

What is Arid Gopher? An Analysis of a New, Never-Before-Seen Malware Variant

3/21/2022



March 21, 2022 | Simon Kenin, Asaf Gilboa

Executive Summary

- Deep Instinct's Threat Research team has found a new, undocumented malware developed in Golang
- The malware is attributed to APT-C-23 (Arid Viper)
- Further research revealed additional, previously unseen second-stage payloads

New Malware Variant Discovery: Arid Gopher

Our Threat Research team maintains a vigilant watch over the cyber threat landscape, hunting for malware as a normal course of operations. The team recently encountered an executable file written in the Go programming language. The identified file was initially submitted to VirusTotal on December 29, 2021 and was detected by only six security vendors.

After initial inspection, two additional similar files written in Go have been found. During the analysis of these files, the team identified a previously unseen variant of Arid Gopher malware; the new unknown malware is a variant of the Micropsia malware, written and used exclusively by APT-C-23 (Arid Viper).

Micropsia and Arid Viper

This strain of malware was first identified in 2017 by "360 Security," but later re-named to Micropsia. This malware targets computers running Windows OS.

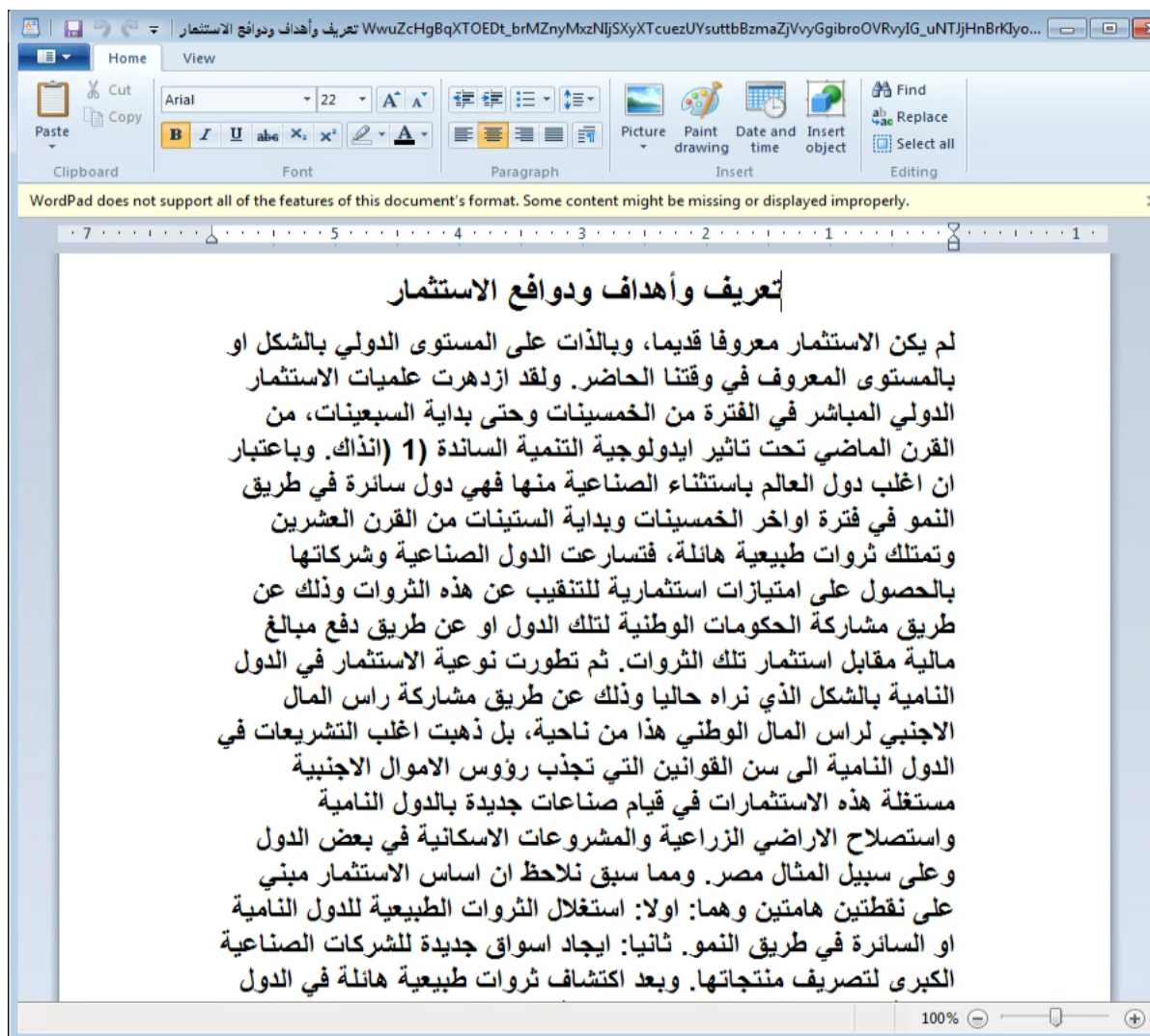
The threat actor behind the Micropsia malware is known by the name APT-C-23 or Arid Viper. This malware has primarily been used to target the Middle East region, with specific interest against Palestinian targets.

