



Troubleshooting Workflow: CIFS Authentication failures



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Applies to

Clustered Data ONTAP 8

Issue

CIFS Authentication fails

Cause

There can be various causes for this issue. The causes and procedures to be performed to resolve this issue are described in the Solution section.

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Solution

Cause 1: Time skew; error message displayed while using Kerberos

How to determine if this is the cause:

Packet trace:

• If Kerberos is being used (or attempted) for authentication, check this issue by taking a packet trace. A packet trace is required only from the client.

Check the KRB5 packet for confirmation:

```
1778 41.215954 172.17.193.122 10.53.21.46 SMB Session Setup AndX Request
1779 41.227968 10.53.21.46 172.17.193.122 SMB KRB Error:

KRB5KRB_AP_ERR_TKT_NYV, Error: STATUS_MORE_PROCESSING_REQUIRED

A status_unsuccessful failure might be reported:

1785 41.245534 172.17.193.122 10.53.21.46 SMB Session Setup AndX Request
1786 41.254967 10.53.21.46 172.17.193.122 SMB Session Setup AndX Response,
Error: STATUS_UNSUCCESSFUL

secd.log:
```

• If the clock skew error message is in the journal:

```
ERR: RESULT_ERROR_SECD_NO_SERVER_AVAILABLE:6940 in secd_rpc_auth_extended_1_svc() at authentication/secd_rpc_auth.cpp:749 debug: SecD RPC Server sending reply to RPC 151: secd_rpc_auth_extended { in secdSendRpcResponse() at server/secd_rpc_server.cpp:1405 } ERR: Error: User authentication procedure failed

ERR: [ 0 ms] Login attempt by domain user 'CIFSLABAdministrator' using
```

```
NTLMv1 style security
ERR : [ 0] No servers available for MS NETLOGON, vserver: 3, domain:
cifs.lab.netapp.com.
ERR : [ 22] Unable to connect to any of the provided DNS servers
ERR: [ 22] Connecting to NetLogon server a7-6.cifs.lab.netapp.com
(172.17.192.24)
ERR: **[ 22] FAILURE: Unexpected state: Error 6810 at file:Common/
ProtocolClientLibrary/Dns/DnsOps.cpp func:DnsNameLookup line:715
''' ERR : **[ 33] FAILURE: Cluster and Domain Controller times differ by
more than the configured clock skew'''
ERR: [ 104] Unable to connect to a7-6.cifs.lab.netapp.com through the
10.53.21.46 interface
ERR: [ 104] No servers available for MS NETLOGON, vserver: 3, domain:
cifs.lab.netapp.com.
|-----
| RPC completed at Fri Oct 19 08:34:13 2012 |
| End of log for failed RPC secd rpc auth extended |
```

• Is the time set on the cluster and the node correct? If it is resolving correctly, check the time on the cluster:

```
::*> system date show
```

Compare with the time on the host.

Check the EMS messages:

```
::*> event log show -messagename secd.*

10/18/2012 13:34:59 krbClus-01 ERROR secd.kerberos.clockskew:

Kerberos client or node clock skew error (-1765328351).
```

Resolution:

If the time on the client, DC, and/or cluster (node) are outside the configured clock skew, then Kerberos will not work as per the default settings in Active Directory (AD).

For more information, see Microsoft article <u>884776</u>: How to configure the Windows Time service against a large time offset

From the cluster shell, configure a time server or set the time to the correct value. On the node and the client, set the correct time.

Cause 2: Machine password is out of sync; an error message is reported while using Kerberos despite the correct time.

How to determine if this is the cause:

