Log4j Zero-Day Vulnerability: What You Need to Know Now

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Today’s topics

- Introduction
- What is Log4j?
- What is the impact of Log4Shell?
- Who does it affect?
- How does Log4Shell work?
- What can you do to protect your organization now and in the future?

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What’s Log4j?

- Log4j is a logging library embedded in thousands of the web services we use everyday.
- Developers use it to take notes about what is going on in applications and servers.
- If it was written in Java in the past decade, it’s probably in there.

How did we get here?

- December 9: Chen Zhaojun of the Alibaba Cloud Security Team discovered CVE-2021-44228, a.k.a. Log4Shell and sounded the alarm
- Security research works!

How does it work?

- Log4j takes special actions when log messages contain certain sequences that look ${like this}
- When user input such as a username in a login attempt is included in a log message, attackers can abuse Log4j features

Where is it?

- Everywhere…
  - Web facing applications
  - Middleware
  - Operational technology platforms
  - Custom solutions

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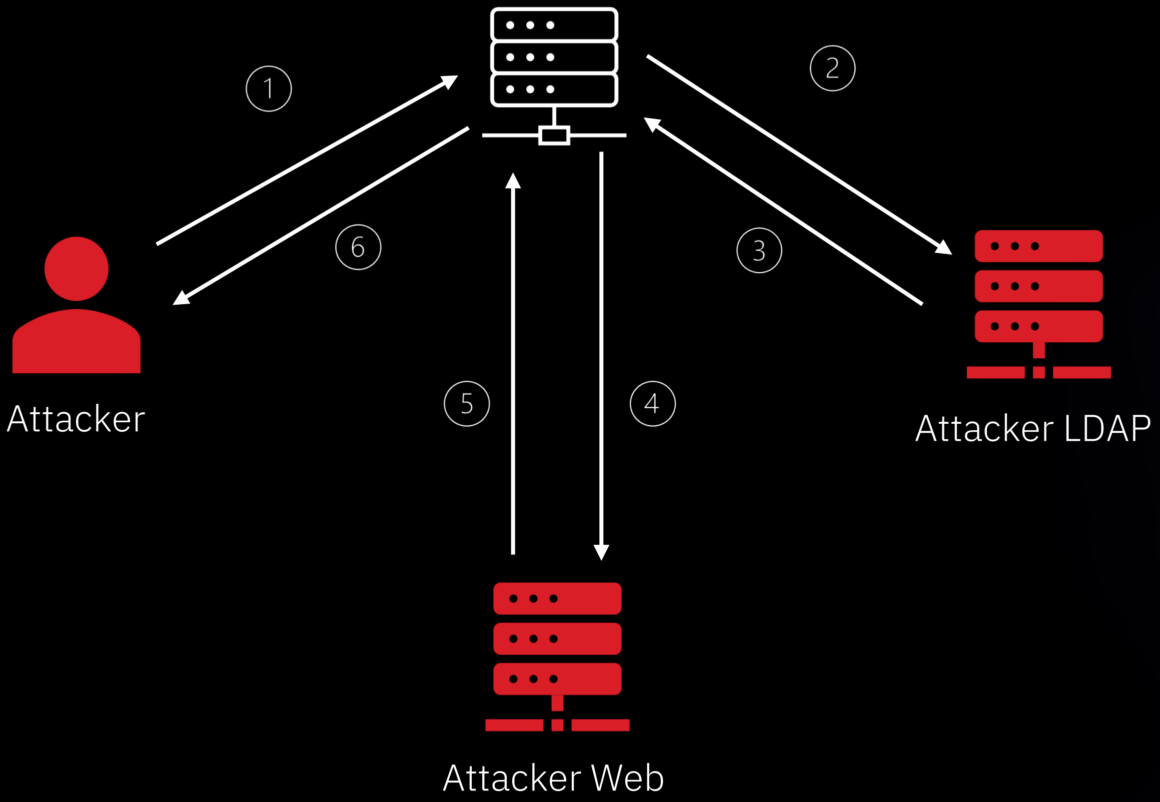
What can the adversaries do?

- Delete files
- Steal keys and other secrets
- Encrypt data for ransom
- Run a botnet
- Access internal network
- Anything Java applications are capable of!

Is anyone using it today?

- Botnets and ransomware operators are already including the exploit in their arsenal
- We will quickly see more

How does Log4Shell work?



1. Attacker sends JNDI lookup string to victim
2. Victim connects to attacker LDAP server
3. Attacker LDAP server points to Java class on attacker web server
4. Victim connects to attacker web server
5. Attacker web server responds with malicious Java class
6. Victim executes malicious Java, giving control to attacker

What can you do to protect your organization now and in the future?

1. Patch if you can

Apache released 2.16.0 to address the issue. Earlier updates 2.15.0-rc1 and 2.15.0-rc2 were found ineffective. Update if you can.

Apache also included suggested mitigations for those who cannot patch.

2. Start some scans

X-Force Red posted a custom scan tool at: https://github.com/xforcered/scan4log4shell

3. Strengthen network security controls

What servers are permitted to connect outbound to the internet?

4. Stay up to date

https://ibm.biz/log4shellioc s

Contact information

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