Arid Viper also has a unique Android malware that has been used against Israeli targets. Arid Viper has been previously linked to the Hamas organization.

Both the Windows and Android malware versions are constantly evolving. In April 2021, Facebook (now Meta) published a threat report about Arid Viper. In the report they identified a new iOS malware developed by APT-C-23. Facebook highlighted the specifics of how the threat actor had constantly changed the programming language used for developing the Micropsia malware which included Pascal, Delphi, C++, and even Python.

What is Arid Gopher?

Lastly, upon execution of the file, the malware will write a benign decoy office document to the folder "C:\ProgramData\NotificationControllerPS" and will present it to the victim:



Arid Gopher Benign Decoy Office Document

The combination of those three social engineering elements is intended to fool unsuspecting victims to run the malware and present them with decoy documents as they would expect from opening a Word document. This behavior is consistent in Arid Viper attacks utilizing Micropsia.

The decoy document contains sections from an academic publication regarding financial investments. The original article can be found in this [link](#).

The malware creates a LNK file and copies it to the [startup](#) folder for persistence using the name of the malware executable.

System info collection:

1. The malware writes a base64 blob containing <current_user>_<random_ID> to "C:\ProgramData\NotificationControllerPS\MSAProfileNotificationHandler.txt"
2. The malware checks for installed Antivirus products by running the following command: `cmd /c WMIC /Node:localhost /Namespace:\\root\SecurityCenter2 Path AntiVirusProduct Get displayName /Format:List`
3. The function "app_myLib_student_GetFatherName" returns a string containing the OS version, which uses `RtlGetVersion()` and returns a string such as "Microsoft Windows [version 6.1.7601]"

The malware uses the custom User-Agent "aimxxhwpc" while sending data to the C2 server.

The malware creates a mutex named "ABCMedia".

What is Arid Gopher V2?

We found two versions of this variant that had been used in the beginning of 2022.

The main difference between the two samples is the decoy content. We will first show the similarities and later will show the difference between the two V2 samples.

