

# Distributed Deployment Guide

For advanced Private Cloud users who wish to add additional cluster nodes to their deployment.



ASSEMBLA

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## 1. System Requirements

We recommend bare metal systems. You are welcome to use virtualization for more convenient scaling and migration; however, please note that you will need to ensure that the hypervisor is passing through the networking interface directly to the guest OS and that the latest native networking driver is in use - this is to ensure the best performance.

### Hardware

#### MINIMUM:

- OS: CentOS 7.4 x86\_64  
Processor: 3.70 GHz Intel® Xeon® Processor E3-1290 v2  
Memory: 8 GB RAM (DDR3 1333MHz ECC FBDIMMs)  
Networking: 1Gbps interface with Jumbo Frames capability  
Storage:
- 500 GB HDD-backed primary (OS/Application) physical storage
  - 100 GB HDD-backed secondary (Repository) virtual storage

#### RECOMMENDED:

- OS: CentOS 7.4 x86\_64  
Processor: 3.60 GHz Intel® Xeon® Processor E5-1650 v4 or better (prefer core count over single threaded performance)  
Memory: 16 GB RAM (DDR4 2400MHz ECC FBDIMMs)  
Networking: 10Gbps+ interface with Jumbo Frames capability  
Storage:
- 500 GB SSD-backed primary (OS/Application) physical storage
  - 100 GB SSD-backed secondary (Repository) virtual storage

#### ADDITIONAL RECOMMENDATIONS:

- If running in a virtualized environment, use passthrough for the networking interface to ensure the best performance.
- For the best experience with future growth, ensure that your primary and secondary storage are expandable
- It is best practice to ensure that your storage for both the OS/Application and the Repositories is redundant - we recommend a RAID configuration such as RAID 1 (for minimum protection), RAID 6 (for better protection), or RAID 10 (for performance).
- In order to ensure that client systems are able to make full use of the networking capabilities of the system, please ensure that the networking gear in use is capable of 1Gbps on each client machine, and that Jumbo Frames are enabled.

### Software

We support the use of CentOS 7 64-bit Minimal for the installation. You may obtain a fresh copy of the installation ISO from the following URL, provided for your convenience:

[https://download.assembla.com/private-cloud-us/CentOS-7-x86\\_64-Minimal-1708.iso](https://download.assembla.com/private-cloud-us/CentOS-7-x86_64-Minimal-1708.iso)

### Skills and Experience

The end user should have on-hand experience working with CentOS 7, systemd, and Kubernetes, or a person on-staff with these skills. Users deploying to Amazon EC2 should have knowledge of EC2 Instances, Elastic Load Balancers, and Virtual Private Cloud.

## 2. Networking/Firewall

In order for the installation procedure to function normally, you must allow inbound access from a client machine to the system for the setup procedure.

Allow inbound access to the following destination TCP ports:

- 22
- 443
- 2222
- 3023
- 3024
- 33008

Allow outbound access to the following destination TCP ports:

- 443
- 3023
- 3024
- 33008

If these ports are not opened before you begin the setup procedure, you may be unable to successfully begin or complete the installation. *As part of the installation, the SSH daemon for the underlying OS will be relocated from port 22 to port 2222 (see the "[Updating the Port Configuration](#)" section for more details).*

## 3. OS Installation

Perform a fresh format of the system using CentOS 7 64-bit Minimal. Do not use LVM, and do not create any partitions except as necessary for the boot configuration (BIOS/UEFI).

Note: During the installation, if you encounter any issues or errors that you are unable to rectify by following the [Cleanup and Uninstallation Procedure](#) (end of document) and running through the installation a second time, please contact our Support team - we're happy to help.

## 4. Prepare the System

Once CentOS 7 64-bit Minimal is installed, upgrade and reboot the OS:

```
yum clean all
yum -y upgrade
systemctl reboot
```

Next, execute the preparation script to prepare the OS for Assembla Private Cloud:

```
bash <(curl -s https://download.assembla.com/private-cloud-us/prepare_install.sh)
```

Note: If the preparation script seems to fail, please capture a screenshot or copy the scrollback from the terminal, and contact Support to provide the information.

## 4. Storage Configuration

**Note: If you are importing existing repositories, you may skip this step. This is only for provisioning fresh storage for repositories.**

There are many ways to attach storage to a Linux system - direct, through a hypervisor, iSCSI, NFS, etc. Depending on your storage options, you may need to make some changes to the system and the way you mount things. We typically use the `/mnt` directory for this additional storage.

