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Abstract

Oracle® Linux 7: Managing Software describes how to install, upgrade, and manage software on Oracle Linux 7 systems by using the Yum utility.

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Preface

Oracle® Linux 7: Managing Software describes how to install, upgrade, and manage software on Oracle Linux 7 systems by using the Yum utility.

Audience

This document is intended for administrators who need to configure and administer Oracle Linux. It is assumed that readers are familiar with web technologies and have a general understanding of using the Linux operating system, including knowledge of how to use a text editor such as emacs or vim, essential commands such as cd, chmod, chown, ls, mkdir, mv, ps, pwd, and rm, and using the man command to view manual pages.

Related Documents

The documentation for this product is available at:

Oracle® Linux 7 Documentation

Conventions

The following text conventions are used in this document:

<table>
<thead>
<tr>
<th>Convention</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>boldface</td>
<td>Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.</td>
</tr>
<tr>
<td>italic</td>
<td>Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.</td>
</tr>
<tr>
<td>monospace</td>
<td>Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.</td>
</tr>
</tbody>
</table>

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Chapter 1 Managing Software With Yum

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1.2 About ULN .......................................................................................................................... 1

This chapter provides an overview of Yum, and includes details about Yum configuration and the `yum` that you use to install and upgrade software packages on your Oracle Linux systems.

1.1 About Yum

Oracle Linux provides the `yum` utility which you can use to install or upgrade RPM packages. The main benefit of using `yum` is that it also installs or upgrades any package dependencies. `yum` downloads the packages from repositories such as those that are available on the Oracle Linux yum server, but you can also set up your own repositories on systems that do not have Internet access.

The Oracle Linux yum server is a convenient way to install Oracle Linux and Oracle VM packages, including bug fixes, security fixes and enhancements, rather than installing them from installation media. You can access the server at https://yum.oracle.com/.

You can also subscribe to the Oracle Linux and Oracle VM errata mailing lists to be notified when new packages are released. You can access the mailing lists at https://oss.oracle.com/mailman/listinfo/el-errata and https://oss.oracle.com/mailman/listinfo/oraclevm-errata.

1.2 About ULN

The repositories that are available on the Oracle Linux yum server are aligned with the channels that are available on the Unbreakable Linux Network (ULN), with the exception of ULN channels that are limited to Oracle Linux Premier Support customers. These include channels for products such as Ksplice.

On Oracle Cloud Infrastructure, the regional yum servers that are made available via the service gateways are configured to also include additional repositories to provide access to content typically available to Oracle Linux Premier Support customers on ULN.

ULN is tightly integrated with `yum`. If you have registered your system with ULN, you can use `yum` commands with ULN channels to maintain the software on your system.

For more detailed information about working with ULN, including how to create and use a Yum server that acts as a local mirror of the ULN channels, see Oracle® Linux: Unbreakable Linux Network User's Guide for Oracle Linux 6 and Oracle Linux 7.
Chapter 2 Yum Configuration

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The main configuration file for yum is /etc/yum.conf. This chapter describes how to configure directives in the configuration file.

2.1 Yum Configuration Directives

The global definitions for yum are located under the [main] section heading of the yum configuration file. The following table lists the important directives.

<table>
<thead>
<tr>
<th>Directive</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>cachedir</td>
<td>Directory used to store downloaded packages.</td>
</tr>
<tr>
<td>debuglevel</td>
<td>Logging level, from 0 (none) to 10 (all).</td>
</tr>
<tr>
<td>exactarch</td>
<td>If set to 1, only update packages for the correct architecture.</td>
</tr>
<tr>
<td>exclude</td>
<td>A space separated list of packages to exclude from installs or updates, for example: exclude=VirtualBox-4.* kernel*.</td>
</tr>
<tr>
<td>gpgcheck</td>
<td>If set to 1, verify the authenticity of the packages by checking the GPG signatures. You might need to set gpgcheck to 0 if a package is unsigned, but you should be wary that the package could have been maliciously altered.</td>
</tr>
<tr>
<td>gpgkey</td>
<td>Pathname of the GPG public key file.</td>
</tr>
<tr>
<td>installonly_limit</td>
<td>Maximum number of versions that can be installed of any one package.</td>
</tr>
<tr>
<td>keepcache</td>
<td>If set to 0, remove packages after installation.</td>
</tr>
<tr>
<td>logfile</td>
<td>Pathname of the yum log file.</td>
</tr>
<tr>
<td>obsoletes</td>
<td>If set to 1, replace obsolete packages during upgrades.</td>
</tr>
<tr>
<td>plugins</td>
<td>If set to 1, enable plugins that extend the functionality of yum.</td>
</tr>
<tr>
<td>proxy</td>
<td>URL of a proxy server including the port number. See Section 2.2, “Configuring Use of a Proxy Server”.</td>
</tr>
<tr>
<td>proxy_password</td>
<td>Password for authentication with a proxy server.</td>
</tr>
<tr>
<td>proxy_username</td>
<td>User name for authentication with a proxy server.</td>
</tr>
<tr>
<td>reposdir</td>
<td>Directories where yum should look for repository files with a .repo extension. The default directory is /etc/yum.repos.d.</td>
</tr>
</tbody>
</table>

See the yum.conf(5) manual page for more information.

