

Oracle® Linux

Software Collection Library for Oracle Linux 6 and Oracle Linux

7

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Abstract

This document contains information about the software collection library release 3.2 available from Oracle. It describes the differences from the upstream version, includes notes on installing and configuring software collections, and provides a statement of what is supported.

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Preface

The *Oracle® Linux: Software Collection Library for Oracle Linux 6 and Oracle Linux 7* provides details of the software collection library release 3.2 that is available from Oracle for Oracle Linux 6 and Oracle Linux 7.

Audience

This document is written for developers who want to use software collections with Oracle Linux 6 or Oracle Linux 7. It is assumed that readers have a general understanding of the Linux operating system.

Related Documents

The latest version of this document and other documentation for this product are available at:

<https://docs.oracle.com/en/operating-systems/linux.html>

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
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Chapter 1 Release Notes

1.1 About the Software Collection Library for Oracle Linux



Note

The software collection library is currently available for Oracle Linux 6 (x86_64) and Oracle Linux 7 (x86_64) and is supported for customers with Oracle Linux Premier Support.

All source RPMs for the software collection library, including build dependencies, can be found at the following URLs: <https://oss.oracle.com/SCL/OL6/SRPMS> and <https://oss.oracle.com/SCL/OL7/SRPMS>.

The software collection library allows you install and use several different versions of the same software at the same time on a system. Software collections are primarily intended for development environments, which often require more recent versions of software components such as Perl, PHP, or Python to gain access to the latest features, but which need to avoid the risk of disrupting other processes on the system that rely on different versions of these components. You use the software collection library `scl` utility to run the developer tools from the software collections that you have installed under the `/opt/rh` directory hierarchy. `scl` isolates the effects of running these tools from other versions of the same software utilities that you have installed.

The software collection library version 3.2 replaces the previous release of the Software Collection Library. This version includes all of the software collections that were available in the previous release, along with some package updates, and also includes additional software collections that were not available in previous releases.

1.1.1 Additions and Updates for Oracle Linux 7

The software collection library available for Oracle Linux 7 may differ in content to the same software collection library that is available for Oracle Linux 6. This section describes changes that apply to the software collections available for Oracle Linux 7.

New in the 3.2 release on Oracle Linux 7

The following collections are new in the 3.2 release of the software collection library:

- `devtoolset-8`
- `rh-git218`
- `rh-haproxy18`
- `rh-nginx114`
- `rh-nodejs10`
- `rh-perl526`
- `rh-php72`
- `rh-ruby25`
- `rh-varnish5`
- `rh-varnish6`

Updated in the 3.2 release for Oracle Linux 7

The following collections were available in the previous release of the software collection library, but have been updated in the 3.2 release:

- `devtoolset-7`
- `httpd24`
- `rh-git29`
- `rh-nodejs6`
- `rh-nodejs8`
- `rh-php70`

The updates listed here are current at the time of release. Packages in each collection may be updated with patches throughout the life cycle of the Software Collection Library release. Patches might include security and bug fixes. It is important that you regularly update any software collections that you install.

1.1.2 Additions and Updates for Oracle Linux 6

The software collection library available for Oracle Linux 6 may differ in content to the same software collection library that is available for Oracle Linux 7. This section describes changes that apply to the software collections available for Oracle Linux 6.

New in the 3.2 release on Oracle Linux 6

The following collections are new in the 3.2 release of the software collection library:

- `devtoolset-8`

Updated in the 3.2 release for Oracle Linux 6

The following collections were available in the previous release of the software collection library, but have been updated in the 3.2 release:

The updates listed here are current at the time of release. Packages in each collection may be updated with patches throughout the life cycle of the Software Collection Library release. Patches may include security and bug fixes. It is important that you regularly update any software collections that you install.

- `devtoolset-7`
- `httpd24`
- `rh-git29`
- `rh-nodejs6`
- `rh-php70`

1.2 Differences From the Upstream Release

There are some minor differences between the Oracle versions of the software collections and the upstream release.

The changes include the following:

- Addition of Oracle Linux GPG keys.
- Removal of the MariaDB, MongoDB, MySQL, PostgreSQL, and Thermostat software collections.
- Removal of the `rhsc1-dockerfiles` package.
- Branding changes.

1.3 Available Software Collections

The following software collections are available in the Oracle Linux 6 and Oracle Linux 7 `SoftwareCollections` channels on ULN or the Oracle Linux 6 and Oracle Linux 7 `software_collections` repositories on the Oracle Linux yum server. Where a collection is only available for either Oracle Linux 6 or Oracle Linux 7, indication is provided.

`devassist09`

DevAssistant 0.9.3 assists in the creation and configuration of the development environment for projects that use the C, C++, Java, and Python programming languages. DevAssistant has a modular architecture that allows it to be modified to work with many languages, frameworks, and tools.

For more information, see <http://devassistant.org/>.

`devtoolset-3`

The Developer Toolset consists of development, debugging, and performance monitoring tools, including the latest versions of the GNU compiler collection, GNU debugger, and Eclipse development platform.

For more information, see <https://gcc.gnu.org/>, <http://www.gnu.org/software/gdb/>, and <https://eclipse.org/>.

`devtoolset-4`

The Developer Toolset consists of development, debugging, and performance monitoring tools, including the latest versions of the GNU compiler collection, GNU debugger, and Eclipse development platform.