Those samples are written in Go 1.17.4 and contain some of the public libraries found at V1 and the following libraries:

```
(base) simon.kenin@simonk-black:~/Downloads/v2$ strings -f * | grep "go1\."17"
3d7d75d66428c55dc81563c3bde5477977fadb3325d0224ef9313da133940077: go1.17.4
5588f6fab387133c21b06f6248259c64260435898edd61866fad50312c2d3b25: go1.17.4

(base) simon.kenin@simonk-black:~/Downloads/v2$ strings 5588f6fab387133c21b06f6248259c64260435898edd61866fad50312c2d3b25 | grep "dep" | grep "github"
dep github.com/GeertJohan/go.rice v1.0.2 h1:PTRw+Tg3oa3HWLDBZyV038Ldyf6LaovJ3tr7Y0AYk=
dep github.com/bi-zone/go-ole v1.2.5 h1:/4G2K7Bq1e3FsMkd40quzVrLb4QdxZ3NULU7UjCm=
dep github.com/bi-zone/wmi v1.1.4 h1:82DmCVK/qf0MKSvUP52f03Psd/LPebHIIgZMNGLzG4+
dep github.com/btcsuite/winsvc v1.0.0 h1:3984L7e3oqM0CwZiUMAPwQeCB5IEq4kUccs+dk=
dep github.com/danieloliveira085/autostarter v1.1.0 h1:LD26thVjDRU3nARdmyNhwVBlwC7UG19VvfGz79Es=
dep github.com/go-ole/go-ole v1.2.5 h1:t4MGB5xEDZVXI+0Rkjj5FB5D7App/s9ZdkL1JndXwY=
dep github.com/gonutz/w32/v2 v2.2.2 h1:y0Y3377puCjYdFTq5p5NmcuJEdAqLTB43ktsoWkV0=
dep github.com/hashicorp/errwrap v1.0.0 h1:lrRtDmrye3+sg0zsqLhuvH3MRS50gYkZj/UMA=
dep github.com/hashicorp/go-multierror v1.0.0 h1:LVJPR7aG0H0WEL5SXXNe7bVopIbCuzc7UPrlbsn56o=
dep github.com/kblnani/screenshot v0.0.0-20210720154843-7d3a670d8329 h1:qqZncPsrXrnrVDRxM0ruH9BVEV1CN2a9V0DExt+U0o=
dep github.com/lxn/wtl v0.0.0-20210218163916-a377121e959e h1:HT+6A/QJbHicSEH5rAukXh+ctw9g0D0rFXa91Kr4uc=
dep github.com/scjalliance/comshim v0.0.0-2019030802085-ctf6d2532cde h1:+/AzLk0dIXEPRAtwKew0bnPQbnY1BweCznsB47u4=
```

Arid Gopher V2 Libraries

Library	Usage
https://github.com/bi-zone/wmi	Windows Management Instrumentation (WMI) for Go.
https://github.com/bi-zone/go-ole	Dependency for the above WMI library.
https://github.com/hashicorp/go-multierror	Error handling.
https://github.com/hashicorp/errwrap	Error handling.
https://github.com/scjalliance/comshim	Ensures that at least one thread within a Go process maintains an initialized connection to the component object model runtime in Windows.
https://github.com/btcsuite/winsvc	Windows service library written in Go.
https://github.com/danieloliveira085/autostarter	Go library that creates a shortcut to run automatically at startup and supports cross-compilation between Windows and Linux.
https://github.com/GeertJohan/go.rice	Go package that makes working with resources such as html, js, css, images, templates, etc. very easy.

(only in PDF sample)

Those samples don't have the Student/School functions name theme, however, using BinDiff we identified an exact match between functions in V1 & V2:

V1 function name	V2 function name	Functionality
app_myLib_student_GetFatherName	DSA2_DSA2PKG_Properties_OS	Retrieves OS version using RtlGetVersion() V1: Generates an identifier based on the %USERNAME%, current time, and random seed
app_myLib_student_GetStudentName	DSA2_DSA2PKG_Properties_Name	V2: The identifier is made from the hostname and %USERNAME%
app_myLib_driver_DoWhatIsTheDriverWants	DSA2_DSA2PKG_Proc_StartCMD	Runs "cmd /c <argument>" and retrieves the output Calls
main_CreateMutex	DSA2_DSA2PKG_Mutex_CreateMutex	kernel!CreateMutexW with the given string

Those samples are using the domain "pam-beesly[.]site" as a C2.

Pam Beesly is a yet another name of a character from TV show (The Office) and the same motive has been observed in V1 and older Micropsia variants.

