



# Red Hat Enterprise Linux Atomic Host 7

## Release Notes

Release Notes



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Release Notes

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## Abstract

Information about each release, including known issues and technology previews

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## 1. DEPRECATION NOTICE



### IMPORTANT

Red Hat Enterprise Linux Atomic Host is retired as of August 6, 2020 and active support is no longer provided. Accordingly, this guide is deprecated and will no longer receive updates.

# CHAPTER 1. OVERVIEW

This book covers the updates from the following CDN channels:

- **Atomic Host** - delivers the cumulative, image-based updates for the Atomic Host - the OSTree, as well as updates to the individual RPMs that contain tooling used to build and manage ostrees, and to the OSTree components which enable the use of container applications, for example *cockpit-ostree* and *openscap*. However, such RPMs cannot be downloaded and used on Red Hat Enterprise Linux.
- **Extras-7** - delivers updates on container-related RPMs, most of which are also available as part of the OSTree for RHEL Atomic Host. The packages marked with an asterisk (\*) are only available for Red Hat Enterprise Linux, and are not part of the Atomic Host OSTree. This channel also delivers updates on the official Container Images based on Red Hat Enterprise Linux.

For detailed information on the Red Hat Enterprise Linux Atomic Host cycle, see <https://access.redhat.com/support/policy/updates/extras/>.

All official Red Hat container images are available from [Red Hat Registry](#).

To update your RHEL Atomic Host to the latest OSTree, run the **atomic host upgrade** command.

## 1.1. Red Hat Enterprise Linux Atomic Host

Red Hat Enterprise Linux Atomic Host is a secure, lightweight, and minimal-footprint operating system optimized to run Linux containers. It is pre-installed with the following tools to support Linux containers:

- **docker** - an open source engine that automates the deployment of any application as a lightweight, portable, self-sufficient container that will run virtually anywhere
- **atomic** - defines the entrypoint for Atomic hosts
- **etcd** - provides a highly-available key value store for shared configuration
- **flannel** - contains an etcd-driven address management agent, which manages IP addresses of overlay networks between systems running containers that need to communicate with one another

Red Hat Enterprise Linux Atomic Host makes use of the following technologies:

- **OSTree** and **rpm-OSTree** - These projects provide atomic upgrades and rollback capability
- **systemd** - a new init system for Linux that enables faster boot times and easier orchestration
- **SELinux** - enabled by default to provide complete multi-tenant security

Also, **Cockpit** is available on Red Hat Enterprise Linux as a separate Extras package and on Red Hat Enterprise Linux Atomic Host, as the **cockpit-ws** Container Image. Cockpit is a server administration interface that makes it easy to administer Red Hat Enterprise Linux servers through a web browser.

# CHAPTER 2. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.8.3

### 2.1. Atomic Host

#### OSTree update:

New Tree Version: 7.8.3 (hash:  
dfd383553c0f25c503272b0d193ac863f2deede0fa69278391bd2b1e6d02b56a)  
Changes since Tree Version 7.8.2 (hash:  
48c78ed67690eff2c0ab803c163753ea3d3f00ec001a05f37b41eb6d71b463ab)

#### 2.1.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Universal Base Image 7 Init Container Image (rhel7/ubi7-init)

#### 2.1.2. Last release

This is the last release of Red Hat Enterprise Linux Atomic Host.

# CHAPTER 3. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.8.2

### 3.1. Atomic Host

#### OSTree update:

New Tree Version: 7.8.2 (hash:  
12729cf41c00b566cc5618247027648f8b867409728be9d263743e52472a3560)  
Changes since Tree Version 7.8.1 (hash:  
78a6301dcd4ba61e6703e336e9b3bc0f855e6d442aa4d4ce88e3ea11e975feec)

### 3.2. Extras

#### Updated packages:

- common-2.0.15-1.el7\_8
- container-selinux-2.119.2-1.911c772.el7\_8
- containernetworking-plugins-0.8.3-3.el7\_8
- dpdk-18.11.8-1.el7\_8
- rhel-system-roles-1.0-12.el7\_8
- skopeo-0.1.40-11.el7\_8

#### 3.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.8 Container Image (rhel7.8, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)

- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Universal Base Image 7 Container Image (rhel7/ubi7)
- Red Hat Universal Base Image 7 Init Container Image (rhel7/ubi7-init)
- Red Hat Universal Base Image 7 Minimal Container Image (rhel7/ubi7-minimal)

## CHAPTER 4. RED HAT ENTERPRISE LINUX ATOMIC HOST 7.8.1

### 4.1. Atomic Host

#### OSTree update:

New Tree Version: 7.8.1 (hash:  
78a6301dcd4ba61e6703e336e9b3bc0f855e6d442aa4d4ce88e3ea11e975feec)  
Changes since Tree Version 7.8.0 (hash:  
0bbae7b8382b6228274909d26acf455738241115af3de44deac128348036f1ab)

### 4.2. Extras

#### Updated packages:

- buildah-1.11.6-11.el7\_8
- etcd-3.2.28-1.el7\_8
- podman-1.6.4-18.el7\_8

#### 4.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.8 Container Image (rhel7.8, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)

- Red Hat Universal Base Image 7 Container Image (rhel7/ubi7)
- Red Hat Universal Base Image 7 Init Container Image (rhel7/ubi7-init)
- Red Hat Universal Base Image 7 Minimal Container Image (rhel7/ubi7-minimal)



# CHAPTER 5. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.8.0

### 5.1. Atomic Host

#### OSTree update:

New Tree Version: 7.8.0 (hash:  
0bbae7b8382b6228274909d26acf455738241115af3de44deac128348036f1ab)  
Changes since Tree Version 7.7.5 (hash:  
fa5ed9df25ffe265b2f3504fb2711a6633d051c62a0f6a8b3d095799c1befc8b)

#### Updated packages:

- openscap-daemon-0.1.10-2.el7

### 5.2. Extras

#### Updated packages:

- atomic-1.22.1-33.gitb507039.el7\_8
- buildah-1.11.6-8.el7\_8
- cockpit-195.5-2.el7
- cockpit-composer-9-1.el7
- common-2.0.8-1.el7
- container-selinux-2.119.1-1.c57a6f9.el7
- containernetworking-plugins-0.8.3-2.el7
- docker-1.13.1-161.git64e9980.el7\_8
- dpdk-18.11.5-1.el7\_8
- fuse-overlayfs-0.7.2-6.el7\_8
- fuse3-3.6.1-4.el7
- libcomps-0.1.8-14.el7
- lorax-composer-19.7.39-1.el7
- podman-1.6.4-16.el7\_8
- runc-1.0.0-67.rc10.el7\_8
- skopeo-0.1.40-7.el7\_8
- slirp4netns-0.4.3-4.el7\_8

#### 5.2.1. Container Images

**Updated:**

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.8 Container Image (rhel7.8, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Universal Base Image 7 Container Image (rhel7/ubi7)
- Red Hat Universal Base Image 7 Init Container Image (rhel7/ubi7-init)
- Red Hat Universal Base Image 7 Minimal Container Image (rhel7/ubi7-minimal)

### 5.3. New Features

- **Rootless containers are now fully supported**

Rootless containers are containers that are created and managed by regular system users without administrative permissions. This allows users to maintain their identity, including such things as credentials to container registries.

You can try rootless containers using the podman and buildah commands. For further information:

- for rootless containers, see [How does rootless Podman work.](#)
  - for **buildah**, see [Building container images with Buildah.](#)
  - for **podman**, see [Building, running, and managing containers.](#)
- **fuse-overlayfs now available, might require changes to rootless containers**

The fuse-overlayfs package provides an overlayfs FUSE implementation, which can be used in rootless containers. With FUSE, it is possible to implement a fully functional file system in a user-space program.

Due to the changes in storage, you might need to modify your rootless containers when upgrading to RHEL Atomic Host 7.8.0.

- **The quay registry is not searched by default anymore**

Previously, using short image names sometimes pulled incorrect images. To fix this, the **quay.io** registry has been removed from the default registry search list in `/etc/containers/registries.conf`.

Now you need to specify the full repository name when pulling an image, for example **quay.io/myorg/myimage**.

# CHAPTER 6. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.7.5

### 6.1. Atomic Host

#### OSTree update:

New Tree Version: 7.7.5 (hash:

fa5ed9df25ffe265b2f3504fb2711a6633d051c62a0f6a8b3d095799c1befc8b)

Changes since Tree Version 7.7.4 (hash:

422dc6900aa50ce4fb23adee368890e770007a644addb0558e23cfb52d4efd26)

### 6.2. Extras

#### Updated packages:

- docker-1.13.1-109.gitcccb291.el7\_7
- python-flask-0.10.1-5.el7\_7
- slirp4netns-0.3.0-8.el7\_7

#### 6.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.7 Container Image (rhel7.7, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmpp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)

- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Universal Base Image 7 Container Image (rhel7/ubi7)
- Red Hat Universal Base Image 7 Init Container Image (rhel7/ubi7-init)
- Red Hat Universal Base Image 7 Minimal Container Image (rhel7/ubi7-minimal)

# CHAPTER 7. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.7.4

### 7.1. Atomic Host

#### OSTree update:

New Tree Version: 7.7.4 (hash:  
422dc6900aa50ce4fb23adee368890e770007a644addb0558e23cfb52d4efd26)  
Changes since Tree Version 7.7.3 (hash:  
5e5cf3cb9a7ddcdbc31391935f339b29cc8bb72c195bd61caa3462fb2462aa37)

### 7.2. Extras

#### New packages:

- python-jmespath-0.9.0-6.el7\_7

#### Updated packages:

- python-docker-py-1.10.6-11.el7
- rhel-system-roles-1.0-10.el7\_7
- containernetworking-plugins-0.8.1-4.el7\_7

#### 7.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.7 Container Image (rhel7.7, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)

- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Universal Base Image 7 Container Image (rhel7/ubi7)
- Red Hat Universal Base Image 7 Init Container Image (rhel7/ubi7-init)
- Red Hat Universal Base Image 7 Minimal Container Image (rhel7/ubi7-minimal)

# CHAPTER 8. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.7.3

### 8.1. Atomic Host

#### OSTree update:

New Tree Version: 7.7.3 (hash:

e0ac32316936b7e138a2f9bea407bf20124f34f519e8f7147df3edc69ca86296)

Changes since Tree Version 7.7.2 (hash:

1542d075bce595cb38d3f1429388f3c5225732811d2995cb4a35c1be2cde00aa)

### 8.2. Extras

#### Updated packages:

- docker-1.13.1-108.git4ef4b30.el7

#### 8.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.7 Container Image (rhel7.7, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmpp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Universal Base Image 7 Container Image (rhel7/ubi7)
- Red Hat Universal Base Image 7 Init Container Image (rhel7/ubi7-init)
- Red Hat Universal Base Image 7 Minimal Container Image (rhel7/ubi7-minimal)



- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)

### 8.3. Announcements

- **Red Hat Enterprise Linux Atomic Host Retires on August 6, 2020**

Red Hat Enterprise Linux Atomic Host will be retired on August 6, 2020 and active support will no longer be provided. Accordingly, Red Hat will no longer provide image or ostree updates, Critical or Important security patches, or Urgent Priority bug fixes for Red Hat Enterprise Linux Atomic Host after August 6, 2020.

We encourage customers to migrate to the most recent version of Red Hat Enterprise Linux that is supported for their environment. As a benefit of the Red Hat subscription model, customers can use their active subscriptions to entitle any system on any currently supported Red Hat Enterprise Linux release. Customers who wish to deploy containers as part of their production are encouraged to evaluate Red Hat OpenShift Container Platform migrate to a supported version of Red Hat Enterprise Linux.

# CHAPTER 9. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.7.2

### 9.1. Atomic Host

#### OSTree update:

New Tree Version: 7.7.2 (hash:

7b95d939d6c53a3c972154f8ffce3e74f3e5f1826c766911602db43d6beafb6c)

Changes since Tree Version 7.7.1 (hash:

eb2a0972825a436fe9df83f19621ac69419bf8cba5bbaedcc90f32e7ef40b5ea)

### 9.2. Extras

#### Updated packages:

- docker-1.13.1-104.git4ef4b30.el7

#### 9.2.1. Container Images

##### Updated:

- Red Hat Universal Base Image 7 Minimal Container Image (rhel7/ubi7-minimal)
- Red Hat Universal Base Image 7 Container Image (rhel7/ubi7)
- Red Hat Universal Base Image 7 Init Container Image (rhel7/ubi7-init)
- Red Hat Enterprise Linux 7.7 Container Image for aarch64 (rhel7.7, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)

# CHAPTER 10. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.7.1

### 10.1. Atomic Host

#### OSTree update:

New Tree Version: 7.7.1 (hash:  
90573ae0c7b166a0e84a2d2cc836fb7b7a5ba6e9a6a3ad29a651b023aadd85c1)  
Changes since Tree Version 7.7.0 (hash:  
9aee8a02a3ff1cc680fdc3243f537cbc285629f6744e2ea08b4c4f05b7d02127)

### 10.2. Extras

#### Updated packages:

- atomic-1.22.1-29.gitb507039.el7

#### 10.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.7 Container Image (rhel7.7, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Universal Base Image 7 Container Image (rhel7/ubi7)

- Red Hat Universal Base Image 7 Init Container Image (rhel7/ubi7-init)
- Red Hat Universal Base Image 7 Minimal Container Image (rhel7/ubi7-minimal)

# CHAPTER 11. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.7.0

### 11.1. Atomic Host

#### OSTree update:

New Tree Version: 7.7.0 (hash:  
9aee8a02a3ff1cc680fdc3243f537cbc285629f6744e2ea08b4c4f05b7d02127)  
Changes since Tree Version 7.6.6 (hash:  
33bb37a7d207ce653eab70306d18deea7daf444b6b7f7aeade722f96d7e8e6d)

#### Updated packages:

- redhat-release-atomic-host-7.7-20190611.0.atomic.el7.0

### 11.2. Extras

#### New packages:

- slirp4netns-0.3.0-1.el7
- libvirt-dbus-1.3.0-1.el7

#### Updated packages:

- lorax-composer-19.7.35-1.el7
- subscription-manager-1.24.13-1.el7
- cockpit-195-1.el7
- rhel-system-roles-1.0-8.el7
- cockpit-composer-1-1.el7
- docker-1.13.1-103.git7f2769b.el7
- dpdk-18.11.2-1.el7
- ostree-2019.1-2.el7
- podman-1.4.4-3.el7

#### 11.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.7 Container Image (rhel7.7, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmpp)

- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Universal Base Image 7 Container Image (rhel7/ubi7)
- Red Hat Universal Base Image 7 Init Container Image (rhel7/ubi7-init)
- Red Hat Universal Base Image 7 Minimal Container Image (rhel7/ubi7-minimal)

### 11.3. New Features

- **Extras for some architectures and the rhel7-aarch64 image are discontinued**

No more Extras content for the POWER9, IBM System z (Structure A), and the 64-bit ARM architectures will be pushed. The Extras content for RHEL architectures, such as AMD64 and Intel 64, the little-endian variant of IBM Power Systems, and IBM Z, remain supported for the duration of support of RHEL7. The **rhel7-aarch64** image will not be updated to 7.7.
- **Rootless containers are available as a technology preview**

Rootless containers are containers that are created and managed by regular system users without administrative permissions. This allows users to maintain their identity, including such things as credentials to container registries.

You can try rootless containers using the podman and buildah commands. For further information:

- for rootless containers, see [How does rootless Podman work](#).
- for **buildah**, see [Building container images with Buildah](#).
- for **podman**, see [Building, running, and managing containers](#).
- **podman, buildah, and scopeo are now available on RHEL Workstation**

The **podman**, **buildah**, and **scopeo** tools are available on RHEL 7.7 Workstation. Only **UBI** images are supported.

See also the [RHEL 7.7 Release Notes](#).