For more information, see <https://gcc.gnu.org/>, <http://www.gnu.org/software/gdb/>, and <https://eclipse.org/>.

`devtoolset-6`

The Developer Toolset includes development, debugging, and performance monitoring tools, which include the latest versions of the GNU compiler collection and GNU debugger. Note that the Eclipse development platform is no longer available as part of this collection, but you can install the `rh-eclipse46` collection separately.

The following upgraded components are included in the Developer Toolset version 6.1:

- GCC updated to version 6.3.1.
- `elfutils` updated to version 0.168.
- GDB updated to version 7.12.1.

A bug fix update has also been made available for `ltrace`.

For more information, see <https://gcc.gnu.org/> and <http://www.gnu.org/software/gdb/>.

`devtoolset-7`

The Developer Toolset includes development, debugging, and performance monitoring tools, which include the latest versions of the GNU compiler collection and GNU debugger.

The following upgraded components are included in the Developer Toolset version 7.0:

- `GCC` updated to version 7.3.1
- `binutils` updated to version 2.28
- `elfutils` updated to version 0.170
- `make` updated to version 4.2.1
- `GDB` updated to version 8.0.1
- `strace` updated to version 4.17
- `SystemTap` updated to version 3.1
- `Valgrind` updated to version 3.13.0
- `OProfile` updated to version 1.2.0
- `Dyninst` updated to version 9.3.2

For more information, see <https://gcc.gnu.org/> and <http://www.gnu.org/software/gdb/>.

`devtoolset-8`

The Developer Toolset includes development, debugging, and performance monitoring tools, which include the latest versions of the GNU compiler collection and GNU debugger.

The following upgraded components are included in the Developer Toolset version 8.0:

- `GCC` updated to version 8.2.1
- `GDB` updated to version 8.2
- `binutils` updated to version 2.30
- `elfutils` updated to version 0.174
- `strace` updated to version 4.24
- `SystemTap` updated to version 3.3
- `Valgrind` updated to version 3.14.0
- `OProfile` updated to version 1.3.0

For more information, see <https://gcc.gnu.org/> and <http://www.gnu.org/software/gdb/>.

<code>git19</code>	<p>Git 1.9.4 is built on a decentralized architecture and provides a distributed revision-control system that emphasizes high performance and data integrity and supports non-linear, distributed work flows.</p> <p>For more information, see http://git-scm.com/.</p>
<code>httpd24</code>	<p>The Apache HTTP Server implements event-based processing for enhanced performance, FastCGI, an improved SSL module, and the <code>mod_auth_kerb</code> module.</p> <p>The <code>httpd24</code> software collection provides version 2.4.34 of the software. This version includes a number of bug fixes and enhancements from the previous version, as well as multiple improvements to support for HTTP/2 and fixes for SSL/TLS.</p> <p>For more information, see http://httpd.apache.org/docs/2.4/.</p>
<code>maven30</code>	<p>Maven 3.0.5 is a tool for managing builds, documentation, and reporting for Java projects.</p> <p>For more information, see http://maven.apache.org/.</p>
<code>nginx16</code>	<p>Nginx 1.6.2 is a combined web and proxy server that is designed to provide enhanced concurrency and performance without placing excessive demands on memory. New features include SSL verification enhancements, improved logging options, thread pooling and hash load balancing.</p> <p>For more information, see http://nginx.org/.</p>
<code>nodejs010</code>	<p>Node.js 0.10 is a programming platform that includes <code>npm</code> to share and reuse code. This software collection requires the V8 JavaScript engine implemented by <code>v8314</code>.</p> <p>For more information, see http://nodejs.org/.</p>
<code>perl516</code>	<p>Perl 5.16.3 provides better performance, new debugging features, enhanced Unicode support, improved interoperability with MySQL and PostgreSQL, and the <code>mod_perl</code> and <code>perl-DateTime</code> modules for use with <code>httpd24</code>.</p> <p>For more information, see https://www.perl.org/ and http://perldoc.perl.org/.</p>
<code>php54</code>	<p>PHP 5.4.16 provides PEAR 1.9.4, various language and interface improvements, and the APC, memcache, and Zend OPcache extensions.</p> <p>For more information, see http://php.net/.</p>
<code>php55</code>	<p>PHP 5.5.21 has enhanced language features for better exception handling, generators, and Zend OPcache, and also includes the memcache and mongodb extensions.</p> <p>For more information, see http://php.net/.</p>
<code>python27</code>	<p>Python 2.7 includes a new ordered dictionary type, faster I/O, and better forward compatibility with Python 3. Also included are the Python 2.7.8</p>

interpreter, web-programming extension libraries and `mod_wsgi` for use with `httpd24`, PostgreSQL connectors, and the `numpy` and `scipy` modules for scientific applications.

In this release, the `python27-python-pymongo` package has been updated to version 3.2.1. Note that this version is not fully compatible with the previously shipped version 2.5.2.

For more information, see <https://www.python.org/>.

`python33`

Python 3.3.2 includes the Python 3.3.2 interpreter, web-programming extension libraries and `mod_wsgi` for use with `httpd24`, MySQL, and PostgreSQL connectors, and the `numpy` and `scipy` modules for scientific applications.

For more information, see <https://www.python.org/>.

