

Zulu Community Release Notes

Zulu Release: 14.28 (14.0.1), 13.31 (13.0.3), 13.30 (13.0.2.0.101), 11.39 (11.0.7), 11.38 (11.0.6.0.101), 8.46 (8u252), 8.45 (8u251), 7.38 (7u262), 7.37 (7u261), and 6.32 (6b132).

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Azul Zulu Overview

Azul® Zulu® is a Java Development Kit (JDK), and a compliant implementation of the Java Standard Edition (SE) specification that contains all the Java components needed to build and run Java SE applications. Zulu has been verified by passing all tests of the OpenJDK Community Technology Compatibility Kit (TCK) as available for each respective Java SE version.

Java SE Certified is a certification mark of the Java Community Project.

What's New

April 14, 2020

CPU Releases - April 2020

Security-only updates that bring the associated Zulu releases to April 2020 CPU security update level.

CPU releases are available in SA and NV distributions.

Note: CPU releases are generally based on prior-cycle PSU releases, with only security fixes applied. They provide a low-risk vehicle for the potentially urgent deployment of security fixes when issues of sufficient severity arise.

Zulu 13.30 (13.0.2.0.101+5): based on Zulu 13.29 (13.0.2+6) with only security fixes applied.

Zulu 11.38 (11.0.6.0.101+11): based on Zulu 11.37 (11.0.6+10) with only security fixes applied.

Zulu 8.45 (8u251-b09): based on Zulu 8.44 (8u242-b20) with only security fixes applied.

Zulu 7.37 (7u261-b7): based on Zulu 7.36 (7u252-b10) with only security fixes applied.

Zulu 13.30 (13.0.2.0.101+5) with OpenJFX 13 API is based on ZuluFX 13.29 (13.0.2+6) with only security fixes applied.

Zulu 11.38 (11.0.6.0.101+11) with OpenJFX 11 API is based on ZuluFX 11.37 (11.0.6+10) with only security fixes applied.

Zulu 8.45 (8u251-b09) with OpenJFX 8 API is based on ZuluFX 8.44 (8u242-b20) with only security fixes applied.

PSU Releases - April 2020

PSU releases are generally scheduled, quarterly Patch Set Update releases that incorporate both security fixes and other accumulated changes that align the release contents with the associated OpenJDK project April 2020 quarterly release.

PSU releases are available in SA, NV, and CA distributions.

Zulu 14.28 (14.0.1+8): based on Zulu 14.27 (14 GA) and incorporates the changes associated with the April 2020 OpenJDK 14.0.1 release contents.

Zulu 13.31 (13.0.3+3): based on Zulu 13.30 (13.0.2.0.101+5) and incorporates additional non-security changes associated with the April 2020 OpenJDK 13.0.3 release contents.

Zulu 11.39 (11.0.7+10): based on 11.38 (11.0.6.0.101+11) and incorporates additional non-security changes associated with the April 2020 OpenJDK 11.0.7 release contents.

Zulu 8.46 (8u252-b14): based on Zulu 8.45 (8u251-b09) and incorporates additional non-security changes associated with the April 2020 OpenJDK 8u252 release contents.

Zulu 7.38 (7u262-b10): based on Zulu 7.37 (7u261-b07) and incorporates additional non-security changes associated with the April 2020 OpenJDK 7u262 release contents.

ZuluFX 13.31.11 (13.0.3+3) based on Zulu 13.30 (13.0.2.0.101+5) with OpenJFX 13 API and incorporates additional non-security changes for Zulu and OpenJFX 13.

ZuluFX 11.39.15 (11.0.7+10) is based on Zulu 11.38 (11.0.6.0.101+11) with OpenJFX 11 API and incorporates additional non-security changes for Zulu and OpenJFX 11.

ZuluFX Zulu 8.46 (8u252-b14) is based on Zulu 8.45 (8u251-b09) with OpenJFX 8 API and incorporates additional non-security changes for Zulu and only security fixes for OpenJFX 8. Additional non-security changes for OpenJFX 8 will be introduced in the next Zulu update.

Target Operating Environments

In order to remain current, each Zulu release targets reasonably current Microsoft® Windows®, Linux, and Apple® macOS® operating environments.

Most of the Zulu JDK is "pure" OpenJDK native binary with direct dependence on the underlying operating system. The chief dependence is on the native OS runtime and processor family architecture. Java API class library portions and sample applications are common to all operating environments. You must select the Zulu architecture to match your OS architecture, download either the Zip or install package for that platform, and run the Zulu installer package or unpack the Zip file.

In general, Zulu 14.x provides a Java Standard Edition 14 package, Zulu 13.x provides a Java Standard Edition 13 package, Zulu 12.x provides a Java Standard Edition 12 package, Zulu 11.x provides a Java Standard Edition 11 package, Zulu 8.x provides a Java Standard Edition 8 package, Zulu 7.x provides a Java Standard Edition 7 package, and Zulu 6.x provides a Java Standard Edition 6 package, each with associated Java source compiler, runtime JVM, API classfile hierarchy, and JDK tools. Zulu as a whole is targeted as a self-contained complete package suitable for deployment into modern, production-grade server OS environments, many popular desktop OS configurations, and virtualized OS contexts running under hypervisors provisioned on premise or in the cloud. Functionality meets the corresponding OpenJDK version and update level for the respective Java Standard Edition.

There are many different implementations of kernel, core OS, and patches atop a variety of Windows, Linux, and macOS operating system distributions. Azul focuses testing on a handful of popular combinations of operating systems and deployment contexts; these are our reference platforms. Zulu undoubtedly runs fine in many operating environments beyond the reference platforms Azul tests as long as Zulu architecture matches OS architecture. However, since we do not systematically test them, we cannot vouch for them. Problems encountered when running Zulu on a non-reference platform might not be immediately rejected, though those recreated on a reference platform will be given higher priority than problems with running Zulu outside reference platforms. Note: Application Guard contexts through paid support are considered equal in priority to reference platforms.

Tested and Validated Platforms

Zulu is tested and validated on the following reference platforms (this list is updated over the course of the release cycle):

Note: Select Zulu 8 community distributions support OpenJFX on all tested and verified platforms except Oracle Solaris Operating Systems.

- **Windows Operating Systems**

- Windows Server versions: 2019, 2016, and 2012 R2
- Windows Client versions: 10, 8.1, and 7
- Hardware: x86 64-bit and 32-bit
- Zulu architecture: Java SE 14 64-bit and 32-bit, Java SE 13 64-bit and 32-bit, Java SE 11 64-bit and 32-bit, Java SE 8 64-bit and 32-bit, Java SE 7 64-bit and 32-bit, and Java SE 6 64-bit and 32-bit

- **Red Hat Enterprise Linux Operating Systems**

- RHEL versions: 8.1, 7.2, 6.6, 5.11
- Hardware: x86 64-bit and 32-bit
- Zulu architecture: Java SE 14 64-bit and 32-bit, Java SE 13 64-bit and 32-bit, Java SE 11 64-bit and 32-bit, Java SE 8 64-bit and 32-bit, Java SE 7 64-bit and 32-bit, and Java SE 6 64-bit and 32-bit

- **SUSE Linux Enterprise Server Operating Systems**

- SLES versions: 15 and 12 SP4
- Hardware: x86 64-bit and 32-bit
- Zulu architecture: Java SE 14 64-bit and 32-bit, Java SE 13 64-bit and 32-bit, Java SE 11 64-bit and 32-bit, Java SE 8 64-bit and 32-bit, Java SE 7 64-bit and 32-bit, and Java SE 6 64-bit and 32-bit

- **Ubuntu Long Term Support Operating Systems**

- Ubuntu LTS versions: 18.04 and 16.04
- Hardware: x86 64-bit and 32-bit
- Zulu architecture: Java SE 14 64-bit and 32-bit, Java SE 13 64-bit and 32-bit, Java SE 11 64-bit and 32-bit, Java SE 8 64-bit and 32-bit, Java SE 7 64-bit and 32-bit, Java SE 6 64-bit and 32-bit

- **Debian Operating Systems**

- Debian versions: 10.x (Buster), 9.x (Stretch), and 8.x (Jessie)
- Hardware: x86 64-bit and 32-bit
- Zulu architecture: Java SE 14 64-bit and 32-bit, Java SE 13 64-bit and 32-bit, Java SE 11 64-bit and 32-bit, Java SE 8 64-bit and 32-bit, Java SE 7 64-bit and 32-bit

- **Alpine Linux Operating Systems**

- Alpine Linux versions: 3.5 and later
- Hardware: x86 64-bit
- Zulu architecture: Java SE 14 64-bit, Java SE 13 64-bit, Java SE 11 64-bit, and Java SE 8 64-bit

- **Apple macOS Operating Systems**

- macOS versions: 10.15 (Catalina) and 10.14 (Mojave)
- Hardware: x86 64-bit

- Zulu architecture: Java SE 14 64-bit, Java SE 13 64-bit, Java SE 11 64-bit, Java SE 8 64-bit, and Java SE 7 64-bit
- **Solaris Operating Systems**
 - Solaris versions: 11, 10
 - Hardware: x86 64-bit and 32-bit, SPARC v9
 - Zulu architecture: Java SE 11 64-bit (Solaris 11 only), Java SE 8 64-bit and Java SE 7 64-bit and 32-bit, Java SE 6 64-bit and 32-bit.

System Requirements

Zulu is a full Java SE Development Kit, consisting of a Java language source compiler (javac), Java Class Libraries, a Java Virtual Machine (HotSpot) and a Java runtime (JRE) with Java monitoring tools. Zulu can run Java SE applications in a headless server mode or headful graphical mode. Zulu runs on Windows Server, Windows Client, on Linux server variants, and on macOS, in each of bare OS, virtualized, and cloud deployment topologies.

Zulu Supported Platforms

Zulu is tested and validated on the following reference platforms (this list is updated over the course of the release cycle):

- **Linux:**
 - RHEL 8.1, 7.2, 6.6, 5.11
 - CentOS 7.0 or later and 6.0 or later
 - Oracle Linux 7 and 6
 - SLES 15, 12 (SP4, SP3, SP2, and SP1), SLES 11 (SP4 and SP3)
 - Ubuntu 18.04 LTS, 16.04 LTS, 14.04 LTS, and 12.04 LTS
 - Debian 10.x (Buster), 9.x (Stretch), and 8.x (Jessie)
 - Amazon Linux AMI
 - Container Linux by CoreOS
 - Fedora 29 and 30
- **Windows Server:** 2019, 2016, 2012 R2, 2012, and 2008 R2
- **Windows Client:** 10, 8.1, 8, and 7
- **macOS:** 10.15 (Catalina), 10.14 (Mojave), 10.13 (High Sierra), 10.12 (Sierra), 10.11 (El Capitan), and 10.10 (Yosemite)
- **Solaris:** 10 and 11

Minimum platform versions: Linux with glibc 2.5, Windows Server 2008 R2, Windows Client 7, or Mac OS X 10.10 Yosemite, Solaris 10.