# CHAPTER 12. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.6.6

### 12.1. Atomic Host

#### OSTree update:

New Tree Version: 7.6.6 (hash:  
33bb37a7d207ce653eab70306d18deea7daf444b6b7f7aeade722f96d7e8e6d)  
Changes since Tree Version 7.6.5 (hash:  
5b1058baee886a346301af3b250e51cd6deef7344206afff638d07d5b73b34da)

#### Updated packages:

- microdnf-2-8.el7

### 12.2. Extras

#### Updated packages:

- buildah-1.9.0-1.el7
- container-selinux-2.107-1.el7\_6
- containernetworking-plugins-0.8.1-1.el7
- docker-1.13.1-102.git7f2769b.el7
- oci-umount-2.5-1.el7\_6
- podman-1.4.4-2.el7
- runc-1.0.0-64.rc8.el7
- skopeo-0.1.37-1.el7

#### 12.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.6 Container Image (rhel7.6, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux 7.6 Container Image for aarch64 (rhel7.6, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmpp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)

- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Universal Base Image 7 Container Image (rhel7/ubi7)
- Red Hat Universal Base Image 7 Init Container Image (rhel7/ubi7-init)
- Red Hat Universal Base Image 7 Minimal Container Image (rhel7/ubi7-minimal)

### 12.3. New Features

- **docker-latest no longer available**  
The **docker-latest** package is no longer available beginning with RHEL Atomic 7.6.6. Only the **docker** package is available.



# CHAPTER 13. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.6.5

### 13.1. Atomic Host

#### OSTree update:

New Tree Version: 7.6.5 (hash:  
52bd811e0f47458cebda889283064392251963536748ce94267a59f0fc7b3254)  
Changes since Tree Version 7.6.4 (hash:  
a403eb67b418b3fe30ba02a3bf8b00d63a6648baf4bf65457e1ae23f107d6e35)

### 13.2. Extras

#### Updated packages:

- buildah-1.8.2-2.git23314b.el7
- container-selinux-2.99-1.el7\_6
- etcd-3.2.26-1.el7
- oci-systemd-hook-0.2.0-1.git05e6923.el7\_6
- podman-1.3.2-1.git14fdcd0.el7
- python-websocket-client-0.56.0-1.git3c25814.el7

#### 13.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.6 Container Image (rhel7.6, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux 7.6 Container Image for aarch64 (rhel7.6, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)

- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Universal Base Image 7 Container Image (rhel7/ubi7)
- Red Hat Universal Base Image 7 Init Container Image (rhel7/ubi7-init)
- Red Hat Universal Base Image 7 Minimal Container Image (rhel7/ubi7-minimal)

# CHAPTER 14. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.6.4

### 14.1. Atomic Host

#### OSTree update:

New Tree Version: 7.6.4 (hash:  
177b1ebe1765f4fbd75c90bfb3781f7ccd39e84367eea5e0afe3977704ab66ea)  
Changes since Tree Version 7.6.3 (hash:  
d3fc043862e78ecb2b4f3f16938414039bc0a29a069ab6b6dfb3d4ae3a1494e8)

#### Updated packages:

- microdnf-2-7.el7
- redhat-release-atomic-host-7.6-20190329.0.atomic.el7.0

### 14.2. Extras

#### Updated packages:

- driverctl-0.108-1.el7\_6
- librasm-0.0.3-2.el7\_6
- docker-1.13.1-96.gitb2f74b2.el7
- dpdk-18.11-4.el7\_6
- skopeo-0.1.35-2.git404c5bd.el7
- containernetworking-plugins-0.7.5-2.el7
- container-selinux-2.95-2.el7\_6
- buildah-1.7.1-2.git93747b1.el7
- python-docker-py-1.10.6-9.el7\_6

#### 14.2.1. Container Images

##### New:

- Red Hat Universal Base Image 7 Minimal Container Image (rhel7/ubi7-minimal)
- Red Hat Universal Base Image 7 Init Container Image (rhel7/ubi7-init)

##### Updated:

- Red Hat Universal Base Image 7 Container Image (rhel7/ubi7)
- Red Hat Enterprise Linux 7.6 Container Image (rhel7.6, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux 7.6 Container Image for aarch64 (rhel7.6, rhel7, rhel7/rhel, rhel)

- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)

### 14.3. New features

- **Red Hat Universal Base Images (UBI) are now available**

With RHEL Atomic Host 7.6.4, Red Hat Universal Base Images (UBI) are newly available. For now, these UBIs are available: **ubi7-init**, **ubi7-minimal**, and **ubi7**, which are intended to substitute the **rhel7-init**, **rhel7-atomic**, and **rhel-server** images.

Additionally, a set of UBIs is now available that are intended to substitute some of the images currently provided through Red Hat Software Collections.

Unlike older Red Hat images, UBIs are freely redistributable. This means they can be used in any environment and shared anywhere. You can use them even if you are not a Red Hat customer.

For UBI documentation, see [Using Red Hat Universal Base Images \(standard, minimal, and runtimes\)](#).

# CHAPTER 15. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.6.3

### 15.1. Atomic Host

#### OStree update:

New Tree Version: 7.6.3 (hash:  
d3fc043862e78ecb2b4f3f16938414039bc0a29a069ab6b6dfb3d4ae3a1494e8)  
Changes since Tree Version 7.6.2 (hash:  
50c320468370132958eeeffb90a23431a5bd1cc717aa68d969eb471d78879e66)

#### Updated packages:

- microdnf-2-6.el7

### 15.2. Extras

#### Updated packages:

- docker-1.13.1-94.gitb2f74b2.el7
- dpdk-18.11-3.el7\_6

#### 15.2.1. Container Images

##### New:

- Red Hat Universal Base Image 7 Container Image (rhel7/ubi7-container)

##### Updated:

- Red Hat Enterprise Linux 7.6 Container Image (rhel7.6, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux 7.6 Container Image for aarch64 (rhel7.6, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)

- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)

# CHAPTER 16. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.6.2

### 16.1. Atomic Host

#### OStree update:

New Tree Version: 7.6.2 (hash:  
50c320468370132958eeeffb90a23431a5bd1cc717aa68d969eb471d78879e66)  
Changes since Tree Version 7.6.1 (hash:  
cbdf1df91ffb370cad574ad2bfdcf5e9999629437e23e620055af0dbef2c0cae)

### 16.2. Extras

#### Updated packages:

- WALinuxAgent-2.2.32-1.el7
- buildah-1.5-2.git94b4f9.el7
- container-selinux-2.77-1.el7\_6
- containernetworking-plugins-0.7.4-1.el7
- docker-1.13.1-90.git07f3374.el7
- dpdk-18.11-2.el7\_6
- etcd-3.3.11-2.el7
- libdnf-0.22.5-1.el7\_6
- oci-systemd-hook-0.1.18-3.git8787307.el7\_6
- podman-0.12.1.2-2.git9551f6b.el7
- python-docker-py-1.10.6-8.el7\_6
- skopeo-0.1.31-8.gitb0b750d.el7

#### 16.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.6 Container Image (rhel7.6, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux 7.6 Container Image for aarch64 (rhel7.6, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)

- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)



# CHAPTER 17. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.6.1

### 17.1. Atomic Host

#### OSTree update:

New Tree Version: 7.6.1 (hash:  
0092a3e37c7d42296dab2d4b2a131e513b45d984a2ea2a8f2a38b394c6a9f81d)  
Changes since Tree Version 7.6.0 (hash:  
4330ddfb4b9f84c63edcea17928cd5cf1f8688e3e3297a63c18097defebf97a4)

### 17.2. Extras

#### Updated packages:

- buildah-1.4-3.gitc8ed967.el7
- cockpit-176-4.el7
- libssh-0.7.1-7.el7
- python-docker-py-1.10.6-7.el7
- lorax-composer-19.7.27-1.el7
- docker-1.13.1-84.git07f3374.el7
- podman-0.11.1-3.git594495d.el7
- driverctl-0.101-1.el7
- dpdk-17.11-15.el7
- oci-umount-2.3.4-2.git87f9237.el7
- runc-1.0.0-54.dev.git2abd837.el7
- skopeo-0.1.31-7.gitb0b750d.el7
- oci-systemd-hook-0.1.18-2.git3efe246.el7
- container-selinux-2.74-1.el7
- atomic-1.22.1-26.gitb507039.el7
- rhel-system-roles-1.0-5.el7
- dnf-2.7.5-19.el7\_6

#### 17.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)

- Red Hat Enterprise Linux 7.6 Container Image (rhel7.6, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux 7.6 Container Image for aarch64 (rhel7.6, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)

# CHAPTER 18. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.6.0

### 18.1. Atomic Host

#### OStree update:

New Tree Version: 7.6.0 (hash:  
4330ddfb4b9f84c63edcea17928cd5cf1f8688e3e3297a63c18097defebf97a4)  
Changes since Tree Version 7.5.4 (hash:  
519fd3f7efdfa5d0f6ecb0ab3cba84f95dbfa6b59e8a7176f3158adfaaa78334)

#### Updated packages:

- cockpit-ostree-176-2.el7
- rpm-ostree-client-2018.5-2.atomic.el7
- redhat-release-atomic-host-7.6-20180503.0.atomic.el7.1

### 18.2. Extras

#### New packages:

- cockpit-composer-0.1.4-1.el7
- createrepo\_c-0.10.0-18.el7
- dnf-plugins-core-2.1.5-5.el7
- libcomps-0.1.8-12.el7
- libdnf-0.11.1-3.el7
- libgit2-0.26.6-1.el7
- libgit2-glib-0.26.4-8.el7
- libmodulemd-1.6.3-1.el7
- librhsm-0.0.3-1.el7
- lorax-composer-19.7.24-1.el7
- nextgen-yum4-2.7.5-17.el7
- python-semantic\_version-2.4.2-2.el7
- python-smartcols-0.3.0-2.el7

Additionally, packages from the Extras channel have been made available for the 64-bit ARM architecture.

#### Updated packages:

- cockpit-176-3.el7

- container-selinux-2.73-2.el7
- dpdk-17.11-13.el7
- podman-0.10.1.3-1.gitdb08685.el7
- subscription-manager-1.21.10-2.el7
- WALinuxAgent-2.2.26-2.el7

### 18.2.1. Container Images

#### Updated:

- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux 7.6 Container Image (rhel7.6, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)

### 18.3. New Features

- **Podman is now fully supported**

With this update, the **podman** tool has been upgraded from Technology Preview to a fully supported feature.

The **podman** tool manages pods, container images, and containers. It is part of the **libpod** library, which is for applications that use container pods.

For **podman** documentation, see [Using podman to work with containers](#).

- **Selected roles of Red Hat Enterprise Linux System Roles are now fully supported**

Red Hat Enterprise Linux System Roles have been previously available as a Technology Preview. With this update, the **selinux**, **kdump**, **network**, and **timesync** roles have been upgraded from Technology Previews to fully supported features. The **postfix** role continues to be available as a Technology Preview.

- **RHEL 7.6 Container Image now available for aarch64**

The Red Hat Enterprise Linux 7.6 Container Image for the 64-bit ARM architecture is now available. This image is not architecture-aware. To install it, use the following package name:

**rhel-server-aarch64-container**

instead of the package name for other architectures:

**rhel-server-container**

Other 64-bit ARM architecture packages will use the same naming convention.

# CHAPTER 19. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.5.4

### 19.1. Atomic Host

#### OStree update:

New Tree Version: 7.5.4 (hash:

519fd3f7efdfa5d0f6ecb0ab3cba84f95dbfa6b59e8a7176f3158adfaaa78334)

Changes since Tree Version 7.5.3 (hash:

03d524a16c8d76897f097565ca7452c1a5e2541f8c2beab145adf622499c7c64)

#### Updated packages:

- cockpit-ostree-176-1.el7

### 19.2. Extras

#### Updated packages:

- dpdk-17.11-13.el7
- cockpit-176-2.el7
- atomic-1.22.1-25.git5a342e3.el7
- podman-0.9.2-5.git37a2afe.el7\_5
- docker-1.13.1-75.git8633870.el7\_5
- runc-1.0.0-52.dev.git70ca035.el7\_5

#### 19.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux Container Image (rhel7.5, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)

- Red Hat Enterprise Linux Atomic sdc Container Image (rhel7/sdc)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic openscap Container Image (rhel7/openscap)

### 19.3. New Features

- **Buildah is now part of the default install**

With RHEL Atomic Host 7.5.4, Buildah is part of the default installation. You no longer need to install it using package layering.

# CHAPTER 20. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.5.3

### 20.1. Atomic Host

#### OSTree update:

New Tree Version: 7.5.3 (hash:  
03d524a16c8d76897f097565ca7452c1a5e2541f8c2beab145adf622499c7c64)  
Changes since Tree Version 7.5.2 (hash:  
7eae04224d894f6f0b57bf3c77f78c749d64813bd1543290f4b0276c81082617)

#### Updated packages:

- microdnf-2-5.el7
- cockpit-ostree-172-2.el7

### 20.2. Extras

#### Updated packages:

- buildah-1.2-2.gitbe87762.el7
- cockpit-172-2.el7
- container-selinux-2.68-1.el7
- container-storage-setup-0.11.0-2.git5eaf76c.el7
- containernetworking-plugins-0.7.1-1.el7
- docker-1.13.1-74.git6e3bb8e.el7
- oci-systemd-hook-0.1.17-2.git83283a0.el7
- podman-0.7.3-1.git0791210.el7
- rhel-system-roles-1.0-2.el7 \*
- runc-1.0.0-37.rc5.dev.gitad0f525.el7

The asterisk (\*) marks packages that are available for Red Hat Enterprise Linux only.

#### 20.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)



- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic openscap Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Container Image (rhel7.5, rhel7, rhel7/rhel, rhel)

### 20.3. New Features

- **L1 Terminal Fault Attack vulnerability fixed in a new 7.5.3 image**  
The RHEL Atomic Host 7.5.3 image has been updated to include security fixes for the L1 Terminal Fault Attack vulnerability. For more information, see [this article](#).
- **RHEL Atomic Host will not be supported on OpenShift 4.0 and later**  
Beginning with Red Hat OpenShift 4.0, RHEL Atomic Host will not be supported on Red Hat OpenShift.
- **Container images are now available for PowerPC 8 & 9 and s390x**  
Beginning with RHEL Atomic Host 7.5.3, many of the container images are available not only for AMD64 and Intel 64 (**X86\_64**), but also for the little-endian variant of IBM Power Systems (**PowerPC 8 & 9**, also known as **ppc64le**) and IBM z Systems (**s390x**).

See [Supported Architectures for Containers on RHEL](#) if you need:

- details about this change
- architecture support information for individual images
- comprehensive information on architectures support for containers
- **Distribution of architecture-specific base images will change in 7.6**  
Currently, the multi-architecture base OS images are available in the **rhel7** repository and in the architecture-specific repository, for example **rhel7/ppc64le**. This will continue until RHEL Atomic Host 7.6.

With RHEL Atomic Host 7.6, base images for all architectures will be available in the **rhel7** repository. When you pull the base image, the image for the correct architecture will be pulled automatically based on the architecture you are using. Users of the architecture-specific repositories will need to update the **from** line in dockerfiles.

- **Some users might not be able to access certain SRPMs using `yum install`**

For architectures other than AMD64 and Intel 64 (**X86\_64**), installing source RPMs from the Atomic Host and Extras channels is not possible using **`yum install`**. On the other hand, the source code is the same for all these architectures, and so is available using AMD64 and Intel 64 SRPMs.

However, depending on your customer subscription, you might not be able to **`yum install`** AMD64 and Intel 64 SRPMs. In that case, follow the instructions in [How to obtain source for Red Hat products shipped as container images](#).

Also, if you only have IBM Power Systems (**PowerPC 8 & 9**, also known as **ppc64le**) or IBM z Systems (**s390x**) subscriptions, you might need to request source code for the **`microdnf`** package directly from Red Hat.