In the example below, we're using a 1TB software-based RAID array (built with `mdadm`) as our storage for our repositories. Since we're using `mdadm`, our array's device is `/dev/md0`. We format our storage to XFS to ensure the best performance while offering support for a large count of inodes.

```
### Format the storage to xfs (In this example, we are using an mdadm array)
[root@centos ~]# mkfs.xfs /dev/md0

### Obtain the Partition UUID for the partition that you formatted
[root@centos ~]# __STORAGEUUID=$(blkid -s UUID -o value /dev/md0)

### Mount the partition to /mnt
[root@centos ~]# mount UUID=${__STORAGEUUID} /mnt

### Add the mount line for the storage to /etc/fstab
[root@centos ~]# echo "UUID=${__STORAGEUUID} /mnt xfs defaults,noatime 0 0" >> /etc/fstab

### Test the entry you've added to /etc/fstab - start by unmounting:
[root@centos ~]# umount /mnt

### Next, try to automatically mount:
[root@centos ~]# mount -a

### Then check to ensure that the storage has remounted:
[root@centos ~]# df -hT /mnt

Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/md0 xfs   1.0T   96G  929G  10% /mnt
```

If your storage is present and mounted, you are ready to begin the installation process. Locate the link provided to you in the “Getting Started” email from Assembla. If you are unable to locate this link, please contact Support.

## 5. Scaling Your Deployment Using the Install Console

New servers can be added to your deployment using the Install Console, shown below.

The screenshot shows the Install Console interface for a deployment named 'high-perf-private-cloud'. The top bar indicates 'System Status: Healthy' and 'Location: On premise'. The main content area is divided into sections: 'Application endpoints' (listing HTTPS, SSH, and HTTP endpoints), 'License' (with an 'Active' status and a table of details including expiration, max\_nodes, metadata, product\_name, and shutdown), and 'Remote Assistance'.

Open the **Servers** tab on the left sidebar and click **Add Existing** on the right side of the screen.

The screenshot shows the 'Servers' tab in the Install Console. It features a table with columns for 'Private IP', 'Public IP', 'Hostname', and 'Profile'. A single server is listed with a dropdown arrow next to its Private IP. An 'Add Existing' button is located in the top right corner.

Private IP	Public IP	Hostname	Profile
10.49.249.201 ▾		ip-10-49-249-201.ec2.internal	Core server

Choose either an **Application** server or a **Repo** server and click Continue.

**NOTE:** An application server allows you to scale the web request performance and the Repo server allows you to the same around repositories. The scaling is automatic and the system will put new Repos you create using the web application on the next free server in your cluster. If you have existing repositories you must first import them. Follow the Import steps below.

The screenshot shows the 'Servers' tab with a 'Select Profile' section. Two radio button options are available: 'Application server (required - RAM: 4.0GB, CPU: Core x 1)' and 'Repo server (required - RAM: 4.0GB, CPU: Core x 1)'. 'Continue' and 'Cancel' buttons are at the bottom.

Copy the command and paste to your server. Go back to the Cluster UI and Click **Start**. The expanding operation will start in the background.

**Servers** Add Existing

**Repo server** required - RAM: 4.0GB, CPU: Core x 1

Add existing server  
Copy and paste the command below into terminal. Your server will automatically appear in the list.

```
curl -s --tlsv1.2 --insecure "https://172.31.29.85:3009/t/8cbb714b842075b8a6c7ad2386312c68/repo" | sudo bash
```

[Copy Command](#)

[Waiting for servers...](#) [Cancel](#)

You can preview running tasks in the **Operations** tab.

**Operations**

Type	Started	Status	
Adding a server	20/03/2018 12:53:37	Completed	<a href="#">Logs</a>
Installing this cluster	20/03/2018 12:07:51	Completed	<a href="#">Logs</a>

An example expanded cluster can be seen below:

**Servers** Add Existing

Private IP	Public IP	Hostname	Profile
172.31.29.85 ▾		ip-172-31-29-85.eu-west-3.compute.internal	Core server
172.31.47.125 ▾		ip-172-31-47-125.eu-west-3.compute.internal	Repo server

## 6. Accessing the Assembla Web Application

You should now be able to access the Assembla web application using the domain name you chose before (**myserver.mycompany.com**). By default, the interface requires HTTPS. If you ran the above port configuration script, you should immediately be able to access the interface at <https://myserver.mycompany.com>. If you did not run the port configuration script, consult the **Install Console** - look for the **HTTPS (internal)** URL:

high-perf-private-cloud Version 1.0.4-2-g4c51c7a [Download Debug Info](#) [Uninstall](#)

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**Application endpoints**

HTTPS (internal) Web Application   SVN/GIT over HTTPS <a href="https://192.168.2.76:30443">https://192.168.2.76:30443</a>	GIT (internal) GIT via classic read-only protocol <a href="http://192.168.2.76:30418">192.168.2.76:30418</a>	HTTP (internal) Currently deprecated in favor of HTTPS <a href="http://192.168.2.76:30080">http://192.168.2.76:30080</a>
SSH (internal) SVN/GIT via Secure Shell <a href="https://192.168.2.76:30022">192.168.2.76:30022</a>		