1. Check for the journal error in the secd.log (location: /mroot/etc/log/mlog) file:

```
debug: SecD RPC Server sending reply to RPC 151: secd_rpc_auth_extended {
  in secdSendRpcResponse() at server/secd_rpc_server.cpp:1405 }

ERR : Error: User authentication procedure failed

ERR : [ 0 ms] Login attempt by domain user 'CIFSLABAdministrator' using

NTLMv1 style security

ERR : [ 0] No servers available for MS_NETLOGON, vserver: 3, domain:
  cifs.lab.netapp.com.

ERR : [ 62] Unable to connect to any of the provided DNS servers

ERR : [ 62] Connecting to NetLogon server a7-6.cifs.lab.netapp.com
  (172.17.192.24)

ERR : **[ 62] FAILURE: Unexpected state: Error 6810 at file:Common/
  ProtocolClientLibrary/Dns/DnsOps.cpp func:DnsNameLookup line:715
```

```
'''ERR : **[ 112] FAILURE: CIFS server account password does not match
    password stored in Active Directory'''
    ERR: [ 143] Unable to connect to a7-6.cifs.lab.netapp.com through the
    10.53.21.46 interface
    ERR: [ 143] No servers available for MS NETLOGON, vserver: 3, domain:
    cifs.lab.netapp.com.
     |-----
    | RPC completed at Sat Oct 20 10:40:54 2012 |
    | End of log for failed RPC secd rpc auth extended |
Note the error in the above journal.
    ERR : **[ 112] FAILURE: CIFS server account password does not match
    password stored in Active Directory
    The above error indicates that the machine account password is out of sync with the password set in the
    AD.
 2. Check the EMS messages:
    :*> event log show -messagename secd.*
    Time Node Severity Event
    8/21/2012 17:44:43 krbClus-01 ERROR secd.kerberos.preauth: Kerberos pre-
```

authentication failure due to out-of-sync machine account password

```
(-1765328360).
```

Resolution:

Run the following command:

```
::> cifs password-reset -vserver vserver
Please enter your userid: administrator
Please enter your password:
```

For more information, see BUG 380120.

Cause 3: A machine account is deleted in AD

How to determine if this is the cause:

Check for the error in the secd.log (/mroot/etc/log/mlog) file:

```
ERR : RESULT_ERROR_KERBEROS_C_PRINCIPAL_UNKNOWN:7507 in getKrbInitCreds() at Common/SecLibrary/Src/GssapiCtx.cpp:676
```

```
ERR : getKrbInitCreds: Kerberos Error: (-1765328378)
```

Resolution:

To resolve this issue, create a machine account with the CIFS server name in AD.

```
cifs modify -vserver <vservername> -status-admin down
```

cifs modify -vserver <vservername> -domain <fqdn of domain, the system is joined to or needs to be joined to> (A username with the right to create and delete objects in the domain is required)

Cause 4: Using a DNS alias/CNAME, without the SPN set for that alias

How to determine if this is the cause:

When using a \nameshare convention, the Kerberos being attempted is expected to be displayed. If that does not occur, check the SPN for the CIFS Vserver.

From the cluster:

```
::*> cifs server show -vserver <vserver name>
```

```
Vserver: vserver
CIFS Server NetBIOS Name: vserver <-- this is our CIFS server name/Computer
account name
NetBIOS Domain/Workgroup Name: DOMAIN
Fully Qualified Domain Name: DOMAIN.COM
Default Site Used by LIFs Without Site Membership:
Authentication Style: domain <-- this tells us to use Kerberos when possible
Check the secd logs for failures and turn on trace-all:
Example:
000000e5.001bd59b 00e687ef Wed Aug 03 2011 11:46:29 -04:00
[kern secd:info:1735] | [000.023.897] ERR:
6942 in connectToDomainController() at connection manager/
secd connection.cpp:137
000000e5.001bd59c 00e687ef Wed Aug 03 2011 11:46:29 -04:00
[kern secd:info:1735] | [000.023.910] debug:
Failed to connect to DC win2k3dc-rtp.rtp2k3dom.ngslabs.netapp.com { in
connectToDomainController() at connection manager/secd connection.cpp:147 }
000000e5.001bd5a3 00e687ef Wed Aug 03 2011 11:46:29 -04:00
[kern secd:info:1735] | [000.024.101] debug:
Unable to make a connection (NetLogon: RTP2K3DOM. NGSLABS.NETAPP.COM), result:
6942 { in getConnection() at connection manager/secd connection manager.cpp:631
}
000000e5.001bf09a 00e6880a Wed Aug 03 2011 11:46:30 -04:00
[kern secd:info:1735] | [000.014.987] debug:
Querying config source 'MachineAccount' (with 3 rows of data) by keys vserver
```

```
id: '12' { in query() at configuration manager/
secd configuration sources.cpp:1085 }
000000e5.001bf09b 00e6880a Wed Aug 03 2011 11:46:30 -04:00
[kern secd:info:1735] | [000.016.498] debug:
Error!!! NtStatusError: NT STATUS AUTH ACCOUNT DISABLED { in LogNtStatusCode()
at Commands/Commands.cpp:381 }
From DC:
Run the setspn command (this can be located in the Windows 2000 resource kit) to view SPNs for the Vserver.
If this command does not respond and displays the following output, check the computer account:
```

```
C:>setspn -L vserver
FindDomainForAccount: DsGetDcNameWithAccountW failed!
Cannot find account vserver
The output should appear similar to the following:
C:>setspn -L vserver
Registered ServicePrincipalNames for CN=VSERVER, CN=Computers, DC=domain, DC=com:
nfs/vserver.domain.com
nfs/VSERVER
HOST/vserver.domain.com
```

HOST/VSERVER

Resolution:

If using a DNS alias/CNAME, the SPN should be added for that alias to ensure that Kerberos is being used.