# CHAPTER 21. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.5.2

### 21.1. Atomic Host

#### OStree update:

New Tree Version: 7.5.2 (hash:  
7eae04224d894f6f0b57bf3c77f78c749d64813bd1543290f4b0276c81082617)  
Changes since Tree Version 7.5.1 (hash:  
c28680604bc84f472804a8f8c787917496739bc61529cbee7c474f68d4daeb81)

#### Updated packages:

- cockpit-ostree-169-1.el7
- rpm-ostree-client-2018.5-1.atomic.el7

### 21.2. Extras

#### Updated packages:

- WALinuxAgent-2.2.18-2.el7
- python-docker-py-1.10.6-4.el7
- cockpit-169-1.el7
- ostree-2018.5-1.el7
- oci-systemd-hook-0.1.16-1.git05bd9a0.el7
- skopeo-0.1.30-1.dev.gitca3bff6.el7
- podman-0.6.1-3.git3e0ff12.el7
- flannel-0.7.1-4.el7
- etcd-3.2.22-1.el7
- buildah-1.1-1.gitfbf46d3.el7
- atomic-1.22.1-22.git5a342e3.el7
- container-storage-setup-0.10.0-1.gitdf0dcd5.el7
- docker-1.13.1-68.gitdded712.el7
- dpdk-17.11-11.el7
- container-selinux-2.66-1.el7

#### New packages:

- containernetworking-plugins-0.7.0-101.el7

## 21.2.1. Container Images

### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic openscap Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Container Image (rhel7.5, rhel7, rhel7/rhel, rhel)

## 21.3. New Features

- **Distribution of architecture-specific base images will change in 7.6**  
Currently, the multi-architecture base OS images are available in the **rhel7** repository and in the architecture-specific repository, for example **rhel7/ppc64le**. This will continue until RHEL Atomic Host 7.6.

With RHEL Atomic Host 7.6, base images for all architectures will be available in the **rhel7** repository. When you pull the base image, the image for the correct architecture will be pulled automatically based on the architecture you are using. Users of the architecture-specific repositories will need to update the **from** line in dockerfiles.

# CHAPTER 22. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.5.1

### 22.1. Atomic Host

#### OStree update:

New Tree Version: 7.5.1 (hash:  
c0211e0b703930dd0f0df8b9f5e731901fce8e15e00b3bc76d3cf00df44eb6e8)  
Changes since Tree Version 7.5.0 (hash:  
5df677dcfef08a87dd0ace55790e184a35716cf11260239216bfeba2eb7c60b0)

#### Updated packages:

- cockpit-ostree-165-3.el7

### 22.2. Extras

#### Updated packages:

- docker-1.13.1-63.git94f4240.el7
- buildah-0.16.0-2.git6f7d05b.el7
- skopeo-0.1.29-3.dev.git7add6fc.el7
- atomic-1.22.1-3.git2fd0860.el7
- docker-distribution-2.6.2-2.git48294d9.el7
- cockpit-165-3.el7
- etcd-3.2.18-1.el7
- runc-1.0.0-27.rc5.dev.git4bb1fe4.el7

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### New packages:

- podman-0.4.1-4.gitb51d327.el7

#### 22.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.5 Container Image (rhel7.5, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)

- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)

# CHAPTER 23. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.5.0

### 23.1. Atomic Host

#### OStree update:

New Tree Version: 7.5.0 (hash:

5df677dcfef08a87dd0ace55790e184a35716cf11260239216bfeba2eb7c60b0)

Changes since Tree Version 7.4.5 (hash:

6cb4d618030f69aa4a5732aa0795cb7fe2c167725273cffa11d0357d80e5eef0)

#### Updated packages:

- openscap-daemon-0.1.10-1.el7
- rpm-ostree-client-2018.1-1.atomic.el7

### 23.2. Extras

#### Updated packages:

- buildah-0.15-1.gitd1330a5.el7
- cockpit-160-3.el7
- container-selinux-2.55-1.el7
- container-storage-setup-0.9.0-1.rhel75.gite0997c3.el7
- docker-1.13.1-58.git87f2fab.el7
- docker-latest-1.13.1-58.git87f2fab.el7
- dpdk-17.11-7.el7
- etcd-3.2.15-2.el7
- flannel-0.7.1-3.el7
- ostree-2018.1-4.el7
- rhel-system-roles-0.6-3.el7 \*
- skopeo-0.1.29-1.dev.gitb08350d.el7

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### 23.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.5 Container Image (rhel7.5, rhel7, rhel7/rhel, rhel)

- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)

### 23.3. New Features

- **overlay2 is now the default storage driver**

The default storage driver for Docker has changed from **devicemapper** to **overlay2**. In existing installations of versions of Atomic Host prior to 7.5.0, **devicemapper** remains the default driver. Upgrading such existing installations does not change the configured driver.

For more information on the **overlay2** driver and for instructions on switching from **devicemapper** to **overlay2**, see [Using the Overlay Graph Driver](#).

- **Red Hat container registry will require authentication**

In future, the Red Hat container registry will move from **registry.access.redhat.com** to **registry.redhat.io**. As part of this change, containers will eventually become available only to subscribed and authenticated systems.

For more information, see [Red Hat Container Registry Authentication](#).

- **Buildah is now fully supported**

The **buildah** tool has been upgraded from a Technology Preview to a fully supported feature.

The **buildah** tool facilitates building of OCI container images. It enables you to:

- Create a working container, either from scratch or using an image as a starting point.
- Create an image, either from a working container or using the instructions in a Dockerfile.
- Build both Docker and OCI images.
- Mount a working container's root filesystem for manipulation.



- Unmount a working container's root filesystem.
- Use the updated contents of a container's root filesystem as a filesystem layer to create a new image.
- Delete a working container or an image.

See [Building container images with buildah](#) for more information and usage instructions.

- **User namespaces in docker now fully supported**

While the user namespaces features is fully supported beginning with the RHEL 7.4 kernel, the implementation of user namespaces associated with the **docker** service was a Technology Preview until RHEL Atomic Host 7.5. Now it is fully supported.

See [User namespaces options](#) for more information and usage instructions.

- **Manual setup of Kubernetes is deprecated**

As [announced](#) earlier, beginning with RHEL 7.5 and RHEL Atomic Host 7.5 Red Hat will no longer support the manual setup of Kubernetes. Manual Kubernetes setups from previous releases, likewise, are not supported. Components impacted by this change include the following deprecated Kubernetes RPM packages, images, and associated documentation:

RPM Packages:

- kubernetes
- kubernetes-devel
- kubernetes-client
- kubernetes-master
- kubernetes-node
- kubernetes-unit-test
- cadvisor

Container Images:

- registry.access.redhat.com/rhel7/kubernetes-apiserver
- registry.access.redhat.com/rhel7/kubernetes-controller-mgr
- registry.access.redhat.com/rhel7/kubernetes-scheduler
- registry.access.redhat.com/rhel7/pod-infrastructure

Documentation:

- [Getting Started with Kubernetes](#)

From now on, none of the software or documentation listed will be updated. For information on Red Hat's officially supported Kubernetes-based products, see the following documentations sets:

- [OpenShift Container Platform](#)

- [OpenShift Online](#)
- [OpenShift Dedicated](#)
- [OpenShift.io](#)
- [Container Development Kit](#)
- [Development Suite](#).
- **docker-latest deprecated, to be removed later**

The **docker-latest** version of Docker is still available, but is now deprecated. In a later release, it will be removed.
- **docker and docker-latest are now the same version (1.13)**

**docker** and **docker-latest** are now the same version, which is 1.13.
- **ansible removed from the Extras channel**

**Ansible** and its dependencies have been removed from the Extras channel. Instead, the Red Hat Ansible Engine product has been made available and will provide access to the official Ansible Engine channel. Customers who have previously installed **Ansible** and its dependencies from the Extras channel are advised to enable and update from the Ansible Engine channel, or uninstall the packages as future errata will not be provided from the Extras channel.

**Ansible** was previously provided in Extras (for AMD64 and Intel 64 architectures, and IBM POWER, little endian) as a runtime dependency of, and limited in support to, the Red Hat Enterprise Linux (RHEL) System Roles. Ansible Engine is available today for AMD64 and Intel 64 architectures, with IBM POWER, little endian availability coming soon.

Note that **Ansible** in the Extras channel was not a part of the Red Hat Enterprise Linux FIPS validation process.

The following packages have been deprecated from the Extras channel:

- **ansible**
- **ansible-doc**
- **libtomcrypt**
- **libtommath**
- **libtommath-devel**
- **python2-crypto**
- **python2-jmespath**
- **python-httplib2**
- **python-paramiko**
- **python-paramiko-doc**
- **python-passlib**
- **sshpass**

The **python2-crypto**, **libtomcrypt**, and **libtommath** packages are no longer needed as **Ansible** dependencies in the new Red Hat Ansible Engine product and will probably not be updated. Customers are advised to uninstall them.

For more information and guidance, see this [Knowledgebase article](#).

Note that Red Hat Enterprise Linux System Roles, available as a Technology Preview, continue to be distributed through the Extras channel. Although Red Hat Enterprise Linux System Roles no longer depend on the **ansible** package, installing **ansible** from the Ansible Engine repository is still needed to run playbooks that use Red Hat Enterprise Linux System Roles.

# CHAPTER 24. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.4.5

### 24.1. Atomic Host

#### OStree update:

New Tree Version: 7.4.5 (hash:  
4af8e7e81f8051abc4a49dce23c8a75574abe8ad33faa5d52b59d992330d7f27)  
Changes since Tree Version 7.4.4 (hash:  
91b59e14c4eef641f388cbc5b2cbbdd4653a89f4053d684217d9c1c9394c3dd3)

#### Updated packages:

- cockpit-ostree-160-1.el7

### 24.2. Extras

#### Updated packages:

- atomic-1.22.1-1.gitd36c015.el7
- buildah-0.11-3.git49095a8.el7
- cockpit-160-1.el7
- container-selinux-2.42-1.gitad8f0f7.el7
- docker-1.13.1-53.git774336d.el7
- docker-latest-1.13.1-53.git774336d.el7
- etcd-3.2.15-1.el7
- gomtree-0.5.0-0.2.git16da0f8.el7
- oci-register-machine-0-6.git2b44233.el7
- oci-systemd-hook-0.1.15-2.gitc04483d.el7
- oci-umount-2.3.3-3.gite3c9055.el7
- rhel-system-roles-0.6-1.el7 \*
- runc-1.0.0-26.rc4.dev.git9f9c962.el7
- skopeo-0.1.28-1.git0270e56.el7

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### 24.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)

- Red Hat Enterprise Linux 7.4 Container Image (rhel7.4, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Kubernetes apiserver Container Image (rhel7/kubernetes-apiserer)
- Red Hat Enterprise Linux Atomic Kubernetes controller-manager Container (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)

### 24.3. New Features

- **docker and docker-latest are now the same version**  
In RHEL Atomic Host 7.4.5, **docker** and **docker-latest** are both version 1.13.1. In RHEL Atomic Host 7.5.0, **docker-latest** will be available, but deprecated. In a later version of RHEL Atomic Host, **docker-latest** will be removed.
- **ansible deprecated in the Extras channel**  
**Ansible** and its dependencies are no longer updated through the Extras channel. For more information, see the [7.5.0 release note about Ansible removal](#).

# CHAPTER 25. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.4.4

### 25.1. Atomic Host

#### OStree update:

New Tree Version: 7.4.4 (hash:

91b59e14c4eef641f388cbc5b2cbbdd4653a89f4053d684217d9c1c9394c3dd3)

Changes since Tree Version 7.4.3 (hash:

83350a7fb3a3ebd09c5996eec5ec8307f61bbb463b999bdfece223288927a60f)

#### Updated packages:

- cockpit-ostree-157-1.el7
- rpm-ostree-client-2017.11-1.atomic.el7

### 25.2. Extras

#### Updated packages:

- ansible-2.4.2.0-2.el7 \*
- buildah-0.9-1.git04ea079.el7
- cockpit-157-1.el7
- container-selinux-2.36-1.gitff95335.el7
- docker-1.12.6-71.git3e8e77d.el7
- docker-latest-1.13.1-37.git9a813fa.el7
- etcd-3.2.11-1.el7
- gontree-0.4.2-2.1.el7
- oci-register-machine-0-3.14.gitcd1e331.el7
- oci-systemd-hook-0.1.14-2.git9b1e622.el7
- oci-umount-2.3.1-2.gitbf16163.el7
- ostree-2017.14-2.el7
- rhel-system-roles-0.5-3.el7 \*
- runc-1.0.0-23.rc4.dev.git1d3ab6d.el7
- skopeo-0.1.27-3.dev.git14245f2.el7

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### 25.2.1. Container Images

**Updated:**

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.4 Container Image (rhel7.4, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Kubernetes apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes controller-manager Container (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)

**25.3. New Features**

- **Enhanced documentation for `buildah`**  
Enhanced coverage of the **buildah** command describes several new features, including how to build containers from scratch. See [Building container images with Buildah](#).
- The **rpm-ostree** command now has several new features. The most notable of them:
  - **rpm-ostree ex livefs --replace**
  - **--download-only** and **--cache-only**
  - **rpm-ostree refresh-md**

have been documented in [Package Layering](#).

For other new **rpm-ostree** features, see the [upstream rpm-ostree release notes](#) .



## CHAPTER 26. RED HAT ENTERPRISE LINUX ATOMIC HOST

### 7.4.3

#### 26.1. Atomic Host

##### OStree update:

New Tree Version: 7.4.3 (hash:  
13fe9e86d640fd257afe831e4b33ad1eb6183d7de2a550dc7397a7b4b1f6ef25)  
Changes since Tree Version 7.4.2-1 (hash:  
36d9eb2d9b734e5e8552dcdbbe029bb250c00262dfffc49f614b1c7a61eb53555)

##### Updated packages:

- cockpit-ostree-155-1.el7

#### 26.2. Extras

##### Updated packages:

- atomic-1.20.1-3.git840732d.el7
- cockpit-155-1.el7
- container-selinux-2.33-1.git86f33cd.el7
- container-storage-setup-0.8.0-3.git1d27ecf.el7
- docker-1.12.6-68.git8512b.el7
- docker-latest-1.13.1-36.git9a813fa.el7
- etcd-3.2.9-3.el7
- oci-umount-2.3.0-1.git51e7c50.el7
- runc-1.0.0-21.rc4.dev.gitaea4f21.el7
- skopeo-0.1.26-2.dev.git2e8377a.el7

##### New packages:

- buildah-0.8-1.gitbf40000.el7

#### 26.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux 7.4 Container Image (rhel7.4, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)

- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Kubernetes apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes controller-manager Container (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic OpenSCAP Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)

**New:**

- Red Hat Enterprise Linux Atomic Net-SNMP Container Image (rhel7/net-snmp)
- Red Hat Enterprise Linux Atomic Support Tools Container Image (rhel7/support-tools)

### 26.3. New Features

- **RHEL Tools Container image is now much smaller**

The size of the RHEL Tools Container image (**rhel-tools**) has been reduced from about 1400MB to about 400MB. These changes took place:

  - A new **support-tools** container image is now available, which consists of the **sos**, **redhat-support-tool**, **tcpdump** and **strace** packages. The **sos** and **redhat-support-tool** packages have been removed from the **rhel-tools** image.
  - Documentation has been removed.
  - Packages previously installed only for providing documentation, such as **atomic**, **docker**, and **kubernetes**, have been removed.
  - The **systemtap** and **kernel** packages have removed. They are available in the **devtoolset-6-toolchain-perftools** container image.
  - The **gcc** and **gdb** packages have been removed. They are available in the **devtoolset-6-toolchain-rhel7** container image.
  - The full list of removed packages is this: **abrt**, **atomic**, **btrfs-progs**, **container-selinux**,

**docker, docker-latest, docker-v1.10-migrator, gcc, gdb, gdb-gdbserver, glibc-common, gontree, kernel, kubernetes, kubernetes-master, kubernetes-client, kubernetes-node, man-db, ostree, pcp, pcp-collector, pcp-export-pcp2graphite, pcp-export-zabbix-agent, procps-ng, python-docker-py, python-rhsm, redhat-support-tool, sos, subscription-manager, systemd, systemtap, systemtap-client, vim-minimal, xorg-x11-xauth.**

See [Using the Atomic Tools Container Image](#) and [Using the Atomic Support Tools Container Image](#) for more information and usage instructions of **rhel-tools** and **support-tools**.

- For new **rpm-ostree** features, see the [upstream rpm-ostree release notes](#).