The following functions exist in V2 version:

main		
main_DoCom	.text	006429E0
main_DoComButNotWaiting	.text	006437D0
main_Down	.text	00642DF0
main_DownReqApp	.text	00644060
main_ExResAndRun	.text	00640D00
main_GetDevNameAndWrite	.text	00641230
main_Reg360	.text	00644690
main_RunItWithoutWaiting	.text	00643C50
main_UploadAppLog	.text	006449A0
main_AppLogWriter_Write	.text	00644E90
main_addST	.text	00641060
main_createMainDir	.text	00641170
main_getREQs	.text	00642180
main_getRecName	.text	00644DD0
main_getRequestsAndDolt	.text	00641EC0
main_init	.text	006455B0
main_init_0	.text	006450F0
main_main	.text	00640C10
main_sendBasicInfo	.text	00641610
main_sendSH	.text	00642490
main_start	.text	00640840
DSA2		
DSA2_DSA2PKG_FileByte_Decod...	.text	004BE720
DSA2_DSA2PKG_HTTP_Dow	.text	005E0D10
DSA2_DSA2PKG_HTTP_Get	.text	005DFDD0
DSA2_DSA2PKG_HTTP_Post	.text	005E0040
DSA2_DSA2PKG_HTTP_Upload	.text	005E05F0
DSA2_DSA2PKG_HTTP_decompr...	.text	005E1630
DSA2_DSA2PKG_Mutex_Create...	.text	005E1760
DSA2_DSA2PKG_Mutex_init	.text	005E1840
DSA2_DSA2PKG_Proc_Do	.text	005E52B0
DSA2_DSA2PKG_Proc_Start	.text	005E5610
DSA2_DSA2PKG_Proc_StartCMD	.text	005E57C0
DSA2_DSA2PKG_Proc_StartDoc	.text	005E51C0
DSA2_DSA2PKG_Properties_AV	.text	00611AE0
DSA2_DSA2PKG_Properties_Name	.text	00611EB0
DSA2_DSA2PKG_Properties_OS	.text	00611D20
DSA2_DSA2PKG_SH_GetMirror	.text	0062B6B0
DSA2_DSA2PKG_STRun_AddSTS...	.text	0062D190
DSA2_DSA2PKG_StringTools_Ra...	.text	00611F50

Arid Gopher V2 Functions

If the process command line doesn't contain "-st", then the "main_ExResAndRun" function is called, which extracts the decoy document from the assets of the file using the library [bindata](#).

The "SoftTookitPSA" mutex is attempted to be created and if it fails then os.Exit() is called, terminating the process:

```

loc_6408FC:
lea    eax, aSofttookitpsa ; "SoftTookitPSA"
mov    [esp+64h+var_64], eax
mov    [esp+64h+var_60], 0Eh
call   DSA2_DSA2PKG_Mutex_CreateMutex
mov    eax, [esp+64h+var_58]
test   eax, eax
jz     short loc_640926

mov    [esp+64h+var_64], 0
call   os_Exit

```

Arid Gopher V2 Mutex code

As can be seen in the image above the author most likely made a typo: "Tookit" instead of Toolkit.

This mutex ensures there's only one instance of the malware running.

The malware queries WMI for installed AV products. If "360 Total Security" is present, the malware will call the function "main_Reg360" to download and execute a second-stage malware we called "Arid Helper." A description of "Arid Helper" is provided in a later section of this article.

If the computer does not have "360 Total Security" antivirus installed, "main_addST" is called:

```

mov     eax, g_installed_av_string_start
mov     ecx, g_installed_av_string_length
mov     [esp+64h+var_64], eax
mov     [esp+64h+var_60], ecx
call    strings_ToLower
mov     eax, [esp+64h+var_5C]
mov     ecx, [esp+64h+var_58]
mov     [esp+64h+var_64], eax
mov     [esp+64h+var_60], ecx
lea     eax, a360TotalSecuri ; "360 total security"
mov     [esp+64h+var_5C], eax
mov     [esp+64h+var_58], 12h
call    strings_Index
mov     eax, [esp+64h+var_54]
test    eax, eax
jge     short loc_640A67

```

↓

```

call    main_addST

```

AridHelper's AV check

The function "main_addST" creates a LNK shortcut named "NetworkBoosterUtilities.lnk" in the Startup folder, which links to the malware full-file path.

```

lea     ecx, aNetworkbooster ; "NetworkBoosterUtilities"
mov     [esp+34h+var_34], ecx
mov     [esp+34h+var_30], 17h
mov     ecx, [esp+34h+var_C]
mov     [esp+34h+var_2C], ecx
mov     ecx, [esp+34h+var_10]
mov     [esp+34h+var_28], ecx
mov     [esp+34h+var_24], eax
mov     [esp+34h+var_20], 1
mov     [esp+34h+var_1C], 1
call    DSA2_DSA2PKG_STRun_AddSTShortcut

