) and click the *Add Network* button.
 - To remove a network join, click the *Delete* icon next to it. You'll be asked for confirmation before the network is removed.

① *Note that when you join the network to a hypervisor you must specify the relevant NIC: this should be a dedicated NIC with a blank config that is patched to route the network in question.*

7.5 Download and configure templates

- Go to your Control Panel's *Settings* menu
- Click the *Configuration* icon, then choose *Backup/Templates*. On the screen that follows:
 - Enable 'Use SSH File Transfer'
 - The Server IP should be the management IP address of your Control Panel server.
 - Set the user to root and leave the other options default.
- Login to the Control Panel server as root, and run:

```
bash#> mkdir /onapp/templates && mkdir /onapp/backups
bash#> cd /onapp/templates
bash#> wget http://templates.repo.onapp.com/Linux/debian-6.0-x64-
1.4.tar.gz
bash#> service onapp restart
```

8. Getting support

OnApp customers with a full (paid) license can contact support at any time:

support@onapp.com

+1 (888) 876 8666

<http://onapp.com/support>

Response times

OnApp offers a 15 minute SLA for critical issues.

Known issues

A list of known issues and workarounds for the latest version of OnApp Cloud software is maintained at <http://onapp.com/cloud/kis>. Please check the list before contacting your support team!

Appendix: document revisions

v1.1, 9th January 2013

- Added [Server config reminder](#) section with details of CentOS versions required for different servers in your cloud.

v1.0, 28th August 2012

- First release. The install process for v2.3.3 differs from the process for previous versions in one important respect - the [backup server installation](#) process.