# CHAPTER 27. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.4.2

### 27.1. Atomic Host

#### OSTree update:

New Tree Version: 7.4.2-1 (hash:  
36d9eb2d9b734e5e8552dcdbe029bb250c00262dffc49f614b1c7a61eb53555)  
Changes since Tree Version 7.4.1 (hash:  
ee6c16cac30b7d6fcfcad0ed6f7a8d99e2539755b8fd46f08e1bb2f9bc3eba4c)

#### Updated packages:

- cockpit-ostree-151-1.el7
- rpm-ostree-client-2017.9-1.atomic.el7

#### New packages:

- anaconda-21.48.22.121-3.rhelah.0.el7

### 27.2. Extras

#### Updated packages:

- ansible-2.4.0.0-5.el7 \*
- atomic-1.19.1-4.gitb39a783.el7
- cockpit-151-1.el7
- container-selinux-2.28-1.git85ce147.el7
- container-storage-setup-0.7.0-1.git4ca59c5.el7
- docker-1.12.6-61.git85d7426.el7
- docker-latest-1.13.1-26.git1faa135.el7
- etcd-3.2.7-1.el7
- oci-register-machine-0-3.13.gitcd1e331.el7
- oci-systemd-hook-0.1.14-1.git1ba44c6.el7
- ostree-2017.11-1.el7
- python-docker-py-1.10.6-3.el7
- python-flask-0.10.1-4.el7
- python-websocket-client-0.32.0-116.el7
- python-werkzeug-0.9.1-2.el7

- `rhel-system-roles-0.5-1.el7 *`
- `runc-1.0.0-14.rc4dev.git84a082b.el7`
- `skopeo-0.1.24-1.dev.git28d4e08.el7`

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### New packages:

- `python-jmespath-0.9.0-3.el7`
- `oci-umount-2.0.0-1.git299e781.el7`

### 27.2.1. Container Images

#### Updated:

- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (`rhel7/cockpit-ws`)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (`rhel7/open-vm-tools`)
- Red Hat Enterprise Linux 7.4 Container Image (`rhel7.4`, `rhel7`, `rhel7/rhel`, `rhel`)
- Red Hat Enterprise Linux Atomic Image (`rhel-atomic`, `rhel7-atomic`, `rhel7/rhel-atomic`)
- Red Hat Enterprise Linux Atomic Tools Container Image (`rhel7/rhel-tools`)
- Red Hat Enterprise Linux Atomic SSSD Container Image (`rhel7/sss`)
- Red Hat Enterprise Linux 7 Init Container Image (`rhel7/rhel7-init`)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (`rhel7/rsyslog`)
- Red Hat Enterprise Linux Atomic sadc Container Image (`rhel7/sadc`)
- Red Hat Enterprise Linux Atomic etcd Container Image (`rhel7/etcd`)
- Red Hat Enterprise Linux Atomic flannel Container Image (`rhel7/flannel`)
- Red Hat Enterprise Linux Atomic openscap Container Image (`rhel7/openscap`)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (`rhel7/ipa-server`)
- Red Hat Enterprise Linux Atomic Kubernetes apiserver Container Image (`rhel7/kubernetes-apiserver`)
- Red Hat Enterprise Linux Atomic Kubernetes controller-manager Container (`rhel7/kubernetes-controller-mgr`)
- Red Hat Enterprise Linux Atomic Kubernetes scheduler Container Image (`rhel7/kubernetes-scheduler`)

### 27.3. New Features

- Beginning RHEL Atomic Host 7.4.2, you can configure **/var** to be a mount point. This allows placing **/var** into a separate partition, which prevents other mount points from getting full if **/var** gets full. For more information and instructions, see [Manual Partitioning](#).
- The **skopeo** tool now by default requires a TLS connection. It fails when trying to use an unencrypted connection. To override the default and use an http registry, prepend **http:** to the **<registry>/<image>** string. For information on using **skopeo**, see [Using skopeo to work with container registries](#).
- The **oci-umount** package, which was previously shipped as a subpackage of **docker**, is now shipped separately.  
The **oci-umount** package provides an OCI hook program. If you add it to the **runc** JSON data file as a hook, runc will execute the application after the container process is created, but before it is executed, with a **prestart** flag. Docker adds the **oci-umount** as a container hook to the **runc** configuration when it is installed in the **\$HOOKSDIR** directory. To modify the list of file systems to umount, edit the */etc/oci-umount.conf* file.

# CHAPTER 28. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.4.1

### 28.1. Atomic Host

#### OSTree update:

New Tree Version: 7.4.1 (hash:  
e83c16780259c5272684221e2a6007300d94bbfdc5432f9ab6025300f447145b)  
Changes since Tree Version 7.4.0 (hash:  
846fb0e18e65bd9a62fc9d952627413c6467c33c2d726449a1d7ad7690bbb93a)

#### Updated packages:

- cockpit-ostree-148-1.el7
- rpm-ostree-client-2017.6-6.atomic.el7

### 28.2. Extras

#### Updated packages:

- ansible-2.3.2.0-1.el7 \*
- atomic-1.18.1-4.git64843d3.el7
- cockpit-148-1.el7
- container-selinux-2.21-2.gitba103ac.el7
- container-storage-setup-0.6.0-1.gite67c964.el7
- docker-1.12.6-54.gitc4618fb.el7
- docker-distribution-2.6.2-1.git48294d9.el7
- docker-latest-1.13.1-23.git28ae36d.el7
- etcd-3.2.5-1.el7
- gontree-0.4.0-1.1.el7
- oci-systemd-hook-0.1.12-1.git1e84754.el7
- rhel-system-roles-0.3-2.el7 \*
- skopeo-0.1.23-1.git1b8d87f.el7
- storaged-2.5.2-4.el7 \*

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### 28.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux 7.4 Container Image (rhel7.4, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic openscap Container Image (rhel7/openscap)
- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic Kubernetes scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic Kubernetes apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes controller-manager Container (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)



# CHAPTER 29. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.4.0

### 29.1. Atomic Host

#### OStree update:

New Tree Version: 7.4.0 (hash:

846fb0e18e65bd9a62fc9d952627413c6467c33c2d726449a1d7ad7690bbb93a)

Changes since Tree Version 7.3.6 (hash:

e073a47baa605a99632904e4e05692064302afd8769a15290d8ebe8dbfd3c81b)

#### Updated packages:

- atomic-devmode-0.3.7-2.el7
- cockpit-ostree-141-2.el7
- redhat-release-atomic-host-7.4-20170427.0.atomic.el7.1
- rpm-ostree-client-2017.6-5.atomic.el7

### 29.2. Extras

#### Updated packages:

- atomic-1.18.1-3.1.git0705b1b.el7
- cockpit-141-4.el7
- container-selinux-2.21-1.el7
- docker-1.12.6-48.git0fdc778.el7
- docker-distribution-2.6.1-1.1.gita25b9ef.el7
- docker-latest-1.13.1-21.1.gitcd75c68.el7
- dpdk-16.11.2-4.el7 \*
- etcd-3.1.9-2.el7
- flannel-0.7.1-2.el7
- gontree-0.3.1-2.1.el7
- libev-4.15-7.el7 \*
- libssh-0.7.1-3.el7 \*
- oci-register-machine-0-3.11.1.gitdd0daef.el7
- oci-systemd-hook-0.1.8-4.1.gite533efa.el7
- ostree-2017.7-1.el7

- python-backports-lzma-0.0.2-9.el7 \*
- python-gevent-1.0-3.el7 \*
- python-greenlet-0.4.2-4.el7 \*
- runc-1.0.0-12.1.gitf8ce01d.el7
- skopeo-0.1.20-2.1.gite802625.el7
- stored-2.5.2-3.el7 \*

**New packages:**

- container-storage-setup-0.3.0-3.git927974f.el7
- sshpass-1.06-2.el7 \*
- python-httplib2-0.9.1-3.el7 \*
- libtommath-0.42.0-6.el7 \*
- python-passlib-1.6.5-2.el7 \*
- python-paramiko-2.1.1-2.el7 \*
- ansible-2.3.1.0-3.el7 \*
- python-crypto-2.6.1-15.el7 \*
- libtomcrypt-1.17-26.el7 \*
- rhel-system-roles-0.2-2.el7 \*
- driverctl-0.95-1.el7 \*

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

### 29.2.1. Container Images

**Updated:**

- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Kubernetes apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes controller-manager Container (rhel7/kubernetes-controller-mgr)

- Red Hat Enterprise Linux Atomic Kubernetes scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic openscap Container Image (rhel7/openscap)
- Red Hat Enterprise Linux 7.4 Container Image (rhel7.4, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)

### 29.3. New Features

- **Limited support for containers on little-endian IBM power systems**  
Now containers have limited support on the little-endian variant of IBM power Systems (PPC64le). See the [Supported Architectures for Containers on RHEL](#) for details.

Notably, packages from the Extras channel are now provided for the little-endian variant of IBM power Systems, along with the **rhel7-ppc64le** base container. This enables using containers on these systems with Red Hat Enterprise Linux 7.4.

- **overlay2 storage driver now available**  
The **overlay2** graph driver has been upgraded from a Technology Preview to a fully supported feature.

The **overlay2** graph driver, along with **overlay**, uses OverlayFS, a copy-on-write union file system that features page-cache sharing between containers. However, **overlay2** is the more performant option.

To enable the driver, specify **overlay2** in the `/etc/sysconfig/docker-storage-setup` file:

```
STORAGE_DRIVER=overlay2
```

- **OverlayFS now can be run with SELinux enforced**  
Previously, SELinux had to be in permissive or disabled mode for OverlayFS to work. Now you can run the OverlayFS file system with SELinux in enforcing mode.

For more information on OverlayFS, see [Overlay Graph Driver](#).

- **SSSD in a container is now fully supported**  
The System Security Services Daemon (SSSD) in a container has been upgraded from a Technology Preview to a fully supported feature.

SSSD allows Red Hat Enterprise Linux Atomic Host authentication subsystem to be connected to central identity providers such as Red Hat Identity Management and Microsoft Active Directory.

To install this new image, use the **atomic install rhel7/sss** command.

For full documentation on SSSD, see [Configuring SSSD](#).

- **Package layering is now fully supported**

The **pkg-add** subcommand of the **rpm-ostree** tool has been upgraded from a Technology Preview to a fully supported feature.

The **rpm-ostree install** commands installs layered packages that are persistent across reboots. This command can be used to install individual packages that are not part of the original OSTree, such as diagnostics tools. For detailed information about package layering, see [Package Layering](#).

- **Image signing is now fully supported**

The image signing and validation functionality has been upgraded from a Technology Preview to a fully supported feature.

Signing container images on RHEL and RHEL Atomic Host systems provides a means of validating where a container image came from, checking that the image has not been tampered with, and setting policies to determine which validated images you will allow to use on your systems.

The main image signing tasks can be done as follows:

- To sign and distribute an image, use the **atomic sign** and **atomic push** commands.
- To get and verify a signed image, use the **atomic pull** and **atomic verify** commands.
- To designate a signed image as trusted and acceptable on the local system, use the **atomic trust** command.

For the current release, image signing is only supported when pushing and pulling between Docker v2 registries (such as the registry software included in the docker-distribution package) and the Docker Hub (docker.io).

To learn more about image signing, see [Image Signing](#).

- **GPG verification changes for OSTree commits**

For new installations of RHEL Atomic Host 7.4.0 and later, the GPG verification of OSTree commits is enabled by default. If you upgrade from RHEL Atomic Host 7.3, you can enable GPG verification manually.

To enable GPG verification, set the **gpg-verify** directive in the **/etc/ostree/remotes.d/redhat.conf** file to **true**.

If GPG verification is enabled, the output of the **atomic host status** command shows information about the GPG signature of the commit.

- **docker-storage-setup renamed to container-storage-setup**

The **docker-storage-setup** utility has been renamed to **container-storage-setup** for RHEL7.4 and RHEL Atomic Host 7.4. Note that:

- The name of the package has also changed to **container-storage-setup**.
- The name of the service is still **docker-storage-setup**.
- The default configuration is in the **/usr/share/container-storage-setup/container-storage-setup** file, but your configuration should go to **/etc/sysconfig/docker-storage-setup**, which overrides configuration from **/usr/share/container-storage-setup/container-storage-setup**.

# CHAPTER 30. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.3.6

### 30.1. Atomic Host

#### OSTree update:

New Tree Version: 7.3.6 (hash:  
e073a47baa605a99632904e4e05692064302afd8769a15290d8ebe8dbfd3c81b)  
Changes since Tree Version 7.3.5-1 (hash:  
c04cab425084ce81d66d1717f464e292bc5a908a86802faf0da7dd22d74d3727)

#### Updated packages:

- atomic-devmode-0.3.7-1.el7
- cockpit-ostree-141-1.el7
- librasm-0.0.1-2.el7

### 30.2. Extras

#### Updated packages:

- atomic-1.17.2-9.git2760e30.el7
- cockpit-141-1.el7
- container-selinux-2.19-2.1.el7
- docker-1.12.6-32.git88a4867.el7
- docker-latest-1.13.1-13.gitb303bf6.el7
- etcd-3.1.9-1.el7
- flannel-0.7.1-1.el7
- kubernetes-1.5.2-0.7.git269f928.el7 \*
- oci-systemd-hook-0.1.7-4.gite533efa.el7
- ostree-2017.5-3.el7
- skopeo-0.1.20-2.el7

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### 30.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)

- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Kubernetes apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes controller-manager Container (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic openscap Container Image (rhel7/openscap)
- Red Hat Enterprise Linux 7.3 Container Image (rhel7.3, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)

### 30.3. New Features

- **Red Hat Enterprise Linux 6 Init Container Image is now available**  
The new Red Hat Enterprise Linux 6 Init Image allows creating containerized services based on RHEL6 init scripts. This container image enables running one or more services in a RHEL6 user space using init scripts.

For details on using **rhev6-init**, see [Using the Atomic RHEL6 Init Container Image](#) in the Managing Containers Guide.

# CHAPTER 31. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.3.5

### 31.1. Atomic Host

#### OStree update:

New Tree Version: 7.3.5 (hash:  
0ccf9138962e5c2c3794969a228e751d13bb780f5b0a1f15f4a9649df06ba80a)  
Changes since Tree Version 7.3.4-1 (hash:  
d6c7a5639cdeb6c21cf40d80259d516d047176e35411c8684cae40a93eedbed0)

#### Updated packages:

- cockpit-ostree-138-5.el7
- redhat-release-atomic-host-7.3-20161129.0.atomic.el7.5
- rpm-ostree-client-2017.5-1.atomic.el7

### 31.2. Extras

#### Updated packages:

- atomic-1.17.2-3.git2760e30.el7
- cockpit-138-6.el7
- container-selinux-2.12-2.gite7096ce.el7
- docker-1.12.6-28.git1398f24.el7
- docker-distribution-2.6.1-1.el7
- docker-latest-1.13.1-11.git3a17ad5.el7
- etcd-3.1.7-1.el7
- kubernetes-1.5.2-0.6.gitd33fd89.el7 \*
- ostree-2017.5-1.el7
- skopeo-0.1.19-1.el7
- WALinuxAgent-2.2.10-1.el7

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### 31.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux 7.3 Container Image (rhel7.3, rhel7, rhel7/rhel, rhel)

- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic Kubernetes apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes controller-manager Container (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)
- Red Hat Enterprise Linux Atomic openscap Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)

**New:**

- Red Hat Enterprise Linux 7 Init Container Image (rhel7/rhel7-init)

### 31.3. New Features

- **Red Hat Enterprise Linux 7 Init Container Image is now available**

The new Red Hat Enterprise Linux 7 Init Image allows creating containerized services based on the systemd init system. This container image configures systemd in an OCI container and enables running one or more services in a RHEL7 user space using unit files, init scripts, or both.

For details on using **rhev7-init**, see [Using the Atomic RHEL7 Init Container Image](#) in the Managing Containers Guide.