The following listing shows an example [main] section from the yum configuration file.

```
[main]
cachedir=/var/cache/yum
```
2.2 Configuring Use of a Proxy Server

If your organization uses a proxy server as an intermediary for Internet access, specify the `proxy` setting in `/etc/yum.conf` as shown in the following example.

```text
proxy=http://proxysvr.example.com:3128
```

If the proxy server requires authentication, additionally specify the `proxy_username` and `proxy_password` settings.

```text
proxy=http://proxysvr.example.com:3128
proxy_username=yumacc
proxy_password=clydenw
```

If you use the yum plugin (`yum-rhn-plugin`) to access the ULN, specify the `enableProxy` and `httpProxy` settings in `/etc/sysconfig/rhn/up2date` as shown in this example.

```text
enableProxy=1
httpProxy=http://proxysvr.example.com:3128
```

If the proxy server requires authentication, additionally specify the `enableProxyAuth`, `proxyUser`, and `proxyPassword` settings.

```text
enableProxy=1
httpProxy=http://proxysvr.example.com:3128
enableProxyAuth=1
proxyUser=yumacc
proxyPassword=clydenw
```

**Caution**

All `yum` users require read access to `/etc/yum.conf` or `/etc/sysconfig/rhn/up2date`. If these files must be world-readable, do not use a proxy password that is the same as any user's login password, and especially not `root`'s password.

2.3 Yum Repository Configuration

The yum configuration file or yum repository configuration files can contain one or more sections that define repositories.

The following table lists the basic directives for a repository.

<table>
<thead>
<tr>
<th>Directive</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>baseurl</code></td>
<td>Location of the repository channel (expressed as a <code>file://</code>, <code>ftp://</code>, <code>http://</code>, or <code>https://</code> address). This directive must be specified.</td>
</tr>
</tbody>
</table>
### Directive Description

<table>
<thead>
<tr>
<th>Directive</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>enabled</td>
<td>If set to 1, permit <code>yum</code> to use the channel.</td>
</tr>
<tr>
<td>name</td>
<td>Descriptive name for the repository channel. This directive must be specified.</td>
</tr>
</tbody>
</table>

Any other directive that appears in this section overrides the corresponding global definition in `[main]` section of the `yum.conf` manual page for more information.

The following listing shows an example repository section from a configuration file.

```
[ol6_u2_base]
name=Oracle Linux 6 U2 - $basearch - base
baseurl=https://yum.oracle.com/repo/OracleLinux/OL6/2/base/$basearch
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY
gpgcheck=1
enabled=1
```

In this example, the values of `gpgkey` and `gpgcheck` override any global setting. `yum` substitutes the name of the current system's architecture for the variable `$basearch`.

`yum` automatically searches the `/etc/yum.repos.d` directory for files with the suffix `.repo` and appends these to the configuration when it is processing. Use this directory to define repository files for repositories that you want to make available.

### 2.4 Downloading the Oracle Linux Yum Server Repository Files

The Oracle Linux yum server provides a direct mapping of all of the Unbreakable Linux Network (ULN) channels that are available to the public without any specific support agreement. The repository labels used for each repository on the Oracle Linux yum server map directly onto the channel names on ULN. See Oracle® Linux: Unbreakable Linux Network User's Guide for Oracle Linux 6 and Oracle Linux 7 at [https://docs.oracle.com/en/operating-systems/oracle-linux/uln-user/ol_channels_uln.html](https://docs.oracle.com/en/operating-systems/oracle-linux/uln-user/ol_channels_uln.html) for more information about the channel names and common suffixes used for channels and repositories.

Prior to January 2019, Oracle shipped a single yum repository configuration file for each Oracle Linux release. This configuration file is copied into `/etc/yum.repos.d/public-yum-ol7.repo` at installation, but can also be downloaded from the Oracle Linux yum server directly to obtain updates.

The original configuration file is deprecated in favor of modular repository files that are managed and updated automatically via yum in the form of RPM packages that are more targeted in scope. For example, core repository configuration files required for Oracle Linux 7 are available in the `oraclelinux-release-el7` package. This package includes all of the repository configuration required to install base packages for the release, including packages from the `ol7_latest`, `ol7_addons` repositories and all of the supported repositories for UEK.