Example:

```
setspn -A HOST/alias vserver
setspn -A HOST/alias.domain.com vserver
```

Cause 5: Using a DNS alias/CNAME for which SPN is set, but for a different account

How to determine if this is the cause:

When using a \nameshare convention, a Kerberos is attempted. If that does not occur and if it is not an issue with clock skew or the machine account password, check if SPN in the Kerberos packet is for the right machine account.

From the packet, check for TGS-REQ, and check if the TGS-REP was received successfully. The output should appear similar to the following:

```
131 17.408937 172.17.193.122 172.17.193.

44 KRB5 TGS-REQ

132 17.410653 172.17.193.44 172.17.193.

122 KRB5 TGS-REP
```

In the TGS-REQ packet, check for the server name

```
Server Name (Service and Instance): cifs/spnTest.cifs.lab.netapp.com
```

From DC:

Use the setspn command (can be found in the Windows 2000 resource kit) to lookup spn and check if it is assigned to the right account.

```
C:>setspn -L vserver
```

FindDomainForAccount: DsGetDcNameWithAccountW failed!

Cannot find account vserver

The output should appear similar to the following:

```
C:Usersadministrator.CIFSLAB>setspn -Q cifs/spnTest.cifs.lab.netapp.com
```

Checking domain DC=cifs, DC=lab, DC=netapp, DC=com

CN=10-53-21-46, CN=Computers, DC=cifs, DC=lab, DC=netapp, DC=com

HOST/spnTest.cifs.lab.netapp.com

CIFS/spnTest.cifs.lab.netapp.com

```
Existing SPN found!

'''CN=10-53-21-46,CN=Computers,DC=cifs,DC=lab,DC=netapp,DC=com''' above is the machine account for which spn is used.
```

If the above machine account is not the intended machine account, delete the spn for the machine account.

Example:

Resolution:

```
C:Usersadministrator.CIFSLAB>setspn -D cifs/spnTest.cifs.lab.netapp.com 10-53-
21-46

Unregistering ServicePrincipalNames for
CN=10-53-21-46,CN=Computers,DC=cifs,DC=1

ab,DC=netapp,DC=com

cifs/spnTest.cifs.lab.netapp.com

Updated object
Verify the following:
C:Usersadministrator.CIFSLAB>setspn -L 10-53-21-46

Registered ServicePrincipalNames for
CN=10-53-21-46,CN=Computers,DC=cifs,DC=lab,

DC=netapp,DC=com:
```

Cause 6: A domain account is disabled and the local user requires a password change

If the password change error was not expected, the reason for this error could be that the domain account was disabled, and therefore authentication was attempted on a local user, and the local user required a password change.

For example, if the domain account is disabled, the local user is attempted. If this local user needs a password change, the PASSWORD MUST CHANGE error is returned to the user.

How to determine if this is the cause:

Packet trace:

The error STATUS PASSWORD MUST CHANGE is displayed in frame 154.

```
149
      SMB2
               NegotiateProtocol Request
             150
67
     SMB2
           308
                    NegotiateProtocol Response
            2012-11-09 12:14:51.933149
                                      10.38.18.67
                                                   10.53.35.
                    SessionSetup Request, NTLMSSP NEGOTIATE
223
     SMB2
           220
             2012-11-09 12:14:51.934442
      152
                                      10.53.35.223
                                                   10.38.18.
67
     SMB2
                    SessionSetup Response, Error: STATUS MORE
           393
PROCESSING REQUIRED, NTLMSSP CHALLENGE
             2012-11-09 12:14:51.934859 10.38.18.67 10.53.35.
      153
223
     SMB2
           660
                    SessionSetup Request, NTLMSSP AUTH, User:
CIFSLABusername1
      154
             2012-11-09 12:14:51.939053
                                      10.53.35.223
                                                   10.38.18.
     SMB2
                    SessionSetup Response, Error: STATUS PASSWORD
67
MUST CHANGE
```

secd.log (location of the log: /mroot/etc/log/mlog):