`rh-eclipse46`

Oracle Linux 7 Only

The `rh-eclipse46` software collection is an integrated development environment. Previous releases of Eclipse were available as part of the Developer Toolset collections. This release provides an independent software collection that is dependent on the `rh-java-common` collection.

In this release, the `rh-eclipse46` collection is version 4.6.3 and is based on the Eclipse Foundation's Neon release train.

This version provides several bug fixes and the following new plug-ins:

- The `m2e` plug-in provides support for developing maven-based projects.
- The `TestNG` plug-in provides support for writing and executing tests using the `TestNG` framework.

Most other plug-ins have received incremental updates to fix upstream bugs.

For more information, see <https://eclipse.org/>.

`rh-git29`

The Git 2.9.3 revision control system used to track changes in files and to coordinate work among multiple contributors in a distributed environment.

For more information, see <https://git-scm.com/>.

`rh-git218`

The Git 2.18.1 revision control system used to track changes in files and to coordinate work among multiple contributors in a distributed environment. This collection includes bug fixes and new features that improve on the `rh-git29` software collection.

For more information, see <https://git-scm.com/>.

`rh-haproxy18`

Oracle Linux 7 Only

The HAProxy 1.8.4 proxy software provides a mechanism that can proxy TCP requests and perform a variety of related functions such as content-based switching, server load balancing, TCP traffic regulation and monitoring, and HTTP compression.

For more information, see <http://cbonte.github.io/haproxy-dconv/>.

`rh-java-common`

The `rh-java-common` software collection provides common Java libraries and tools that are used by other software collections. It is usually installed as a dependency for these collections.

In this release, the `rh-java-common` collection has been updated and extended to comply with the changes that are in the dependent components.

`rh-maven33`

Apache Maven 3.3.9 is a tool used to build and manage Java projects. The software provides a single interface to a uniform build system that eases Java development and aids comprehension of any Java-based project.

Note that this version of the `rh-maven33` software collection includes several bug fixes.

For more information, see <https://maven.apache.org/docs/3.3.9/release-notes.html>.

`rh-maven35`

Oracle Linux 7 Only

Apache Maven 3.5.0 is a tool used to build and manage Java projects. The software provides a single interface to a uniform build system that eases Java development and aids comprehension of any Java-based project.

This version of the `rh-maven35` software collection includes several bug fixes and enhancements, including console color output and several other improvements.

For more information, see <https://maven.apache.org/docs/3.5.0/release-notes.html>.

`rh-nginx18`

Nginx 1.8.1 is a combined web and proxy server that is designed to provide enhanced concurrency and performance without placing excessive demands on memory. New features include SSL verification enhancements, improved logging options, thread pooling and hash load balancing.

For more information, see <http://nginx.org/>.

`rh-nginx110`

Nginx 1.10.2 provides a number of new features, including dynamic module support, HTTP/2 support, and numerous performance improvements.

The `rh-nginx110` collection does not support integration with Phusion Passenger. If you require `nginx` with Passenger support, continue using `rh-nginx18`, which provides `nginx` version 1.8.

The `rh-nginx110` Software Collection has optional support for Perl, in conjunction with the `rh-perl524` software collection. To configure Perl handlers and call Perl functions from SSI scripts, you must install the `rh-nginx110-nginx-mod-http-perl` package.

For more information, see <http://nginx.org/>.

`rh-nginx112`

Oracle Linux 7 Only

Ngix 1.12.1 provides a number of new features, including IP Transparency, TCP/UDP load balancing, enhanced caching and support for multiple SSL certificates of different types. Many other enhancements and new features are available in this release. Refer to the upstream documentation to find out more.

The `rh-nginx110` collection does not support integration with Phusion Passenger. If you require `nginx` with Passenger support, continue using `rh-nginx18`, which provides `nginx` version 1.8.

The `rh-nginx110` Software Collection has optional support for Perl, in conjunction with the `rh-perl524` software collection. To configure Perl handlers and call Perl functions from SSI scripts, you must install the `rh-nginx110-nginx-mod-http-perl` package.

For more information, see <http://nginx.org/>.

`rh-nginx114`

Oracle Linux 7 Only

Ngix 1.14.0 provides a number of new features, including a new mirror module, a gRPC proxy module, HTTP/2 server push functionality and improvements to `vim` syntax-highlighting scripts.

For more information, see <http://nginx.org/>.

`rh-nodejs4`

Node.js 4.4.2 is a JavaScript programming platform that includes npm to share and reuse code. This software collection requires the V8 JavaScript engine implemented by `v8314`.

For more information, see <http://nodejs.org/>.

`rh-nodejs6`

Node.js 6.91 is a JavaScript programming platform that includes includes `npm 3.10.9`. This version includes numerous new features and bug fixes, including the following:

- Multiple API enhancements
- Performance and security improvements,
- Support for the `ECMAScript 2015` language specification

For more information, see <http://nodejs.org/>.

`rh-nodejs8`

Oracle Linux 7 Only

Node.js 8.6.0 is a JavaScript programming platform that includes npm to share and reuse code. This version introduces the new `async_hooks`

module and experimental support for N-API, as well as full support for HTTP/2.

This software collection uses the V8 JavaScript engine version 6.0, which is included in this collection. This removes the dependency on [v8314](#), as required in previous Node.js collections.

For more information, see <http://nodejs.org/>.