Deployment Architectures, JDK Versions, and Hardware

Zulu works with the deployment architectures, JDK versions, and hardware listed below.

Deployment Architecture

- **Bare OS:** server, desktop, and laptop
- **Hypervisors:** Docker, VMware, Hyper-V, KVM
- **Cloud:** Microsoft Azure (VM and VHD) and Azure Stack, Amazon AWS (EC2 and S3), Rackspace, Google Cloud Platform

JDK Versions

- Java SE 13: Linux, Windows, and macOS installations
- Java SE 12: Linux, Windows, and macOS installations
- Java SE 11: Linux, Windows, and macOS installations
- Java SE 10: Linux, Windows, and macOS installations
- Java SE 9: Linux, Windows, and macOS installations
- Java SE 8: Linux, Windows, macOS, and Solaris installations
- Java SE 7: Linux, Windows, macOS, and Solaris installations

Hardware

- Intel and AMD x86-64 and x86-32
- Arm 64-bit v8
- SPARC v9

Running Zulu

Deployment Targets

Zulu offers a stable JDK development kit, and runtime JVM runtime for server applications authored in Java. For production environments, Zulu works in bare OS, virtualized OS, or cloud hosted contexts. Zulu implements the Java SE standard, so can be used in any application architecture that likewise adheres to Java SE standards. Zulu does not implement the Java Enterprise Edition (JEE) specification; however Zulu can be used as runtime core for containers and services that do implement JEE functionality. Zulu also does not implement Java Platform, Micro Edition (Java ME) and it does not have a browser plugin or Java Network Launching Protocol (JNLP).

In development or testing environments, Zulu supplies base tools for debugging and runtime inspection, as well as the Java source code compiler (javac). Configure Zulu to host your target under test to further ensure consistency with your production deployments.

Cloud deployments in both Azure (VM and VHD) and Amazon (EC2 or S3) involve installing Zulu onto hosted virtual machine instances. Once you create a virtual machine instance, you can clone the VM and reuse Zulu in each instance. In Azure, Zulu systems appear in the Azure portal as Gallery items, able to instantiate new virtual machines with Zulu preinstalled. Zulu also is an installable component within the Azure Web Platform Installer (WebPI) configuration tool. Further, Zulu is a selectable deployment target when using an Eclipse workbench that has the Azure SDK plugin installed. See the [Zulu Installation Guide](#) for more cloud deployment details.

Performance and Standards

JVM runtime performance varies with workload and set of enabled flags, but in general should match OpenJDK and remain comparable to other OpenJDK derived JVMs. Other vendor specific optimizations, extensions, or responses based on non-standard X or XX variables have no guarantee of working inside Zulu unless they already also work in base OpenJDK.

Zulu Commercial Compatibility Kit

The Zulu Commercial Compatibility Kit (Zulu CCK) provides non-open source enhancements to Zulu 8, Zulu 7, Zulu 6. It includes its own licensing. Zulu CCK features include support for Monotype fonts, Rhino JavaScript Engine (for Java 7). See the [Zulu Installation Guide](#) for more Zulu CCK details. You can [download the CCK here](#).

Troubleshooting Tips

The Azul Community site contains a running list of recent tips. The following is a brief list of common trouble points:

Preparation Tips

Ensure your `PATH` and `JAVA_HOME` variables are set accurately in the shell or context of your runtime application. Crosstalk with other installed JVMs leads to aberrant, often random unwanted behaviors.

Ensure you have the proper Zulu architecture for your OS and kernel. Using incorrect processor type or bitness may fail to operate at all.

VM Property Override

Some applications may expect particular VM property string values, such as `vendor`, set to values different from OpenJDK defaults. Zulu provides the `XX:+OverrideVMProperties` argument to allow new property values. Use `-XX:+OverrideVMProperties` with a `-D` option for the property to be overridden. For example:

```
-XX:+OverrideVMProperties -Djava.vm.vendor="CompanyName"
```

JRE-only Tips

Zulu builds are generally visible to monitoring tools by default. In JRE-only Zulu builds, Java may be invisible to monitoring tools. This is due to the `-XX:-UsePerfData` flag default setting to off for JRE-

only builds.

To resolve this issue, run the target JRE with `-XX:+UsePerfData`. This enables monitoring tools to see the Java instance.

Tomcat Advisory

To avoid unexpected failures of Zulu 8, it is recommended to upgrade your Tomcat 6 to the version 6.0.37 or higher, and Tomcat 7 to the version 7.0.34 or higher.

Cassandra Issue

Cassandra 3.7 cannot start with Zulu 8.27 because of the known dependencies on some JDK internal classes and interfaces that have been changed in Java SE 8, update 162. See [CASSANDRA-14173](#).

Time Zone Data Update

The [ZUUpdater](#) tool does not support Zulu version 9 and later versions of Zulu.

Azul Repository Tips

Azul provides many Linux binaries on the Azul Repository. They remain predominantly compatible for x86-64. To install Arm packages from the repository using APT, run the following command with the term “embedded” in the package name:

```
$ sudo apt-get install zulu-embedded-8
```

The Azul repository can determine whether your Arm processor is hard-float or soft-float, and whether it is 32-bit or 64-bit.

Notice how this differs from the command for x86-64 which omits “embedded” in the package name:

```
$ sudo apt-get install zulu-8
```

All other APT commands are applicable to all platforms. Review [Installation on Linux Using an APT Repository](#) for more on installing Zulu through APT.

Creating a Symlink to the `jvm-exports` Directory

While installing Zulu on RPM systems, the installer adds it to the `/usr/lib/jvm/zulu-8/` directory. Certain tools, such as `ant` expects Java executable to be present from the following location `/usr/lib/jvm-exports`. To avoid error messages, you need to create a symlink to the `jvm-exports` directory after Zulu installation. For example, assume that Zulu is installed in `/usr/lib/jvm/zulu-8-x86`. Perform the following steps to create a symlink:

```
$cd /usr/lib/jvm-exports
$ln -s /usr/lib/jvm/zulu-8-x86 zulu-8-x86
```

To verify the symlink, run:

```
$ ls -lart | grep -i "zulu-8-x86"
```

You should expect the following output:

```
0 lrwxrwxrwx 1 root root 34 Sep 29 18:22 zulu-8-x86 -> /usr/lib/jvm/zulu-8-x86
```

Running Java Flight Recording in Zulu 8

Zulu 8 inherits the implementation of Java Flight Recorder (JFR) from OpenJDK 11.

To use JFR on an active Zulu java process no command-line option is necessary, just run `jcmd JAVAPID JFR.start` to enable recording when needed. The overhead of JFR before it gets activated with `JFR.start` is negligible since none of the events get sent and no JFR java classes get loaded (JFR java classes undergo class transformation during the load time). Alternatively, you can enable recording directly on the launch of the Java process by adding and configuring `-XX:StartFlightRecording`. Setting `-XX:-FlightRecorder` on the command line prevents JFR from being enabled during runtime. It gives absolutely no performance benefit.

CKR_SAVED_STATE_INVALID exception on Solaris 10

Zulu 8 might throw `CKR_SAVED_STATE_INVALID` exception due to issues in Solaris 10 (see [JDK-2209405](#)).

Workaround

Disable broken mechanisms by updating the configuration file `$JAVA_HOME/jre/lib/security/sunpkcs11-solaris.cfg` and including the following entries into the list of disabled mechanisms:

```
CKM_SHA256
CKM_SHA384
CKM_SHA512
```

Open Product Issues

- **Windows:** Observed hang issue with Maven projects launched under Eclipse. See the [detailed explanation and workaround](#) for the Eclipse bug. Applies to: all Zulu releases.
- **Zulu RPM Installers on SLES 11.3:** Using the Zulu `.rpm` installer on a SLES 11.3 system requires RPM version 4.8 or later. Workaround: Use the Zulu `.zip` installer or upgrade your RPM to 4.8 or later.
- **Zulu 8.14, 7.16, and 6.14 cannot be downgraded** to the earlier versions by using an RPM package.
Workaround: Uninstall Zulu 8.14, 7.16, or 6.14 and then install an earlier version of Zulu.
- **CoreOS:** CoreOS cannot transfer zero-length packets using datagram sockets. See more details in <https://github.com/coreos/bugs/issues/1834>.
Workaround: Upgrade CoreOS to the kernel version 4.9.9 or higher.

Support Information

For more information on Zulu, please visit the Azul website at one of the following locations:

- Zulu Installation Guide: <http://docs.azul.com/zulu/zuludocs/>
- Zulu Community Forum: <http://zulu.org/forum/>
- Zulu Enterprise Support: <https://www.azul.com/support/>

Release Details

The following subsections provide a summary of the enhancements applied to each release.

Note: Maintenance fixes are cumulative within each major Java release family.

- [Zulu 14.28, 13.31, 13.30, 11.39, 11.38, 8.46, 8.45, 7.38, and 7.37 Release](#)

Zulu 14.28, 13.31, 13.30, 11.39, 11.38, 8.46, 8.45, 7.38, and 7.37

Release

Released April 14, 2020

CA, NV, and SA Zulu Distributions

SA are tested, certified, and commercially supported builds of Zulu whereby Azul ensures that software that uses the Accessible APIs of the product is not required to carry a specific license and that such use does not contaminate the code or intellectual property of such software with any license requirements.

NV are tested, certified, and commercially supported builds of Zulu.

CA are unsupported community builds of Zulu.

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ZuluFX Zulu 8.46 (8u252-b14) is based on Zulu 8.45 (8u251-b09) with OpenJFX 8 API and incorporates additional non-security changes for Zulu and only security fixes for OpenJFX 8. Additional non-security changes for OpenJFX 8 will be introduced in the next Zulu update.

