

# Mitigating Log4j2 vulnerability for Experience Manager Forms

Please note that this guide was created by Ajila for the free use and best possible support of our customers, but we do not take any responsibility about the correctness and completeness.

#### General

Die This article is based on the official Adobe article: <u>Mitigating Log4j2 vulnerabilities (CVE-2021-44228 and CVE-2021-45046)</u> for Experience Manager Forms

As the official article does not cover all details, we created our own step-by-step guide.

#### **Needed tools**

To update the **.ear** and **.jar** a separate tool is needed as the regular ZIP mechanisms are not sufficient. In this article the <u>Tocal Commander</u> is used.

#### Step-by-step guide

1. Navigate to the directory where the .ear files are deployed: [AEM\_HOME]\jboss\standalone\deployments

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	adobe-livecycle-cq-author.ear	19.08.2021 07:31	EAR File	518'228 KB
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- Downloads *	adobe-livecycle-jboss.ear	21.09.2021 10:07	EAR File	194'384 KB
🖆 Documents 🛛 🖈	adobe-livecycle-jboss.ear.deployed	21.09.2021 10:07	DEPLOYED File	1 KB
📰 Pictures 🛛 🖈	adobe-livecycle-native-jboss-x86_win32	19.08.2021 07:26	EAR File	146'704 KB
7631-020-RE-VZI-NESTT-ETR	adobe-livecycle-native-jboss-x86_win32	19.08.2021 07:26	DEPLOYED File	1 KB
Ajila	adobe-workspace-client.ear	18.08.2021 16:14	EAR File	5'019 KB
Forms	adobe-workspace-client.ear.deployed	18.08.2021 16:14	DEPLOYED File	1 KB
input	ajila-cockpit.ear	26.08.2021 13:55	EAR File	239'725 KB
mpor	ajila-cockpit.ear.deployed	26.08.2021 13:55	DEPLOYED File	1 KB
💻 This PC	README.txt	29.03.2019 13:23	Text Document	9 KB

- 2. Copy the adobe-livecycle-jboss.ear to another location where you can modify it (the server does not need to be shut down for this operation).
- 3. Open the Total Commander and navigate in the left panel to the location where the copied adobe-livecyclejboss.ear is located.

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4. Select the adobe-livecycle-jboss.ear file and press CRTL + Page Down to navigate into the .ear file



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- 5. Navigate into the lib folder
- 6. In the right panel, navigate to the location where the adobe-livecycle-jboss.ear is located. You should end up with a listing like this:

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- 7. Now navigate in the left panel to the log4j-core-2.xx.jar (xx representing the version used in your AEM form installation
- 8. Now press F5 to copy the log4j-core-2.xx.jar to the right panel. This operations extracts the .jar-File into the directory which you opened in the right panel:



Total Commander 10.00	) - NOT REGIST	TERED									- 0	×
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Now select the log4j-core-2.xx.jar in the right panel and press CRTL + Page Down again to navigate into the .jar-file
 Inside the .jar-file navigate to org\apache\logging\log4j\core\lookup

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- 11. Delete the file JndiLookup.class and confirm the dialog
- 12. Navigate in the right panel back to the directory where you previously saved the .ear and .jar file



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jsr173_api-1.0	jar	49'672 19.08.202	1 08:27	_ ~						
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- 13. Select the (now modified) .jar file and hit F5. This operation will copy the .jar file back into the .ear file (which should still be open in the left panel) Please confirm the two dialogs which open.
- 14. Now the last modification date should be updated in the .ear file
- 15. You now can shut down the AEM Forms server and replace the adobe-livecycle-jboss.ear with the newly modified version (making a backup of the un-modified version might be a good idea <sup>©</sup>)
- 16. Navigate with the Windows explorer to [AEM\_HOME]\lib\caching and replace the log4j-core-2.xx.jar with the modified version