## CHAPTER 32. RED HAT ENTERPRISE LINUX ATOMIC HOST

### 7.3.4

#### 32.1. Atomic Host

##### OStree update:

New Tree Version: 7.3.4 (hash:  
4be47184245cc6d1c97a7bb2546c776e9124e3532ca4804a85227f8ebff24432)  
Changes since Tree Version 7.3.3 (hash:  
bfc591ba1a4395c6b8e54d34964b05df4a61e0d82d20cc1a2fd817855c7e2da5)

##### Updated packages:

- atomic-devmode-0.3.6-2.el7
- cockpit-ostree-135-4.el7
- libdnf-0.7.4-3.el7 (not available as an RPM package)
- rpm-ostree-client-2017.3-1.atomic.el7

#### 32.2. Extras

##### Updated packages:

- atomic-1.16.5-1.el7
- cockpit-135-4.el7 \*
- container-selinux-2.10-2.el7
- docker-1.12.6-16.el7
- docker-latest-1.13.1-4.el7
- etcd-3.1.3-1.el7
- kubernetes-1.5.2-0.5.gita552679.el7 \*
- oci-register-machine-0-3.11.gitdd0daef.el7
- oci-systemd-hook-0.1.7-2.git2788078.el7
- ostree-2017.3-2.el7
- runc-1.0.0-6.gite800860.el7

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

##### 32.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux Atomic Identity Management Server (rhel7/ipa-server)

- Red Hat Enterprise Linux Container Image (rhel7.3, rhel7, rhel7/rhel, rhel)
- Red Hat Enterprise Linux Atomic Image (rhel-atomic, rhel7-atomic, rhel7/rhel-atomic)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic Kubernetes-apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes-scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic Kubernetes-controller Container Image (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic openscap Container Image (rhel7/openscap)
- Red Hat Enterprise Linux Atomic open-vm-tools Container Image (rhel7/open-vm-tools)

### 32.3. New Features

- **Ability to generate initramfs on the client**

By default, Atomic Host uses a generic initramfs image built on the server side. This is distinct from the yum-based Red Hat Enterprise Linux, where initramfs is generated for each installation. However, in some situations, additional configuration or content may need to be added, which requires generating initramfs on the client side.

With this update, the Atomic Host component **rpm-ostree**, which is used for updates of the host, has the new **initramfs** command. The new command allows generating initramfs on the client side using the **dracut** program.

For details on using **rpm-ostree initramfs**, see [Generating the initramfs Image on the Client](#) in the Installation and Configuration Guide.

- **The managed plugin API changed in docker-latest**

In Docker 1.13, the managed plugin API changed compared to the experimental version introduced in Docker 1.12. Before upgrading to Docker 1.13, you must uninstall plugins that you installed with Docker 1.12. To uninstall plugins, use the **docker plugin rm** command.

If you have already upgraded to Docker 1.13 without uninstalling previously installed plugins, you may see this message when the Docker daemon starts:

```
Error starting daemon: json: cannot unmarshal string into Go value of type types.PluginEnv
```

To resolve this problem:

1. Remove the *plugins.json* file from */var/lib/docker/plugins/*.
2. Restart Docker. Verify that the **docker** daemon starts with no errors.
3. Reinstall your plugins.

# CHAPTER 33. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.3.3

### 33.1. Atomic Host

#### OStree update:

New Tree Version: 7.3.3 (hash:

bfc591ba1a4395c6b8e54d34964b05df4a61e0d82d20cc1a2fd817855c7e2da5)

Changes since Tree Version 7.3.2-1 (hash:

69a74a4ed6954492a7c82279f6efe59bffb8952e95577f8359a6717d57a36774)

#### Updated packages:

- cockpit-ostree-131-3.el7
- rpm-ostree-client-2017.1-6.atomic.el7

#### New packages (rhel-atomic container only)

- librasm-0.0.1-1.el7
- libdnf-0.7.4-2.el7
- microdnf-2-2.el7.1.1

### 33.2. Extras

#### Updated packages:

- atomic-1.15.3-1.el7
- cockpit-131-3.el7
- docker-latest-1.12.6-11.el7
- docker-distribution-2.6.0-1.el7 \*
- flannel-0.7.0-1.el7
- kubernetes-1.5.2-0.2.gitc55cf2b.el7
- etcd-3.1.0-2.el7
- openscap-docker-7.3.3-2
- python-docker-py-1.10.6-1.el7
- gontree-0.3.1-1.el7
- runc-1.0.0-2.rc2.el7
- skopeo-0.1.18-1.el7

#### New packages:

- container-selinux-2.9-4.el7
- ostree-2017.1-3.atomic.el7
- ostree-fuse-2017.1-3.atomic.el7

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

### 33.2.1. Container Images

#### New

- Red Hat Enterprise Linux Atomic Image (rhel7/rhel-atomic)

#### Updated:

- Red Hat Enterprise Linux 7.3.3 Container Image (rhel7/rhel)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic openscap (rhel7/openscap)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel)
- Red Hat Enterprise Linux Atomic Kubernetes-apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes-scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic Kubernetes-controller Container Image (rhel7/kubernetes-controller-mgr)

### 33.3. New Features

- MicroDNF  
The `microdnf` package (**microdnf-2-2.el7.1.1**) contains a limited functionality package manager written in C. This minimal subscription-manager plugin implementation for `microdnf` does not enable any repositories by default. As a consequence, all repositories managed by subscription-manager are disabled in container. To enable the necessary repositories, use the **--enablerepo** option. For example:

```
microdnf install --enablerepo rhel-7-server-rpms httpd
```

This way, you can install packages from repositories managed by subscription-manager by enabling them manually.

The `microdnf` package is added to the `rhel-atomic` minimal base image to replace the `yum` facility. It has a limited number of features from the `dnf` command that only allow you to enable or disable repositories, install and remove packages, and clean out cache. Run **`microdnf --help`** from inside of the `rhel-atomic` container to see all available options.

# CHAPTER 34. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.3.2

### 34.1. Atomic Host

#### OStree update:

New Tree Version: 7.3.2 (hash:

96826a0d917d7ff10f9fd0289581649f2ffbddd76f3b80efd3d95cc11915cacb)

Changes since Tree Version 7.3.1 (hash:

42cfe1ca3305defb16dfd59cd0be5c539f19ea720dba861ed11e13941423ae86)

#### Updated packages:

- cockpit-ostree-126-1.el7
- ostree-2016.15-1.atomic.el7
- rpm-ostree-2016.13-1.atomic.el7
- rpm-ostree-client-2016.13-1.atomic.el7

### 34.2. Extras

#### Updated packages:

- atomic-1.14.1-5.el7
- cockpit-126-1.el7
- docker-1.12.5-14.el7
- docker-latest-1.12.5-14.el7
- etcd-3.0.15-1.el7
- flannel-0.5.5-2.el7
- gontree-0.3.0-1.el7
- kubernetes-1.4.0-0.1.git87d9d8d.el7
- oci-register-machine-0-1.11.gitdd0daef.el7
- oci-systemd-hook-0.1.4-9.git671c428.el7
- runc-1.0.0-1.rc2.el7 \*
- skopeo-0.1.17-1.el7

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### 34.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux Container Image (rhel7/rhel)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic Kubernetes-controller Container Image (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes-apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes-scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss) (Technology Preview)
- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server) (Technology Preview)
- Red Hat Enterprise Linux Atomic openscap Container Image (rhel7/openscap) (Technology Preview)

### 34.3. New Features

- **the etcd3 package has been deprecated**

The **etcd3** package and the Red Hat Enterprise Linux Atomic etcd3 Container Image have been deprecated and are no longer available in the Red Hat Enterprise Linux 7 Extras channel. Users that have the etcd3 component installed can update to etcd version 3.0.15 or later, which provides the same functionality and is backwards compatible with etcd3.
- **Cockpit has been rebased to version 126**

Most notable changes:

  - Show security scan information about containers.
  - Display OSTree signatures on RHEL Atomic Host.
  - During login users can choose whether their password is cached and reused.
  - Allow renaming of active devices in the networking interface.
  - More clearly indicate when checking for network connectivity.
  - Allow more time for rollback when making network changes.
  - The "remotectl" command can now combine certificate and key files.
  - Domain join operations can now be properly canceled.
  - Kerberos authentication now works even if gss-proxy is in use.



- When proxied, support for the X-Forwarded-Proto HTTP header.
- Ignore block devices with zero size in the storage interface.
- Expand logical volumes and partitions inline on their devices.
- No longer offer to format read-only block devices.
- Use stored passphrases for LUKS devices properly.
- System shutdown can be scheduled by date.
- Properly terminate user sessions on the Accounts page.
- Fixed regression on login screen in older Internet Explorer browsers.

# CHAPTER 35. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.3.1

### 35.1. Atomic Host

#### OStree update:

New Tree Version: 7.3.1 (hash:

42cfe1ca3305defb16dfd59cd0be5c539f19ea720dba861ed11e13941423ae86)

Changes since Tree Version 7.3 (hash:

90c9735becff1c55c8586ae0f2c904bc0928f042cd4d016e9e0e2edd16e5e97)

#### Updated packages:

- cockpit-ostree-122-1.el7
- ostree-2016.11-1.atomic.el7
- rpm-ostree-2016.11-2.atomic.el7
- rpm-ostree-client-2016.11-2.atomic.el7

### 35.2. Extras

#### Updated packages:

- atomic-1.13.8-1.el7
- cockpit-122-3.el7
- docker-1.10.3-59.el7
- docker-distribution-2.5.1-1.el7
- docker-latest-1.12.3-2.el7
- etcd3-3.0.14-2.el7
- kubernetes-1.3.0-0.3.git86dc49a.el7
- oci-register-machine-0-1.10.gitfcdbff0.el7
- oci-systemd-hook-0.1.4-7.git9c551a.el7
- skopeo-0.1.17-0.7.git1f655f3.el7

#### New packages:

- gontree-0-0.3.git8c6b32c.el7

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### 35.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux Container Image (rhel7/rhel)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic Kubernetes-controller Container Image (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes-apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes-scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss) (Technology Preview)
- Red Hat Enterprise Linux Atomic openscap Container Image (rhel7/openscap) (Technology Preview)

#### New:

- Red Hat Enterprise Linux Atomic Identity Management Server Container Image (rhel7/ipa-server) (Technology Preview)

### 35.3. New Features

- **new gomtree package**  
The gomtree packages contain a command-line tool and a Go library to support the mtree file system hierarchy validation tooling and format. The gomtree packages are necessary for the functionality of the **atomic verify** command.
- **skopeo-containers moved from atomic packages to skopeo packages**  
The **skopeo-containers** subpackage which contains configurations files for working with image signatures has now been moved to the skopeo package set.
- **A bug where docker push did not complete on NFS has been fixed**  
A regression was introduced in the docker registry 2.4 where file descriptors weren't closed during blob uploads. This has caused image push failures when the registry was running on top of NFS file system. A new version of upstream docker registry is available with a fix to the leaking file descriptors. As a result, image pushes now succeed on NFS file systems.
- **\*Standardizing labels for Docker-formatted containers\***  
\*Red Hat is trying to standardize the use of Docker-formatted labels in its images. For details on that subject see: [Using Labels In Container Images](#)
- **Cockpit has been rebased to version 122**  
Most notable changes:
  - Cockpit can now rollback network configuration that would otherwise disconnect an administrator from the system.

- Unmanaged network devices are now shown.
- The list of docker containers can be filtered and expanded inline.
- Cockpit can be a "bastion host" by using the login page to connect to an alternate system through SSH.
- Only connect to an alternate system if it has a known SSH host key.
- When connecting to other systems, each SSH connection is run in a separate process.
- Fixes bugs that prevent the "Logs" page from working in Firefox 49.
- A network proxy can be used when registering with Red Hat Enterprise Linux.
- A system can be unregistered when using Red Hat Enterprise Linux subscriptions.
- The default flags for new VLAN devices have been fixed.

## CHAPTER 36. RED HAT ENTERPRISE LINUX ATOMIC HOST 7.3

### 36.1. Atomic Host

#### OStree update:

New Tree Version: 7.3 (hash:

90c9735becff1c55c8586ae0f2c904bc0928f042cd4d016e9e0e2edd16e5e97)

Changes since Tree Version 7.2.7 (hash:

347c3f5eb641e69fc602878c646cf42c4bcd5d9f36847a1f24ff8f3ec80f17b1)

#### Updated packages:

- atomic-devmode-0.3.5-1.el7
- cockpit-ostree-118-2.el7.x86\_64
- openscap-daemon-0.1.6-1.el7
- ostree-2016.10-1.atomic.el7
- redhat-release-atomic-host-7.3-20160824.0.atomic.el7.3
- rpm-ostree-2016.9-1.atomic.el7
- rpm-ostree-client-2016.9-1.atomic.el7

### 36.2. Extras

#### Updated packages:

- atomic-1.12.5-2.el7
- cockpit-118-2.el7
- docker-1.10.3-57.el7
- docker-distribution-2.5.0-1.el7 \*
- docker-latest-1.12.1-3.el7
- flannel-0.5.5-1.el7
- kubernetes-1.3.0-0.2.gitc5ee292.el7
- oci-register-machine-0-1.9.gitaf6c129.el7
- oci-systemd-hook-0.1.4-6.git337078c.el7
- python-docker-py-1.9.0-1.el7
- skopeo-0.1.14-0.6.el7

#### New packages:

- etcd3-3.0.3-1.el7 \*

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

### 36.2.1. Container Images

#### Updated:

- Red Hat Enterprise Linux Container Image (rhel7/rhel)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic Kubernetes-controller Container Image (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes-apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes-scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss) (Technology Preview)
- Red Hat Enterprise Linux Atomic openscap Container Image (rhel7/openscap) (Technology Preview)

#### New:

- Red Hat Enterprise Linux Atomic etcd3 Container Image (rhel7/etcd3) (Technology Preview)
- Red Hat Enterprise Linux Atomic flannel Container Image (rhel7/flannel) (Technology Preview)

### 36.3. New Features

- **Features, previously available as a Technology Preview, are now fully supported**

The following features that have been available as a Technology Preview are now fully supported:

  - **runc** - runC is a lightweight, portable implementation of the the Open Container Format (OCF) that provides container runtime. The runc command-line tool can be used for spawning and running containers according to the Open Container Project (OCP) specification. Containers are started as a child process of runC and can be embedded into various other systems without having to run a docker daemon.
  - **skopeo** - The **skopeo** command lets you inspect images from container image registries, get images and image layers, and use signatures to create and verify files without using the docker daemon or the **docker** command. For detailed information, see the [Red Hat Enterprise Linux Atomic Host 7 Getting Started with Containers Guide](#)
  - **atomic-devmode** - The atomic-devmode package allows users to easily try the Red Hat Atomic Cloud Image. It adds a new GRUB2 menu item labeled Developer Mode which allows

users to boot the system without having to set up cloud-init. When in Developer Mode, a root password will automatically be generated, and users will be logged automatically into an interactive session in which Cockpit is downloaded and started.

- **openscap** - The Red Hat Enterprise Linux Atomic openscap Container Image contains the OpenSCAP-daemon, a service that performs SCAP scans of bare-metal machines, virtual machines and containers. Running the openscap container enables container vulnerability scanning with the **atomic scan** command. To install this new image, use:

```
# atomic install rhel7/openscap
```

Additionally, the **openscap** RPM available for Red Hat Enterprise Linux is also now fully supported.

- **System containers now available as a Technology Preview**

System containers provide a way to containerize services that need to run before the docker daemon is running. They use different technologies than the Docker-formatted containers, **ostree** for storage, **runc** for runtime, **skopeo** for searching and **systemd** for service management. Previously, such services were provided in the system as packages, or as part of the ostree in Atomic Host and containerizing them makes the system itself smaller. Red Hat provides the **etcd** and **flannel** services as system containers.

Note that the new **etcd** system container image replaces the **etcd** Docker-formatted container that has been available until Red Hat Enterprise Linux Atomic Host 7.3. The new **etcd3** container image provided with this release is a Docker-formatted image. For more information on system containers and how to run **etcd** and **flannel**, see [Running System Containers](#).

- **Manual Kubernetes Cluster Configuration No Longer Supported**

The Kubernetes software that is available in Red Hat Enterprise Linux and Red Hat Enterprise Linux Atomic Host is packaged and configured differently than the Kubernetes included in OpenShift. We recommend you use the OpenShift version of Kubernetes for permanent setups and production use. The procedure described in [Get Started Orchestrating Containers with Kubernetes](#) should only be used as a convenient way to try out Kubernetes on an all-in-one RHEL or RHEL Atomic Host system.