The modular yum repository configuration files released as packages that can be maintained via yum can help to simplify repository management and also ensure that your yum repository definitions are kept up to date automatically, whenever you update your system.

A list of all available RPM files to manage all of the possible yum repository configurations for your release can be obtained by running:

```
# yum list *release-el7*
```

To install the yum repository configuration for a particular set of software that you wish to use, use `yum` to install the corresponding package. For example, to install the yum repository configuration for the Oracle Linux Software Collection Library, run:

```
# yum install oracle-softwarecollection-release-el7
```
If your system is still configured to use the original single yum repository configuration file at `/etc/yum.repos.d/public-yum-ol7.repo`, you should update your system to transition to the current approach to handling yum repository configuration. To do this, ensure that your system is up to date and then run the `/usr/bin/ol_yum_configure.sh` script:

```bash
# yum update
# /usr/bin/ol_yum_configure.sh
```

The `/usr/bin/ol_yum_configure.sh` script checks the `/etc/yum.repos.d/public-yum-ol7.repo` file to determine which repositories are already enabled and installs the appropriate corresponding packages before renaming the original configuration file to `/etc/yum.repos.d/public-yum-ol7.repo.sav` to disable it in favor of the more recent modular repository configuration files.

If, for some reason, you manage to remove all configuration to access the Oracle Linux yum server repositories, you should create a temporary yum repository configuration file at `/etc/yum.repos.d/ol7-temp.repo` with the following as the minimum required content:

```plaintext
[ol7_latest]
name=Oracle Linux $releasever Latest ($basearch)
baseurl=https://yum.oracle.com/repo/OracleLinux/OL7/latest/$basearch/
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-oracle
gpgcheck=1
enabled=1
```

Then reinstall the `oraclelinux-release-el7` package to restore the default yum configuration:

```bash
# yum reinstall oraclelinux-release-el7
# rm /etc/yum.repos.d/ol7-temp.repo
```

For more information on manually setting up Oracle Linux yum server repository configuration files, see [https://yum.oracle.com/getting-started.html](https://yum.oracle.com/getting-started.html).

You can enable or disable repositories in each repository configuration file by setting the value of the `enabled` directive to 1 or 0 for each repository listed in the file, as required. The preferred method of enabling or disabling repositories under Oracle Linux 7 is to use the `yum-config-manager` command as described in Section 2.6, “Using Yum Utilities to Manage Configuration”.

### 2.5 Using Yum on Oracle Cloud Infrastructure Systems

Compute instances in Oracle Cloud Infrastructure have access to regional yum servers via the service gateway. Regional yum servers on Oracle Cloud Infrastructure differ from the Oracle Linux yum server in that they also mirror content available on restricted ULN channels.

Yum repository configuration in Oracle Linux typically makes use of a yum variable in the baseurl for managing appropriate yum server access. For example, the baseurl to the `_latest` repository for Oracle Linux 7 is:

```
baseurl=https://yum$ociregion.oracle.com/repo/OracleLinux/OL7/latest/$basearch/
```

The `$ociregion` variable can be set by populating content in `/etc/yum/vars/ociregion`. If this file does not exist, or the file is empty, the baseurl is expanded to point to the publicly accessible Oracle Linux yum server. In the case of a typical Oracle Cloud Infrastructure compute instance, the value of variable is set when the instance is created so that the baseurl is expanded to point to the closest regional yum server on the Oracle Cloud Infrastructure service network. For example, if `$ociregion` is set to `-phx`, the baseurl expands to point to the regional yum server located in Phoenix.

By using variables, configuration can remain relatively standard across Oracle Linux deployments but provide access to the additional resources available to Oracle Cloud Infrastructure customers.
2.6 Using Yum Utilities to Manage Configuration

The `yum-utils` package includes several utilities that can help you to manage configuration and apply updates safely to your existing configuration. Most significant of these is `yum-config-manager`.

To install the `yum-utils` package:

```
# yum install -y yum-utils
```

You can use `yum-config-manager` to add repositories either at a specified URL, or within a specified repository file. For example, to add the legacy repository configuration file for Oracle Linux 7 from the Oracle Linux yum server:

```
```

**Note**
The legacy repository configuration file is unmaintained and deprecated. The information in this file may not be current and newer repositories may not be listed.