📊   🛃 🔄 🖛   lib				
File Home Share View				
$\leftarrow \rightarrow \checkmark \uparrow \square$ > This PC > Lo	ocal Disk (D:) > Adobe > AEM_6.5 > lib >	caching → lib		
Quick access	Name	Date modified	Type	Size
	javax.mail-api-1.6.2.jar	19.08.2021 07:10	JAR File	215 KB
	javax.resource-api-1.7.1.jar	19.08.2021 07:10	JAR File	69 KB
Downloads	javax.servlet-api-3.1.0.jar	29.03.2019 16:29	JAR File	94 KB
Documents 🖈	javax.transaction-api-1.3.jar	19.08.2021 07:10	JAR File	28 KB
Network Pictures 📌	jaxb-api-2.3.1.jar	19.08.2021 07:10	JAR File	126 KB
7631-020-RE-VZI-NESTT-ETR	jaxb-impl-2.3.1.jar	19.08.2021 07:10	JAR File	1'074 KB
Ajila	jetty-http-9.4.12.v20180830.jar	19.08.2021 07:10	JAR File	192 KB
Forms	jetty-io-9.4.12.v20180830.jar	19.08.2021 07:10	JAR File	137 KB
input	📄 jetty-security-9.4.12.v20180830.jar	19.08.2021 07:10	JAR File	91 KB
	jetty-server-9.4.12.v20180830.jar	19.08.2021 07:10	JAR File	596 KB
💻 This PC	jetty-servlet-9.4.12.v20180830.jar	19.08.2021 07:10	JAR File	109 KB
Desktop	jetty-util-9.4.12.v20180830.jar	19.08.2021 07:10	JAR File	492 KB
Documents	jetty-webapp-9.4.12.v20180830.jar	19.08.2021 07:10	JAR File	126 KB
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Music	📄 jgroups-3.6.14.Final.jar	29.03.2019 16:29	JAR File	2'455 KB
Distures	jline-2.12.jar	29.03.2019 16:29	JAR File	209 KB
	📄 jna-4.1.0.jar	29.03.2019 16:29	JAR File	894 KB
Videos	jopt-simple-5.0.4.jar	29.03.2019 16:29	JAR File	77 KB
Windows (C:)	LatencyUtils-2.0.3.jar	19.08.2021 07:10	JAR File	30 KB
Local Disk (D:)	📄 log4j-api-2.11.1.jar	19.08.2021 07:10	JAR File	258 KB
- Local Disk (D:)	📄 log4j-core-2.11.1.jar	19.08.2021 07:10	JAR File	1'571 KB
	log4j-jcl-2.11.1.jar	19.08.2021 07:10	JAR File	13 KB
💣 Network	📄 log4j-jul-2.11.1.jar	19.08.2021 07:10	JAR File	24 KB

17. Navigate to the TEMP directory configured for your AEM Forms installation and delete the contents of this directory (please check *Finding the configured TEMP directory* if you are not sure where the mentioned directory is located)



📊   🛃 🧮 🖛   TEMP				
File Home Share View				
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<ul> <li>✓ Quick access</li> <li>✓ Desktop</li> <li>✓ Downloads</li> <li>✓ Documents</li> <li>✓ Pictures</li> <li>✓ 7631-020-RE-VZI-NESTT-ETR</li> <li>✓ Ajila</li> </ul>	Name AdobeDocumentStorage adobejb_server1	Date modified 18.08.2021 16:15 02.12.2021 09:41	Type File folder File folder	Size
Forms				
This PC Desktop Documents Documents				
Music  Pictures Videos				
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🛖 Local Disk (D:) 💣 Network				

18. Now you can restart the JBoss



### Update the configuration manager

In case you should need to run the configuration manager it is recommended, to also change the configuration manager files. Should you not change these files, you might end up with an **.ear** file which again contains the leaky library as the configuration manager rebuilds the **.ear** file when it is ran (e.g. for installing additional modules).

- 1. Navigate with the left panel of the Total Commander to [AEM\_HOME]\deploy\
- 2. Open the adobe-core-jboss.ear in the left panel and replace the existing (detailed procedure and short curs see previous chapter):

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log4j-core-2.11.1 ja	ar 1'607'947 02.05.2021 2	1:40					
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osgi-1.0 ja	ar 22'575 02.05.2021 2	1:38					
pdfcore ja	ar 533'543 02.05.2021 2	1:35					
pdfencryption ji	ar 70'710 02.05.2021 2	1:35					
PerlTools-1.0 ja	ar 36'497 02.05.2021 2	1:44					
pof-schema-support ja	ar 174'729 02.05.2021 2	1:38					
guartz-1.6.0 ja	ar 421'601 02.05.2021 2	2:10					
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saxpath-1.0 ja	ar 23'563 02.05.2021 2	1:44					
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## Finding the configured TEMP directory

- 1. Navigate to the AdminUI of your server (e.g. http://localhost:8080/adminui) and log in with a user with the needed access rights (e.g. the administrator)
- 2. Navigate to the Core System Settings and find the configuration for the TEMP directory:

Adobe Experience Manager — Forms tartseite > Einstellungen > Core-Systemeinstellungen > Core-Konfigurationen Core-Konfigurationen peicherort des temporären Verzeichnisses. D:VALC_DATA\TEMP tammverzeichnis des globalen Dokumentenspeichers (Das Ändern dieses W icht zusätzlich manuell verschoben werden)	Vertes führt zu Datenverlusten, wenn die Daten
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percherort der Konngurationsdater für Adobe Experience manager - Forms L	Jata (e.g., services-config.xm).
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* Standard-Zeitsperre für Dokumententsorgung (Sekunden)	
30 * Sweep-Intervall für Dokumente (Sekunden)	
] FIPS aktivieren	
☑ WSDL aktivieren	
Dokumentenspeicher in der Datenbank aktivieren	
☑ DSC-Aufrufstatistik aktivieren	
RDS aktivieren	
] Nicht gesicherte RDS-Abfrage zulassen	
Unsicheren Dokumenten-Upload von Flex-Anwendungen zulassen.	
Unsicheren Dokumenten-Upload von Java SDK-Anwendungen zulassen	