An Oracle Technical Article
May 2011

Certification with Oracle Linux 6

ORACLE

Introduction

This article describes the key points that ISVs should consider when installing and certifying their products on Oracle Linux 6.

Oracle Linux is fully compatible—both source and binary—with Red Hat Enterprise Linux (RHEL). Partners testing and certifying their applications on Oracle Linux will, at most, simply install their applications on Oracle Linux and verify the information described in this article.

Oracle Linux 6 ships with two sets of kernel packages:

- Unbreakable Enterprise Kernel (`kernel-uek-2.6.32-100.28.5.el6`), which is available only on the x86_64 (64-bit) platform and is installed and booted by default
- Red Hat compatible kernel (`kernel-2.6.32-71.el6`), which is installed by default

When using the Red Hat compatible kernel, Oracle Linux 6 is also fully kABI compatible with RHEL.

Comparing Oracle Linux 6 and Red Hat Enterprise Linux (RHEL) 6

Applications that run on RHEL will run on Oracle Linux. In order to produce Oracle Linux from RHEL, source trademarks and logos have been removed from a small number of packages. These are non-functional text or graphics changes that in no way affect any program code or application binary interfaces. Oracle has added its own text file, `/etc/oracle-release`, so support teams can easily identify that they obtained the code from Oracle.

The Edison Group ran independent tests to validate Oracle's claim of compatibility: Read their report, Oracle Linux: True Enterprise-Quality Linux Support (see page 15).

Oracle's simple text changes that an installer program might encounter are listed in the following sections.

Checking the /etc/redhat-release File

RHEL provides a text file called `/etc/redhat-release`, which contains a one-line string identifying the specific distribution release. This file is part of the `redhat-release` package. Oracle Linux 6 also contains a text file called `/etc/redhat-release`, which is installed by a package called `oraclelinux-release`.

The following table shows the data that is present on the initial release of media of Oracle Linux 6. As of Oracle Linux 6, Oracle retains the Red Hat content within the file. Also shown is the file `/etc/oracle-release`, which contains Oracle content.

RHEL 6	ORACLE LINUX 6

`# rpm -qf /etc/redhat-release`
 	
`redhat-release-server-6Server-6.0.0.37`
 	
`# cat /etc/redhat-release`
 	
`Red Hat Enterprise Linux Server release 6.0 (Santiago)`
	`# rpm -qf /etc/redhat-release`
	
	`oraclelinux-release-6Server-0.0.5`
	
	`# cat /etc/redhat-release`
	
	`Red Hat Enterprise Linux Server release 6.0 (Santiago)`
	
	`# cat /etc/oracle-release`
	
	`Oracle Linux Server release 6.0`

Checking for the redhat-release Package

Oracle Linux 6 does not include the `redhat-release` package. Oracle Linux 6 includes the `oraclelinux-release` package, which provides a set of files equivalent to those in the `redhat-release` package on RHEL.

RHEL 6	ORACLE LINUX 6
# rpm -qa|grep redhat-release-server-6Server redhat-release-server-6Server-6.0.0.37	# rpm -qa | grep redhat-release-server-6Server # rpm -qa|grep oraclelinux-release oraclelinux-release-6Server-0.0.5 # rpm -q --provides oraclelinux-release config(oraclelinux-release) = 6:6Server-0.0.5 redhat-release system-release oraclelinux-release = 6:6Server-0.0.5 oraclelinux-release(x86-64) = 6:6Server-0.0.5

Checking the Version of the Distribution

An application may check for the version of the distribution via the `redhat-release` package. In this case, both Oracle Linux 6 and RHEL 6 return `6Server`.

RHEL 6:

```
# rpm -q --qf "%{version}\n" -f /etc/redhat-release

6Server
```

Oracle Linux 6:

```
# rpm -q --qf "%{version}\n" -f /etc/redhat-release

6Server
```

If your application installer depends on any of the checks described above, you now have all the information needed to make the minimal changes required to transparently run on both Oracle Linux 6 and RHEL 6.

Unbreakable Enterprise Kernel

In September of 2010, Oracle introduced the Unbreakable Enterprise Kernel for Oracle Linux. You can read more about Unbreakable Enterprise Kernel here. With Oracle Linux 6, customers have a choice when it comes to the kernel: strict compatibility with the Red Hat kernel or a kernel optimized and recommended by Oracle for stability and performance.

Unbreakable Enterprise Kernel, Compatibility, and Third-Party Software

Oracle's Unbreakable Enterprise Kernel provides many advantages, such as significant performance improvements and new features.

The Linux operating system is a modular system in which the kernel interacts with the hardware and controls and schedules access to resources on behalf of applications. Applications run in what's called *user space* and call only a stable set of system libraries to ask for kernel services.

Figure 1 is a simplified diagram of the Linux operating system. Choosing the Unbreakable Enterprise Kernel changes only the box labeled "Kernel."