As of RHEL 7.3, support for the procedure for configuring a Kubernetes cluster (separate master and multiple nodes) directly on RHEL and RHEL Atomic Host **has ended**. For further details on Red Hat support for Kubernetes, see [How are container orchestration tools supported with Red Hat Enterprise Linux?](#).

- **Cockpit features**

There are several new Cockpit features in this release. Some of these features are:

- Support for two factor password authentication using PAM conversations
- Webpack is used to build the Cockpit interface
- Components can require a minimum Cockpit version
- Forced password reset option enabled
- Cockpit URLs can be proxied with a configured HTTP path prefix
- SELinux audit failures can be diagnosed and solutions applied to the system
- Storage can be configured for Docker containers and images

- **rhev-guest-agent**

The **rhev-guest-agent** container image is a Docker-formatted container that is used to run an agent inside of virtual machines on Red Hat Virtualization hosts. Communications between that agent and the Red Hat Virtualization Manager allows that manager to both monitor and change the state of the agent's virtual machine.

For more information about RHEV Guest Agent, see the [RHEV Guest Agent Container section](#) in the Red Hat Enterprise Linux Atomic Host Managing Containers Guide.



# CHAPTER 37. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.2.7

This release doesn't include any updated images and the latest version of Atomic Host cloud images remains at 7.2.6-1. The latest "Red Hat Atomic Host Installer" ISO image remains at 7.2.3-1 as well. OSTree has been updated and new deployments can be created with any of those images and updated to the latest release by running the **atomic host upgrade** command.

### 37.1. Atomic Host

#### OSTree update:

New Tree Version: 7.2.7 (hash:  
dae35767902aad07b087d359be20f234d244da79fdd4734cd2fbc3ee39b12cf8)  
Changes since Tree Version 7.2.6 (hash:  
347c3f5eb641e69fc602878c646cf42c4bcd5d9f36847a1f24ff8f3ec80f17b1)

#### Updated packages:

- selinux-policy-3.13.1-63.atomic.el7.7

### 37.2. Extras

#### Updated packages:

- docker-1.10.3-46.el7.14
- docker-latest-1.12.1-2.el7
- etcd-2.3.7-4.el7
- oci-register-machine-0-1.8.gitaf6c129.el7

#### 37.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux Container Image (rhel7/rhel)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic Kubernetes-controller Container Image (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes-apiserver Container Image (rhel7/kubernetes-apiserver)

- Red Hat Enterprise Linux Atomic Kubernetes-scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss) (Technology Preview)
- Red Hat Enterprise Linux Atomic openscap Container Image (rhel7/openscap) (Technology Preview)

### 37.3. New Features

- **docker-latest has been upgraded to version 1.12.1**

The *docker-latest* packages are now version 1.12.1. The following article has been updated to reflect the changes [Introducing docker-latest for RHEL 7 and RHEL Atomic Host](#) .

- **docker 1.12 uses runc as a runtime environment**

Since docker version 1.11, **runc** is used instead of **libcontainer** for container runtime. The *docker-latest* packages contain 1.12, and **runc** can be found in `/usr/libexec/docker/docker-runc`. However, **docker-runc** is for internal use only by docker. If you want to use the **runc** command, you still need the *runc* package installed on your system. For RHEL Atomic Host, it is part of the OSTree by default, and for Red Hat Enterprise Linux 7, it is available as a separate package.



#### IMPORTANT

Red Hat does not support modifying which runc binary is used by docker.

- **docker swarm is now available**

As of 1.12 release, the upstream Docker project has embedded **Docker Swarm** in the docker binary. To avoid any unintended bugs, Red Hat has chosen to include Swarm as an unsupported add-on. For container orchestration, Red Hat recommends OpenShift and Kubernetes.

# CHAPTER 38. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.2.6

### 38.1. Atomic Host

#### OStree update:

New Tree Version: 7.2.6 (hash:  
b672bf8a457cb28e003dee20c53749636ef5fce3e4743afe4aaad269d3aaa62a)  
Changes since Tree Version 7.2.5 (hash:  
9bfe1fb65094d43e420490196de0e9aea26b3923f1c18ead557460b83356f058)

#### Updated packages:

- glib2-2.46.2-3.el7
- cockpit-ostree-0.114-2.el7
- libsolv-0.6.20-5.el7
- ostree-2016.7-2.atomic.el7
- rpm-ostree-client-2016.5-1.atomic.el7
- rpm-ostree-2016.5-1.atomic.el7

### 38.2. Extras

#### Updated packages:

- atomic-1.10.5-7.el7
- cockpit-0.114-2.el7
- docker-1.10.3-46.el7.10
- docker-latest-1.10.3-46.el7.10
- docker-distribution-2.4.1-2.el7 \*
- etcd-2.3.7-2.el7
- kubernetes-1.2.0-0.13.git7364b.el7
- runc-0.1.1-5.el7 (Technology Preview) \*
- storaged-2.5.2-2.el7 \*

#### New packages:

- oci-systemd-hook-0.1.4-4.git41491a3.el7
- oci-register-machine-0-1.7.git31bbcd2.el7
- skopeo-0.1.13-8.el7 (Technology Preview)

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

### 38.2.1. Container Images

#### Updated:

- Red Hat Enterprise Linux Container Image (rhel7/rhel)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic Kubernetes-controller Container Image (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes-apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes-scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss) (Technology Preview)
- Red Hat Enterprise Linux Atomic openscap Container Image (rhel7/openscap) (Technology Preview)

### 38.3. New Features

- **Containerized core Kubernetes master services coming in 7.3 release**

The Red Hat Enterprise Linux Atomic Host build will be further optimized for size and improved flexibility of Kubernetes version management starting with the 7.3 release. The core Kubernetes masters services (*kube-apiserver*, *kube-controller-manager* and *kube-scheduler*) will be installed as containers after Atomic Host is booted. Instructions on migrating to a containerized Kubernetes are available [here](#) and users should prepare for this in advance.
- **Cockpit has been rebased to version 0.114**

Most notable changes:

  - The protocol of cockpit-bridge and Cockpit's javascript API is now stable. Plugins written against the javascript API should not experience changes from this point on.
  - Red Hat subscriptions can now specify activation keys and organization.
  - SSH Host keys are now shown on the system page.
  - tuned is now disabled correctly when clearing a performance profile.
  - Improved password score error messages are now displayed.
  - An erroneous docker dependency has been removed from the cockpit package.

- Network configuration of the Ethernet Maximum Transmission Unit (MTU) is now available.
- The "active-backup" mode is now used as the default for new network bonds.
- Network interfaces where NM\_CONTROLLED=no is set are no longer displayed.
- The network on/off switch for unknown or unmanaged interfaces is now disabled.  
The packages also include numerous other bug fixes and admin interface improvements.

# CHAPTER 39. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.2.5

### 39.1. Atomic Host

#### OStree update:

New Tree Version: 7.2.5 (hash:  
9bfe1fb65094d43e420490196de0e9aea26b3923f1c18ead557460b83356f058)  
Changes since Tree Version 7.2.4 (hash:  
b060975ce3d5abbf564ca720f64a909d1a4d332aae39cb4de581611526695a0c)

#### Updated packages:

- rpm-ostree-client-2016.3.1.g5bd7211-2.atomic.el7.1
- rpm-ostree-2016.3.1.g5bd7211-1.atomic.el7
- ostree-2016.5-3.atomic.el7
- cockpit-ostree-0.108-1.el7

#### New packages:

- openscap-daemon-0.1.5-1.el7

### 39.2. Extras

#### Updated packages:

- atomic-1.10.5-5.el7
- cockpit-0.108-1.el7
- docker-1.10.3-44.el7
- docker-distribution-2.4.1-1.el7 \*
- docker-latest-1.10.3-44.el7
- dpdk-2.2.0-3.el7 \*
- etcd-2.2.5-2.el7
- kubernetes-1.2.0-0.12.gita4463d9.el7
- runc-0.1.1-4.el7 (Technology Preview) \*

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### 39.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux Container Image (rhel7/rhel)

- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic Kubernetes-controller Container Image (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes-apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes-scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss) (Technology Preview)

#### New:

- Red Hat Enterprise Linux Atomic openscap Container Image (rhel7/openscap) (Technology Preview)

### 39.3. New Features

- **ostree admin unlock command now available**

Red Hat Enterprise Linux Atomic Host 7.2.5 introduces the new command `ostree admin unlock`. It allows users to unlock the current ostree deployment and install packages temporarily. This is done by mounting a writable overlays on `/usr`. When a user reboots, the overlays is unmounted and the packages are no longer installed. Use the **`ostree admin unlock --hotfix`** option for the changes, such as package installs to persist across reboots. This command provides the same capabilities as `atomic-pkglayer`, which is now deprecated. There are known issues with overlays and SELinux, so this functionality is not intended for long term use.
- **Strict browser security policy for Cockpit is now enforced**

This defines what code can be run in a Cockpit session and mitigates a number of browser-based attacks.

# CHAPTER 40. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.2.4

### 40.1. Atomic Host

#### OStree update:

New Tree Version: 7.2.4 (hash:  
b060975ce3d5abbbf564ca720f64a909d1a4d332aae39cb4de581611526695a0c)  
Changes since Tree Version 7.2.3-1 (hash:  
644fcc603549e996f051b817ba75a746f23f392cfcc7e05ce00342dec6084ea8)

#### Updated packages:

- cockpit-ostree-0.103-1.el7

#### New packages:

- atomic-devmode-0.3.3-3.el7 (Technology Preview) \*

### 40.2. Extras

#### Updated packages:

- cockpit-0.103-1.el7
- docker-1.9.1-40.el7
- docker-distribution-2.4.0-2.el7 \*
- kubernetes-1.2.0-0.11.git738b760.el7
- runc-0.1.0-3.el7 (Technology Preview) \*

#### New packages:

- docker-latest-1.10.3-22.el7

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### 40.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux Container Image (rhel7/rhel)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)



- Red Hat Enterprise Linux Atomic Kubernetes-controller Container Image (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes-apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes-scheduler Container Image (rhel7/kubernetes-scheduler)
- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss) (Technology Preview)

### 40.3. New Features

- **Beginning with the Atomic Host 7.2.4 release, two versions of the docker service will be included in the operating system: docker 1.9 and docker 1.10.**  
The following Knowledgebase article contains all information you need to know about using these two versions of docker: <https://access.redhat.com/articles/2317361>.
- **Introduced conflict between docker 1.9 and atomic-openshift 3.1 / origin 1.1 has been removed**  
Previously, due to stability issues between docker 1.9 and atomic-openshift 3.1 / origin 1.1, docker 1.9 has been packaged to conflict with atomic-openshift versions older than 3.2 and origin versions older than 1.2. As a consequence, running yum update on an OpenShift Enterprise 3.1 system failed due to that introduced conflict. This bug has been fixed, and running yum update now does not cause conflicts, successfully solves the dependencies and installs docker 1.9.
- **Updated kubernetes packages**  
Kubernetes updated to use v3.2.0.16 corresponding to Kubernetes v1.2.0. Additionally, support for exposing secret keys in environment variables introduced.
- **Cockpit has been rebased to version 0.103**  
Most notable changes:
  - When Cockpit fails to connect to a host, relevant SSH command or host details are now displayed to help resolve the issue.
  - Docker restart policy can now be configured when starting a new container.
  - Creating logical volumes has been combined into a single dialog.
  - Joining IPA domains no longer offers a Computer OU option.
  - Binary journal data is now displayed correctly.
  - Disk or file system sizes are displayed using IEC names, such as MiB.
  - Logical volumes can no longer be shrunk and the file system partition dialog prevents negative sizes.
  - Strict Content-Security-Policy is implemented on most of Cockpit to prevent a number of browser based attacks. The packages also include numerous other bug fixes and admin interface improvements.

# CHAPTER 41. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.2.3

### 41.1. Atomic Host

#### OStree update:

New Tree Version: 7.2.3 (hash:  
d620e841861c746b5a296337c1659e6625abfeff96844099d48540fc93717656)  
Changes since Tree Version 7.2.2-2 (hash:  
8b2cf24b420d659179dc866eab1bb341748839204ba56ed46a86218010789e91)

#### New packages:

- atomic-pkglayer-2016.1.1.gfbf8dde-2.el7 \*

### 41.2. Extras

#### Updated packages:

- atomic-1.9-4.gitff44c6a.el7
- cockpit-0.96-2.el7
- docker-1.9.1-25.el7
- docker-distribution-2.3.1-1.el7 \*
- dpdk-2.2.0-2.el7 \*
- etcd-2.2.5-1.el7
- kubernetes-1.2.0-0.9.alpha1.gitb57e8bd.el7
- python-docker-py-1.7.2-1.el7

#### New packages:

- runc-0.0.8-1.git4155b68.el7 (Technology Preview) \*

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### 41.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux Container Image (rhel7/rhel)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)

- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic Kubernetes-controller Container Image (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes-apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes-scheduler Container Image (rhel7/kubernetes-scheduler)

**New:**

- Red Hat Enterprise Linux Atomic SSSD Container Image (rhel7/sss) (Technology Preview)

### 41.3. New Features

- **Cockpit has been rebased to version 0.96**  
Cockpit packages that are part of Red Hat Enterprise Linux Atomic Host 7.2.3 include *cockpit-bridge*, *cockpit-shell*, *cockpit-docker*, and *cockpit-ostree*. Other cockpit-related software can be added to a Red Hat Enterprise Linux Atomic Host via containers (such as the **rhel7/cockpit-ws** container). Cockpit 0.96 is compatible with docker 1.10.

This version fixes previous bugs with memory leaks, mostly related to Dbus, and various navigation and connection issues. Also, you can now limit concurrent authentication similar to ssshd using the MaxStartups setting.

- **New sub-commands added to the atomic CLI**  
The atomic command-line tool for managing Atomic systems and containers now includes the "top", "diff" and "migrate" sub-commands. For more information on the syntax and usage, see [https://access.redhat.com/documentation/en/red-hat-enterprise-linux-atomic-host/version-7/cli-reference/#cli\\_commands](https://access.redhat.com/documentation/en/red-hat-enterprise-linux-atomic-host/version-7/cli-reference/#cli_commands).
- **Support for customization of the host system**  
The new *atomic-pkglayer* packages contain a tool to install debug packages on Atomic Host systems. It is intended only for use inside the Red Hat Enterprise Linux Atomic Tools container image (rhel7/rhel-tools). It provides a mechanism to add RPM packages to an Atomic Host by allowing you to include them in local ostree layers on the existing system. See [Installing RPMs on an Atomic Host with atomic-pkglayer](#) for a description of the **atomic-pkglayer** tool.

# CHAPTER 42. RED HAT ENTERPRISE LINUX ATOMIC HOST

## 7.2.2

### 42.1. Atomic Host

#### OSTree update:

New Tree Version: 7.2.2 (hash:  
a9036292783ddfd389459d9bab69df5a655a0d6bb4dc6239a0aeff0f5d356f2e)

### 42.2. Extras

#### Updated packages:

- atomic-1.8-6.git1bc3814.el7
- cockpit-0.93-1.el7
- docker-1.8.2-10.el7
- docker-distribution-2.2.1-1.el7 \*
- etcd-2.2.2-5.el7
- flannel-0.5.3-9.el7
- kubernetes-1.2.0-0.6.alpha1.git8632732.el7
- python-docker-py-1.6.0-1.el7

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### 42.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux Container Image (rhel7/rhel)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)
- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)
- Red Hat Enterprise Linux Atomic Kubernetes-controller Container Image (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes-apiserver Container Image (rhel7/kubernetes-apiserver)

- Red Hat Enterprise Linux Atomic Kubernetes-scheduler Container Image (rhel7/kubernetes-scheduler)

### 42.3. New Features

- **The v1beta3 API is no longer supported in kubernetes**

Using v1beta3 in configuration files is no longer supported. Creating a v1beta3-style object with the `kubect` command will fail with the following error:

```
error validating data: the server could not find the requested resource; if you choose to ignore these errors, turn validation off with --validate=false
```

Using the `--validate=false` option will create an object, but the object will appear as a v1 object instead.

- **A separate cockpit-docker subpackage is now shipped**

Previously, the Cockpit docker support was shipped with the `cockpit-shell` subpackage. Now, the `cockpit-docker` subpackage is available to be installed separately on Red Hat Enterprise Linux and is included in the OSTree available for RHEL Atomic Host.

