RHEL

Red Hat Enterprise Linux 8

We are delighted to introduce you to Red Hat Enterprise Linux 8. If you're familiar with previous versions of Red Hat Enterprise Linux, you'll find RHEL 8 more intuitive to pick up and use. However, there are a few new features and changes that you'll want to be aware of, so we hope this cheat sheet will help you quickly explore and begin your RHEL 8 application development.

SIMPLIFIED SOFTWARE PACKAGING AND INSTALLATION

Installing and using RHEL 8 is much easier than previous releases. Previously, there were server, workstation, and desktop variants, but RHEL 8 uses one installation medium for all variants. The RHEL 8 has also been simplified with fewer repos - they are:

> `BaseOS` - primarily core operating system packages with support for the lifetime of the OS

> `Appstream` - user-space applications and components, including numerous Application Streams (see below)

> `CodeReady Builder`- additional libraries and tools for developers

> `Supplementary` - 3rd party support only

Compilers, runtimes, web/database servers, and development tools will generally be delivered as Application Streams from the AppStream repo. See below for more info.

WORKNG WITH CONTAINERS

To enable container management without the need for daemons, Red Hat has introduced a set of tools for your Linux container application development:

> *Buildah* allows you to build a container without any daemon or docker.

> *Podman* allows you to manage containers without the daemon dependency it's also docker cli compatible.

```
# podman pull
```
> RHEL 8 compatible images can be found here

```
# yum install -y podman
# alias docker=podman
```
> type to use podman in place of docker

RED HAT UNIVERSAL BASE IMAGE (UBI)

Derived from Red Hat Enterprise Linux, the Red Hat Universal Base Image (UBI) provides a freely redistributable, enterprise-grade base container image on which developers can build and deliver their applications. This means you can containerize your app in UBI and deploy it anywhere. Of course, it will be more secure and Red Hat supported when deployed on RHEL or Red Hat OpenShift, but now you have more options. There are separate UBI 7 and UBI 8 versions for RHEL 7 and 8, respectively. You can obtain a number of RHEL container images from the Red Hat container catalog.

BASIC RED HAT ENTERPRISE LINUX COMMANDS

The most basic tasks that you might need after the operating system has been installed include:

```
# yum search string
```
> search for packages matching a specific string

```
# yum install package_name
```
> install a package

```
# yum update package_name
```
> update a package

```
# yum remove package_name
# yum history undo last
```
> uninstall a package and any packages that depend on it

```
$ yum list all
```
> list information on all installed and available packages

```
$ yum list installed
```
> list all installed packages

```
# subscription-manager repos --list
```
> list all available repositories

```
$ yum repolist
```
> list all currently enabled repositories

```
# subscription-manager repos --enable repository
```
> enable a repository

```
# subscription-manager repos --disable repository
```
> disable a repository

INTRODUCING APPLICATION STREAMS

RHEL 8 Beta introduces *Application Streams* where we deliver user space packages (e.g. compilers, scripting languages, databases, etc.) on a cadence that makes sense for each package.

In RHEL 8, Applications Streams are mostly packaged as Modules, but a few are non-module RPMs. A module is a set of RPM packages that can or must be installed together. A typical module can contain packages with an application, packages with the application's specific dependency libraries, packages with documentation for the application, and packages with helper utilities. Modules can have one or more streams - different versions of the module.

Terms and terminology:

Application Stream **(or simply** *stream***)** - refers to content. PHP 7.2 is an application stream. PHP 7.3 is an application stream.

Module - is the packaging format. PHP is packaged as a module.

Module Stream - different versions of a component packaged as a module. PHP 7.2 is an application stream packaged in a module stream.

appstream - is the name of the RHEL 8 repo where you can find Application Streams.

For even more information about Application Streams and modules, see Introducing Application Streams in RHEL 8.

FINDING AND EXPLORING MODULES

The following are common module commands.

```
$ yum module list
```
list all modules

```
$ yum module list installed
```
list installed modules

```
$ yum module provides package
```
find which module provides a package

```
$ yum module info module
```
examine details of a module

```
$ yum module info --profile module:stream
```
list packages installed by profiles of a module

```
$ yum module list module
```
display the current status of a module

WORKING WITH MODULES

The following commands must run with administrator privileges. Note also that some operations with modules require changes to many packages.

```
# yum module enable module:stream
```
enable a specific stream without installing packages

```
# yum module install module:stream/profile
```
install a specific stream

```
# yum module remove module && yum module disable module
```
disable a module stream and remove all packages provided by it

INSTALLING SPECIFIC APPLICATION STREAMS

The following table lists the most interesting Application Streams available in RHEL 8.

Stream	Command
.NET Core 2.1	`$ sudo yum install dotnet`
Ant 1.1	`$ sudo yum install ant`
Buildah 1.5 & Podman 1.0	`$ sudo yum install buildah podman`
Clang/LLVM 7.0	`$ sudo yum install llvm-toolset`
GCC 8.2 plus complementarytools	`$ sudo yum group install "Development Tools"`
GO 1.11	`$ sudo yum install go-toolset`
HTTPD 2.4	`$ sudo yum install httpd`
MariaDB 10.3	`$ sudo yum install mariadb`
Maven 3.5	`$ sudo yum install maven`
MySQL 8	`$ sudo yum install mysql`
Nginx 1.14	`$ sudo yum install nginx`
Node.js 10	`$ sudo yum install nodejs`
OpenJDK 11	`$ sudo yum install java-11-openjdk-devel`
OpenJDK 8	`$ sudo yum install java-1.8.0-openjdk-devel`
PCP 4.3	`$ sudo yum install pcp-zeroconf`
Perl 5.26 & 5.24	`$ sudo yum install perl`
PHP 7.2	`$ sudo yum install php`
PostgreSQL 10.5	`$ sudo yum install postgresql`
PostgreSQL 9.6	`$ sudo yum module install postgresql:9.6`
Python 2.7	`$ sudo yum install python2 or yum module install python27`
Python 3.6	`$ sudo yum install python3 or yum module install python36`

INSTALLING SPECIFIC APPLICATION STREAMS (cont)

Redis 5	`$ sudo yum install redis`
Ruby 2.5	`$ sudo yum install ruby`
Rust 1.31	`$ sudo yum install rust-toolset`
Scala 2.10	`$ sudo yum install scala`
Subversion 1.1	`$ sudo yum install subversion`
Swig 3	`$ sudo yum install swig`
Systemtap 4.0	`$ sudo yum install systemtap`
Valgrind 3.14	`$ sudo yum install valgrind`
Varnish 6	`$ sudo yum install varnish`

MORE INFORMATION

For more information about RHEL 8, visit the Red Hat Developer website.

Note: if `sudo` isn't enabled for your user ID, see How to enable sudo on Red Hat Enterprise Linux. During system installation, checking the box Make this user administrator enables `sudo` for your user ID.

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