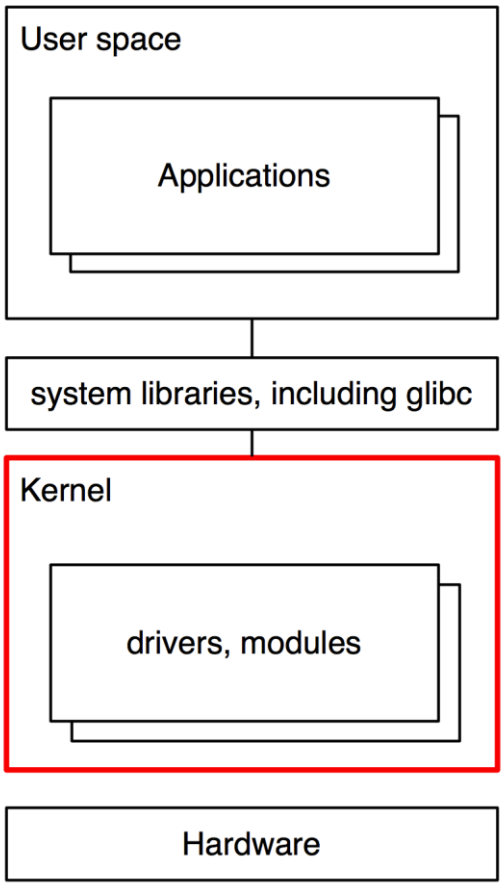

Figure 1. Linux Operating System

As you can see, installing a kernel does not change system libraries such as `glibc`, the interface that nearly all applications, including Oracle Database, use. The `glibc` version is 2.12 whether you run Oracle Linux 6 with the Unbreakable Enterprise Kernel or with the Red Hat compatible kernel.

In contrast, device drivers and other kernel modules are tightly coupled with the kernel and will usually need to be recompiled when a new kernel is introduced.

Oracle Linux 6 with Oracle's Unbreakable Enterprise Kernel is certified for compliance with the LSB standard.

For ISVs That Also Check the Linux Kernel Version

Oracle Linux 6 ships with two sets of kernel packages:

- Unbreakable Enterprise Kernel (`kernel-uek-2.6.32-100.28.5.el6`), which is available only on the x86_64 (64-bit) platform and is installed and booted by default
- Red Hat compatible kernel (`kernel-2.6.32-71.el6`), which is installed by default

If needed, `/etc/grub.conf` can be modified to make the system boot with the Red Hat compatible kernel by default.

The Unbreakable Enterprise Kernel is provided by the `kernel-uek` package, whereas the Red Hat compatible kernel is provided by the `kernel` package.

```
# rpm -qa | grep ^kernel

kernel-uek-2.6.32-100.28.5.el6.x86_64

kernel-uek-firmware-2.6.32-100.28.5.el6.noarch

kernel-2.6.32-71.el6.x86_64
kernel-firmware-2.6.32-71.el6.noarch

kernel-uek-2.6.32-100.28.5.el6.x86_64
```

To determine whether the Unbreakable Enterprise Kernel is installed and running, look for a kernel release version of 2.6.32-100 or newer using the `uname -r` command:

```
# uname -r

2.6.32-100.28.5.el6
```

Also, make sure that the kernel package installed is called `kernel-uek`.

```
# rpm -qa | grep kernel-uek
kernel-uek-2.6.32-100.28.5.el6
kernel-uek-firmware-2.6.32-100.28.5.el6
```

Full, Verified kABI Compliance

Oracle Linux 6 with a Red Hat compatible kernel is fully kABI compatible with RHEL 6. Scripts are run to double-check whether any patches that were to be applied would have a chance of breaking kABI.

Any comparison between any kernel of Oracle Linux 6 and RHEL 6 shows absolutely no difference in kABI. Kernel modules built for any RHEL 6 kernel will also load on any Red Hat compatible kernel released for Oracle Linux.

Compatibility

The preceding information compares Oracle Linux 6 and RHEL 6 and highlights areas of importance to application vendors from a testing and certification point of view. If your application relies on any of the examples above, you now have all the information needed about any changes that are required to run your application on Oracle Linux.

If your application does not rely on any of the examples above, it will run transparently, and Oracle is confident that re-certification is not necessary.

Downloading Source Code and Binaries

Oracle Linux source code is available for free for download at http://oss.oracle.com/el6/. The binaries are freely downloadable at http://edelivery.oracle.com/linux. Oracle Linux 6 allows for free re-distribution of both source and binaries.

Conclusion

Oracle Linux is fully compatible—both source and binary—with with Red Hat Enterprise Linux. This article described key points that ISVs should consider when installing and certifying their products on Oracle Linux 6.

For More Information

Here are additional resources.

- Visit the Oracle Linux Knowledge Zone on the Oracle PartnerNetwork to learn how to accelerate market opportunity and lower the cost of providing Linux solutions and support to users.
- For more information about becoming an Oracle partner, visit the Oracle PartnerNetwork.
- For information on the Oracle Linux Support program, visit oracle.com/linux.

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Certification with Oracle Linux 6
May 2011
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