```

Arid Gopher V2 LNK persistence code

The LNK contains the argument "-st" which is used to start the malware without displaying the decoy document:

Names	
C:\Users\<USER>\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup\NetworkBoosterUtilities.lnk	
ExifTool File Metadata	
MIMEType	application/octet-stream
TargetFileDOSName	THEMOD~1.EXE
LocalBasePath	C:\Users\
ModifyDate	2022:02:01 18:12:16+00:00
WorkingDirectory	C:\Users\admin\Downloads
RunWindow	Normal
CommandLineArguments	"-st"
AccessDate	2022:02:01 18:12:15+00:00
RelativePath	..\..\..\..\Downloads\The modified opening session program 29-1-2022_page-0001 98656456363546 4565546454645 98984938493854.pdf
CreateDate	2022:02:01 18:12:15+00:00
TargetFileSize	5341184
MachineID	work
NetProviderType	Unknown (0x20000)
Flags	IDList, LinkInfo, RelativePath, WorkingDir, CommandArgs, Unicode
FileTypeExtension	lnk
NetName	8
HotKey	(none)
DriveType	Fixed Disk
IconIndex	(none)
FileType	LNK
FileAttributes	Archive

Arid Gopher: -st argument to start the malware

"-st" is most likely a prefix for the word start. In the [Delphi](#) variants of Micropsia, the LNK contained the argument "-start" for the same purpose.

The function "DSA2_DSA2PKG_STRun_AddSTShortcut" uses the [autostarter](#) library to set up the malware persistence in the Startup directory of the running user.

Afterwards, the function "main_createMainDir" is called which creates the C:\ProgramData\NotificationControllerPSK directory that will store screenshots and other information collected by the malware.

System info collection:

- Similar to V1, the malware writes a base64 blob, this time also containing the computer name, in the format <computer_name>_<current_user>_<random_ID> to "C:\ProgramData\NotificationControllerPSK\MSAProfileNotificationHandler.txt"

- The malware takes a screenshot and saves it as a PNG file to the same folder mentioned above "C:\ProgramData\NotificationControllerPSK"
- The malware (only 3d7d75d66428c55dc81563c3bde5477977fadb3325d0224ef9313da133940077) is executing the following commands:


```
cmd /c ipconfig /release
cmd /c ipconfig /renew
```

 This is done by calling "cmd.exe," similar to the WMI query in V1.
- The malware checks for installed Antivirus products by running a WMI query. Unlike V1 that used cmd.exe to query WMI, the malware uses the [bi-zone WMI](#) imported library by calling a function named "DSA2_DSA2PKG_Properties_AV":

```
lea     edx, aAntivirusprodu ; "AntivirusProduct"
mov     [esp+5Ch+var_54], edx
mov     [esp+5Ch+var_50], 10h
mov     [esp+5Ch+var_4C], 0
mov     [esp+5Ch+var_48], 0
call    github_com_bi_zone_wmi_CreateQueryFrom
mov     eax, [esp+5Ch+var_44]
mov     ecx, [esp+5Ch+var_40]
lea     edx, aRootSecurityce ; "root/SecurityCenter2"
mov     [esp+5Ch+var_18], edx
mov     [esp+5Ch+var_14], 14h
mov     [esp+5Ch+var_10], 0
mov     [esp+5Ch+var_C], 0
mov     [esp+5Ch+var_8], 0
mov     [esp+5Ch+var_4], 0
lea     edx, type__string ; *string
mov     [esp+5Ch+var_8], edx
lea     ebx, [esp+5Ch+var_18]
mov     [esp+5Ch+var_4], ebx
mov     ebx, off_8CB2B4
mov     [esp+5Ch+var_5C], ebx
mov     [esp+5Ch+var_58], eax
mov     [esp+5Ch+var_54], ecx
lea     eax, unk_6561C0
mov     [esp+5Ch+var_50], eax
mov     eax, [esp+5Ch+var_1C]
mov     [esp+5Ch+var_4C], eax
lea     ecx, [esp+5Ch+var_10]
mov     [esp+5Ch+var_48], ecx
mov     [esp+5Ch+var_44], 2
mov     [esp+5Ch+var_40], 2
call    github_com_bi_zone_wmi_Client_Query
```