You can use the same command to automatically generate a repository configuration file for a valid yum repository, by pointing to the URL where the repository is hosted. For example, to create a new configuration file in `/etc/repos.d` for the Unbreakable Enterprise Kernel Release 5 repository, run:

```
# yum-config-manager --add-repo https://yum.oracle.com/repo/OracleLinux/OL7/UEKR5/x86_64
```

To enable a repository using `yum-config-manager`, use the `--enable` option. For example, to enable the `ol7_addons` repository, run:

```
# yum-config-manager --enable ol7_addons
```

You can use the `--disable` option in a similar way to disable a repository.

The `yum-config-manager` tool can also be used to set other configuration options using the `--setopt` and `--save` options. See the `yum-config-manager(1)` manual page for more information.

For a list of the tools included in the yum-utils package and a description of what these tools can do, see the `yum-utils(1)` manual page for more information.
### Chapter 3 Using Yum from the Command Line

The following table shows some examples of common tasks that you can perform using **yum**.

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>yum repolist</strong></td>
<td>Lists all enabled repositories.</td>
</tr>
<tr>
<td><strong>yum list</strong></td>
<td>Lists all packages that are available in all enabled repositories and all packages that are installed on your system.</td>
</tr>
<tr>
<td><strong>yum list installed</strong></td>
<td>Lists all packages that are installed on your system.</td>
</tr>
<tr>
<td><strong>yum list available</strong></td>
<td>Lists all packages that are available to be installed in all enabled repositories.</td>
</tr>
<tr>
<td><strong>yum search string</strong></td>
<td>Searches the package descriptions for the specified string.</td>
</tr>
<tr>
<td><strong>yum provides feature</strong></td>
<td>Finds the name of the package to which the specified file or feature belongs. For example:</td>
</tr>
</tbody>
</table>
|  | ```
|  | yum provides /etc/sysconfig/atd
|  | ```|
| **yum info package** | Displays detailed information about a package. For example:               |
|  | ```
|  | yum info bind
|  | ```|
| **yum install package** | Installs the specified package, including packages on which it depends. For example: |
|  | ```
|  | yum install ocfs2-tools
|  | ```|
| **yum check-update** | Checks whether updates exist for packages that are already installed on your system. |
| **yum update package** | Updates the specified package, including packages on which it depends. For example: |
|  | ```
|  | yum upgrade nfs-utils
|  | ```|
| **yum update**       | Updates all packages, including packages on which they depend.             |
| **yum remove package** | Removes the specified package. For example:                                |
|  | ```
|  | yum erase nfs-utils
|  | ```|
| **yum erase package** | Removes the specified package. This command has the same effect as the **yum remove** command. |
| **yum update**       | Updates all packages, including packages on which they depend.             |
| **yum clean all**    | Removes all cached package downloads and cached headers that contain information about remote packages. Running this command can help to clear problems that can result from unfinished transactions or out-of-date headers. |
| **yum help**         | Displays help about **yum** usage.                                          |
| **yum help command** | Displays help about the specified **yum** command. For example:            |
|  | ```
|  | yum help upgrade
|  | ```|
| **yum shell**        | Runs the **yum** interactive shell.                                       |

See the **yum**(8) manual page for more information.
To list the files in a package, use the `repoquery` utility, which is included in the `yum-utils` package. For example, the following command lists the files that the `btrfs-progs` package provides.

```
# repoquery -l btrfs-progs
/sbin/btrfs
/sbin/btrfs-convert
/sbin/btrfs-debug-tree
```

Note

`yum` makes no distinction between installing and upgrading a kernel package. `yum` always installs a new kernel regardless of whether you specify `update` or `install`. 

```
Chapter 4 Yum Groups

A set of packages can themselves be organized as a *yum group*. Examples include the groups for Eclipse, fonts, and system administration tools. The following table shows the *yum* commands that you can use to manage these groups.

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>yum grouplist</code></td>
<td>Lists installed groups and groups that are available for installation.</td>
</tr>
<tr>
<td><code>yum groupinfo groupname</code></td>
<td>Displays detailed information about a group.</td>
</tr>
<tr>
<td><code>yum groupinstall groupname</code></td>
<td>Installs all the packages in a group.</td>
</tr>
<tr>
<td><code>yum groupupdate groupname</code></td>
<td>Updates all the packages in a group.</td>
</tr>
<tr>
<td><code>yum groupremove groupname</code></td>
<td>Removes all the packages in a group.</td>
</tr>
</tbody>
</table>
Chapter 5 Using the Yum Security Plugin

The security plugin is integrated with yum in Oracle Linux 7 and allows you to obtain a list of all of the errata that are available for your system, including security updates. You can also use Oracle Enterprise Manager 12c Cloud Control or management tools such as Katello, Pulp, Red Hat Satellite, Spacewalk, and SUSE Manager to extract and display information about errata.

To list the errata that are available for your system, enter:

```bash
# yum updateinfo list
ELBA-2018-2000 bugfix    NetworkManager-1:11.10.2-16.el7_5.x86_64
ELBA-2018-2000 bugfix    NetworkManager-ads1-1:11.10.2-16.el7_5.x86_64
ELBA-2018-2000 bugfix    NetworkManager-config-server-1:11.10.2-16.el7_5.x86_64
ELBA-2018-2000 bugfix    NetworkManager-glib-1:11.10.2-16.el7_5.noarch
ELBA-2018-2000 bugfix    NetworkManager-libnm-1:11.10.2-16.el7_5.x86_64
ELBA-2018-2000 bugfix    NetworkManager-ppp-1:11.10.2-16.el7_5.x86_64
ELBA-2018-2000 bugfix    NetworkManager-team-1:11.10.2-16.el7_5.x86_64
ELBA-2018-2000 bugfix    NetworkManager-tui-1:11.10.2-16.el7_5.x86_64
ELBA-2018-2000 bugfix    NetworkManager-wifi-1:11.10.2-16.el7_5.x86_64
ELBA-2018-1994 bugfix    binutils-2.27-28.base.el7_5.1.x86_64
ELBA-2018-1980 bugfix    dracut-033-535.0.2.el7.x86_64
ELBA-2018-1980 bugfix    dracut-config-rescue-033-535.0.2.el7.x86_64
ELBA-2018-1980 bugfix    dracut-network-033-535.0.2.el7.x86_64
ELEA-2018-0838 enhancement filesystem-3.2-25.el7.x86_64
ELSA-2018-2113 Critical/Sec.  firefox-60.1.0-4.0.1.el7_5.x86_64
...```

The output from the command sorts the available errata in order of their IDs, and it also specifies whether each erratum is a security patch (severity/Sec.), a bug fix (bugfix), or a feature enhancement (enhancement). Security patches are listed by their severity: Important, Moderate, or Low.

You can use the `--sec-severity` option to filter the security errata by severity, for example:

```bash
# yum updateinfo list --sec-severity=Moderate
ELSA-2018-1852 Moderate/Sec.  kernel-3.10.0-862.3.3.el7.x86_64
ELSA-2018-1852 Moderate/Sec.  kernel-devel-3.10.0-862.3.3.el7.x86_64
ELSA-2018-1852 Moderate/Sec.  kernel-headers-3.10.0-862.3.3.el7.x86_64
ELSA-2018-1852 Moderate/Sec.  kernel-tools-3.10.0-862.3.3.el7.x86_64
ELSA-2018-1852 Moderate/Sec.  kernel-tools-libs-3.10.0-862.3.3.el7.x86_64
ELSA-2018-2123 Moderate/Sec.  python-2.7.5-69.0.1.el7_5.x86_64
ELSA-2018-2123 Moderate/Sec.  python-libs-2.7.5-69.0.1.el7_5.x86_64
ELSA-2018-1852 Moderate/Sec.  python-perf-3.10.0-862.3.3.el7.x86_64
...```

To list the security errata by their Common Vulnerabilities and Exposures (CVE) IDs instead of their errata IDs, specify the keyword `cves` as an argument:

```bash
# yum updateinfo list cves
CVE-2017-7762    Critical/Sec.  firefox-60.1.0-4.0.1.el7_5.x86_64
CVE-2018-12359    Critical/Sec.  firefox-60.1.0-4.0.1.el7_5.x86_64
CVE-2018-12363    Critical/Sec.  firefox-60.1.0-4.0.1.el7_5.x86_64
CVE-2018-12364    Critical/Sec.  firefox-60.1.0-4.0.1.el7_5.x86_64
CVE-2018-12366    Critical/Sec.  firefox-60.1.0-4.0.1.el7_5.x86_64
CVE-2018-9156    Critical/Sec.  firefox-60.1.0-4.0.1.el7_5.x86_64
CVE-2018-9188    Critical/Sec.  firefox-60.1.0-4.0.1.el7_5.x86_64
CVE-2016-6126    Critical/Sec.  firefox-60.1.0-4.0.1.el7_5.x86_64
CVE-2018-12360    Critical/Sec.  firefox-60.1.0-4.0.1.el7_5.x86_64
CVE-2018-12362    Critical/Sec.  firefox-60.1.0-4.0.1.el7_5.x86_64
CVE-2018-12365    Critical/Sec.  firefox-60.1.0-4.0.1.el7_5.x86_64
CVE-2018-12020    Important/Sec. gnupg2-2.0.22-5.el7_5.x86_64
CVE-2018-3665    Moderate/Sec.  kernel-3.10.0-862.3.3.el7.x86_64
Similarly, the keywords `bugfix`, `enhancement`, and `security` filter the list for all bug fixes, enhancements, and security errata.