`rh-nodejs10`

Oracle Linux 7 Only

Node.js 10.10.0 is a JavaScript programming platform that includes npm to share and reuse code. This version introduces full support for N-API, stability improvements and security enhancements.

This software collection uses the V8 JavaScript engine version 6.6, which is included in this collection.

For more information, see <http://nodejs.org/>.

`rh-passenger40`

Phusion Passenger 4.0.50 is a fast, robust and lightweight web application server that is designed to be used in conjunction with applications written in Python or Ruby. This software collection is typically used in conjunction with several other software collections including the various Python, Ruby or Ruby on Rails collections and a web server like Nginx or the Apache HTTP Server.

For more information, see <https://www.phusionpassenger.com/>.

`rh-perl520`

Perl 5.2.0, includes additional scripts and utilities, as well as the database connectors for MySQL and PostgreSQL. Other included components are the `DateTime` module and the `mod_perl` Apache module supported by the `httpd24` collection.

For more information, see <https://www.perl.org/>.

`rh-perl524`

Perl 5.2.4, includes additional scripts and utilities, as well as the database connectors for MySQL and PostgreSQL. Other included components are the `DateTime` module and the `mod_perl` Apache module supported by the `httpd24` collection.

For more information, see <https://www.perl.org/>.

`rh-perl526`

Oracle Linux 7 Only

Perl 5.2.6, includes some security improvements, bug fixes and enhancements. These include changes to remove the current directory from the `@INC` module search path, deprecation of the `do` statement, stricter regular expression patterning and support for Unicode 9.0.

The `rh-perl526-perl` package installs core modules along with the interpreter, which is provided in the `rh-perl526-perl-interpreter` package. This is a change in behavior from previous releases, where core modules were not included in the base perl package.

For more information, see <https://www.perl.org/>.

- `rh-php56` PHP 5.6.25, including PEAR 1.9.5, enhanced language features for constant expressions, variadic functions, argument unpacking and interactive debugging, and also includes the memcache, mongodb and XDebug extensions.
- For more information, see <http://php.net/>.
- `rh-php70` PHP 7.0.10, including PEAR 1.10, enhanced language features and performance improvements.
- For more information, see <http://php.net/>.
- `rh-php71` **Oracle Linux 7 Only**
- PHP 7.1.8, including PEAR 1.10.4 and the APCu extension version 5.1.8. This release includes many bug fixes and performance improvements.
- For more information, see <http://php.net/>.
- `rh-php72` **Oracle Linux 7 Only**
- PHP 7.2.10, including PEAR 1.10.5 and the APCu extension version 5.1.12. This release includes many bug fixes and performance improvements, including: object-to-array and array-to object casts for numeric keys; a new `object` typehint; and a change to `HashContext` from a resource to an object.
- For more information, see <http://php.net/>.
- `rh-python34` Python 3.4 includes the Python 3.4.2 interpreter, web-programming extension libraries and `mod_wsgi` for use with `httpd24`, MySQL, and PostgreSQL connectors, and the `numpy` and `scipy` modules for scientific applications.
- For more information, see <https://www.python.org/>.
- `rh-python35` Python 3.5.1 includes the Python 3.5.1 interpreter, web-programming extension libraries and `mod_wsgi` for use with `httpd24`, MySQL, and PostgreSQL connectors, and the `numpy` and `scipy` modules for scientific applications.
- For more information, see <https://www.python.org/>.
- `rh-python36` Python 3.6.3 includes the Python 3.6.3 interpreter, web-programming extension libraries and `mod_wsgi` for use with `httpd24`, MySQL, and PostgreSQL connectors, and the `numpy` and `scipy` modules for scientific applications. This release includes a variety of new features and enhancements. Several syntax features have been added including formatted string literals and asynchronous generators and comprehensions. The `secrets` module has been added to the standard library. Also, dictionaries have been reimplemented to use significantly less memory and to enhance performance. Also notable is support for DTrace and SystemTap probes.
- For more information, see <https://www.python.org/>.

`rh-redis32`

Redis 3.2.4 is an open source, in-memory data structure store commonly used as a database, cache and message broker.

For more information, see <https://redis.io/>.

`rh-ror41`

Ruby on Rails 4.1.5 is a recent version of the web application framework that is written in the Ruby language. This release includes numerous new features, including the following:

- Spring application pre-loader
- Action Pack
- Action Mailer
- Security fixes for earlier versions of the software

For more information, see <http://rubyonrails.org/>.

`rh-ror42`

Ruby on Rails 4.2, is a recent version of the web application framework written in the Ruby language. This release includes new features such as Active Job, improvements such as support for asynchronous mails, performance enhancements such as the Adequate Record feature, and a default Web Console included with each new application.

For more information, see <http://rubyonrails.org/>.

`rh-ror50`

Ruby on Rails 5.0.1 provides a number of bug fixes and the following new features:

- Action Cable framework for handling WebSockets in Rails.
- API mode to assist in creating a Rails application for an API server more easily.
- Exclusive use of the `rails` CLI over Rake.
- Addition of `ActionRecord` attributes.

Note that you can now override `ActiveRecord` attributes, if needed. For details, see the [upstream release notes](#).

The `rh-ror50` software collection is supported with the `rh-ruby24` and `rh-nodejs6` collections.

For more information, see <http://rubyonrails.org/>.