Arid Gopher malware checks for installed antivirus products by running a WMI query

- The function "app_myLib_student_GetFatherName" that was present in V1 was renamed to "DSA2_DSA2PKG_Properties_OS"

The function "main_sendBasicInfo" collects the following information about the computer and sends it to the C&C server:

Field Name	Field Value
ename	The asset name containing the name of the decoy .pdf to be opened
en	Set to 2
device_name	Base64 encoded unique string ID made up of the computer name, running username, and a random string
av	Result of the WMI query of the running antivirus product
os	OS version, e.g., "Microsoft Windows [Version 10.0.0.1836]"

C2 Communication

The malware calls "main_sendSH" to save a screenshot using [kbinani's library](#) and sends it to the server.

Then, "main_getRequestsAndDolt" is responsible for a loop which sends GET requests to the C2.

The response is a JSON, unmarshalled into a struct named "main.REQ," which has the following definition:

```
1 type main.REQ {
2   Id int
3   Type string
4   Value String
5   Status int
6   EncodedFileUrl string
7 }
```

Arid Gopher V2: main.REQ definition

The C&C server needs to send a response with the following JSON object:

```

1 [
2   {"id" : <int>,
3   "type" : <string>,
4   "value" : <string>,
5   "status" : <int>,
6   "encoded_file_url" : <string>,
7   }
8 ]

```

Arid Gopher V2 server response with JSON object

ID: A number that is used later for C&C commands to build a URL

Type: The name of the command to run

Value: The value of the command

Status: Unused

encoded_file_url: Used in the "d" command as the resource file to download

Most of the time an empty array will be sent by the server, which will make the sample wait a random number of seconds until it sends another GET request.

Here are the following supported commands (i.e., for the possible "type" field):

Type Details

s Takes a screenshot and sends it to the server

c Runs the command in the "value" field in CMD

d If the field "encoded_file_url" is present, download and execute a 2nd-stage payload from "<C2_address>/<id>/download_app_download-by-id/<encoded_file_url>" to the "NotificationControllerPSK" directory

cwr Same as type "c" command, but don't wait for exit.

ra Run a process with the path supplied in the "value" field

al Uploads the SoftToolkitPSA.txt log file

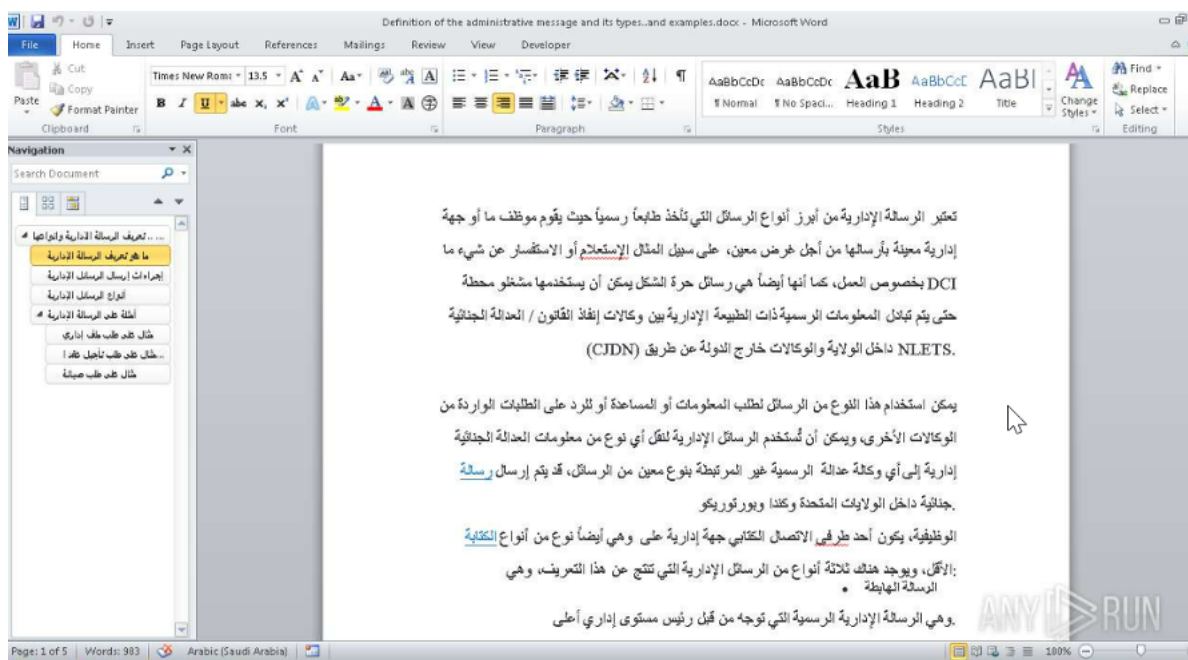
Differences Between V2 Samples:

