GET PACKAGES

To install Ceph and other enabling software, you need to retrieve packages from the Ceph repository. Follow this guide to get packages; then, proceed to the Install Ceph Object Storage.

GETTING PACKAGES

There are two ways to get packages:

- **Add Repositories:** Adding repositories is the easiest way to get packages, because package management tools will retrieve the packages and all enabling software for you in most cases. However, to use this approach, each Ceph Node in your cluster must have internet access.
- **Download Packages Manually:** Downloading packages manually is a convenient way to install Ceph if your environment does not allow a Ceph Node to access the internet.

REQUIREMENTS

All Ceph deployments require Ceph packages (except for development). You should also add keys and recommended packages.

- **Keys: (Recommended)** Whether you add repositories or download packages manually, you should download keys to verify the packages. If you do not get the keys, you may encounter security warnings. See Add Keys for details.
- **Ceph: (Required)** All Ceph deployments require Ceph release packages, except for deployments that use development packages (development, QA, and bleeding edge deployments only). See Add Ceph for details.
- **Ceph Development: (Optional)** If you are developing for Ceph, testing Ceph development builds, or if you want features from the bleeding edge of Ceph development, you may get Ceph development packages. See Add Ceph Development for details.

If you intend to download packages manually, see Section Download Packages.

ADD KEYS

Add a key to your system's list of trusted keys to avoid a security warning. For major releases (e.g., `hammer`, `jewel`) and development releases (`release-name-rc1`, `release-name-rc2`), use the `release.asc` key.

APT

To install the `release.asc` key, execute the following:

```
wget -q -O- 'https://download.ceph.com/keys/release.asc' | sudo apt-key add -
```

RPM

To install the `release.asc` key, execute the following:

```
sudo rpm --import 'https://download.ceph.com/keys/release.asc'
```

ADD CEPH

Release repositories use the `release.asc` key to verify packages. To install Ceph packages with the Advanced Package Tool (APT) or Yellowdog Updater, Modified (YUM), you must add Ceph repositories.

You may find releases for Debian/Ubuntu (installed with APT) at:

```
https://download.ceph.com/debian-{release-name}
```

You may find releases for CentOS/RHEL and others (installed with YUM) at:

```
https://download.ceph.com/rpm-{release-name}
```

The major releases of Ceph are summarized at: Ceph Releases.

Every second major release is considered Long Term Stable (LTS). Critical bugfixes are backported to LTS releases until their retirement. Since retired releases are no longer maintained, we recommend that users upgrade their clusters regularly - preferably to the latest LTS release.

Tip: For non-US users: There might be a mirror close to you where to download Ceph from. For more information see: Ceph Mirrors.

DEBIAN PACKAGES

Add a Ceph package repository to your system's list of APT sources. For newer versions of Debian/Ubuntu, call `lsb_release -sc` on the command line to get the short codename, and replace `{codename}` in the following command.

```
sudo apt-add-repository 'deb https://download.ceph.com/debian-jewel/ {codename} main'
```

For early Linux distributions, you may execute the following command:

```
echo deb https://download.ceph.com/debian-jewel/ $(lsb_release -sc) main | sudo tee /etc/apt/
```

For earlier Ceph releases, replace `{release-name}` with the name with the name of the Ceph release. You may call `lsb_release -sc` on the command line to get the short codename, and replace `{codename}` in the following command.

```
sudo apt-add-repository 'deb https://download.ceph.com/debian-{release-name}/ {codename} main
```

For older Linux distributions, replace `{release-name}` with the name of the release:

```
echo deb https://download.ceph.com/debian-{release-name}/ $(lsb_release -sc) main | sudo tee
```

Ceph on ARM processors requires Google's memory profiling tools (`google-perftools`). The Ceph repository should have a copy at https://download.ceph.com/packages/google-perftools/debian.

```
echo deb https://download.ceph.com/packages/google-perftools/debian  $(lsb_release -sc) main
```

For development release packages, add our package repository to your system's list of APT sources. See the testing Debian repository for a complete list of Debian and Ubuntu releases supported.

```
echo deb https://download.ceph.com/debian-testing/ $(lsb_release -sc) main | sudo tee /etc/ap
```

Tip: For non-US users: There might be a mirror close to you where to download Ceph from. For more information see: Ceph Mirrors.

RPM PACKAGES

For major releases, you may add a Ceph entry to the `/etc/yum.repos.d` directory. Create a `ceph.repo` file. In the example below, replace `{ceph-release}` with a major release of Ceph (e.g., `hammer`, `jewel`, etc.) and `{distro}` with your Linux distribution (e.g., `el7`, etc.). You may view https://download.ceph.com/rpm-{ceph-release}/ directory to see which distributions