`rh-ruby22`

Ruby 2.2.2 is a stable release of Ruby 2.2. This release is backward compatible with Ruby 2.0.0, and Ruby 1.9.3 at a source level.

For more information, see <https://www.ruby-lang.org/>.

`rh-ruby23`

Ruby 2.3.1 is a stable release of Ruby 2.3 and includes many new features, including a frozen string literal pragma, a safe navigation or lonely operator, improved debugging and many performance enhancements. This release is backward compatible with Ruby 2.2.2, Ruby 2.0.0, and Ruby 1.9.3 at a source level.

`rh-ruby24`

For more information, see <https://www.ruby-lang.org/>.

Ruby 2.4.0 introduces performance improvements, including the following:

- Improved hash table performance.
- New `binding#irb` method starts a read–eval–print loop (REPL) session, which enables easier debugging and introspection of variables during runtime.
- Improved debugging of threads and better deadlock detection.
- Fixnum and Bignum classes are integrated into the Integer class.
- Support for Unicode case mappings.
- Support for the OpenSSL 1.1.0 library.

Ruby 2.4 is backward compatible with Ruby 2.3.1, Ruby 2.2.2, Ruby 2.0.0, and Ruby 1.9.3. The `rh-ruby23` and `rh-ruby22` software collections are also still supported.

For more information, see <https://www.ruby-lang.org/>.

`rh-ruby25`

Oracle Linux 7 Only

Ruby 2.5.0 introduces performance improvements, new features and changes including the following:

- Keyword arguments accepted by `Struct` subclass constructors.
- Automatic loading of the `pp` library.
- `do` and `end` blocks allow direct usage of `rescue`, `else` and `ensure` syntax.
- New `Hash` handling methods for `slice` and `transform_keys`.

Ruby 2.5 is backward compatible with Ruby 2.4, Ruby 2.3.1, Ruby 2.2.2, Ruby 2.0.0, and Ruby 1.9.3. The `rh-ruby23` and `rh-ruby22` software collections are also still supported.

For more information, see <https://www.ruby-lang.org/>.

`rh-scala`

Oracle Linux 7 Only

The new Scala 2.10.6 software collection is a general purpose programming language that is designed to express common programming patterns in a concise and type-safe way. Scala 2.10.6 integrates both object-oriented and functional languages features and is fully interoperable with Java.

For more information, see <http://docs.scala-lang.org/>.

`rh-varnish4`

Varnish Cache 4.0.3 is an efficient reverse proxy for HTTP. Files and content are cached in memory to reduce response time and

network bandwidth consumption. The Varnish Cache can improve web application performance significantly.

For more information, see <https://www.varnish-cache.org/>.

`rh-varnish5`

Oracle Linux 7 Only

Varnish Cache 5.2.1 is an efficient reverse proxy for HTTP. This release provides bug fixes and enhancements over the previous version, including experimental HTTP/2 support, the `shard` director and improvements to configuration through Varnish Configuration Language files and labels.

For more information, see <https://www.varnish-cache.org/>.

`rh-varnish6`

Oracle Linux 7 Only

Varnish Cache 6.0.0 includes many bug fixes and enhancements, including support for Unix Domain Sockets for both clients and servers; and update to Varnish Configuration Language, to bring it to version 4.1; further improvements to HTTP/2 support and many new and improved Varnish Modules (VMODs).

For more information, see <https://varnish-cache.org/docs/6.0/index.html>.

`ror40`

Ruby on Rails 4.0.2 provides additional features and improvements including support for live streaming over persistent connections and can be used with `ruby200`. This software collection requires the V8 JavaScript engine implemented by `v8314`.

For more information, see <http://rubyonrails.org/>.

`ruby193`

Ruby 1.9.3 includes Ruby on Rails 3.2.8 and provides enhanced Unicode support, improved threading, quicker loading, the `mod_passenger` module for use with `httpd24`, and a large collection of Ruby gems.

For more information, see <https://www.ruby-lang.org/>.

`ruby200`

Ruby 2.0.0 provides improved performance and reliability, provides additional features and enhanced debugging, and retains backward compatibility with Ruby 1.9.3 at source level.

For more information, see <https://www.ruby-lang.org/>.

`source-to-image`

Oracle Linux 7 Only

The source-to-image software collection, which provides a tool for building artifacts from source and injecting these into docker images, is only available for Oracle Linux 7. Note that this collection depends on docker which is available in the `ol7_addons` channel.

For more information, see <https://github.com/openshift/source-to-image/blob/master/README.md>.

`v8314`

The `v8314` software collection, which provides a V8 JavaScript engine, is supported only as a dependency of other software collections.

For more information, see <https://developers.google.com/v8/>.

1.4 Installing the Software Collection Library Utility From ULN

The `scl-utils` package, which provides the software collection library `scl` utility, is available in the Oracle Linux 6 and Oracle Linux 7 `latest` channels.

The software collection packages are available in the Oracle Linux 6 and Oracle Linux 7 `SoftwareCollections` channels.

To be able to use a software collection on an Oracle Linux 6 or Oracle Linux 7 system, you must install the `scl` utility on that system.

