Red Hat build of OpenJDK 21

Release notes for Eclipse Temurin 21.0.2

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Legal Notice

Abstract

The release notes for Eclipse Temurin 21.0.2 provide an overview of new features in OpenJDK 21 and a list of potential known issues and possible workarounds.

Table of Contents

PREFACE

Open Java Development Kit (OpenJDK) is a free and open-source implementation of the Java Platform, Standard Edition (Java SE). Eclipse Temurin is available in four LTS versions: OpenJDK 8u, OpenJDK 11u, OpenJDK 17u, and OpenJDK 21u.

Binary files for Eclipse Temurin are available for macOS, Microsoft Windows, and multiple Linux x86 Operating Systems including Red Hat Enterprise Linux and Ubuntu.

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MAKING OPEN SOURCE MORE INCLUSIVE

Red Hat is committed to replacing problematic language in our code, documentation, and web properties. We are beginning with these four terms: master, slave, blacklist, and whitelist. Because of the enormity of this endeavor, these changes will be implemented gradually over several upcoming releases. For more details, see our CTO Chris Wright's message.

CHAPTER 1. SUPPORT POLICY FOR ECLIPSE TEMURIN

Red Hat will support select major versions of Eclipse Temurin in its products. For consistency, these versions remain similar to Oracle JDK versions that Oracle designates as long-term support (LTS).

A major version of Eclipse Temurin will be supported for a minimum of six years from the time that version is first introduced. For more information, see the Eclipse Temurin Life Cycle and Support Policy .

NOTE

RHEL 6 reached the end of life in November 2020. Because of this, Eclipse Temurin does not support RHEL 6 as a supported configuration.

CHAPTER 2. ECLIPSE TEMURIN FEATURES

Eclipse Temurin does not contain structural changes from the upstream distribution of OpenJDK.

For the list of changes and security fixes that the latest OpenJDK 21 release of Eclipse Temurin includes, see OpenJDK 21.0.2 Released.

New features and enhancements

Review the following release notes to understand new features and feature enhancements included with the Eclipse Temurin 21.0.2 release:

KEEPALIVE extended socket options support added on Windows

On Windows 10 version 1709 or later platforms, the **java.net.ExtendedSocketOptions** class now supports the **TCP_KEEPIDLE** and **TCP_KEEPINTERVAL** options.

Similarly, on Windows 10 version 1703 or later platforms, the **java.net.ExtendedSocketOptions** class now supports the **TCP_KEEPCOUNT** option.

See JDK-8308593 (JDK Bug System).

Fixed potential JVM failures when using ZGC and a non-default ObjectAlignmentInBytes value

In the initial release of OpenJDK 21, if you ran the JVM with the **-XX:+UseZGC** option and a non-default value for **-XX:ObjectAlignmentInBytes**, the JVM could fail or malfunction.

OpenJDK 21.0.2 resolves this issue to ensure that you can successfully use the Z Garbage Collector (ZGC) and non-default values for Java object alignment when running the JVM.

See JDK-8315082 (JDK Bug System).

Peak values for committed memory included in NMT reports

In OpenJDK 21.0.2, Native Memory Tracking (NMT) reports now show the peak value for all categories. The peak value is the highest value for committed memory in a given NMT category over the lifetime of the JVM process.

If the committed memory for a category is currently at its highest value, the NMT report shows an **at peak** value; otherwise, the NMT report shows the historic peak value.

For example, the following report output shows that compiler arena memory peaked above 6 MB but is now approximately 200KB:

```
Compiler (arena=196KB #4) (peak=6126KB #16)
```

See JDK-8317772 (JDK Bug System).

JVM warnings about unsupported THPs on Linux

On Linux platforms, if Transparent Huge Pages (THPs) are requested but not supported, the JVM now prints the following message to standard output:

```
UseTransparentHugePages disabled; transparent huge pages are not supported by the operating system.
```

See JDK-8313782 (JDK Bug System).

Let's Encrypt ISRG Root X2 CA certificate added

In OpenJDK 21.0.2, the **cacerts** truststore includes the Internet Security Research Group (ISRG) Root X2 certificate authority (CA) certificate from Let's Encrypt:

- Name: Let's Encrypt
- Alias name: letsencryptisrgx2
- Distinguished name: CN=ISRG Root X2, O=Internet Security Research Group, C=US

See JDK-8317374 (JDK Bug System).

Digicert, Inc. root certificates added

In OpenJDK 21.0.2, the **cacerts** truststore includes four Digicert, Inc. root certificates:

Certificate 1

- Name: DigiCert, Inc.
- Alias name: digicertcseccrootg5
- Distinguished name: CN=DigiCert CS ECC P384 Root G5, O="DigiCert, Inc.", C=US

Certificate 2

- Name: DigiCert, Inc.
- Alias name: digicertcsrsarootg5
- Distinguished name: CN=DigiCert CS RSA4096 Root G5, O="DigiCert, Inc.", C=US

Certificate 3

- Name: DigiCert, Inc.
- Alias name: digicerttlseccrootg5
- Distinguished name: CN=DigiCert TLS ECC P384 Root G5, O="DigiCert, Inc.", C=US

Certificate 4

- Name: DigiCert, Inc.
- Alias name: digicerttlsrsarootg5
- Distinguished name: CN=DigiCert TLS RSA4096 Root G5, O="DigiCert, Inc.", C=US

See JDK-8318759 (JDK Bug System).

eMudhra Technologies Limited root certificates added

In OpenJDK 21.0.2, the **cacerts** truststore includes three eMudhra Technologies Limited root certificates:

Certificate 1

- Name: eMudhra Technologies Limited
- Alias name: emsignrootcag1

- Distinguished name: CN=emSign Root CA - G1, O=eMudhra Technologies Limited, OU=emSign PKI, C=IN

Certificate 2

- Name: eMudhra Technologies Limited
- Alias name: emsigneccrootcag3
- Distinguished name: CN=emSign ECC Root CA - G3, O=eMudhra Technologies Limited, OU=emSign PKI, C=IN

Certificate 3

- Name: eMudhra Technologies Limited
- Alias name: emsignrootcag2
- Distinguished name: CN=emSign Root CA - G2, O=eMudhra Technologies Limited, OU=emSign PKI, C=IN

See JDK-8319187 (JDK Bug System).

Telia Root CA v2 certificate added

In OpenJDK 21.0.2, the **cacerts** truststore includes the Telia Root CA v2 certificate:

- Name: Telia Root CA v2
- Alias name: teliarootcav2
- Distinguished name: CN=Telia Root CA v2, O=Telia Finland Oyj, C=FI

See JDK-8317373 (JDK Bug System).

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