- **Cockpit has been rebased to version 0.93**

Most notable changes:

- Distribute licenses of included components in the source RPM.
- Reworked TLS certificates for Cockpit.
- Cockpit now offers to activate multipathd for multipath disks.
- Added user interface for OSTree upgrades and rollbacks.
- Added OAuth login support.
- Add SOS report to the User Interface.
- Added support for the Tuned power management tool.

## CHAPTER 43. RED HAT ENTERPRISE LINUX ATOMIC HOST 7.2

### 43.1. Atomic Host

#### OStree update:

New Tree Version: 7.2 (hash:

ec85fba1bf789268d5fe954aac09e6bd58f718e47a2fcb18bf25073b396e695d)

Changes since Tree Version 7.1.6 (hash:

23d96474f6775c27cf258e9872330b23f20e80ff4e0b61426debd00ca11a953f)

### 43.2. Extras

#### Updated packages:

- atomic-1.6-6.gitca1e384.el7
- cockpit-0.77-3.1.el7
- docker-1.8.2-8.el7
- flannel-0.5.3-8.el7
- kubernetes-1.0.3-0.2.gitb9a88a7.el7
- python-docker-py-1.4.0-118.el7
- python-websocket-client-0.32.0-116.el7
- storaged-2.2.0-3.el7 \*

#### New packages:

- docker-distribution-2.1.1-3.el7 \*

The asterisk (\*) marks packages which are available for Red Hat Enterprise Linux only.

#### 43.2.1. Container Images

##### Updated:

- Red Hat Enterprise Linux Container Image (rhel7/rhel)
- Red Hat Enterprise Linux Atomic Tools Container Image (rhel7/rhel-tools)
- Red Hat Enterprise Linux Atomic rsyslog Container Image (rhel7/rsyslog)
- Red Hat Enterprise Linux Atomic sadc Container Image (rhel7/sadc)
- Red Hat Enterprise Linux Atomic cockpit-ws Container Image (rhel7/cockpit-ws)

##### New:

- Red Hat Enterprise Linux Atomic etcd Container Image (rhel7/etcd)

- Red Hat Enterprise Linux Atomic Kubernetes-controller Container Image (rhel7/kubernetes-controller-mgr)
- Red Hat Enterprise Linux Atomic Kubernetes-apiserver Container Image (rhel7/kubernetes-apiserver)
- Red Hat Enterprise Linux Atomic Kubernetes-scheduler Container Image (rhel7/kubernetes-scheduler)

### 43.3. New Features

- **docker has been upgraded to version 1.8.2**

Notable changes:

- docker now displays a warning message if you are using the loopback device as a backend storage option.
- The **docker info** command now shows the rpm version of the client and server.
- The default mount propagation is **Slave** instead of **Private**. This allows volume (bind) mounts, to be altered on the host and the new mounts show up inside of the container.
- The **--add-registry** and **--block-registry** options have been added. This allows additional registries to be specified in addition to **docker.io** in */etc/sysconfig/docker*.
- You can now inspect the content of remote repositories and check for newer versions. This functionality is implemented in the **atomic verify** command from the atomic command-line tool.

- **flannel has been upgraded to version 0.5.3**

Notable changes:

- flannel's network prefix was changed from *coreos.com/network* to *atomic.io/network*.
- flannel's behavior when the first ping packet was lost has been fixed.
- The *flanneld.service* now starts after the network is ready.

- **Cockpit has been rebased to version 0.77**

Notable changes:

- Cockpit now displays the limit for the number of supported hosts when adding servers to the dashboard.
- Cleaner bookmarkable URLs.
- Includes basic SSH key authentication functionality.
- Basic interactions with multipath storage have been fixed.
- When password authorization is not possible, Cockpit displays an informative message.
- Authentication now works when embedding Cockpit.

- **Removed systemd socket activation**

For security reasons, systemd socket activation, which was supported in earlier versions of docker, has been removed. Now, it is not recommended to use the docker group as a mechanism

for talking to the docker daemon as a non-privileged user. Instead, set up sudo for this type of access. If the docker daemon is not running after the upgrade, create the `/etc/sysconfig/docker.rpmnew` file, add any local customization to it and replace `/etc/sysconfig/docker` with it. Additionally, remove the `-H fd://` line from `/etc/sysconfig/docker` if it is present.



## CHAPTER 44. TECHNOLOGY PREVIEWS

- **containernetworking-plugins now available**

The Container Network Interface (CNI) project consists of a specification and libraries for writing plug-ins for configuring network interfaces in Linux containers, along with a number of supported plug-ins. CNI concerns itself only with network connectivity of containers and removing allocated resources when the container is deleted.

The **containernetworking-plugins** package is now available as a technology preview. It is a dependency of the **podman** tool, and will remain as a technology preview until **podman** becomes fully supported.

- **LiveFS now available**

Previously, layering packages on Atomic Host required a reboot for the software to be available on the system. The LiveFS feature removes the need to reboot, making layered packages available instantly.

See [Package Layering](#) for more information and usage instructions.

- **Identity Management in a container**

Identity Management (IdM) in a container is provided as a Technology Preview. To install this new image, use the **atomic install --hostname <IPA\_server\_hostname> rhel7/ipa-server** command. In addition to **--hostname**, The **atomic install** command supports the following keywords for specifying the style of the container to be run:

- **net-host** - share the host's network to the container
- **publish** - publish all ports to the host's interfaces
- **cap-add** - add a capability to the container

You can also use the **atomic install rhel7/ipa-server help** command to list these keywords and their usage.

## CHAPTER 45. KNOWN ISSUES

- **RHEV OVA images of Atomic Host do not work**

RHEV OVA images of Atomic Host currently cannot be imported into RHEV.

See this [Bugzilla](#) for details.

- **podman, buildah, and scopeo need full name of the image**

Currently, to work with an image using **podman**, **buildah**, and **scopeo**, you cannot use the image's short name, such as **rhel7-aarch64**. Instead, specify its full name, including the registry, for example **registry.access.redhat.com/rhel7-aarch64**:

```
$ podman pull registry.access.redhat.com/rhel7-aarch64
```

- **etcd 3.2.22-24 image contains incorrect version of the binary**

On Thursday January 31, 2019 Red Hat released to the public a version of etcd that was incorrectly labeled. This incorrect image was released in the **rhel-7-server-extras-rpms** channel and the Red Hat Container Catalog. Specifically, an etcd container labeled **3.2.22-24** was released with etcd **3.3.11** inside of the container image. By Tuesday February 5th, 2019 Red Hat realized the issue and reverted the etcd container and RPM channels back to the correct image. The etcd container 3.2.22-18 is now the correct container.

OpenShift 3.0 to 3.9 uses RPMs by default for etcd installations. OpenShift 3.10 to 3.11 uses container images for etcd installations. Not all customers are affected by this issue. If you run an RPM-based etcd with a RHEL7 channel attached to the RHEL hosts and you issued a **yum update** for all RPMs installed on your etcd hosts between the 6 days of January 31 to Feb 5th, you have pulled the incorrect RPMs. Or, if you are running a container based etcd and you have upgraded your cluster, scaled up the etcd nodes or manually installed the latest etcd container image between the 6 days of January 31 to Feb 5th, you have pulled the incorrect container image.

See this [Knowledgebase article](#) for details on this issue and for how to check whether your systems have been affected.

- **The buildah package is not included by default**

The **buildah** package is not included by default in RHEL Atomic Host 7.5.3. To add it, run:

```
# rpm-ostree install buildah
```

The current plan is to include the **buildah** package in RHEL Atomic Host 7.5.4, so it will not be necessary to install it separately.

- **The checkpoint and restore feature of podman is not working**

Due to a bug introduced in CRIU, the checkpoint and restore feature of **podman** is not working". Docker is not impacted.

- **ostree remote configuration might be missing on new installations**

The 'ostree' remote configuration might be missing on new installations of RHEL Atomic Host 7.5.0. Consequently, when the **rpm-ostreed** daemon starts, it does not find configuration of the remote, which causes the **rpm-ostree** command to hang.

So far, this issue has been found on new Kickstart installations, but not on ISO or cloud installations.

To fix the problem, follow these steps:

1. Populate the `/etc/ostree/remotes.d/` directory with an **ostree** remote configuration. This configuration should match the remote in the **.origin** file that is in `/sysroot/ostree/deploy/rhel-atomic-host/deploy/`. Example contents of `/etc/ostree/remotes.d/redhat.conf`:

```
[remote "rhel-atomic-host-ostree"]
url=file:///install/ostree/repo
```

2. Restart the **rpm-ostreed** service:

```
# systemctl restart rpm-ostreed.service
```

Alternatively, you can fix the problem by simply registering the system with **subscription-manager**.

- **Containers running systemd do not work**

Prior to Atomic Host 7.5.0, due to a bug, the **container\_manage\_cgroup** SELinux boolean permitted containers to modify cgroup settings whether the boolean is on or off. In 7.5.0, this has been fixed. Now, if you need to run containers with systemd, you need to set the boolean to **on**:

```
# setsebool -P container_manage_cgroup on
```

See [this Knowledgebase solution](#) for more information.

- **Old LVM configuration file sometimes not available after upgrading**

If an LVM operation happens during an Atomic Host upgrade, the old LVM configuration file might not be available after the upgrade. You would see this error message:

```
Failed to read modified config file 'lvm/...'
```

To work around this, ensure that no LVM operation happens during an upgrade.

A common LVM operation that might happen is thin-pool auto-extension. To prevent thin-pool auto-extension, upgrade as follows:

1. Disable auto-extension:

```
# lvchange --monitor n VG/ThinPoolLV
```

2. Upgrade:

```
atomic host upgrade
```

3. After upgrade or reboot, enable auto-extension:

```
# lvchange --monitor y VG/ThinPoolLV
```

In an extremely rare case, this scenario will break LVM. To allow recovery from broken LVM, back up `/etc/lvm` before upgrading.

([BZ#1365297](#))

- **The root partition might have too little space for upgrades**

The default Atomic Host root partition might be too small for upgrades. To upgrade, you might need to expand the root logical volume. See these sections:

- [Changing the Default Size of the Root Partition During Installation](#)
- [Changing the Size of the Root Partition After Installation](#)

Alternatively, you can free space on the root partition by pruning the previous deployment.

For background information on the root partition, see [Managing Storage in Red Hat Enterprise Linux Atomic Host](#).

- **atomic uninstall uninstalls all sssd containers**

Running this command on an **sssd** container:

```
$ atomic uninstall --name=container-name
```

incorrectly uninstalls not only the ***container-name* sssd** container, but all **sssd** containers.

To mitigate this, do not uninstall an **sssd** container if you use any other sssd containers.

- **Cannot use memory cgroups without swap on IBM POWER8 series**

The "runc exec" command on the little-endian variant of IBM Power Systems uses significantly more memory than on AMD64 and Intel 64. Therefore, to prevent running out of memory, do not set cgroup memory limit to less than 100 megabytes.

- **By default, no user namespaces are allowed**

By default, the new 7.4 kernel restricts the number of user namespaces to 0.

To work around this, increase the user namespace limit:

```
# echo 15000 > /proc/sys/user/max_user_namespaces
```

- **Cockpit can start dockerd when using docker, but not docker-latest**

Beginning with RHEL Atomic Host 7.3.5, service-related functions in Cockpit might not work as expected if you run with **docker-latest** instead of **docker**. Notably, Cockpit fails to start the **docker** daemon when running with **docker-latest**.

- **Exposing the docker daemon through a TCP port is not secure**

The docker daemon does no authentication, so binding it to a TCP port would give root access to any process with access to that TCP port. Red Hat advises against binding docker to a TCP port. See [Access port options](#) for details.

- **atomic scan will try to connect to the Internet if you do not use atomic install first**

When you install the **openscap** container image with the **atomic install** command, the **/etc/oscaped/oscaped.ini** configuration file is placed on the host machine and gets exposed to the container. The **oscaped.ini** file contains the information about where to fetch Open Vulnerability and Assessment Language (OVAL) content from. The default setting is to use the CVE data from inside the container and won't connect to the Internet unless you explicitly configure it so. When you do not use **atomic install** and directly start scanning with **atomic scan**, atomic will fetch the container and run it immediately ignoring the **INSTALL** label. This means that **/etc/oscaped/oscaped.ini** won't be placed on the host system and be exposed to the container and the default behavior of the **openscap-daemon** itself inside the container will be used. The default behavior is to download CVE data from Red Hat's URL, connecting to the

Internet. Because of this, it is recommended that you use **atomic install** before scanning containers so that the settings from the **opscapd.ini** file are used. If not, scanning will still work, but be aware of the difference in the behavior of the `openscap-daemon` in both cases.

- **Red Hat Enterprise Linux Atomic Host does not support FIPS mode**

FIPS mode cannot be enabled on RHEL Atomic Host.

- **Upgrade to 7.3 from release versions older than 7.2.7 fails with an error on Atomic Host**

Attempting to upgrade from RHEL Atomic Host 7.2.6-1 or older to 7.3 fails with the following error:

```
"error: fsetxattr: Invalid argument"
```

There are three possible workarounds:

1) Disable SELinux and upgrade as usual:

```
# setenforce 0
# atomic host upgrade
```

2) Stop **rpm-ostreed** and change the SELinux context:

```
# systemctl stop rpm-ostreed
# cp /usr/libexec/rpm-ostreed /usr/local/bin/rpm-ostreed
# chcon -t install_exec_t /usr/local/bin/rpm-ostreed
# /usr/local/bin/rpm-ostreed
# atomic host upgrade
```

3) Deploy Atomic Host 7.2.7 first and then upgrade:

```
# atomic host deploy 7.2.7
# systemctl reboot
# atomic host upgrade
```

- **Atomic Host does not support /usr as a mount point**

Atomic Host does not support **/usr** as a mount point. As a consequence, Anaconda could crash if such a partition layout is configured. To work around this issue, do not make **/usr** a mount point.

- **etcdctl backup now reuses backup of the previous etcd member to avoid data loss**

Previously, a member failed to be added to the etcd cluster when the database size was more than 700 MB, resulting in data loss. To work around this issue, the **etcdctl backup** command has been extended with options to reuse backup of the previous etcd member.

- **rhel-push-plugin service does not restart after package upgrade**

The `docker` service requires **rhel-push-plugin** to be started before itself. However, after upgrading the `docker` and `docker-rhel-push-plugin` packages, the `docker` daemon restarts while using the already existing **rhel-push-plugin** service in memory without restarting it. To work around this issue, manually restart **rhel-push-plugin** first, and the **docker** service afterwards.

- **etcd will not start if its current version is older than the etcd cluster version**

etcd checks if the etcd version is older than the etcd cluster version. If this is the case, etcd will not start and applications dependent on etcd can fail. This issue prevents RHEL Atomic Host from cleanly rolling back from version 7.2.6 to earlier versions.