To install `scl` on a system:

1. Log in to the ULN at linux.oracle.com and subscribe the system to the appropriate `latest` and `SoftwareCollections` channels:
 - For Oracle Linux 6, subscribe the system to the `ol6_x86_64_latest` and `ol6_x86_64_SoftwareCollections` channels.
 - For Oracle Linux 7, subscribe the system to the `ol7_x86_64_latest`, `ol7_x86_64_optional_latest` and `ol7_x86_64_SoftwareCollections` channels.
2. Install the `scl-utils` package.

```
# yum install scl-utils
```

You can now install and use software collection packages on the system. See [Section 1.6, “Installing a Software Collection From the Oracle Linux Yum Server”](#) and [Section 1.8, “Using the Software Collection Version of a Command”](#).



Note

Alternatively, you can obtain the `scl-utils` and software collection packages from the Oracle Linux yum server. See [Section 1.5, “Installing the Software Collection Library Utility From the Oracle Linux Yum Server”](#).

1.5 Installing the Software Collection Library Utility From the Oracle Linux Yum Server

The `scl-utils` package, which provides the software collection library `scl` utility, is available in the Oracle Linux 6 and Oracle Linux 7 `latest` repositories on the Oracle Linux yum server.

The software collection packages are available in the Oracle Linux 6 and Oracle Linux 7 `software_collections` repositories:

- https://yum.oracle.com/repo/OracleLinux/OL6/SoftwareCollections/x86_64/ (Oracle Linux 6)
- https://yum.oracle.com/repo/OracleLinux/OL7/SoftwareCollections/x86_64/ (Oracle Linux 7)

To be able to use a software collection on an Oracle Linux 6 or Oracle Linux 7 system, you must install the `scl` utility on that system.

To install `scl` on a system:

1. Ensure that your system is up to date and that you have transitioned to use the modular yum repository configuration by installing the `oraclelinux-release-rel` package and running the `/usr/bin/ol_yum_configure.sh` script. For example, on Oracle Linux 7 do:

```
# yum install oraclelinux-release-el7
# /usr/bin/ol_yum_configure.sh
```

2. Enable the `software_collections` repository. For example, run:

```
# yum-config-manager --enable software_collections
```

If you are using Oracle Linux 7, ensure that the `ol7_latest` and `ol7_optional_latest` repositories are also enabled:

```
# yum-config-manager --enable ol7_latest ol7_optional_latest
```

If you are using Oracle Linux 6, ensure that the `ol6_latest` repository is also enabled:

```
# yum-config-manager --enable ol6_latest
```

3. Install the `scl-utils` package.

```
# yum install scl-utils
```

You can now install and use software collection packages on the system. See [Section 1.6, “Installing a Software Collection From the Oracle Linux Yum Server”](#) and [Section 1.8, “Using the Software Collection Version of a Command”](#).

1.6 Installing a Software Collection From the Oracle Linux Yum Server

After you set up the system to access the `software_collections` repository on the Oracle Linux yum server or the `SoftwareCollections` channel on ULN, you can use the `yum` command to install a software collection on the system as follows:

```
# yum install sw_col
```

Replace `sw_col` with the name of the software collection that you want to install.

A software collection can have a number of optional packages that you can also choose to install if required. To list these packages, use the following command:

```
# yum list available sw_col-*
```

To list the installed software collections, use the `scl --list` command.

To list the packages that a software collection contains, use the `scl --list sw_col` command.

To see a list of all available packages within the software collection library, restrict a `yum` query in the following way:

```
# yum --disablerepo="*" --enablerepo="*_SoftwareCollections" list available
```

1.7 Updating or Removing a Software Collection

You can update or remove a software collection in the same way as you would update or remove any ordinary package, for example:

```
# yum update sw_col
```

```
# yum remove sw_col
```

1.8 Using the Software Collection Version of a Command

To enable and use the version of a command that a software collection contains, use the `scl` utility with the `enable` action:

```
# scl enable sw_col -- command args
```

By default, the specified command from the software collection runs in a `bash` environment. If required, you can specify a different shell environment.

If you want to enable several software collections so that you can run several utilities together, specify `bash` to provide the environment from which you can access the utilities, for example:

```
# scl enable sw_col1 sw_col2 -- bash
```



Note

The `X_SCLS` environment variable contains a list of the currently enabled software collections in the shell.

You can specify the commands that you want to run in a software collection environment and pipe these to the `scl` command:

```
# cat cmd_file | scl enable sw_col -
```

You could also create an executable wrapper script to run an `scl` command, for example:

```
#!/bin/bash
scl enable php55 -- php $@
```

As of version 3.0, the `scl` utility can be called directly from the shebang (`#!`) line of a script with the `enable` action provided. This allows you to call an interpreter from within a collection directly from your scripts. For example:

```
#!/usr/bin/scl enable rh-python36 -- python

import platform
import sys
import os

print(os.system('python -V'))
print(platform.python_version())
print(sys.version)
```

For more information, see the `scl(1)` manual page.

1.9 Using Services Provided by Software Collections

Some of the software collections install service scripts in `/etc/rc.d/init.d` that include the software collection name in the name of the service script, for example `httpd24-httpd`. As for any system service, you can enable, disable, and control a software collection service by using `chkconfig` and `service` under Oracle Linux 6 or `systemctl` under Oracle Linux 7.

1.10 Accessing Software Collection-Specific Manual Pages

A software collection is packaged with a manual page that describes its content. Use the following command to display the manual page for a software collection:

```
# scl enable sw_col -- man sw_col
```

1.11 Known Issues

The following are known issues in this release.