You can use the `--cve` option to display the errata that correspond to a specified CVE, for example:

```
# yum updateinfo list --cve CVE-2018-3665
ELSA-2018-1852 Moderate/Sec. kernel-3.10.0-862.3.3.el7.x86_64
ELSA-2018-1852 Moderate/Sec. kernel-devel-3.10.0-862.3.3.el7.x86_64
ELSA-2018-1852 Moderate/Sec. kernel-headers-3.10.0-862.3.3.el7.x86_64
ELSA-2018-1852 Moderate/Sec. kernel-tools-3.10.0-862.3.3.el7.x86_64
ELSA-2018-1852 Moderate/Sec. kernel-tools-libs-3.10.0-862.3.3.el7.x86_64
ELSA-2018-4144 Important/Sec. kernel-uek-firmware-4.1.12-124.16.4.el7uek.noarch
ELSA-2018-1852 Moderate/Sec. python-perf-3.10.0-862.3.3.el7.x86_64
```

To display more information, specify `info` instead of `list`, for example:

```
# yum updateinfo info --cve CVE-2018-3665
--------------------------------------------------------------
kernel security update
--------------------------------------------------------------
Update ID : ELSA-2018-1852
Release : Oracle Linux 7
Type : security
Status : final
Issued : 2018-06-14
CVEs : CVE-2018-3665
Description : [3.10.0-862.3.3.OL7]
: - Oracle Linux certificates (Alexey Petrenko)
: - Oracle Linux RHCK Module Signing Key was
:   compiled into kernel
:   (olkmod_signing_key.x509)(alexey.petrenko@oracle.com)
: - Update x509.genkey [bug 24817676]
: ;
: [3.10.0-862.3.3]
: - [x86] always enable eager FPU by default on
:   non-AMD processors (Paolo Bonzini) [1589051
:   1589048] {CVE-2018-3665}
Severity : Moderate
--------------------------------------------------------------
Unbreakable Enterprise kernel security update
--------------------------------------------------------------
Update ID : ELSA-2018-4144
Release : Oracle Linux 7
Type : security
Status : final
Issued : 2018-06-15
CVEs : CVE-2018-3665
Description : [4.1.12-124.16.4]
: - x86/fpu: Make eager FPU default (Mihai Carabas)
:   [Orabug: 28135099] {CVE-2018-3665}
Severity : Important
```

To update all packages for which security-related errata are available to the latest versions of the packages, even if those packages include bug fixes or new features but not security errata, enter:

```
# yum --security update
```

To update all packages to the latest versions that contain security errata, ignoring any newer packages that do not contain security errata, enter:

```
# yum --security update
```
To update all kernel packages to the latest versions that contain security errata, enter:

```
# yum --security update-minimal
```

You can also update only those packages that correspond to a CVE or erratum, for example:

```
# yum update --cve CVE-2018-3665
# yum update --advisory ELSA-2018-4144
```

**Note**

Some updates might require you to reboot the system. By default, the boot manager will automatically enable the most recent kernel version.

For more information, see the *yum-security(8)* manual page.
Chapter 6 Switching CentOS or Scientific Linux Systems to Use the Oracle Linux Yum Server

You can use the centos2ol.sh script to convert CentOS 5 and 6 or Scientific Linux 5 and 6 systems to Oracle Linux. The script configures `yum` to use the Oracle Linux yum server and installs a few additional packages that are required. There is no need to reboot the system.

To perform the switch to Oracle Linux, run the following commands as `root`:

```
curl -O https://linux.oracle.com/switch/centos2ol.sh
sh centos2ol.sh
```

For more information, see https://linux.oracle.com/switch/centos/.
Chapter 7 Creating a Local Yum Repository Using an ISO Image

The system must have sufficient storage space to host a full Oracle Linux Media Pack DVD image (approximately 4.1 GB for Oracle Linux 7 Update 5).

To create a local yum repository (for example, if a system does not have Internet access):

1. On a system with Internet access, download a full Oracle Linux DVD image from the Oracle Software Delivery Cloud at https://edelivery.oracle.com/linux onto removable storage (such as a USB memory stick). For example, V975367-01.iso contains the Oracle Linux 7 Update 5 Media Pack for x86 (64 bit).

   Note
   You can verify that the ISO was copied correctly by comparing its checksum with the digest value that is listed on edelivery.oracle.com, for example:
   
   # sha1sum V975367-01.iso
   4B08559B6176F701563C2E49553C89491C0F8F4E V975367-01.iso

2. Transfer the removable storage to the system on which you want to create a local yum repository, and copy the DVD image to a directory in a local file system.