New system property for Zulu version

New property "jdk.vendor.version" has been added to Zulu 7 and later providing the full Zulu version. In Zulu 11 and later it will have the same content as the standard OpenJDK property "java.vendor.version".

JDK-8194653 fix was reverted

[JDK-8194653](#) (Deadlock involving FileSystems.getDefault and System.loadLibrary call) fixed in January release has been temporarily reverted from April PSU release due to [JDK-8240521](#).

PSU bundles are now MacOS compliant

All PSU tar.gz and zip bundles on macOS are now macOS compliant, for more details, see [Bundle Programming Guide](#).

Layered RPM

Linux installers published into the Linux repositories will install a new Azul's repository to support a future seamless upgrade into the upcoming layered packages functionality, which will provide a convenient option to customize your OpenJDK installation.

New internal structure for tar.gz and zip macOS PSU bundles

The internal folder structure for tar.gz and zip macOS PSU bundles changed to satisfy the new macOS notarization requirements. This change doesn't apply to any of the CPU bundles.

Common Vulnerabilities and Exposures Fixes

This section summarizes JDK Common Vulnerabilities and Exposure (CVE) fixes reflecting April 2020 OpenJDK changes implemented for the following Zulu levels:

- Zulu 14
- Zulu 13
- Zulu 11
- Zulu 8
- Zulu 7

April 2020 CVE Fixes

CVSS VERSION 3.0 RISK														
CVE #	Component	Protocol	Remote Exploit without Auth.	Base Score	Attack Vector	Attack Complex	Privs Req'd	User Interact	Scope	Confidentiality	Integrity	Availability	Supported Zulu Versions Affected	Notes
CVE-2020-2803	Libraries	Multiple	Yes	8.3	Network	High	None	Required	Changed	High	High	High	14, 13, 11, 8, 7	Note 1
CVE-2020-2805	Libraries	Multiple	Yes	8.3	Network	High	None	Required	Changed	High	High	High	14, 13, 11, 8, 7	Note 1
CVE-2019-18197	JavaFX(libxslt)	Multiple	Yes	8.1	Network	High	None	None	Unchanged	High	High	High	13, 11, 8	Note 1
CVE-2020-2816	JSSE	HTTPS	Yes	7.5	Network	Low	None	None	Unchanged	None	High	None	14, 13, 11, 8*	Note 2

April 2020 CVE Fixes

CVSS VERSION 3.0 RISK														
CVE #	Component	Protocol	Remote Exploit without Auth.	Base Score	Attack Vector	Attack Complex	Privs Req'd	User Interact	Scope	Confidentiality	Integrity	Availability	Supported Zulu Versions Affected	Notes
CVE-2020-2781	JSSE	HTTPS	Yes	5.3	Network	Low	None	None	Unchanged	None	None	Low	14, 13, 11, 8, 7, 6	Note 3
CVE-2020-2830	Concurrency	Multiple	Yes	5.3	Network	Low	None	None	Unchanged	None	None	Low	14, 13, 11, 8, 7, 6	Note 3
CVE-2020-2767	JSSE	HTTPS	Yes	4.8	Network	High	None	None	Unchanged	Low	Low	None	14, 13, 11, 8*	Note 3
CVE-2020-2800	Lightweight HTTP Server	Multiple	Yes	4.8	Network	High	None	None	Unchanged	Low	Low	None	14, 13, 11, 8, 7, 6	Note 2
CVE-2020-2778	JSSE	HTTPS	Yes	3.7	Network	High	None	None	Unchanged	Low	None	None	14, 13, 11, 8*	Note 3
CVE-2020-2764	Advanced Management Console	Multiple	Yes	3.7	Network	High	None	None	Unchanged	None	Low	None	None	Note 2
CVE-2020-2754	Scripting	Multiple	Yes	3.7	Network	High	None	None	Unchanged	None	None	Low	14, 13, 11, 8	Note 3
CVE-2020-2755	Scripting	Multiple	Yes	3.7	Network	High	None	None	Unchanged	None	None	Low	14, 13, 11, 8	Note 3
CVE-2020-2773	Security	Multiple	Yes	3.7	Network	High	None	None	Unchanged	None	None	Low	14, 13, 11, 8, 7, 6	Note 3
CVE-2020-2756	Serialization	Multiple	Yes	3.7	Network	High	None	None	Unchanged	None	None	Low	14, 13, 11, 8, 7, 6	Note 3

April 2020 CVE Fixes

CVSS VERSION 3.0 RISK														
CVE #	Component	Protocol	Remote Exploit without Auth.	Base Score	Attack Vector	Attack Complex	Privs Req'd	User Interact	Scope	Confidentiality	Integrity	Availability	Supported Zulu Versions Affected	Notes
CVE-2020-2757	Serialization	Multiple	Yes	3.7	Network	High	None	None	Unchanged	None	None	Low	14, 13, 11, 8, 7, 6	Note 3
* Applicable only if the <code>UseOpenJSSE</code> option is enabled.														

Base and Impact Metric:

Metrics	Values
Attack Vector	Network (N), Adjacent (A), Local (L), and Physical (P)
Attack Complexity	Low (L) and High (H)
Privileges Required	None (N), Low (L), and High (H)
User Interaction	None (N) and Required (R)
Scope	Unchanged (U) and Changed (C)
Confidentiality Impact	High (H), Low (L), and None (N)

Integrity Impact	High (H), Low (L), and None (N)
Availability Impact	High (H), Low (L), and None (N)

Notes:

ID	Notes
1	This vulnerability applies to Java deployments that load and run untrusted code (e.g., code that comes from the internet) and rely on the Java sandbox for security. This vulnerability does not apply to Java deployments, typically in servers, that load and run only trusted code (e.g., code installed by an administrator).
2	This vulnerability can only be exploited by supplying data to APIs in the specified Component without using untrusted code executed under Java sandbox restrictions, such as through a web service.
3	This vulnerability applies to client and server deployment of Java. This vulnerability can be exploited through untrusted code executed under Java sandbox restrictions. It can also be exploited by supplying data to APIs in the specified Component without using untrusted code executed under Java sandbox restrictions, such as through a web service.

In-Depth Non-CVE Security Fixes

The table below explains how versions of Java SE, JDK, Java update type, and Zulu match. A critical patch update (CPU) release of Zulu contains security and critical bug fixes only. A patch set updates (PSU) release of Zulu incorporates all CPU bug fixes, non-critical bug fixes, and new features.

Java SE Version	JDK Version	Java Update Type	Zulu Version
14	14.0.1	PSU	14.28
13	13.0.3	PSU	13.31
13	13.0.2.0.101	CPU	13.30
11	11.0.7	PSU	11.39
11	11.0.6.0.101	CPU	11.38
8	8u252	PSU	8.46
8	8u251	CPU	8.45
7	7u262	PSU	7.38
7	7u261	CPU	7.37

The following table lists in-depth non-CVE security fixes implemented specifically for Zulu 14, 13, 11, 8, 7.

April 2020 Non-CVE Security Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	Java Update Type
JDK-8225603	14, 13, 11, 8, 7, 6	Enhancement for big integers	CPU
JDK-8226346	14, 13, 11	Build better binary builders	CPU
JDK-8227467	14, 13, 11	Better class method invocations	CPU
JDK-8227542	14, 13, 11, 8, 7, 6	Manifest improved jar headers	CPU
JDK-8229733	14, 13, 11	TLS message handling improvements	CPU
JDK-8231785	14, 13, 11	Improved socket permissions	CPU
JDK-8233245	14, 13	More adaptive sockets	CPU
JDK-8233250	14, 13, 11, 8, 7, 6	Better X11 rendering	CPU
JDK-8233410	14, 13, 11, 8, 7, 6	Better Build Scripting	CPU
JDK-8234027	14, 13, 11, 8, 7, 6	Better JCEKS key support	CPU
JDK-8236798	13, 11, 8	Enhance FX scripting support	CPU
JDK-8238960	14, 13, 11, 8, 7, 6	linux-i586 builds are inconsistent as the newly build jdk is not able to reserve enough space for object heap	CPU

April 2020 Non-CVE Security Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	Java Update Type
JDK-8239971	13, 11, 8	Enhance SQL queries	CPU

The following table lists Zulu fixes implemented specifically for Zulu 14, 13, 11, 8, 7.

April 2020 Zulu Bug Fixes

Bug ID	JDK Levels Applicable in Zulu	Synopsis	Java Update Type
ZULU-6567	7.38, 7.37	update copyright year in welcome.html	PSU
ZULU-9963	7.37	Failure in java/lang/annotation/AnnotationType/AnnotationTypeRuntimeAssumptionTest.java - ClassNotFoundException: AnnotationTypeRuntimeAssumptionTest\$TestTask	CPU
ZULU-6790	8.46	Fix for extended group of tlsv1.3 related tests	PSU
ZULU-6928	14.28	prepare refined versions of zulu builds	PSU
ZULU-6930	7.38	Support compiling zulu7 with llvm-gcc on mac	PSU

April 2020 Zulu Bug Fixes

Bug ID	JDK Levels Applicable in Zulu	Synopsis	Java Update Type
ZULU-6936	11.39	Re-enable client vm for win32	PSU
ZULU-6940	8.46	Build broken with disabled precompiled headers	PSU
ZULU-7309	8.46	Allow jdk8 to be built with macos sdk 10.9	PSU
ZULU-7315	7.38	build failure on Windows	PSU
ZULU-7473	11.39	Two jtreg security tests fail because of CHACHA20 bad merge	PSU
ZULU-7501	14.28, 13.31, 11.39, 8.46, 7.38	Add system property 'jdk.vendor.version'	PSU
ZULU-9701	14.28	exclude jdk.incubator.jpackage from JRE_TOOL_MODULES	PSU
ZULU-9721	6.32	remove notice for RSA PKCS#11 from THIRD_PARTY_README	PSU
ZULU-9767	8.46	Top package in method profiling shows "null"	PSU

Other OpenJDK Bug Fixes

The following table lists other OpenJDK bug fixes.