3d7d75d66428c55dc81563c3bde5477977fad3325d0224ef9313da133940077

This variant was uploaded on December 19, 2021 to VirusTotal from Palestine, which might indicate the country in which the target is located, since Arid Viper is known to focus on attacking Palestinian targets.

The icon of the malware is the exact same Word Icon that was used in V1.

If a victim opens the file, the malware will write a benign decoy office document to the folder "%AppData%\Local\Temp\<random_number>" and will present it to the victim:



Arid Gopher V2: decoy office document opens in %AppData%\Local\Temp\ folder

This document contains content from a Saudi blog named "Almrsal" with information on how to write a formal letter.

5588f6fab387133c21b06f6248259c64260435898edd61866fad50312c2d3b25

This variant was uploaded on January 31, 2022 to VirusTotal inside a RAR archive named "The modified opening session program 29-1-2022_page -0001.xz" from Palestine, which likely indicates which country the target is located.

The practice of sending variants of Micropsia inside archives with the extension ".xz" has been observed with V1, as well as in [several](#) others Arid Viper campaigns.

The archive was downloaded from the URL "https://filetransfer[.]io/data-package/NDqgYm80/download," a free file upload service, however it is unknown how the victim(s) receive this URL.

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3 security vendors and no sandboxes flagged this file as malicious

42492efa48785ca118d4b05f28570e7b6be4677a962cb7825a859ad5e3045710

The modified opening session program 29-1-2022_page -0001.xz

1.91 MB Size

2022-01-31 12:16:40 UTC

1 month ago

contains-pe rar

DETECTION DETAILS RELATIONS BEHAVIOR CONTENT SUBMISSIONS COMMUNITY

ITW Urls

Scanned	Detections	Status	URL
2022-01-31	3 / 93	200	https://filetransfer.io/data-package/NDqgYm80/download

"In the wild" URL containing archive with Arid Gopher V2 variant

This file has been observed by security expert "[MalwareHunterTeam](#)" as suspicious, but no formal attribution has been made.

Unlike V1 and the previous V2 sample, this variant has a PDF icon.

The malware executable inside the archive contains a double extension "The modified opening session program 29-1-2022_page-0001 98656456363546 4565546454645 98984938493854 pdf .exe"

The usage of double extensions, specifically "pdf.exe" with a combination of a long filename, has been observed in [previous](#) Arid Viper campaigns.

If the victim is opening the file, the malware will write a benign decoy PDF document named "The modified opening session program 29-1-2022_page-0001 98656456363546 4565546454645 98984938493854.pdf" to the folder "%TEMP%\<current_date_and_time>" and will present it to the victim:



برنامج الجلسة الافتتاحية

للدورة الحادية والثلاثين للمجلس المركزي الفلسطيني

دورة " تطوير وتفعيل منظمة التحرير الفلسطينية، وحماية المشروع الوطني، والمقاومة الشعبية"