Ceph supports. Some Ceph packages (e.g., EPEL) must take priority over standard packages, so you must ensure that you set `priority=2`.

```
[ceph]
name=Ceph packages for $basearch
baseurl=https://download.ceph.com/rpm-{ceph-release}/{distro}/$basearch
enabled=1
priority=2
gpgcheck=1
gpgkey=https://download.ceph.com/keys/release.asc

[ceph-noarch]
name=Ceph noarch packages
baseurl=https://download.ceph.com/rpm-{ceph-release}/{distro}/noarch
enabled=1
priority=2
gpgcheck=1
gpgkey=https://download.ceph.com/keys/release.asc

[ceph-source]
name=Ceph source packages
baseurl=https://download.ceph.com/rpm-{ceph-release}/{distro}/SRPMS
enabled=0
priority=2
gpgcheck=1
gpgkey=https://download.ceph.com/keys/release.asc
```

For specific packages, you may retrieve them by downloading the release package by name. Our development process generates a new release of Ceph every 3-4 weeks. These packages are faster-moving than the major releases. Development packages have new features integrated quickly, while still undergoing several weeks of QA prior to release.

The repository package installs the repository details on your local system for use with `yum`. Replace `{distro}` with your Linux distribution, and `{release}` with the specific release of Ceph:

```
su -c 'rpm -Uvh https://download.ceph.com/rpms/{distro}/x86_64/ceph-{release}.el7.noarch.rpm'
```

You can download the RPMs directly from:

```
https://download.ceph.com/rpm-testing
```

Tip: For non-US users: There might be a mirror close to you where to download Ceph from. For more information see: Ceph Mirrors.

ADD CEPH DEVELOPMENT

If you are developing Ceph and need to deploy and test specific Ceph branches, ensure that you remove repository entries for major releases first.

DEB PACKAGES

We automatically build Ubuntu packages for current development branches in the Ceph source code repository. These packages are intended for developers and QA only.

Add the package repository to your system's list of APT sources, but replace `{BRANCH}` with the branch you'd like to use (e.g., wip-hack, master). See the shaman page for a complete list of distributions we build.

```
curl -L https://shaman.ceph.com/api/repos/ceph/{BRANCH}/latest/ubuntu/$(lsb_release -sc)/repo
```

Note: If the repository is not ready an HTTP 504 will be returned

The use of `latest` in the url, means it will figure out which is the last commit that has been built. Alternatively, a specific sha1 can be specified. For Ubuntu Xenial and the master branch of Ceph, it would look like:

```
curl -L https://shaman.ceph.com/api/repos/ceph/master/53e772a45fdf2d211c0c383106a66e1feedec8f
```

Warning: Development repositories are no longer available after two weeks.

RPM PACKAGES

For current development branches, you may add a Ceph entry to the `/etc/yum.repos.d` directory. The the shaman page can be used to retrieve the full details of a repo file. It can be retrieved via an HTTP request, for example:

```
curl -L https://shaman.ceph.com/api/repos/ceph/{BRANCH}/latest/centos/7/repo/ | sudo tee /etc
```

The use of `latest` in the url, means it will figure out which is the last commit that has been built. Alternatively, a specific sha1 can be specified. For CentOS 7 and the master branch of Ceph, it would look like:

```
curl -L https://shaman.ceph.com/api/repos/ceph/master/53e772a45fdf2d211c0c383106a66e1feedec8f
```

Warning: Development repositories are no longer available after two weeks.

Note: If the repository is not ready an HTTP 504 will be returned

DOWNLOAD PACKAGES

If you are attempting to install behind a firewall in an environment without internet access, you must retrieve the packages (mirrored with all the necessary dependencies) before attempting an install.

DEBIAN PACKAGES

Ceph requires additional additional third party libraries.

- libaio1
- libsnappy1
- libcurl3
- curl
- libgoogle-perftools4
- google-perftools
- libleveldb1

The repository package installs the repository details on your local system for use with `apt`. Replace `{release}` with the latest Ceph release. Replace `{version}` with the latest Ceph version number. Replace `{distro}` with your Linux distribution codename. Replace `{arch}` with the CPU architecture.

```
wget -q https://download.ceph.com/debian-{release}/pool/main/c/ceph/ceph_{version}{distro}_{a
```

RPM PACKAGES

Ceph requires additional additional third party libraries. To add the EPEL repository, execute the following:

```
sudo yum install -y https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
```

Ceph requires the following packages:

- snappy
- leveldb
- gdisk
- python-argparse
- gperftools-libs

Packages are currently built for the RHEL/CentOS7 (`el7`) platforms. The repository package installs the repository details on your local system for use with `yum`. Replace `{distro}` with your distribution.

```
su -c 'rpm -Uvh https://download.ceph.com/rpm-jewel/{distro}/noarch/ceph-{version}.{distro}.n
```

For example, for CentOS 7 (`el7`):

```
su -c 'rpm -Uvh https://download.ceph.com/rpm-jewel/el7/noarch/ceph-release-1-0.el7.noarch.rp
```

You can download the RPMs directly from:

```
https://download.ceph.com/rpm-jewel
```

For earlier Ceph releases, replace `{release-name}` with the name with the name of the Ceph release. You may call `lsb_release -sc` on the command line to get the short codename.

```
su -c 'rpm -Uvh https://download.ceph.com/rpm-{release-name}/{distro}/noarch/ceph-{version}.{
```