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8241489	13	restore missed in backports tests for 8229016, 8239787	PSU
JDK-8241307	8	Marlin renderer should not be the default in 8u252	PSU
JDK-8241296	11, 8	Segfault in JNIHandleBlock::oops_do()	PSU
JDK-8240724	11	[test] jdk11 downport of 8224475 misses binary file test/jdk/javafx/swing/JTextPane/arrow.png	PSU
JDK-8240521	8	Revert backport of 8231584: Deadlock with ClassLoader.findLibrary and System.loadLibrary call	PSU
JDK-8239915	14	Zero VM crashes when handling dynamic constant	PSU
JDK-8239856	11	[ntintel] asserts about copying unaligned array element	PSU
JDK-8239798	11	SSLSocket closes socket both socket endpoints on a SocketTimeoutException	PSU
JDK-8239787	13	AArch64: String.indexOf may incorrectly handle empty strings.	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8239466	11	Loss of precision in counter decay calculation in 11u backport of JDK-8237375	PSU
JDK-8239007	14	java/math/BigInteger/largeMemory/ tests should be disabled on 32-bit platforms	PSU
JDK-8239005	11	[TESTBUG] test/hotspot/jtreg/runtime/StackGuardPages/TestStackGuardPages.java: exeinvoke.c: must initialize static state before calling do_overflow()	PSU
JDK-8238932	14	Invalid tier1_gc_1 test group definition	PSU
JDK-8238811	11	C2: assert(i >= req() i == 0 is_Region() is_Phi()) with -XX:+VerifyGraphEdges	PSU
JDK-8238596	14, 13, 11	AVX enabled by default for Skylake even when unsupported	PSU
JDK-8238591	11	CTW: Split applications/ctw/modules/jdk_localedata.java	PSU
JDK-8238574	14	Shenandoah: Assertion failure due to missing null check	PSU
JDK-8238534	11	Deep sign macOS bundles before bundle archive is being created	PSU
JDK-8238502	11, 8	sunmscapi.dll causing EXCEPTION_ACCESS_VIOLATION	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8238452	14	Keytool generates wrong expiration date if validity is set to 2050/01/01	PSU
JDK-8238438	11	SuperWord::co_locate_pack picks memory state of first instead of last load	PSU
JDK-8238366	11	CTW runner closes standard output on exit	PSU
JDK-8238247	11	CTW runner should sweep nmethods more aggressively	PSU
JDK-8238225	14, 13, 11, 8, 7	Issues reported after replacing symlink at Contents/MacOS/libjli.dylib with binary	PSU
JDK-8238153	14	CTW: C2 (Shenandoah) compilation fails with "Unknown node in get_load_addr: CreateEx"	PSU
JDK-8237945	11	CTW: C2 compilation fails with assert(just_allocated_object(alloc_ctl) == ptr) failed: most recent allo	PSU
JDK-8237879	11	make 4.3 breaks build	PSU
JDK-8237869	14, 11	exclude jtreg test security/infra/java/security/cert/CertPathValidator/certification/LuxTrustCA.java because of instabilities	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8237819	11	s390x - remove unused pd_zero_to_words_large	PSU
JDK-8237600	11	Test SunJSSEFIPSInit fails on Ubuntu	PSU
JDK-8237586	14	Shenandoah: provide option to disable periodic GC	PSU
JDK-8237570	14	Shenandoah: cleanup uses of allocation/free threshold in static heuristics	PSU
JDK-8237541	11	Missing files in backport of JDK-8209499	PSU
JDK-8237540	11	Missing files in backport of JDK-8210910	PSU
JDK-8237523	8	8u backport of JDK-8216354 didn't include generated-configure.sh changes	PSU
JDK-8237508	14, 13, 11, 8	Simplify JarFile.isInitializing	PSU
JDK-8237375	14, 11	SimpleThresholdPolicy misses CounterDecay timestamp initialization	PSU
JDK-8237368	13, 11, 8,	Problem with NullPointerException in RMI TCPEndpoint.read	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
	7		
JDK-8237223	14	Shenandoah: important flags should not be ergonomic for concurrent class unloading	PSU
JDK-8237217	11	Incorrect G1StringDedupEntry type used in StringDedupTable destructor	PSU
JDK-8237007	14	Shenandoah: assert(_base == Tuple) failure during C2 compilation	PSU
JDK-8236897	11	Fix the copyright header for pkcs11gcm2.h	PSU
JDK-8236873	11, 8	Worker has a deadlock bug	PSU
JDK-8236848	11	[JDK 11u] make run-test-tier1 fails after backport of JDK-8232834	PSU
JDK-8236815	14	Shenandoah: Fix weak roots in final Traversal GC phase	PSU
JDK-8236709	11	struct SwitchRange in HS violates C++ One Definition Rule	PSU
JDK-8236700	14	Upgrading JSZip from v3.1.5 to v3.2.2	PSU
JDK-8236500	11	Windows ucrt.dll should be looked up in versioned WINSDK subdirectory	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8236488	14, 11	Support for configure option --with-native-debug-symbols=internal is impossible on Windows	PSU
JDK-8236470	8	Deal with ECDSA using ecdsa-with-SHA2 plus hash algorithm as AlgorithmId	PSU
JDK-8236179	11, 8	C1 register allocation failure with T_ADDRESS	PSU
JDK-8236140	11	assert(!VerifyHashTableKeys _hash_lock == 0) failed: remove node from hash table before modifying it	PSU
JDK-8236039	13, 11	JSSE Client does not accept status_request extension in CertificateRequest messages for TLS 1.3	PSU
JDK-8235998	11	[C2] Memory leaks during tracing after "8224193: stringStream should not use Resource Area".	PSU
JDK-8235904	11, 8	Infinite loop when rendering huge lines	PSU
JDK-8235744	11, 8	PIT: test/jdk/javawx/swing/text/html/TestJLabelWithHTMLText.java times out in linux-x64	PSU
JDK-8235687	13, 8, 7	Contents/MacOS/libjli.dylib cannot be a symlink	PSU
JDK-8235671	11	enhance print_rlimit_info in os_posix	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8235637	11, 8	jhsdb jmap from OpenJDK 11.0.5 doesn't work if prelink is enabled	PSU
JDK-8235563	11	[TESTBUG] appcds/CommandLineFlagComboNegative.java does not handle archive mapping failure	PSU
JDK-8235510	11	java.util.zip.CRC32 performance drop after 8200067	PSU
JDK-8235489	11	handle return values of sscanf calls in hotspot	PSU
JDK-8235383	11	C1 compilation fails with -XX:+PrintIRDuringConstruction -XX:+Verbose	PSU
JDK-8235325	11	build failure on Linux after 8235243	PSU
JDK-8235288	11	AVX 512 instructions inadvertently used on Xeon for small vector width operations	PSU
JDK-8235243	11	handle VS2017 15.9 and VS2019 in abstract_vm_version	PSU
JDK-8235142	8	JDK-8193255 backport broke bootstrap with JDK 10	PSU
JDK-8234906	13	[TESTBUG] TestDivZeroCheckControl fails for client VMs due to Unrecognized VM option LoopUnrollLimit	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8234824	11	java/nio/channels/SocketChannel/AdaptSocket.java fails on Windows 10	PSU
JDK-8234809	11	set relro in linker flags when building with gcc	PSU
JDK-8234786	11, 8	Fix for JDK-8214578 breaks OS X 10.12 compatibility	PSU
JDK-8234769	11	Duplicate attribution in freetype.md	PSU
JDK-8234741	11	enhance os::get_core_path on macOS	PSU
JDK-8234724	11	javax/net/ssl/templates/SSLSocketSSLEngineTemplate.java supports TLSv1.3	PSU
JDK-8234723	11	javax/net/ssl/TLS tests support TLSv1.3	PSU
JDK-8234617	11	C1: Incorrect result of field load due to missing narrowing conversion	PSU
JDK-8234610	13, 11	MaxVectorSize set wrongly when UseAVX=3 is specified after JDK-8221092	PSU
JDK-8234608	14	[TESTBUG] Fix G1 redefineClasses tests and a memory leak	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8234525	11	enable link-time section-gc for linux s390x to remove unused code	PSU
JDK-8234501	11	remove obsolete NET_ReadV	PSU
JDK-8234466	14, 13, 11, 8	Class loading deadlock involving X509Factory#commitEvent()	PSU
JDK-8234423	11	Modifying ArrayList.subList().subList() resets modCount of subList	PSU
JDK-8234397	11	add OS uptime information to os::print_os_info output	PSU
JDK-8234386	11	[macos] NPE was thrown at expanding Choice from maximized frame	PSU
JDK-8234350	13, 11	assert(mode == ControlAroundStripMined && (use == sfpt !use->is_reachable_from_root())) failed: missed a node	PSU
JDK-8234339	11	replace JLI_StrTok in java_md_solinux.c	PSU
JDK-8234323	11	NULL-check return value of SurfaceData_InitOps on macosx	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8234288	11, 8	Turkey Time Zone returns incorrect time zone name	PSU
JDK-8234264	8	Incorrect 8047434 JDK 8 backport in 8219677	PSU
JDK-8234245	8	sun/security/lib/cacerts/VerifyCACerts.java fails due to wrong checksum	PSU
JDK-8234107	8	Several AWT modal dialog tests failing on Linux after JDK-8231991	PSU
JDK-8234080	13	(zipfs)jdk/nio/zipfs/CRCWriteTest.java fails	PSU
JDK-8233995	8	java.vm.vendor (and potentially other properties/fields) not correctly set in Windows/Hotspot build of OpenJDK8	PSU
JDK-8233657	11	Intermittent NPE in Component.validate()	PSU
JDK-8233656	13, 11	assert(d->is_CFG() && n->is_CFG()) failed: must have CFG nodes	PSU
JDK-8233649	11	Update ProblemList.txt to exclude failing headful tests on macos	PSU
JDK-8233548	11	Update CUP to v0.11b	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8233529	13, 11	loopTransform.cpp:2984: Error: assert(p_f->Opcode() == Op_IfFalse) failed	PSU
JDK-8233491	11	Crash in AdapterHandlerLibrary::get_adapter with CDS due to code cache exhaustion	PSU
JDK-8233466	11	aarch64: remove unnecessary load of mdo when profiling return and parameters type	PSU
JDK-8233404	8	System property to set the number of PBE iterations in JCEKS keystores	PSU
JDK-8233383	11	Various minor fixes	PSU
JDK-8233328	11	fix minimal VM build on Linux s390x	PSU
JDK-8233078	11	fix minimal VM build on Linux ppc64(le)	PSU
JDK-8233032	13, 11	assert(in_bb(n)) failed: must be	PSU
JDK-8233023	8	assert(Opcode() == mem->Opcode() phase->C->get_alias_index(adr_type()) == Compile::AliasIdxRaw) failed: no mismatched stores, except on raw memory	PSU
JDK-8233019	11	java.lang.Class.isPrimitive() (C1) returns wrong result if Klass* is aligned to 32bit	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8233018	11	Add a new test to verify that DatagramSocket is not interruptible	PSU
JDK-8232950	13, 11, 8	SUNPKCS11 Provider incorrectly check key length for PSS Signatures.	PSU
JDK-8232880	11	Update test documentation with additional settings for client UI tooltip tests	PSU
JDK-8232879	13	(zipfs) Writing out data with ZipFileSystem leads to a CRC failure in the generated jar file	PSU
JDK-8232874	13	Add missing test for 8230062	PSU
JDK-8232834	11	RunTest sometimes fails to produce valid exitcode.txt	PSU
JDK-8232806	11	Introduce a system property to disable eager lambda initialization	PSU
JDK-8232713	11	Update BCEL version to 6.3.1 in license file	PSU
JDK-8232692	11	[TESTBUG] compiler/aot/fingerprint/SelfChangedCDS.java fails when cds is disabled	PSU
JDK-8232643	7	Building error in jdk7u241 after 7068616	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8232571	11	new sun.misc.Signal("INFO") throws IllegalArgumentException since JDK11	PSU
JDK-8232539	13	SIGSEGV in C2 Node::unique_ctrl_out	PSU
JDK-8232433	11	[macos 10.15] java/awt/Window/LocationAtScreenCorner/LocationAtScreenCorner.java may fail	PSU
JDK-8232381	7	add result NULL-checking to freetypeScaler.c	PSU
JDK-8232370	11	Refactor some com.sun.jdi tests to enable IDE integration	PSU
JDK-8232355	8	Two obsolete flags have the wrong obsolete version in 8u	PSU
JDK-8232224	11	[TESTBUG] problemlist JFR TestLargeRootSet.java	PSU
JDK-8232207	11	Linux os::available_memory re-reads cgroup configuration on every invocation	PSU
JDK-8232200	11	[macos 10.15] Windows in fullscreen tests jumps around the screen	PSU
JDK-8232170	11	FSInfo#getJarClassPath throws an exception not declared in its throws clause	PSU
JDK-8232167	11	Visual Studio install found through --with-tools-dir value is discarded	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8232154	13, 11, 8, 7	Update Mesa 3-D Headers to version 19.2.1	PSU
JDK-8232060	11	add some initializations using sigemptyset in os_aix.cpp	PSU
JDK-8232056	11	GetOwnedMonitorInfoWithEATest.java fails with ZGC: Heap too small	PSU
JDK-8232003	11, 8, 7	(fs) Files.write can leak file descriptor in the exception case	PSU
JDK-8231991	8	Mouse wheel change focus on awt/swing windows	PSU
JDK-8231988	13	Unexpected test result caused by C2 IdealLoopTree::do_remove_empty_loop	PSU
JDK-8231810	11	javax/net/ssl/templates/SSLSocketSSLEngineTemplate.java fails intermittently with "java.lang.Exception: Unexpected EOF"	PSU
JDK-8231753	11	use more Posix functionality in aix os::print_os_info	PSU
JDK-8231665	13	8231055 broke escapeAnalysis/TestSelfArrayCopy.java	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8231620	13	assert(bol->is_Boot()) crash during split if due to FastLockNode	PSU
JDK-8231584	11	Deadlock with ClassLoader.findLibrary and System.loadLibrary call	PSU
JDK-8231507	13, 11	Update Apache Santuario (XML Signature) to version 2.1.4	PSU