ERR: RESULT_ERROR_CIFS_SMB_PASSWORD_MUST_CHANGE:335 in getLocalUserHash() at authentication/secd_seclibglue.cpp:826

ERR: RESULT_ERROR_CIFS_SMB_PASSWORD_MUST_CHANGE:335 in doLocalUserAuth() at Common/SecLibrary/Src/NtlmsspCtx.cpp:885

ERR: RESULT_ERROR_CIFS_SMB_PASSWORD_MUST_CHANGE:335 in handleAuthenticateMsg() at Common/SecLibrary/Src/NtlmsspCtx.cpp:821

ERR: RESULT_ERROR_CIFS_SMB_PASSWORD_MUST_CHANGE:335 in acceptContext() at Common/SecLibrary/Src/NtlmsspCtx.cpp:294

ERR: RESULT_ERROR_CIFS_SMB_PASSWORD_MUST_CHANGE:335 in acceptContext() at Common/SecLibrary/Src/SpnegoCtx.cpp:221

ERR: RESULT_ERROR_CIFS_SMB_PASSWORD_MUST_CHANGE:335 in secd_rpc_auth_extended_1_svc() at authentication/secd_rpc_auth.cpp:749

debug: SecD RPC Server sending reply to RPC 151: secd_rpc_auth_extended { in

From the above secd.log, it can be seen that initially an attempt was made to authenticate the domain user' CIFSLABusername1'. However, the system received the '0xc0000072' (Account disabled) error from DC. Therefore, a local user was attempted as seen from message 'Login attempt by local user 'username1' using NTLMv2 style security'.

Resolution:

Enable the domain account.

Cause 7: A domain account must change password; XP client displays error 59

If the domain account needs a password change and if an XP client is used, the client displays System error 59.

How to determine if this is the cause:

XP client:

```
>net use * \10.53.35.223cifs_share1 /u:CIFSLABusername1 netapp12!@
System error 59 has occurred.
An unexpected network error occurred.
```

Packet trace:

If Kerberos is being used (or attempted) for authentication, verify using a packet trace. To confirm this, a packet trace from the client will be required. Verify using a KRB5 packet:

```
127 14.712941 172.17.193.58 172.17.193.44

KRB5 AS-REQ

128 14.819210 172.17.193.44 172.17.193.58

KRB5 KRB Error: KRB5KDC_ERR_KEY_EXP NT Status: STATUS_
PASSWORD MUST CHANGE
```

Resolution:

The issue is with the XP client. The Win 7 client displays the correct error.

Cause 8: A domain account expired; and the XP client displays error 59

If the domain account has expired and when an XP client is used, the client displays System error 59.

How to determine if this is the cause:

XP client:

```
>net use * \10.53.35.223cifs_share1 /u:CIFSLABusername1 netapp12!@

System error 59 has occurred.

An unexpected network error occurred.
```

Packet trace:

If Kerberos is being used (or attempted) for authentication, verify using a packet trace. To confirm this, a packet trace from the client will be required. Verify using a KRB5 packet:

```
157
       18.359405
                     172.17.193.58 172.17.193.44 KRB5
                                                            AS-REO
               18.360464
                              172.17.193.44 172.17.193.58
                                                                    KRB
Error: KRB5KDC ERR CLIENT REVOKED NT Status: STATUS ACCOUNT EXPIRED
        159
                              172.17.193.58 10.53.35.223
               18.360690
                                                            SMB
Session Setup AndX Request, NTLMSSP NEGOTIATE
       160
               18.362408
                              10.53.35.223 172.17.193.58
Session Setup AndX Response, NTLMSSP CHALLENGE, Error: STATUS MORE
```

```
PROCESSING_REQUIRED

161 18.362579 172.17.193.58 10.53.35.223 SMB
Session Setup AndX Request, NTLMSSP_AUTH, User: CIFSLABusername1

162 18.366784 10.53.35.223 172.17.193.58 SMB
Session Setup AndX Response, Error: STATUS ACCOUNT EXPIRED
```

Resolution:

The issue is with the XP client. The Win 7 client displays the correct error.

Cause 9: A domain account has invalid logon hours; XP client displays error 59

If the domain account is configured with invalid logon hours and if an XP client is used, the client displays System error 59.