رام الله- فلسطين
قاعة أحمد الشقيري للمؤتمرات
2022/2/6

الساعة السادسة مساء

1. النشيد الوطني الفلسطيني.
2. الوقوف دقيقة وقراءة الفاتحة على أرواح الشهداء.
3. كلمة رئيس المجلس الوطني الفلسطيني الأخ سليم الزعنون يلقيها الأب قسطنطين قرمش نائب رئيس المجلس الوطني.
4. كلمة سيادة الأخ الرئيس محمود عباس أبو مازن رئيس دولة فلسطين.
5. كلمة الاخ محمد بركة رئيس لجنة المتابعة العربية العليا.
6. كلمة الاخ محمد اشتية رئيس الوزراء .
7. رفع الجلسة الافتتاحية من قبل نائب رئيس المجلس، وإعلان موعد الجلسات المغلقة بعد ربع ساعة.

* اجراء فحص PCR بمقر ج.ت.ف بالقرب من مقر الرئاسة ما بين الساعة 10:00 - 12:00

* الحضور الساعة الخامسة مساء لاجراء فحص كورونا السريع قبل الدخول الى القاعة

رئيس المجلس الوطني
محمد بركة

Arid Gopher V2: document meeting summary of Palestinian National Council

The document contains an official meeting summary of the Palestinian National Council.

Additional 2nd Stage Payloads

Arid Helper:

During the analysis of the V2 sample we noticed that if the WMI query for installed security products returns "360 total security" then the malware will call an additional function instead of "main_addST" as can be seen in Figure 10.

The function "main_addST" is responsible for creating the LNK shortcut as we described in V2 analysis.

However, if "360 total security" is found to be installed, the malware calls a function named "main_Reg360." This function then calls another function named "main_DownReqApp" which downloads additional payload from the C2 server from the following URL: "http://pam-beesly[.]site/J2FWAHfmgH573SUB/download_app/download-by-name/SystemNetworkEventsNotification"

The file is saved as "C:\ProgramData\NotificationControllerPSK\SystemNetworkEventsNotification.txt".

Afterwards, a function named "DSA_DSA2PKG_FileByte_DecodeByte" is called to convert the downloaded file into an executable named "C:\ProgramData\NotificationControllerPSK\SystemNetworkEventsNotification.exe" and the text file is being deleted.

The final executable is also written in Go language and its' sole purpose appears to be to create an alternative persistence mechanism in case "360 total security" is installed.

As a side note, 360 Total Security were the first to [publish](#) about the Windows malware which was later named Micropsia that Arid Viper continues to develop and improve.

This "helper" executable can receive the following parameters:

v=<PersistenceName> - Creates a registry run key with the given value name.

d=<PathToExecutable> - Sets the registry value to the path provided

-st - Unused

-old - Unused

SHA256	Description
f01c07f88071c8f71514db19f68c966f17ac8af0d3288913141714037352c99c	Archive containing AridGopher V1
99544057a5215e756b67aa47815e27dc157eb850792e5eacda6796922bb9a50b	AridGopher V1
42492efa48785ca118d4b05f28570e7b6be4677a962cb7825a859ad5e3045710	Archive containing AridGopher V2 (PDF)
5588f6fab387133c21b06f6248259c64260435898edd61866fad50312c2d3b25	AridGopher V2 (PDF)
3d7d75d66428c55dc81563c3bde5477977fadb3325d0224ef9313da133940077	AridGopher V2 (Word)
fa257cca88522e76a7dc4a10311f739d17587f25fe447ae2b4c84027f2246705	AridHelper
57674d0ed1e03807ad9d53a9087388b1b9bf6e9e5d120dbe834730affebe2675	2 nd stage malware

Domain	Description
grace-fraser[.]site	AridGopher V1 C2
pam-beesly[.]site	AridGopher V2 C2
mozellittel[.]com	2 nd stage C2

Indicators of Attack

Folders:

C:\ProgramData\NotificationControllerPS
C:\ProgramData\NotificationControllerPSK

User-Agent:

aimxxhwppc

Mutex:

ABCMedia
SoftToolkitPSA

Commands:

cmd /c WMIC /Node:localhost /Namespace:\root\SecurityCenter2 Path AntiVirusProduct Get displayName /Format:List

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