JDK-8231445	11	check ZALLOC return values in awt coding	PSU
JDK-8231430	11, 8	C2: Memory stomp in max_array_length() for T_ILLEGAL type	PSU
JDK-8231387	11	java.security.Provider.getService returns random result due to race condition with mutating methods in the same class	PSU
JDK-8231222	13	fix pkcs11 P11_DEBUG guarded native traces	PSU
JDK-8231201	8	hs_err should print coalesced safepoint operations in Events section	PSU
JDK-8231081	11	TestMetadataRetention fails due to missing symbol id	PSU
JDK-8231055	13	C2: arraycopy with same non escaping src and dest but different positions causes wrong execution	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8231025	11	Incorrect method tag offset for big endian platform	PSU
JDK-8230978	8	Add support for RSASSA-PSS Signature algorithm (Java SE 8)	PSU
JDK-8230977	8	JEP 244: TLS Application-Layer Protocol Negotiation Extension (Java SE 8)	PSU
JDK-8230926	11, 8	[macosx] Two apostrophes are entered instead of one with "U.S. International - PC" layout	PSU
JDK-8230902	13	remove the tag jdk-13.0.1+1	CPU
JDK-8230861	13	missing ReleaseStringUTFChars in Java_sun_security_pkcs11_wrapper_PKCS11_connect	PSU
JDK-8230856	8	Java_java_net_NetworkInterface_getByName0 on unix misses ReleaseStringUTFChars in early return	PSU
JDK-8230677	11	Should disable Escape Analysis if JVMTI capability can_get_owned_monitor_info was taken	PSU
JDK-8230671	13	x86_32 build failures after JDK-8229496	PSU
JDK-8230624	11	[TESTBUG] Problemlist JFR compiler/TestCodeSweeper.java	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8230611	11	infinite loop in LogOutputList::wait_until_no_readers()	PSU
JDK-8230597	13, 11, 8, 7	Update GIFlib library to the 5.2.1	PSU
JDK-8230480	11	check malloc/calloc results in java.desktop	PSU
JDK-8230459	11	Test failed to resume JVMCI CompilerThread	PSU
JDK-8230400	11	Missing constant pool entry for a method in stacktrace	PSU
JDK-8230390	11	Problemlist SA tests with AOT	PSU
JDK-8230235	13, 11, 8	Rendering HTML with empty img attribute and documentBaseKey cause Exception	PSU
JDK-8230062	13	assert(i == p->size()-1) failed: must be last element of the pack	PSU
JDK-8230061	13	# assert(mode == ControlAroundStripMined && use == sfpt) failed: missed a node	PSU
JDK-8230004	11	jdk/internal/jimage/JImageOpenTest.java runs no test	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8229994	11	assert(false) failed: Bad graph detected in get_early_ctrl_for_expensive	PSU
JDK-8229888	11	(zipfs) Updating an existing zip file does not preserve original permissions	PSU
JDK-8229767	13, 7	Typo in java.security: Sasl.createClient and Sasl.createServer	PSU
JDK-8229496	13	SIGFPE (division by zero) in C2 OSR compiled method	PSU
JDK-8229450	13	C2 compilation fails with assert(found_sfpt) failed: no node in loop that's not input to safepoint	PSU
JDK-8229437	13	assert(is_aligned(ref, HeapWordSize)) failed: invariant	PSU
JDK-8229345	11, 8	Memory leak due to vtable stubs not being shared on SPARC	PSU
JDK-8229236	11	CriticalJNINatives: dll handling should be done in native thread state	PSU
JDK-8229022	8	BufferedReader performance can be improved by using StringBuilder	PSU
JDK-8229016	13	C2 scalarization crashes with assert(node->Opcode() == Op_CastP2X) failed: ConvP2XNode required	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8228969	13, 11	2019-09-28 public suffix list update	PSU
JDK-8228835	13	Memory leak in PKCS11 provider when using AES GCM	CPU
JDK-8228613	11	java.security.Provider#getServices order is no longer deterministic	PSU
JDK-8228578	13	fix CFData object leak in macosx KeystoreImpl.m	PSU
JDK-8228479	11	Correct the format of ColorChooserDemoTest	PSU
JDK-8227662	7	freetype seeks to index at the end of the font data	PSU
JDK-8227646	11	[TESTBUG] appcds/SharedArchiveConsistency timed out	PSU
JDK-8227645	11	Some tests in serviceability/sa run with fixed -Xmx values and risk running out of memory	PSU
JDK-8227528	13, 11	TestAbortVMOnSafepointTimeout.java failed due to "RuntimeException: 'Safepoint sync time longer than' missing from stdout/stderr"	PSU
JDK-8227397	8	Add --with-extra-asflags configure option	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8227324	11	Upgrade to freetype 2.10.1	PSU
JDK-8227127	8	Era designator not displayed correctly using the COMPAT provider	PSU
JDK-8227112	11	exclude compiler/intrinsics/sha/sanity tests from AOT runs	PSU
JDK-8227030	13	Change the release version from 13.0.1 to 13.0.2	PSU
JDK-8226892	11, 8	ActionListeners on JRadioButtons don't get notified when selection is changed with arrow keys	PSU
JDK-8226651	8	Setting the mgfHash in CK_RSA_PKCS_PSS_PARAMS has no effect	PSU
JDK-8226608	11	Hide the onjcmd option from the help output	PSU
JDK-8226406	11	JVM fails to detect mismatched or corrupt CDS archive	PSU
JDK-8226381	11	ProblemList java/lang/reflect/PublicMethods/PublicMethodsTest.java	PSU
JDK-8225797	11	OldObjectSample event creates unexpected amount of checkpoint data	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8225766	11	Curve in certificate should not affect signature scheme when using TLSv1.3	PSU
JDK-8225745	8	NoSuchAlgorithmException exception for SHA256withECDSA with RSASSA-PSS support	PSU
JDK-8225684	11	[AOT] Problem list serviceability/sa tests failed with AOTed java.base	PSU
JDK-8225567	11	Wrong file headers with 8202414 fix changeset	PSU
JDK-8225487	11	giflib legal file is missing attribution for openbsd-reallocarray.c.	PSU
JDK-8225435	11, 8	Upgrade IANA Language Subtag Registry to the latest for JDK14	PSU
JDK-8225430	11	Replace wildcard address with loopback or local host in tests - part 14	PSU
JDK-8225392	8	Comparison builds are failing due to cacerts file	PSU
JDK-8225350	11	compiler/jvmci/compilerToVM/IsCompilableTest.java timed out	PSU
JDK-8225305	11	ProblemList java/lang/invoke/VarHandles tests	PSU
JDK-8225199	11	[Graal] compiler/jvmci/compilerToVM/IsMatureVsReprofileTest.java fails with -XX:Com-	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
		pileThresholdScaling=0.1	
JDK-8225182	11	JNI exception pending in DestroyXIMCallback of awt_InputMethod.c:1327	PSU
JDK-8225180	11, 8	SignedObject with invalid Key not throwing the InvalidKeyException in Windows	PSU
JDK-8225144	11	[macos] In Aqua L&F backspace key does not delete when Shift is pressed	PSU
JDK-8225130	14, 11, 8	Add exception for expiring Comodo roots to VerifyCACerts test	PSU
JDK-8225128	14, 11, 8	Add exception for expiring DocuSign root to VerifyCACerts test	PSU
JDK-8225117	11	java/math/BigInteger/SymmetricRangeTests.java fails with ParseException	PSU
JDK-8225105	11	java/awt/Focus/ShowFrameCheckForegroundTest/ShowFrameCheckForegroundTest.java fails in Windows 10	PSU
JDK-8225007	11	java/awt/print/PrinterJob/LandscapeStackOverflow.java may hang	PSU
JDK-8224905	11	java/lang/ProcessBuilder/Basic.java#id1 failed with stream closed	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8224851	11	AArch64: fix warnings and errors with Clang and GCC 8.3	PSU
JDK-8224830	11	test/jdk/java/awt/Focus/ModalExcludedWindowClickTest/ModalExcludedWindowClickTest.java fails on linux-x64	PSU
JDK-8224821	11	java/awt/Focus/NoAutotransferToDisabledCompTest/NoAutotransferToDisabledCompTest.java fails linux-x64	PSU
JDK-8224778	11	test/jdk/demo/jfc/J2Ddemo/J2DdemoTest.java cannot find J2Ddemo.jar	PSU
JDK-8224705	11	Tests that need to be problem-listed or have printer resources	PSU
JDK-8224673	11	Adjust permission for delayed starting of debugging	PSU
JDK-8224475	11, 8	JTextPane does not show images in HTML rendering	PSU
JDK-8224187	11	Refactor arraycopy_prologue to allow ZGC read barriers on arraycopy	PSU
JDK-8223769	11	Assert triggers with -XX:+StressReflectiveCode	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8223727	11	com/sun/jndi/ldap/privconn/RunTest.java failed due to hang in LdapRequest.getReplyBer	PSU
JDK-8223678	11	Add Visual Studio Code workspace generation support (for native code)	CPU
JDK-8223638	11	Replace wildcard address with loopback or local host in tests - part 6	PSU
JDK-8223627	11	jdk-13+20 bundle name contains null instead of ea	PSU
JDK-8223558	11	Java does not render Myanmar script correctly	PSU
JDK-8223464	11	Improve version string for Oracle CI builds	PSU
JDK-8223260	11	NamingManager should cache InitialContextFactory	PSU
JDK-8223158	11, 8	Docked MacBook cannot start any Java Swing applications	PSU
JDK-8223063	11, 8	Support CNG RSA keys	PSU
JDK-8223003	11, 8	SunMSCAPI keys are not cleaned up	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8222741	11	jdi/EventQueue/remove/remove004 fails due to VMDisconnectedException	PSU
JDK-8222522	8, 7	Add configure options for Mac Bundle creation	PSU
JDK-8222519	11	ButtonDemoScreenshotTest fails randomly with "still state to be reached"	PSU
JDK-8222448	11	java/lang/reflect/PublicMethods/PublicMethodsTest.java times out	PSU
JDK-8222391	11	javax/net/ssl/compatibility/Compatibility.java should be more flexible	PSU
JDK-8221885	11	Add intermittent test in the JavaSound to the ProblemList	PSU
JDK-8221407	8	Windows 32bit build error in libsunmscapi/security.cpp	PSU
JDK-8221312	11	test/jdk/sanity/client/SwingSet/src/ColorChooserDemoTest.java failed	PSU
JDK-8221304	7	Problem list java/awt/FontMetrics/MaxAdvancelMax.java	PSU
JDK-8221270	11	Duplicated synchronized keywords in SSLSocketImpl	PSU
JDK-8221092	13	UseAVX=3 has performance degradation on Skylake (X7) processors	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8220786	11	Create new switch to redirect error reporting output to stdout or stderr	PSU
JDK-8220688	11	[TESTBUG] runtime/NMT/MallocStressTest.java timed out	PSU
JDK-8220613	11	java/util/Arrays/TimSortStackSize2.java times out with fastdebug build	PSU
JDK-8220598	11	Malformed copyright year range in a few files in java.base	PSU
JDK-8220479	11	java/nio/channels/Selector/SelectWithConsumer.java failed at testTwoChannels()	PSU
JDK-8220456	11	jdi/EventQueue/remove_/remove_l004 failed due to "TIMEOUT while waiting for event"	PSU
JDK-8220451	11	jdi/EventQueue/remove/remove004 failed due to "ERROR: thread2 is not alive"	PSU
JDK-8220348	11	[ntintel] asserts about copying unaligned array	PSU
JDK-8219723	11	javax/net/ssl/compatibility/Compatibility.java failed on some SNI cases	PSU
JDK-8219597	11	(bf) Heap buffer state changes could provoke unexpected exceptions	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8219244	8	NMT: Change ThreadSafepointState's allocation type from mtInternal to mtThread	PSU
JDK-8219205	11	JFR file without license header	PSU
JDK-8218889	11	Improperly use of the Optional API	PSU
JDK-8218882	11	NET_Writev is declared, NET_WriteV is defined	PSU
JDK-8218854	7	FontMetrics.getMaxAdvance may be less than the maximum FontMetrics.charWidth	PSU
JDK-8218662	11	Allow 204 responses with Content-Length:0	PSU
JDK-8218580	8	endpoint identification algorithm should be case-insensitive	PSU
JDK-8218553	8	Enhance keystore load debug output	PSU
JDK-8218268	11	Javac treats Manifest Class-Path entries as Paths instead of URLs	PSU
JDK-8217728	11	Speed up incremental rerun of "make hotspot"	CPU
JDK-8217717	11	ZGC: Broken oop map in C1 load barrier stub	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8217634	11	RunTest documentation and usability update	PSU
JDK-8217613	11	[AOT] TEST_OPTS_AOT_MODULES doesn't work on mac	PSU
JDK-8217338	11	[Containers] Improve systemd slice memory limit support	PSU
JDK-8217297	11	Add support for multiple look and feel for SwingSet SliderDemoTest	PSU
JDK-8217235	11	Create automated test for SwingSet ColorChooserDemoTest	PSU
JDK-8216535	11	tools/jimage/JImageExtractTest.java timed out	PSU
JDK-8216528	8, 7	test/jdk/java/rmi/transport/runtimeThreadInheritanceLeak/RuntimeThreadInheritanceLeak.java failing with Xcomp	PSU
JDK-8216472	11, 8	(se) Stack overflow during selection operation leads to crash (win)	PSU
JDK-8216354	11, 8	Syntax error in toolchain_windows.m4	PSU
JDK-8216353	11	Use utility APIs introduced in org/netbeans/jemmy/util/LookAndFeel class in client sanity test cases	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8216180	11	[AOT] compiler/intrinsics/bigInteger/TestMulAdd.java crashed with AOT enabled	PSU
JDK-8216039	8	TLS with BC and RSASSA-PSS breaks ECDHServerKeyExchange	PSU
JDK-8215756	8	Memory leaks in the AWT on macOS	PSU
JDK-8215396	11	JTabbedPane preferred size calculation is wrong for SCROLL_TAB_LAYOUT	PSU
JDK-8215355	11, 8	Object monitor deadlock with no threads holding the monitor (using jemalloc 5.1)	PSU