1.11.1 Package Dependency Issues When Upgrading From Software Collection Version 1.2

In the case where Software Collection version 1.2 is already installed on Oracle Linux 7 and the system is upgraded to Software Collection version 2.2, version 2.3, version 2.4, version 3.0, or version 3.2, some dependency issues may result if the following packages are installed:

- `devtoolset-3-liblsan-devel`
- `devtoolset-3-libtsan-devel`

Typically, the error appears as follows:

```
--> Finished Dependency Resolution
Error: Package: devtoolset-3-liblsan-devel-4.9.1-10.el7.x86_64 (@ol7_x86_64_SoftwareCollections)
Requires: liblsan = 4.9.1-10.el7
Removing: liblsan-4.9.1-10.el7.x86_64 (@ol7_x86_64_SoftwareCollections12)
liblsan = 4.9.1-10.el7
Updated By: liblsan-6.2.1-3.1.el7.x86_64 (SCL23)
liblsan = 6.2.1-3.1.el7
Available: liblsan-5.2.1-2.2.el7.x86_64 (ol7_x86_64_SoftwareCollections)
liblsan = 5.2.1-2.2.el7
Available: liblsan-5.3.1-6.1.el7.x86_64 (ol7_x86_64_SoftwareCollections)
liblsan = 5.3.1-6.1.el7
Error: Package: devtoolset-3-libtsan-devel-4.9.1-10.el7.x86_64 (@ol7_x86_64_SoftwareCollections)
Requires: libtsan = 4.9.1-10.el7
Removing: libtsan-4.9.1-10.el7.x86_64 (@ol7_x86_64_SoftwareCollections12)
libtsan = 4.9.1-10.el7
Updated By: libtsan-6.2.1-3.1.el7.x86_64 (SCL23)
libtsan = 6.2.1-3.1.el7
Available: libtsan-4.8.2-16.el7.x86_64 (ol7_x86_64_optional_latest)
libtsan = 4.8.2-16.el7
Available: libtsan-4.8.2-16.2.el7_0.x86_64 (ol7_x86_64_optional_latest)
libtsan = 4.8.2-16.2.el7_0
Available: libtsan-4.8.3-9.el7.x86_64 (ol7_x86_64_optional_latest)
libtsan = 4.8.3-9.el7
libtsan = 4.8.2-16.el7
Available: libtsan-4.8.5-4.el7.x86_64 (ol7_x86_64_optional_latest)
libtsan = 4.8.5-4.el7
libtsan = 4.8.2-16.el7
Available: libtsan-4.8.5-11.el7.x86_64 (ol7_x86_64_optional_latest)
libtsan = 4.8.5-11.el7
libtsan = 4.8.2-16.el7
Available: libtsan-5.2.1-2.2.el7.x86_64 (ol7_x86_64_SoftwareCollections)
libtsan = 5.2.1-2.2.el7
Available: libtsan-5.3.1-6.1.el7.x86_64 (ol7_x86_64_SoftwareCollections)
libtsan = 5.3.1-6.1.el7
```

The workaround is to uninstall and remove the listed rpm packages before doing a `yum update` or `yum install`. You should also exclude these packages from a `yum update` or `yum install`. This can be achieved by editing the `/etc/yum.conf` file and updating the `exclude` option, or by using the `--exclude` flag when running the `yum` command.

(Bug ID 24376931)

1.11.2 libasan-static Package Dependency

When installing the `devtoolset-3-libasan-devel-4.9.1-10.el7` package, which requires the `libasan-4.9.1-10.el7` package, there is a potential dependency issue if the `libasan-static-4.8.3-9.el7` package is already present on the system. An error such as the following is reported:

```
--> Finished Dependency Resolution
Error: Multilib version problems found. This often means that the root
cause is something else and multilib version checking is just
pointing out that there is a problem. Eg.:

  1. You have an upgrade for libasan which is missing some
     dependency that another package requires. Yum is trying to
     solve this by installing an older version of libasan of the
     different architecture. If you exclude the bad architecture
     yum will tell you what the root cause is (which package
     requires what). You can try redoing the upgrade with
     --exclude libasan.otherarch ... this should give you an error
     message showing the root cause of the problem.

  2. You have multiple architectures of libasan installed, but
     yum can only see an upgrade for one of those architectures.
     If you don't want/need both architectures anymore then you
     can remove the one with the missing update and everything
     will work.

  3. You have duplicate versions of libasan installed already.
     You can use "yum check" to get yum show these errors.

...you can also use --setopt=protected_multilib=false to remove
this checking, however this is almost never the correct thing to
do as something else is very likely to go wrong (often causing
much more problems).

Protected multilib versions: libasan-4.9.1-10.el7.x86_64 != libasan-4.8.5-11.el7.i686
```

The workaround is to remove the `libasan-static` package before installing the `devtoolset-3-libasan-devel` package.