   # cp /media/USB_stick/V975367-01.iso /ISOs

3. Create a suitable mount point, for example /var/OSimage/OL7.5_x86_64, and mount the DVD image on it.

   # mkdir -p /var/OSimage/OL7.5_x86_64
   # mount -o loop,ro /ISOs/V975367-01.iso /var/OSimage/OL7.5_x86_64

   Note
   Include the read-only mount option (ro) to avoid changing the contents of the ISO by mistake.

4. Create an entry in /etc/fstab so that the system always mounts the DVD image after a reboot.

   /ISOs/V975367-01.iso /var/OSimage/OL7.5_x86_64 iso9660 loop,ro 0 0

5. Disable all existing yum repositories.

   In the /etc/yum.repos.d directory, edit any existing repository files and disable all entries by setting enabled=0. If you have the yum-utils package installed, as described in Section 2.6, “Using Yum Utilities to Manage Configuration”, you can disable all repositories by running:

   # yum-config-manager --disable *

6. Create the following entries in a new repository file (for example, /etc/yum.repos.d/OL75.repo).

   [OL75]
   name=Oracle Linux 7.5 x86_64
   baseurl=file:///var/OSimage/OL7.5_x86_64
   gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY
   gpgcheck=1
   enabled=1
Note that the correct GPG key file must exist at the path specified for the `gpgkey` parameter. You can download the GPG keys used to sign all of the Oracle Linux release packages from the Oracle Linux yum server. See https://yum.oracle.com/faq.html#a10 for more information.

7. Clean up the `yum` cache.

```
# yum clean all
```

8. Test that you can use `yum` to access the repository.

```
# yum repolist
Loaded plugins: refresh-packagekit, security
...
repo id                          repo name                                status
  OL75                           Oracle Linux 7.5 x86_64                  5,070
repolist: 5,070
```
Chapter 8 Setting up a Local Yum Server Using an ISO Image

To set up a local yum server (for example, if you have a network of systems that do not have Internet access):

1. Choose one of the systems to be the yum server, and create a local yum repository on it as described in Chapter 7, Creating a Local Yum Repository Using an ISO Image.

2. Install the Apache HTTP server from the local yum repository.

```
# yum install httpd
```

3. If SELinux is enabled in enforcing mode on your system:
   a. Use the `semanage` command to define the default file type of the repository root directory hierarchy as `httpd_sys_content_t`:
      ```
      # /usr/sbin/semanage fcontext -a -t httpd_sys_content_t "/var/OSimage/(.*)?"
      ```
   b. Use the `restorecon` command to apply the file type to the entire repository.
      ```
      # /sbin/restorecon -R -v /var/OSimage
      ```

   **Note**
   The `semanage` and `restorecon` commands are provided by the `policycoreutils-python` and `policycoreutils` packages.

4. Create a symbolic link in `/var/www/html` that points to the repository:

```
# ln -s /var/OSimage /var/www/html/OSimage
```

5. Edit the HTTP server configuration file, `/etc/httpd/conf/httpd.conf`, as follows:
   a. Specify the resolvable domain name of the server in the argument to `ServerName`.
      ```
      ServerName server_addr:80
      ```
      If the server does not have a resolvable domain name, enter its IP address instead.
   b. Verify that the setting of the `Options` directive in the `<Directory "/var/www/html">` section specifies `Indexes` and `FollowSymLinks` to allow you to browse the directory hierarchy, for example:
      ```
      Options Indexes FollowSymLinks
      ```
   c. Save your changes to the file.

6. Start the Apache HTTP server, and configure it to start after a reboot.

```
# systemctl start httpd
# systemctl enable httpd
```

7. If you have enabled a firewall on your system, configure it to allow incoming HTTP connection requests on TCP port 80, for example:

```
# firewall-cmd --zone=zone --add-port=80/tcp
# firewall-cmd --permanent --zone=zone --add-port=80/tcp
```

8. Disable all existing yum repositories on the server and each client system.
In the `/etc/yum.repos.d` directory, edit any existing repository files and disable all entries by setting `enabled=0`. If you have the `yum-utils` package installed, as described in Section 2.6, “Using Yum Utilities to Manage Configuration”, you can disable all repositories by running:

```
# yum-config-manager --disable *
```

9. Edit the repository file on the server (for example, `/etc/yum.repos.d/OL75.repo`):

   ```
   [OL75]
   name=Oracle Linux 7.5 x86_64
   baseurl=http://server_addr/OSimage/OL7.5_x86_64
   gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY
   gpgcheck=1
   enabled=1
   ```

   Replace `server_addr` with the IP address or resolvable host name of the local yum server.