JDK-8215322	11	add @file support to jaotc	PSU
JDK-8214904	11	Test8004741.java failed due to "Too few ThreadDeath hits; expected at least 6 but saw only 5"	PSU
JDK-8214850	11	Rename vm_operations.?pp files to vmOperations.?pp files	PSU
JDK-8214840	11	runtime/NMT/MallocStressTest.java timed out	PSU
JDK-8214578	11, 8	[macos] Problem with backslashes on macOS/JIS keyboard: Java ignores system settings	PSU
JDK-8214557	11	Filter out VM flags which don't affect AOT code generation	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8214471	11	Enable different look and feel tests in SwingSet3 demo test ToolTipDemoTest	PSU
JDK-8214345	11	infinite recursion while checking super class	PSU
JDK-8214344	11	C2: assert(con.basic_type() != T_ILLEGAL) failed: elembt=byte; loadbt=void; unsigned=0	PSU
JDK-8214124	11	[TESTBUG] Bugs in runtime/NMT/MallocStressTest.java	PSU
JDK-8214096	8	sun.security.util.SignatureUtil passes null parameter, so JCE validation fails	PSU
JDK-8214002	7	Cannot use italic font style if the font has embedded bitmap	PSU
JDK-8213906	11	Update arm devkits with libXrandr headers	PSU
JDK-8213348	11	jdk.internal.vm.compiler.management service providers missing in module descriptor	PSU
JDK-8213168	11	Enable different look and feel tests in SwingSet3 demo test FileChooserDemoTest	PSU
JDK-8213119	7	[macos] java/awt/GraphicsDevice/CheckDisplayModes.java fails	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8213010	11, 8	Supporting keys created with certmgr.exe	PSU
JDK-8213009	11, 8	Refactoring existing SunMSCAPI classes	PSU
JDK-8212903	11	[TestBug] Tests test/jdk/javax/swing/LookAndFeel/8145547/DemandGTK2.sh and DemandGTK3.sh fail on Ubuntu 18.04 LTS	PSU
JDK-8212897	11	Some improvements in the EditorPaneDemotest	PSU
JDK-8211781	11	re-building fails after changing Graal sources	PSU
JDK-8211703	11	JInternalFrame : java.lang.AssertionError: cannot find the internal frame	PSU
JDK-8211443	11	Enable different look and feels in SwingSet3 demo test SplitPaneDemoTest	PSU
JDK-8211322	11	Reduce the timeout of tooltip in SwingSet2DemoTest	PSU
JDK-8211211	11	vmTestbase/metaspace/stressDictionary/StressDictionary.java timeout	PSU
JDK-8211160	11	Handle different look and feels in JInternalFrameOperator	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8211139	11	Increase timeout value in all tests under <code>jdk/sanity/client/SwingSet/src</code>	PSU
JDK-8210994	11	Create test for SwingSet3 FrameDemo	PSU
JDK-8210910	11	Create test for FileChooserDemo	PSU
JDK-8210793	11	[JVMCI] <code>AllocateCompileIdTest.java</code> failed to find <code>DiagnosticCommand.class</code>	PSU
JDK-8210699	11	Problem list tests which times out in Xcomp mode	PSU
JDK-8210632	11	Add key exchange algorithm to <code>javax/net/ssl/TLSCommon/CipherSuite.java</code>	PSU
JDK-8210523	11	<code>runtime/appcads/cacheObject/DifferentHeapSizes.java</code> crash	PSU
JDK-8210512	11	[Testbug] <code>vmTest-base/nsk/jdi/ObjectReference/referringObjects/referringObjects002/referringObjects002.java</code> fails with unexpected size of <code>ClassLoaderReference.referringObjects</code>	PSU
JDK-8210476	11	<code>sun/security/mscapi/PmgSlow.java</code> fails with Still too slow	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8210459	11	Add support for generating compile_commands.json	CPU
JDK-8210289	11	ArchivedKlassSubGraphInfoRecord is incomplete	PSU
JDK-8210220	11	[AOT] jdwp test cases are failing with error # ERROR: TEST FAILED: Caught IOException while receiving event packet: # ERROR: java.net.SocketTimeoutException: Read timed out	PSU
JDK-8210058	11	Algorithmic Italic font leans opposite angle in Printing	PSU
JDK-8210057	11	Enable different look and feels in SwingSet3 demo test InternalFrameDemoTest	PSU
JDK-8210055	11	Enable different look and feel tests in SwingSet3 demo tests	PSU
JDK-8210052	11	Enable testing for all the available look and feels in SwingSet3 demo tests	PSU
JDK-8209993	11	Create a test for SwingSet3 ToolTipDemo	PSU
JDK-8209976	11	Improve iteration over non-JavaThreads	PSU
JDK-8209850	11	Allow NamedThreads to use GlobalCounter critical sections	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8209826	11	Undefined reference to os::write after JDK-8209657 (filemap.hpp cleanup)	PSU
JDK-8209824	11	Improve the code coverage for ThreadLocal	PSU
JDK-8209817	11	stack is executable when building with Clang on Linux	PSU
JDK-8209807	11	improve handling exception in requires.VMProps	PSU
JDK-8209802	11	Garbage collectors should register JFR types themselves to avoid build errors.	PSU
JDK-8209789	11	Synchronize test/jdk/sanity/client/lib/jemmy with code-tools/jemmy/v2	PSU
JDK-8209686	11	cleanup arguments to PhaseldealLoop() constructor	PSU
JDK-8209657	11	Refactor filemap.hpp to simplify integration with Serviceability Agent	PSU
JDK-8209574	11	[AOT] breakpoint events are generated in different threads does not meet expected count when test-case vm/jvmti/Breakpoint/brkp001/brkp00102/brkp00102.html is executed	PSU
JDK-8209499	11	Create test for SwingSet3 EditorPaneDemo	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8209494	11	Create a test for SwingSet3 InternalFrameDemo	PSU
JDK-8209418	11	Synchronize test/jdk/sanity/client/lib/jemmy with code-tools/jemmy/v2	PSU
JDK-8209389	11	SIGSEGV in WalkOopAndArchiveClosure::do_oop_work	PSU
JDK-8209385	11	CDS runtime classpath checking is too strict when only classes from the system modules are archived	PSU
JDK-8209361	11	[AOT] Unexpected number of references for JVMTI_HEAP_REFERENCE_CONSTANT_POOL [111-->111]: 0 (expected at least 1)	PSU
JDK-8208715	11	Conversion of milliseconds to nanoseconds in UNIXProcess contains bug.	PSU
JDK-8208658	11	Make CDS archived heap regions usable even if compressed oop encoding has changed	PSU
JDK-8208379	11	compiler/jvmci/events/JvmciNotifyInstallEventTest.java failed with "Got unexpected event count after 2nd install attempt: expected 9 to equal 2"	PSU
JDK-8208157	11	requires.VMProps throws NPE for missing properties in "release" file	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8207938	11	At step6, Click Add button, case failed automatically.	PSU
JDK-8207832	11	serviceability/sa/CIhsdbCDSCore.java failed with java.lang.Error: Couldn't find core file location in:	PSU
JDK-8207367	11	10 vmTestbase/nsk/jdi tests timed out when running with jtreg	PSU
JDK-8206963	11	[AOT] bug with multiple class loaders	PSU
JDK-8206171	8	Signature#getParameters for RSASSA-PSS throws ProviderException when not initialized	PSU
JDK-8205720	8	KeyFactory#getKeySpec and translateKey throws NullPointerException with Invalid key	PSU
JDK-8205445	8	Add RSASSA-PSS Signature support to SunMSCAPI	PSU
JDK-8204551	11	Event descriptions are truncated in logs	CPU
JDK-8204529	11	gc/TestAllocateHeapAtMultiple.java fail with Agent 7 timed out	PSU
JDK-8204525	11	[TESTBUG] runtime/NMT/MallocStressTest.java ran out of java heap	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8204152	8	SignedObject throws NullPointerException for null keys with an initialized Signature object	PSU
JDK-8203911	11	Test runtime/modules/getModuleJNI/GetModule fails with -Xcheck:jni	PSU
JDK-8203904	11	javax/swing/JSplitPane/4816114/bug4816114.java: The divider location is wrong	PSU
JDK-8203687	11	javax/net/ssl/compatibility/Compatibility.java supports TLS 1.3	PSU
JDK-8203364	11	Some serviceability/sa/ tests intermittently fail with java.io.IOException: LingeredApp terminated with non-zero exit code 3	PSU
JDK-8201513	11	nsk/jvmti/IterateThroughHeap/filter-* are broken	PSU
JDK-8201355	11	Avoid native memory allocation in sun.security.mscapi.PRNG.generateSeed	PSU
JDK-8201349	11	build broken when configured with --with-zlib=bundled on gcc 7.3	PSU
JDK-8200432	11	javadoc fails with ClassCastException on {@link byte[]}	PSU
JDK-8200400	7	Allow Sasl mechanisms to be restricted	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8199072	11	Test javax/swing/GroupLayout/6613904/bug6613904.java is unstable	PSU
JDK-8198398	11	Test javax/swing/JColorChooser/Test6199676.java fails in mach5	PSU
JDK-8198321	11	javax/swing/JEditorPane/5076514/bug5076514.java fails	PSU
JDK-8197518	7	Kerberos krb5 authentication: AuthList's put method leads to performance issue	PSU
JDK-8197441	8	Signature#initSign/initVerify for an invalid private/public key fails with ClassCastException for Sun-PKCS11 provider	PSU
JDK-8196969	11	JTreg Failure: serviceability/sa/ClhsdbJstack.java causes NPE	PSU
JDK-8196467	11	javax/swing/JInternalFrame/Test6325652.java fails	PSU
JDK-8194944	11	Regression automated test 'open/test/jdk/- javax/swing/JInternalFrame/8145896/TestJInternalFrameMaximize.java' fails	PSU
JDK-8193832	7	Performance of InputStream.readAllBytes() could be improved	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8193596	11	java/net/DatagramPacket/ReuseBuf.java failed due to timeout	PSU
JDK-8193255	8	Root Certificates should be stored in text format and assembled at build time	PSU
JDK-8193042	11	NativeLookup::lookup_critical_entry() should only load shared library once	PSU
JDK-8191227	8	Unsafe handle resolution in ConstantOopWriteValue::write_on() / print_on() and LIR_Assembler::jobject2reg()	PSU
JDK-8190690	7	Impact on krb5 test cases in the 8u nightly	PSU
JDK-8189861	11	Refactor CacheFind	PSU
JDK-8189633	11	Missing -Xcheck:jni checking for DeleteWeakGlobalRef	PSU
JDK-8187218	7	GSSCredential.getRemainingLifetime() returns negative value for TTL > 24 days.	PSU
JDK-8187078	8	-XX:+VerifyOops finds numerous problems when running JPRT	PSU
JDK-8186884	7	Test native KDC, Java krb5 lib, and native krb5 lib in one test	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8186576	7	KerberosTicket does not properly handle renewable tickets at the end of their lifetime	PSU
JDK-8185005	11	Improve performance of ThreadMXBean.getThreadInfo(long ids[], int maxDepth)	PSU
JDK-8183591	7	Incorrect behavior when reading DER value with Integer.MAX_VALUE length	PSU
JDK-8183107	11, 8	PKCS11 regression regarding checkKeySize	PSU
JDK-8181872	8	C1: possible overflow when strength reducing integer multiply by constant	PSU
JDK-8179863	6	Missing copyrights in some jaxp files	PSU
JDK-8178910	8	Problemlist sample tests	PSU
JDK-8178798	11	Two compiler/aot/verification/vmflags tests fail by timeout with UseAVX=3	PSU
JDK-8177095	7	Range check dependent CastII/ConvI2L is prematurely eliminated	PSU
JDK-8176556	11	java/awt/dnd/ImageTransferTest/ImageTransferTest.java fails for JFIF	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8171443	8	(spec) An ALPN callback function may also ignore ALPN	PSU
JDK-8170282	8	Enable ALPN parameters to be supplied during the TLS handshake	PSU
JDK-8169718	11	nsk/jdb/locals/locals002: ERROR: Cannot find boolVar with expected value: false	PSU
JDK-8167409	8	Invalid value passed to critical JNI function	PSU
JDK-8167276	11	jvmci/compilerToVM/MaterializeVirtualObjectTest.java fails with -XX:-EliminateAllocations	PSU
JDK-8166976	8	TestCipherPBCEcons has wrong @run line	PSU
JDK-8163251	11	Hard coded loop limit prevents reading of smart card data greater than 8k	PSU
JDK-8163104	7	Unexpected NPE still possible on some Kerberos ticket calls	PSU
JDK-8163083	11	SocketListeningConnector does not allow invocations with port 0	PSU
JDK-8160926	11	FLAGS_COMPILER_CHECK_ARGUMENTS doesn't handle cross-compilation	CPU
JDK-8158978	8	ALPN not working when values are set directly on a SSLServerSocket	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8154831	7	CastII/ConvI2L for a range check is prematurely eliminated	PSU
JDK-8152988	11	[AOT] Update test batch definitions to include aot-ed java.base module mode into hs-comp testing	PSU
JDK-8151834	8	Test SmallPrimeExponentP.java times out intermittently	PSU
JDK-8151582	8	(ch) test java/nio/channels/AsyncCloseAndInterrupt.java failing due to "Connection succeeded"	PSU
JDK-8150460	8	(linux bsd aix)_close.c: file descriptor table may become large or may not work at all	PSU
JDK-8150432	8	java/util/Locale/LocaleProviders.sh failed on Win10.	PSU
JDK-8149543	7	range check CastII nodes should not be split through Phi	PSU
JDK-8147772	7	Update KerberosTicket to describe behavior if it has been destroyed and fix NullPointerExceptions	PSU
JDK-8146792	8	Predicate moved after partial peel may lead to broken graph	PSU
JDK-8145849	8	ALPN: getHandshakeApplicationProtocol() always return null	PSU

