

# 3131789 - Mitigate Log4j CVE-2021-44228 Vulnerability in SAP Business One

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Component	SBO-CRO-SEC (Security in SAP Business One software)	Released On	15.12.2021

Please find the original document at <https://launchpad.support.sap.com/#/notes/3131789>

## Symptom

- Vulnerability CVE-2021-44228 for log4j
- How does this impact SAP Business One
- log4j is an apache library used commonly in java applications. This particular issue was identified in **log4j2** and fixed in log4j 2.15.0.

## Environment

SAP Business One

## Resolution

**When using SAP Business One or SAP Business One, version for SAP HANA (version >= 9.3 PL07 and <= 10.0 FP2108) and the component Workflow is installed, you can mitigate the vulnerability for Workflow with the following procedure:**

1. Go to directory *C:\Program Files (x86)\SAP\SAP Business One ServerTools\Common\tomcat\bin*, back up *tomcat8w.exe* and then rename *tomcat8w.exe* to *B1Workfloww.exe*.
2. Double-click *B1Workfloww.exe* to open *SAP Business One Workflow Engine Properties* form, go to the Java tab, add the following content in Java Options and save

*-Dlog4j2.formatMsgNoLookups=true*

3. Rename *B1Workfloww.exe* back to *tomcat8w.exe*
4. Restart *Workflow Engine Service* from the windows services.

**When using SAP Business One (version >= 10.0 FP 2008 and <= 10.0 FP 2108) and the component License Server is installed, you can mitigate the vulnerability for License Server with the following procedure:**

1. Open the package *C:\Program Files (x86)\SAP\SAP Business One ServerTools\LicenseHTTPS\webapps\LicenseControlCenter.war* in winrar (Right click *LicenseControlCenter.war* and open it with winrar).
2. Traverse to *\WEB-INF\lib\log4j-core-2.7.jar* and remove the *JndiLookup* class from the classpath: *org/apache/logging/log4j/core/lookup/JndiLookup.class*.
3. Accept the update archive.

4. Restart the SAP Business One Server Tools Service from the windows services.

**When using SAP Business One (version >= 10.0 FP 2008 and <= 10.0 FP 2108) and the component Service Layer is installed, you can mitigate the vulnerability for Service Layer with the following procedure:**

1. Go to the 64-bit Server Tools installation folder (for example, C:\Program Files\SAP\SAP Business One ServerTools).
2. Navigate into the *ServiceLayerController* webapp folder:  
.\ServiceLayer\ServiceLayerController\WEB-INF\lib\log4j-core-2.7.jar
3. Right click the *ServiceLayerController.war* and open it with winrar.
4. Traverse to *WEB-INF\lib\log4j-core-2.7.jar*, double-click it and you will see the folder structure of *log4j-core-2.7.jar*.
5. Find the file *JndiLookup.class* from the class path: *org/apache/logging/log4j/core/lookup* and delete this file.
6. Accept the updated archive.
7. Restart the 64-bit SAP Business One Server Tools Service from the windows services.

**When using SAP Business One (version >= 10.0 FP2102 and <= 10.0 FP2108) and the component Job Service is installed, you can mitigate the vulnerability for Job Service with the following procedure:**

1. Go to directory C:\Program Files (x86)\SAP\SAP Business One ServerTools\Common\tomcat\bin, back up *tomcat8w.exe* and then rename *tomcat8w.exe* to *B1ServerToolsw.exe*
2. Double-click *B1ServerToolsw.exe* to open SAP Business One Server Tools Service Properties form, go to the Java tab, add the following content in Java Options and save

*-Dlog4j2.formatMsgNoLookups=true*

3. Rename *B1ServerToolsw.exe* back to *tomcat8w.exe*.
4. Restart SAP Business One Server Tools Service from the windows services.

**When using SAP Business One (version >= 10.0 FP 2008 and <= 10.0 FP 2108) and the component Extension Manager(SLD) is installed, you can mitigate the vulnerability for Extension Manager with the following procedure:**

1. Open the package C:\Program Files (x86)\SAP\SAP Business One ServerTools\ExtensionManager\webapps\ExtensionManager.war in winrar (Right click *ExtensionManager.war* and open it in winrar).
2. Traverse to *WEB-INF\lib\log4j-core-2.7.jar* and remove the *JndiLookup* class from the classpath: *org/apache/logging/log4j/core/lookup/JndiLookup.class*.
3. Accept the update archive.
4. Restart the SAP Business One Server Tools Service from the windows services.