- **In a kubernetes cluster, if the nodes are newer than the master, they may fail to start.**  
In a kubernetes cluster, if the master contains an older version of kubernetes than the nodes, the nodes may fail to start. To work around this issue, always upgrade the master nodes first. As a result, the cluster will continue to function as expected.
- **docker 1.10 introduced a seccomp filter which will cause some syscalls to fail inside containers.**  
As a workaround, pass the `--security-opt seccomp:unconfined` option to docker when creating a container. Docker maintains a help page with a comprehensive list of blocked calls and the reasoning behind them, see <https://docs.docker.com/engine/security/seccomp/>. Note that the list is not entirely identical to what is blocked in Red Hat Enterprise Linux.
- **Upgrade of docker from 1.9 to 1.10 loses image metadata**  
Under certain circumstances, upgrading from docker 1.9 to docker 1.10 can result in a loss of docker image tag metadata. The underlying image layers remain intact and can be seen by running `docker images -a`. The metadata can be recovered, if it is present on a remote registry by simply re-running `docker pull`. This command will restore the metadata while avoiding a transfer of the already existing layer data.
- **Atomic Host installation offers BTRFS but it is not supported.**  
The RHEL Atomic Host installer offers BTRFS as a partition option, but the tree does not include `btrfs-progs`. Consequently, if you choose this option in the installer, you will not be able to proceed with the installation until you choose another option.
- **When the root partition runs out of free space**  
RHEL Atomic Host allocates 3GB of storage to the root partition, which includes the docker volumes (units of storage that a running container can request from the host system). This makes it easy for the root partition to run out of storage space. If insufficient space is available, upgrading with **atomic host upgrade** will fail. In order to support more volume space, more physical storage must be added to the system, or the root Logical Volume must be extended. By default, 40% from the other volume, will be reserved for storing the container images. The other 60% can be used to extend the root partition. For detailed instructions, see [https://access.redhat.com/documentation/en/red-hat-enterprise-linux-atomic-host/version-7/getting-started-with-containers/#changing\\_the\\_size\\_of\\_the\\_root\\_partition\\_after\\_installation](https://access.redhat.com/documentation/en/red-hat-enterprise-linux-atomic-host/version-7/getting-started-with-containers/#changing_the_size_of_the_root_partition_after_installation).
- **Rescue mode does not work in RHEL Atomic Host.**  
The Anaconda installer is unable to find a previously installed Atomic Host system when in rescue mode. Consequently, rescue mode does not work and should not be used.
- **The `brandbot.path` service may cause subscription-manager to change the `/etc/os-release` file in 7.1 installations.**  
The `/etc/os-release` file may still specify the 7.1 version even after Atomic Host has been upgraded to 7.2 using the `atomic host upgrade` command. This occurs because the underlying `ostree` tool preserves modified files in `/etc`. As a workaround, after upgrading to 7.2, run the following command:  

```
cp /usr/etc/os-release /etc
```

  
This way, the `/etc/os-release` file will return to an unmodified state, and because `brandbot.path` is masked in 7.2.0, it will not be modified in the future by `subscription-manager`, and future upgrades will show the correct version.
- **When running `kube-apiserver` on port 443 in secure mode, some capabilities are missing.**  
As a workaround, the `kube-apiserver` binary has to be modified by running

```
# chown root:root /usr/bin/kube-apiserver  
# chmod 700 /usr/bin/kube-apiserver  
# setcap CAP_NET_BIND_SERVICE=ep /usr/bin/kube-apiserver
```

## CHAPTER 46. AMAZON MACHINE IMAGE IDS

With every release of RHEL Atomic Host, new versions of Amazon Machine Images (AMIs) are uploaded to the Amazon Web Services (AWS). The ID for an AMI is different in each AWS region and they all change for each release. Some areas consist of multiple regions with the same name, such as us-east-1 and us-east-2. For more information on AWS Regions, see [Regions and Availability Zones](#).

This chapter provides lists of AMIs of RHEL Atomic Host that are currently in production and available on AWS.



### WARNING

The AMIs in this list represent official, supported Atomic Host images that are available for use in AWS. If you have an image that is not on this list, and you believe that it is an official Red Hat Atomic Host image, you can check it by typing the following command:

```
ostree show rhel-atomic-host/7/x86_64/standard
```

The result will show if the image contains a valid signature from Red Hat, Inc.

### 46.1. RHEL Atomic Host 7.4.5

ami-30440456 : Cloud Access GP2 offering in ap-northeast-1 for x86\_64  
 ami-eb4ae785 : Cloud Access GP2 offering in ap-northeast-2 for x86\_64  
 ami-b7b2edd8 : Cloud Access GP2 offering in ap-south-1 for x86\_64  
 ami-a92c66d5 : Cloud Access GP2 offering in ap-southeast-1 for x86\_64  
 ami-f062a492 : Cloud Access GP2 offering in ap-southeast-2 for x86\_64  
 ami-d09d1ab4 : Cloud Access GP2 offering in ca-central-1 for x86\_64  
 ami-60a7cb0f : Cloud Access GP2 offering in eu-central-1 for x86\_64  
 ami-bab9fec3 : Cloud Access GP2 offering in eu-west-1 for x86\_64  
 ami-6f49ad08 : Cloud Access GP2 offering in eu-west-2 for x86\_64  
 ami-ff62d482 : Cloud Access GP2 offering in eu-west-3 for x86\_64  
 ami-44612a28 : Cloud Access GP2 offering in sa-east-1 for x86\_64  
 ami-68ee1915 : Cloud Access GP2 offering in us-east-1 for x86\_64  
 ami-d5c6f1b0 : Cloud Access GP2 offering in us-east-2 for x86\_64  
 ami-ca5f55aa : Cloud Access GP2 offering in us-west-1 for x86\_64  
 ami-b56be0cd : Cloud Access GP2 offering in us-west-2 for x86\_64

### 46.2. RHEL Atomic Host 7.4.4

ami-2981ec4f : Cloud Access GP2 offering in ap-northeast-1 for x86\_64  
 ami-048f2c6a : Cloud Access GP2 offering in ap-northeast-2 for x86\_64  
 ami-6289d80d : Cloud Access GP2 offering in ap-south-1 for x86\_64  
 ami-6287ff1e : Cloud Access GP2 offering in ap-southeast-1 for x86\_64  
 ami-0c16e86e : Cloud Access GP2 offering in ap-southeast-2 for x86\_64  
 ami-442eab20 : Cloud Access GP2 offering in ca-central-1 for x86\_64  
 ami-a1138ace : Cloud Access GP2 offering in eu-central-1 for x86\_64  
 ami-2eafc857 : Cloud Access GP2 offering in eu-west-1 for x86\_64  
 ami-49465c2d : Cloud Access GP2 offering in eu-west-2 for x86\_64



ami-aad96fd7 : Cloud Access GP2 offering in eu-west-3 for x86\_64  
 ami-335e125f : Cloud Access GP2 offering in sa-east-1 for x86\_64  
 ami-7c280006 : Cloud Access GP2 offering in us-east-1 for x86\_64  
 ami-7fe4d405 : Cloud Access GP2 offering in us-east-1 for x86\_64  
 ami-cb94beae : Cloud Access GP2 offering in us-east-2 for x86\_64  
 ami-eefaf78e : Cloud Access GP2 offering in us-west-1 for x86\_64  
 ami-3db60945 : Cloud Access GP2 offering in us-west-2 for x86\_64

### 46.3. RHEL Atomic Host 7.4.3

ami-132aa67c : Cloud Access GP2 offering in eu-central-1 for x86\_64  
 ami-ce12aaa8 : Cloud Access GP2 offering in ap-northeast-1 for x86\_64  
 ami-29d59b46 : Cloud Access GP2 offering in ap-south-1 for x86\_64  
 ami-73712310 : Cloud Access GP2 offering in ap-southeast-1 for x86\_64  
 ami-cc48f3a8 : Cloud Access GP2 offering in ca-central-1 for x86\_64  
 ami-627d6306 : Cloud Access GP2 offering in eu-west-2 for x86\_64  
 ami-d012e7b2 : Cloud Access GP2 offering in ap-southeast-2 for x86\_64  
 ami-1e7e577b : Cloud Access GP2 offering in us-east-2 for x86\_64  
 ami-9b17b0f5 : Cloud Access GP2 offering in ap-northeast-2 for x86\_64  
 ami-4895d124 : Cloud Access GP2 offering in sa-east-1 for x86\_64  
 ami-ca14cdb2 : Cloud Access GP2 offering in us-west-2 for x86\_64  
 ami-ac910ed6 : Cloud Access GP2 offering in us-east-1 for x86\_64  
 ami-bb45f7c2 : Cloud Access GP2 offering in eu-west-1 for x86\_64  
 ami-567ccb2b : Cloud Access GP2 offering in eu-west-3 for x86\_64  
 ami-c8a79ca8 : Cloud Access GP2 offering in us-west-1 for x86\_64

### 46.4. RHEL Atomic Host 7.4.2

ami-6a04190e : Cloud Access GP2 offering in eu-west-2 for x86\_64  
 ami-defc2ea4 : Cloud Access GP2 offering in us-east-1 for x86\_64  
 ami-1f7ec770 : Cloud Access GP2 offering in eu-central-1 for x86\_64  
 ami-505b6630 : Cloud Access GP2 offering in us-west-1 for x86\_64  
 ami-29e3394f : Cloud Access GP2 offering in ap-northeast-1 for x86\_64  
 ami-6f975517 : Cloud Access GP2 offering in us-west-2 for x86\_64  
 ami-2746ab45 : Cloud Access GP2 offering in ap-southeast-2 for x86\_64  
 ami-637a030f : Cloud Access GP2 offering in sa-east-1 for x86\_64  
 ami-87edc1e2 : Cloud Access GP2 offering in us-east-2 for x86\_64  
 ami-5b64c135 : Cloud Access GP2 offering in ap-northeast-2 for x86\_64  
 ami-bb7531d8 : Cloud Access GP2 offering in ap-southeast-1 for x86\_64  
 ami-a2fcbfcd : Cloud Access GP2 offering in ap-south-1 for x86\_64  
 ami-1bbd057f : Cloud Access GP2 offering in ca-central-1 for x86\_64  
 ami-5825fb21 : Cloud Access GP2 offering in eu-west-1 for x86\_64

### 46.5. RHEL Atomic Host 7.4.1

ami-53b2693d : Cloud Access GP2 offering in ap-northeast-2 for x86\_64  
 ami-7dfdb912 : Cloud Access GP2 offering in ap-south-1 for x86\_64  
 ami-4dd9b62e : Cloud Access GP2 offering in ap-southeast-1 for x86\_64  
 ami-e2ae4a80 : Cloud Access GP2 offering in ap-southeast-2 for x86\_64  
 ami-010ab465 : Cloud Access GP2 offering in ca-central-1 for x86\_64  
 ami-bedb6fd1 : Cloud Access GP2 offering in eu-central-1 for x86\_64  
 ami-1b65a162 : Cloud Access GP2 offering in eu-west-1 for x86\_64  
 ami-1fb5a57b : Cloud Access GP2 offering in eu-west-2 for x86\_64  
 ami-4cc8bb20 : Cloud Access GP2 offering in sa-east-1 for x86\_64  
 ami-b24941c9 : Cloud Access GP2 offering in us-east-1 for x86\_64

ami-cca9b8b7 : Cloud Access GP2 offering in us-east-1 for x86\_64  
ami-116e4c74 : Cloud Access GP2 offering in us-east-2 for x86\_64  
ami-707c4b10 : Cloud Access GP2 offering in us-west-1 for x86\_64  
ami-f50afe8d : Cloud Access GP2 offering in us-west-2 for x86\_64

## 46.6. RHEL Atomic Host 7.4.0

ami-b546a2cd : Cloud Access GP2 offering in us-west-2 for x86\_64  
ami-31ea7552 : Cloud Access GP2 offering in ap-southeast-1 for x86\_64  
ami-783c4a14 : Cloud Access GP2 offering in sa-east-1 for x86\_64  
ami-d9c2eab9 : Cloud Access GP2 offering in us-west-1 for x86\_64  
ami-c3cbd5a0 : Cloud Access GP2 offering in ap-southeast-2 for x86\_64  
ami-d31636b6 : Cloud Access GP2 offering in us-east-2 for x86\_64  
ami-f9738680 : Cloud Access GP2 offering in eu-west-1 for x86\_64  
ami-07f14f63 : Cloud Access GP2 offering in ca-central-1 for x86\_64  
ami-ce3c2daa : Cloud Access GP2 offering in eu-west-2 for x86\_64  
ami-ebba9e90 : Cloud Access GP2 offering in us-east-1 for x86\_64  
ami-5d512a32 : Cloud Access GP2 offering in ap-south-1 for x86\_64  
ami-3cf42d52 : Cloud Access GP2 offering in ap-northeast-2 for x86\_64  
ami-fbbb1494 : Cloud Access GP2 offering in eu-central-1 for x86\_64

## 46.7. RHEL Atomic Host 7.3.6

ami-5920ff37 : Cloud Access GP2 offering in ap-northeast-2 for x86\_64  
ami-784b3517 : Cloud Access GP2 offering in ap-south-1 for x86\_64  
ami-65fe7706 : Cloud Access GP2 offering in ap-southeast-1 for x86\_64  
ami-852536e6 : Cloud Access GP2 offering in ap-southeast-2 for x86\_64  
ami-378f3053 : Cloud Access GP2 offering in ca-central-1 for x86\_64  
ami-71fd5c1e : Cloud Access GP2 offering in eu-central-1 for x86\_64  
ami-8a53b6f3 : Cloud Access GP2 offering in eu-west-1 for x86\_64  
ami-c1382ea5 : Cloud Access GP2 offering in eu-west-2 for x86\_64  
ami-18422874 : Cloud Access GP2 offering in sa-east-1 for x86\_64  
ami-30774426 : Cloud Access GP2 offering in us-east-1 for x86\_64  
ami-cb2100ae : Cloud Access GP2 offering in us-east-2 for x86\_64  
ami-d8f3dfb8 : Cloud Access GP2 offering in us-west-1 for x86\_64  
ami-6e312717 : Cloud Access GP2 offering in us-west-2 for x86\_64

## 46.8. RHEL Atomic Host 7.3.5

ami-2846564b : Cloud Access GP2 offering in ap-southeast-2 for x86\_64  
ami-256acd4a : Cloud Access GP2 offering in eu-central-1 for x86\_64  
ami-6894b20d : Cloud Access GP2 offering in us-east-2 for x86\_64  
ami-8dafa5f4 : Cloud Access GP2 offering in us-west-2 for x86\_64  
ami-c8aea4af : Cloud Access GP2 offering in ap-northeast-1 for x86\_64  
ami-88a8849e : Cloud Access GP2 offering in us-east-1 for x86\_64  
ami-94baa3f2 : Cloud Access GP2 offering in eu-west-1 for x86\_64  
ami-ab5cd1c8 : Cloud Access GP2 offering in ap-southeast-1 for x86\_64  
ami-6dd60903 : Cloud Access GP2 offering in ap-northeast-2 for x86\_64  
ami-84ed92eb : Cloud Access GP2 offering in ap-south-1 for x86\_64  
ami-62563d0e : Cloud Access GP2 offering in sa-east-1 for x86\_64  
ami-bcfdd0dc : Cloud Access GP2 offering in us-west-1 for x86\_64  
ami-dddc63b9 : Cloud Access GP2 offering in ca-central-1 for x86\_64  
ami-5f77613b : Cloud Access GP2 offering in eu-west-2 for x86\_64

## 46.9. RHEL Atomic Host 7.2.6

ami-0be48a78 : Cloud Access GP2 offering in eu-west-1 for x86\_64  
ami-98cc8cf8 : Cloud Access GP2 offering in us-west-1 for x86\_64  
ami-a40ff8cb : Cloud Access GP2 offering in eu-central-1 for x86\_64  
ami-509b0847 : Cloud Access GP2 offering in us-east-1 for x86\_64  
ami-daa47ab9 : Cloud Access GP2 offering in ap-southeast-1 for x86\_64  
ami-13468172 : Cloud Access GP2 offering in ap-northeast-1 for x86\_64  
ami-b389bcd0 : Cloud Access GP2 offering in ap-southeast-2 for x86\_64  
ami-f91dd499 : Cloud Access GP2 offering in us-west-2 for x86\_64  
ami-1c39ae70 : Cloud Access GP2 offering in sa-east-1 for x86\_64

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ami-18e27774 : Cloud Access GP2 offering in sa-east-1 for x86\_64  
ami-c3bfd5ac : Cloud Access GP2 offering in ap-south-1 for x86\_64  
ami-57688038 : Cloud Access GP2 offering in eu-central-1 for x86\_64  
ami-f8c90e98 : Cloud Access GP2 offering in us-west-2 for x86\_64  
ami-3312e552 : Cloud Access GP2 offering in ap-northeast-1 for x86\_64  
ami-9d905df0 : Cloud Access GP2 offering in us-east-1 for x86\_64  
ami-a95ac2da : Cloud Access GP2 offering in eu-west-1 for x86\_64  
ami-66529908 : Cloud Access GP2 offering in ap-northeast-2 for x86\_64  
ami-8e7e3aee : Cloud Access GP2 offering in us-west-1 for x86\_64  
ami-86e8c0e5 : Cloud Access GP2 offering in ap-southeast-2 for x86\_64  
ami-cea674ad : Cloud Access GP2 offering in ap-southeast-1 for x86\_64