April 2020 OpenJDK Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8145845	11	[AOT] NullPointerException in compiler/whitebox/GetCodeHeapEntriesTest.java	PSU
JDK-8145055	8	Marlin renderer causes unaligned write accesses	PSU
JDK-8144732	8	VM_HeapDumper hits assert with bad dump_len	PSU
JDK-8144718	8	Pisces / Marlin Stokers may generate invalid curves with huge coordinates and round joins	PSU
JDK-8144654	8	Improve Marlin logging	PSU
JDK-8144630	8	Use PrivilegedAction to create Thread in Marlin RendererStats	PSU
JDK-8144526	8	Remove Marlin logging use of deleted internal API	PSU
JDK-8144446	8	Automate the Marlin crash test	PSU
JDK-8144445	8	Maximum size checking in Marlin ArrayCache utility methods is not optimal	PSU
JDK-8143849	8	Integrate Marlin renderer per JEP 265	PSU
JDK-8139206	7	Add InputStream readNBytes(int len)	PSU

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JDK-8138978	7	Examine usages of sun.misc.IOUtils	PSU
JDK-8135318	8	CMS: wrong max_eden_size for check_gc_overhead_limit	PSU
JDK-8134579	8	[TESTBUG] Some bmi tests fail if can_access_local_variables is on.	PSU
JDK-8134232	7	KeyStore.load() throws an IOException with a wrong cause in case of wrong password	PSU
JDK-8133489	13	Better messaging for PKIX path validation matching	PSU
JDK-8132111	7	Do not request for addresses for forwarded TGT	PSU
JDK-8131051	7	KDC might issue a renewable ticket even if not requested	PSU
JDK-8080835	7	Add blocking bulk read operations to java.io.InputStream	PSU
JDK-8077364	8	"if(!this)" construct prevents build on Xcode 6.3	PSU
JDK-8077113	8	Configure script do not properly detect cross-compilation gcc	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8075301	7	Tests for sun.security.krb5.principal system property	PSU
JDK-8075299	7	Additional tests for krb5 settings	PSU
JDK-8075297	7	Tests for RFEs 4515853 and 4745056	PSU
JDK-8068184	13, 11, 8, 7	Fix for JDK-8032832 caused a deadlock	PSU
JDK-8067796	8	(process) Process.waitFor(timeout, unit) doesn't throw NPE if timeout is less than, or equal to zero when unit == null	PSU
JDK-8066652	8	Default TimeZone is GMT not local if user.timezone is invalid on Mac OS	PSU
JDK-8058290	7	JAAS Krb5LoginModule has suspect ticket-renewal logic, relies on clockskew grace	PSU
JDK-8055283	8	Expand ResourceHashtable with C_HEAP allocation, removal and some unit tests	PSU
JDK-8051853	8	new URI("x/").resolve("../").getSchemeSpecificPart() returns null!	PSU
JDK-8047212	8	runtime/ParallelClassLoading/bootstrap/random/inner-complex assert(ObjectSynchronizer::verify_	PSU