(Bug ID 21896256)

1.11.3 Software Collection and Package Version Conflicts

You cannot install multiple versions of software collections on a system due to package conflicts within matching software collections. The following software collections are known to conflict:

- `devtoolset-3` and `devtoolset-4`
- `rh-nginx18`, `rh-nginx110` and `nginx16`
- `rh-nodejs4`, `rh-nodejs6` and `nodejs010`
- `perl516`, `rh-perl520`, `rh-perl523` and `rh-perl524`
- `php54`, `php55`, `rh-php56` and `rh-php70`
- `python27`, `python33`, `rh-python34` and `rh-python35`
- `rh-ror42`, `rh-ror50` and `ror40`
- `ruby193`, `ruby200`, `rh-ruby22`, `rh-ruby23` and `rh-ruby24`

In most cases, the conflict may result from particular package conflicts within each software collection. Commonly, this results because it is only possible to install one set of macro files for the packages. This means that the `scldevel` packages for each collection tend to conflict. For instance, the `rh-php56-scldevel` and `php54-scldevel` packages within the `php54` and `rh-php56` software collections are known to conflict. This behavior is expected. Do not attempt to install multiple versions of a software collections package on the same system.

In some cases other conflicts may occur. For instance, the `devtoolset-3-tycho` and `devtoolset-4-tycho` packages conflict. This occurs due to binary mismatches within the packages. Once again, do not attempt to install multiple versions of a software collections package on the same system.

(Bug IDs 20090086, 24286085, 23311408, 25115835, 25164232)

1.11.4 rh-php56-build Dependency Issue From Software Collection version 2.2

A package dependency conflict results when attempting to upgrade the `rh-php56` collection from the Software Collection version 2.2 to the version included in Software Collection version 2.3, Software Collection version 2.4, Software Collection version 3.0 and in Software Collection version 3.2. Typically, the following output is displayed during the upgrade:

```
--> Finished Dependency Resolution
Error: Package: rh-php56-build-2.0-6.el7.x86_64
(@ol7_x86_64_SoftwareCollections)
    Requires: rh-php56-runtime(x86-64) = 2.0-6.el7
    Removing: rh-php56-runtime-2.0-6.el7.x86_64
(@ol7_x86_64_SoftwareCollections)
    rh-php56-runtime(x86-64) = 2.0-6.el7
    Updated By: rh-php56-runtime-2.3-1.el7.x86_64
(ol7_x86_64_SoftwareCollections)
    rh-php56-runtime(x86-64) = 2.3-1.el7
```

The workaround is to uninstall and remove the `rh-php56-build-2.0-6.el7.x86_64` rpm package before doing a `yum update` or `yum install`, for example:

```
# yum remove rh-php56-build-2.0-6
```

You should also exclude these packages from a `yum update` or `yum install`. This can be achieved by editing the `/etc/yum.conf` file and updating the `exclude` option, or by using the `--exclude` flag when running the `yum` command.

(Bug ID 25424699)

1.11.5 source-to-image Dependency on Docker

The `source-to-image` package has a dependency on `docker`, but it is not in the `ol7_latest` channel. If the system where `source-to-image` is to be installed is not subscribed to the `ol7_addons` channel, the installation fails due to a missing dependency.

The system must be subscribed to the `ol7_addons` channel to install `source-to-image`.

1.11.6 rh-ror41 Dependency on v8314

The `rh-ror41` collection has a dependency on the `v8314` collection. `therubyracer` gem, which is used to compress and provide a runtime for Javascript, uses the V8 Javascript engine that is made available in the `v8314` software collection.

To enable this collection and make it available to `rh-ror41`, run:

```
# scl enable v8314
```

(Bug ID 25683450)

Appendix A Software Collection Libraries Available for Oracle Linux 7 (aarch64)

Oracle only provides the latest versions and additions to the software collection library for the Arm (aarch64) platform and these are only supported for the latest update level of Oracle Linux 7. A subset of the complete software collection library, as available for the x86_64 platform, is available for aarch64.

The following collections are currently available for Oracle Linux 7 (aarch64):

- `devtoolset-6`
- `devtoolset-7`
- `devtoolset-8`
- `httpd24`
- `oracle-armtoolset-1`
- `python27`
- `rh-git218`
- `rh-git29`
- `rh-maven35`
- `rh-nginx112`
- `rh-nginx114`
- `rh-nodejs10`
- `rh-nodejs6`
- `rh-nodejs8`
- `rh-perl526`
- `rh-php70`
- `rh-php71`
- `rh-php72`
- `rh-python36`
- `rh-ruby25`
- `rh-varnish5`
- `rh-varnish6`

The Oracle Linux 7 (aarch64) release of the software collection library, additionally includes a toolchain that provides a solid developer toolset to build code for 64-bit Arm platforms and to compile modules against the provided kernel. This includes the version 7.3 of the `gcc` compiler that is used to build the aarch64 version of UEK R5.

Developer tools are released as a software collection that can be found in the `/addons/Oscl` directory repository on the provided ISO with each Oracle Linux 7 (aarch64) release and which are also available in the `software_collections` repository on the Oracle Linux yum server or the `SoftwareCollections` channel on ULN. You can install the `oracle-armtoolset-1` software collection using the `yum` command:

```
# yum install scl-utils oracle-armtoolset-1
```

When the `oracle-armtoolset-1` software collection is installed, you can enable it by running the following command:

```
# scl enable oracle-armtoolset-1 bash
```

The `oracle-armtoolset-1` software collection is released as an addition to the Software Collection Library for Oracle Linux and is only available on aarch64 platforms.



Note

The `oracle-armtoolset-1` software collection is required if you need to build kernel modules from source.