10. On each client, copy the repository file from the server to the `/etc/yum.repos.d` directory.

11. On the server and each client, test that you can use `yum` to access the repository.

   ```
   # yum repolist
   Loaded plugins: refresh-packagekit, security
   ...
   repo id                     repo name                                    status
   OL75                        Oracle Linux 7.5 x86_64                         5,070
   repolist: 5,070
   ```
Chapter 9 Using the yum-cron Interface to Automatically Keep Your System Up To Date

As an alternative to manually running the `yum update` command to keep your system up to date with the latest security patches and bug fixes, you can use the `yum-cron` interface, which is provided as an additional package in Oracle Linux. The interface is used to provide automatic notifications of updates and also to download updates, which can then be installed automatically by using `crontab`.

To get started, install the `yum-cron` package from the `ol7_latest` repository. Then, enable and start the service so that it checks for updates daily:

```bash
# yum install yum-cron
# systemctl enable --now yum-cron.service
```

To customize the behavior of the `yum-cron` interface, edit `/etc/yum/yum-cron.conf`. You can create alternate configuration files that can be invoked on different schedules, depending on your requirements. Oracle Linux also includes an alternate configuration file at `/etc/yum/yum-cron-hourly.conf`. By default, when `yum-cron` runs, it loads its configuration from `/etc/yum/yum-cron.conf` unless an alternate configuration is offered as an argument when it is run.

Oracle Linux creates two crontab entries, by default, when `yum-cron` is installed. These are located in `/etc/cron.daily/0yum-daily.cron` and `/etc/cron.hourly/0yum-hourly.cron`. The daily crontab entry runs `yum-cron` using the default configuration in `/etc/yum/yum-cron.conf`. The hourly crontab entry invokes `yum-cron` to run with the alternate configuration at `/etc/yum/yum-cron-hourly.conf`. By creating multiple configuration entries and crontab entries, you can control the frequency that different yum update operations are performed. For instance, you may wish to update yum repository metadata on an hourly schedule, while applying critical security updates on a daily schedule. You could also create a configuration to apply all remaining updates on a weekly or monthly schedule.

Configuration files allow you to configure different parameters to control the kinds of updates that are managed by `yum-cron`; whether updates are applied or only downloaded; and how to provide notification of updates. The default configuration files are commented to provide explanations for each setting. The following settings are notable:

- **update_cmd.** This option controls the types of updates that are either downloaded or applied by `yum-cron`. The following options are available:

  - `default` : Fetch all updates.
  - `security` : Fetch only security updates.
  - `security-severity:Critical` : Fetch only security updates marked with "Critical" severity.
  - `minimal` : Fetch package errata version updates only.
  - `minimal-security` : Fetch package errata versions marked as security updates only.
  - `minimal-security-severity:Critical` : Fetch package errata versions marked as security updates with "Critical" severity.

For mission-critical systems that require a scheduled downtime to apply updates, you can direct `yum-cron` to only install minimal security updates by specifying the `Critical` severity, for example:

```bash
update_cmd = minimal-security-severity:Critical
```
Consider also using Oracle Ksplice if you wish to minimize scheduled downtime for kernel patches and updates. See About Ksplice in Oracle® Linux: Ksplice User's Guide for more information.

- **apply_updates.** By default, the `yum-cron` interface downloads updates when the `download_updates` setting is specified. However, it does not apply them. You can change this behaviour by modifying the `apply_updates` setting as follows:

  ```
  apply_updates = yes
  ```

- **exclude.** To avoid updating specific packages, use a wildcard with the `exclude` setting. For example, to exclude kernel updates set this value as follows:

  ```
  exclude = kernel*
  ```

- **update_messages.** To control whether you receive notifications of new updates, you can set this value as follows:

  ```
  update_messages = yes
  ```

- **emit_via.** By default, `yum-cron` is configured to output notifications to `stdio`, which means that messages are printed into `/var/log/cron`. You can disable any notifications, by setting this value to `None` or by leaving it empty. If you wish to receive email notifications, you can set this value to `email`, but you must also configure the `[email]` settings later in the configuration.

  ```
  email_from = server@example.com
  email_to = admin@example.com
  email_host = smtp.example.com
  ```

For more information about `yum-cron`, refer to the `yum-cron(8)` manual page and to the comments within the default configuration file.
Chapter 10 For More Information About Yum

For more information about yum, see http://yum.baseurl.org/.

Frequently asked questions about the Oracle Linux yum server are answered at https://yum.oracle.com/faq.html.

For more information about how to download the latest packages from the Unbreakable Linux Network and make the packages available through a local yum server, see https://www.oracle.com/technical-resources/articles/it-infrastructure/unbreakable-linux-network.html.