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		objmon_isinpool(inf)) failed: monitor is invalid	
JDK-8046044	8	Fix raw and unchecked lint warnings in XML Signature Impl	PSU
JDK-8044500	7	Add kinit options and krb5.conf flags that allow users to obtain renewable tickets and specify ticket lifetimes	PSU
JDK-8042383	11	[TEST_BUG] Test javax/swing/plaf/basic/BasicMenuUI/4983388/bug4983388.java fails with short-cuts on menus do not work	PSU
JDK-8039438	7	Some tests depend on internal API sun.misc.IOUtils	PSU
JDK-8039132	7	cleanup @ignore JAAS/krb5 tests	PSU
JDK-8038631	8	Create wrapper for awt.Robot with additional functionality	PSU
JDK-8038431	8	Close InputStream when finished retrieving XML Signature HTTP References	PSU
JDK-8037550	7	Update RFC references in javadoc to RFC 5280	PSU

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JDK-8036971	7	krb5.conf does not accept directive lines before the first section	PSU
JDK-8036779	7	sun.security.krb5.KdcComm interprets kdc_timeout as msec instead of sec	PSU
JDK-8035633	8	TEST_BUG: java/net/NetworkInterface/Equals.java and some tests failed on windows intermittently	PSU
JDK-8034773	8	(zipfs) newOutputStream uses CREATE_NEW when no options specified	PSU
JDK-8033271	7	Manual security tests have @ignore rather than @run main/manual	PSU
JDK-8033215	8	clang: node.cpp:284 IDX_INIT macro use uninitialized field _out	PSU
JDK-8031111	7	fix krb5 caddr	PSU
JDK-8028480	8	(zipfs) NoSuchFileException on creating a file in ZipFileSystem with CREATE and WRITE	PSU
JDK-8028049	7	Tidy warnings cleanup for packages java.nio/java.io	PSU
JDK-8022263	8	use same Clang warnings on BSD as on Linux	PSU
JDK-8020971	7	Fix doclint issues in java.nio.*	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-8019410	7	sun/security/krb5/auto/ReplayCacheTestProc.java	PSU
JDK-8017773	7	OpenJDK7 returns incorrect TrueType font metrics	PSU
JDK-8017453	7	ReplayCache tests fail on multiple platforms	PSU
JDK-8012569	7	TEST_BUG: java/awt/GraphicsDevice/CheckDisplayModes.java fails	PSU
JDK-8011124	7	Make KerberosTime immutable	PSU
JDK-8007146	7	[macosx] Setting a display mode crashes JDK under VNC	PSU
JDK-8005819	13, 11, 8	Support cross-realm MSSFU	PSU
JDK-8001326	7	Improve Kerberos caching	PSU
JDK-7184246	7	Simplify Config.get() of krb5	PSU
JDK-7175041	7	HttpTimestamp should accept https URI	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-7172701	7	KDC tests cleanup	PSU
JDK-7152176	7	More krb5 tests	PSU
JDK-7147060	8	com/sun/org/apache/xml/internal/security/transforms/ClassLoaderTest.java doesn't run in agentvm mode	PSU
JDK-7143743	11, 8	(zipfs) Potential memory leak with zip provider	PSU
JDK-7111579	7	klist starttime, renewtill, ticket etype	PSU
JDK-7092821	11	java.security.Provider.getService() is synchronized and became scalability bottleneck	PSU
JDK-6991580	7	IPv6 Nameservers in resolv.conf throws NumberFormatException	PSU
JDK-6880619	7	reg test for 6879540	PSU
JDK-6675699	7	need comprehensive fix for unconstrained ConvI2L with narrowed type	PSU
JDK-4949105	11, 8	Access Bridge lacks html tags parsing	PSU

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Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	CPU/PSU
JDK-4919790	11	Errors in alert ssl message does not reflect the actual certificate status	PSU

ZuluFX Bug Fixes

The following table lists ZuluFX bug fixes implemented specifically for ZuluFX 13, 11, and 8.

April 2020 ZuluFX Bug Fixes

Bug ID	Zulu Versions Affected	Synopsis	Java Update Type
ZULU-7452	8.45	[FX][TESTBUG] Test is needed to check FX Runtime Version has build number	CPU

Other OpenJFX Bug Fixes

The following table lists other OpenJFX bug fixes.

April 2020 OpenJFX Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	Java Update Type
JDK-8241021	11	Change JavaFX release version in 11-dev to 11.0.7	PSU
JDK-8240832	13, 11, 8	Remove unused applecoreaudio.md third-party legal file	PSU
JDK-8240211	13, 11, 8	Stack overflow on Windows 32-bit can lead to crash	PSU
JDK-8239454	13, 11, 8	LLIntData : invalid opcode returned for 16 and 32 bit wide instructions	PSU
JDK-8239109	13, 11, 8	Update SQLite to version 3.31.1	CPU
JDK-8238526	13, 11, 8	Cherry pick GTK WebKit 2.26.3 changes	PSU
JDK-8237203	13	create release notes for 13.0.2	CPU
JDK-8237195	13	Change JavaFX release version in 13-dev to 13.0.2	CPU
JDK-8237003	13, 11, 8	Remove hardcoded WebAnimationsCSSIntegrationEnabled flag in DumpRenderTree	PSU
JDK-8236832	8	[macos 10.15] JavaFX Application hangs on video play on Catalina	PSU
JDK-8234704	13, 11, 8	Fix attribution in libxslt.md	PSU
JDK-8234056	13, 11, 8	Upgrade to libxslt 1.1.34	CPU

April 2020 OpenJFX Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	Java Update Type
JDK-8233942	13, 11, 8	Update to 609.1 version of WebKit	PSU
JDK-8233747	13, 11, 8	JVM crash in com.sun.webkit.dom.DocumentImpl.createAttribute	PSU
JDK-8233421	13, 11, 8	Upgrade to Visual Studio 2017 version 15.9.16	PSU
JDK-8233420	13, 11, 8	Upgrade to gcc 8.3 on Linux	PSU
JDK-8232589	13, 11, 8	Remove CoreAudio Utility Classes	PSU
JDK-8232210	13, 11, 8	Update Mesa 3-D Headers to version 19.2.1	PSU
JDK-8231513	13, 11, 8	JavaFX cause Keystroke Receiving prompt on MacOS 10.15 (Catalina)	PSU
JDK-8231188	13, 11, 8	Update SQLite to version 3.30.1	CPU
JDK-8231126	13, 11	libxslt.md has incorrect version string	CPU
JDK-8230610	13, 11, 8	Upgrade GStreamer to version 1.16.1	PSU
JDK-8230609	13, 11, 8	Upgrade glib to version 2.62.2	PSU

April 2020 OpenJFX Bug Fixes

Patch ID in OpenJDK Bug DB	JDK Levels Applicable in Zulu	Synopsis	Java Update Type
JDK-8222746	11	Cleanup third-party legal files	PSU
JDK-8201539	11	Crash in DirectWrite CreateBitmap code when running TestFX test suite	PSU