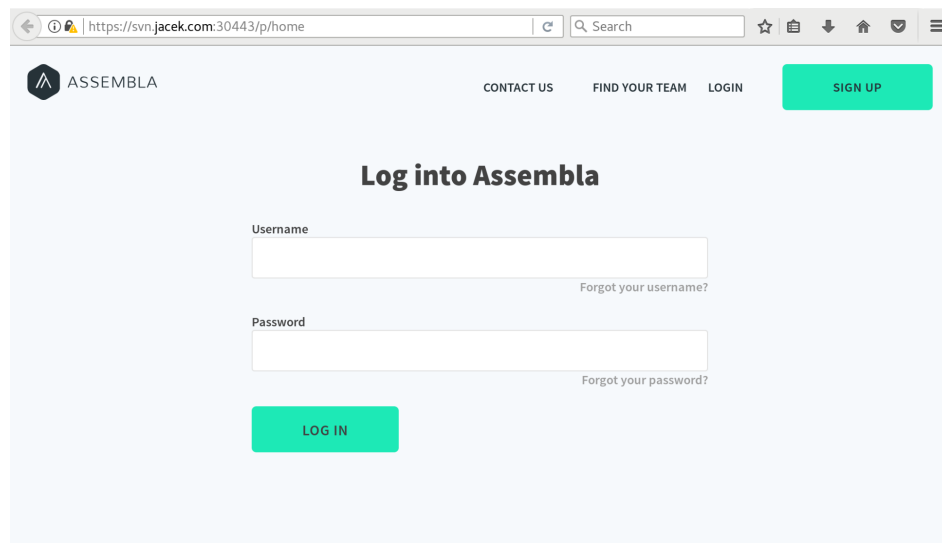
Add a hostname to your local DNS to accomplish this:

```
[root@localhost tmp]# cat /etc/hosts
192.168.2.76    myserver.mycompany.com
```

**NOTE:** For security, the server will not accept logins without the proper client hostname.

## First Login

The Assembla web application should present you with a login form: Import Existing Repositories



The **default credentials** for the Assembla web application are as follows:

**Username:** super

**Password:** super

Upon first login, you must **change the default username and password** via the user's Profile page. To do this, hover over the avatar on the top-right of the page and click **Profile**. Update the credentials and save them, then **log out and back in** to confirm they are working.

## 7. Import Existing Repositories

### Subversion

To import Subversion repositories, please follow these instructions: <https://articles.assembla.com/using-subversion/getting-started/migrating-svn-repositories-to-assembla>

### Git

To import Git repositories, please follow these instructions: <https://articles.assembla.com/using-git/getting-started/migrating-git-repositories-to-assembla>

Note: If you have trouble importing, please contact Support.



## 8. Cleanup and Uninstallation Procedure

If anything goes wrong, you can clean up the installation to prepare to start over by running the following script:

```
for unit in $(systemctl | grep gravity__ | awk '{ print $1}'); do
    systemctl stop $unit
    systemctl disable $unit
done
rm -rf /var/lib/gravity/* /etc/systemd/system/gravity__*
rm -rf /tmp/assets* /tmp/gravity-*
rm -rf /var/lib/breakout/*

iptables -P INPUT ACCEPT
iptables -P FORWARD ACCEPT
iptables -P OUTPUT ACCEPT
iptables -t nat -F
iptables -t mangle -F
iptables -F
iptables -X
iptables -X -t nat
iptables-save > /etc/sysconfig/iptables
systemctl reboot
```

## 9. Appendix

### Entering the Planet

The Planet is the container in which the Kubernetes ecosystem is wrapped. To access it, simply log into the server as user 'root' and run `gravity enter`. This is a prerequisite for all Kubernetes commands.

### Obtaining the System Status

In a terminal as root run:

```
[root@svn ~]# kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
app-3358271919-2vxdg	1/1	Running	0	10m
assembla-bandwagon-831721857-jh2nn	1/1	Running	0	10m
centrifugo-251788494-1c0fr	1/1	Running	0	10m
elasticsearch-6hs07	1/1	Running	0	3m
fs-svjz	1/1	Running	0	3m
fstore-3kbjv	1/1	Running	0	10m
hacks-74wlb	1/1	Running	0	3m
jobs-662124399-bhsfr	1/1	Running	0	10m
memcache-216430333-91gn5	1/1	Running	0	10m
mysql-3q1c7	1/1	Running	0	3m
proxy-3889622425-15jk6	5/5	Running	4	10m
rabbitmq-ds1lm	1/1	Running	0	3m
redis-4112591049-z6k6b	1/1	Running	0	10m

The STATUS column reflects the system status of key server services. When everything is operational, they're all in the `Running` state.

### Further Troubleshooting

As always, please don't hesitate to contact Support.