**When using SAP Business One, version for SAP HANA (version >= 10.0 FP 2008 and <= 10.0 FP 2108) and the component License Server is installed, you can mitigate the vulnerability for License Server with the following procedure:**

1. Go to the server tools installation directory (for example, /usr/sap/SAPBusinessOne)
2. Navigate into the License's webapps directory:

/usr/sap/SAPBusinessOne/ServerTools/License/webapps

3. Run the following command to remove the *JndiLookup.class* of *log4j-core-2.7.jar* from *LicenseControlCenter.war*.

```

unzip LicenseControlCenter.war WEB-INF/lib/log4j-core-2.7.jar -d .
zip -q -d WEB-INF/lib/log4j-core-2.7.jar org/apache/logging/log4j/core/lookup/JndiLookup.class
zip LicenseControlCenter.war WEB-INF/lib/log4j-core-2.7.jar
rm -r WEB-INF

```

4. Restore the permission of *LicenseControlCenter.war* by running the following command:

```
chown b1service0:b1service0 LicenseControlCenter.war
```

5. Restart the server tools.

**When using SAP Business One, version for SAP HANA (version >= 10.0 FP 2008 and <= 10.0 FP 2108) and the component Service Layer is installed, you can mitigate the vulnerability for Service Layer with the following procedure:**

1. Go to the server tools installation directory (for example, */usr/sap/SAPBusinessOne*)
2. Navigate into the *ServiceLayerController*'s webapps directory:

```
/usr/sap/SAPBusinessOne/ServiceLayer/ServiceLayerController/webapps
```

3. Run the following command to remove the *JndiLookup.class* of *log4j-core-2.7.jar* from *ServiceLayerController.war*:

```

unzip ServiceLayerController.war WEB-INF/lib/log4j-core-2.7.jar -d .
zip -q -d WEB-INF/lib/log4j-core-2.7.jar org/apache/logging/log4j/core/lookup/JndiLookup.class
zip ServiceLayerController.war WEB-INF/lib/log4j-core-2.7.jar
rm -r WEB-INF

```

4. Restore the permission of *ServiceLayerController.war* by running the following command:

```
chown b1service0:b1service0 ServiceLayerController.war
```

5. Restart the server tools.

**When using SAP Business One, version for SAP HANA (version >= 10.0 FP 2102 and <= 10.0 FP2108) and the component Job Service is installed, you can mitigate the vulnerability for Job Service with the following procedure:**

1. Open file */etc/init.d/sapb1servertools*.
2. Change the value of variable 'JAVA\_OPTS', add a new option as follows:

```
JAVA_OPTS="$JAVA_OPTS -Duser.country=US -Duser.language=en -Dfile.encoding=UTF-8 -Djava.awt.headless=true -server -Xms1024m -Xmx5120M -XX:MetaspaceSize=128m -XX:MaxMetaspaceSize=512m -Dlog4j2.formatMsgNoLookups=true"
```

2. Save and close the file.
3. Restart the server tools.

**When using SAP Business One, version for SAP HANA (version >= 10.0 FP 2008 and <= 10.0 FP 2108) and the component Extension Manager(SLD) is installed, you can mitigate the vulnerability for Extension Manager with the following procedure:**

1. Go to the server tools installation directory (for example, */usr/sap/SAPBusinessOne*)
2. Navigate into the *ExtensionManager*'s webapps directory:

```
/usr/sap/SAPBusinessOne/ServerTools/ExtensionManager/webapps
```

3. Run the following command to remove the JndiLookup.class of log4j-core-2.7.jar from ExtensionManager.war:

```
unzip ExtensionManager.war WEB-INF/lib/log4j-core-2.7.jar -d .
zip -q -d WEB-INF/lib/log4j-core-2.7.jar org/apache/logging/log4j/core/lookup/JndiLookup.class
zip ExtensionManager.war WEB-INF/lib/log4j-core-2.7.jar
rm -r WEB-INF
```

4. Restore the permission of *ExtensionManager.war* by running the following command:

```
chown b1service0:b1service0 ExtensionManager.war
```

5. Restart the server tools.

**When SAP Business One Integration Framework (B1 10.0 FP2105, and B1 10.0 FP2108) is installed, the vulnerability for Integration Framework can be mitigated with the following procedure:**

**Option 1:** Switch off the execution of the *Crystal Reports* in the integration framework:

1. Go to `%InstallationDir%\IntegrationServer\Tomcat\IntegrationServer\Tomcat\webapps\B1iXcellerator`.
2. Edit the *xcellerator.cfg* file, and change `xcl.reporting=false`.
3. Restart the *Tomcat* or *Integration Service*.

Side effect: The reporting processing functionality will be disabled.

**Option 2:** Add JVM Args to disable Msg Lookups:

1. Go to `%InstallationDir%\IntegrationServer\Tomcat\bin` folder.
2. Execute *tomcat8w.exe*.
3. Go to the *Java* tab.
4. Add `-Dlog4j2.formatMsgNoLookups=true` to the *Java* options.
5. Restart the *Tomcat* or *Integration Service*.

## See Also

- <https://nvd.nist.gov/vuln/detail/CVE-2021-44228>

## Keywords

Log4J, CVE-2021-44228, B1, vulnerability, bug

## Products

SAP Business One 10.0

SAP Business One 10.0, version for SAP HANA

SAP Business One 9.3

SAP Business One 9.3, version for SAP HANA