How to determine if this is the cause:

XP client:

```
>net use * \10.53.35.223cifs_share1 /u:CIFSLABusername1 netapp12

System error 59 has occurred.

An unexpected network error occurred.
```

Packet trace:

If Kerberos is being used (or attempted) for authentication, verify using a packet trace. To confirm this, a packet trace from the client will be required. Verify using a KRB5 packet:

```
1351 42.402610 172.17.193.58 172.17.192.24 KRB5 AS-REQ
1352 42.404662 172.17.192.24 172.17.193.58 KRB5 KRB Error:
KRB5KDC_ERR_CLIENT_REVOKED NT Status: STATUS_INVALID_LOGON_HOURS
Resolution:
```

The issue is with the XP client. The Win 7 client displays the correct error.

Cause 10: No UNIX user is mapped to the Win user

This cause describes a use case where the mapping does not exist between the Win user and UNIX user.

How to determine if this is the cause:

```
secd.log:
| [000.005.980] ERR : RESULT ERROR SECD NAME MAPPING DOES NOT EXIST:6916 in
secdGetUnixCredsForWindowsUser() at authentication/secd rpc auth.cpp:676
| [000.005.990] ERR : RESULT ERROR SECD NAME MAPPING DOES NOT EXIST:6916 in
secdLoadUnixCredsFromContext() at authentication/secd rpc auth.cpp:276
| [000.005.999] ERR : RESULT ERROR SECD NAME MAPPING DOES NOT EXIST:6916 in
secdLoadResponseFromContext() at authentication/secd rpc auth.cpp:396
[000.006.009] ERR: RESULT ERROR SECD NAME MAPPING DOES NOT EXIST:6916 in
secd rpc auth extended 1 svc() at authentication/secd rpc auth.cpp:761
| [000.006.020] debug: SecD RPC Server sending reply to RPC 151:
secd rpc auth extended { in secdSendRpcResponse() at server/
secd rpc server.cpp:1405 }
| [000.006.232] ERR : RESULT ERROR SECD NAME MAPPING DOES NOT EXIST:6916 in
getFailureCode() at utils/secd thread task journal.cpp:292
| [000.006.262] ERR : Error: User authentication procedure failed
[000.006.268] ERR: [5] User 'CIFSLABAdministrator' authenticated using
NTLMv2 security
| [000.006.273] ERR : [5] Trying to map 'CIFSLABAdministrator' to UNIX user
'administrator' using implicit mapping
| [000.006.279] ERR : [5] Name 'administrator' not found in UNIX authorization
source LOCAL
| [000.006.284] ERR: [5] Could not get an ID for name 'administrator' using
any NS-SWITCH authorization source
[000.006.289] ERR: [5] Trying to map user to the default UNIX name 'none'
```

From the above <code>secd.log</code>, it can be seen from the line <code>Trying to map 'CIFSLABAdministrator'</code> to <code>UNIX user 'administrator'</code> using implicit mapping that the user 'CIFSLABAdministrator' is attempted to map to the <code>UNIX user 'administrator'</code>. It indicates that the name-mapping is not configured. Then, it attempts to map the user to the default <code>UNIX user 'none'</code>, which is also not set correctly.

Check the name-mapping and the default UNIX user.

```
sn_burts::*> name-mapping show

    (vserver name-mapping show)

Vserver Direction Position

-----

vserver2 win-unix 1 Pattern: cifslab\\Administrator

Replacement: root

vserver2 win-unix 2 Pattern: NFSQA-

CIFS\\Administrator
Replacement: root
```

```
vserver2 win-unix 3 Pattern: NFSQA\\Administrator
```

Replacement: root

vserver2 unix-win 1 Pattern: root

Replacement: cifslab\\Administrator

4 entries were displayed.

It can be seen from the above command output that no name-mapping is configured for Vserver1.

Note: See Important considerations when setting up CIFS and name-mapping in clustered Data ONTAP.

It can be seen from the above command output that, the default UNIX user is not set correctly.

Resolution:

Create a name mapping for win-unix. This can be done by running the vserver name-mapping create command.

Set the default UNIX user by running the vserver cifs options modify command.

Cause 11: Trusted domain not configured in active directory

This cause describes a use case where authentication of a trusted domain user fails.

How to determine if this is the cause:

```
secd.log:

ERR : RESULT_ERROR_CIFS_SMB_PASSWORD_MUST_CHANGE:335 in
getLocalUserHash() at authentication/secd_seclibglue.cpp:826
```

```
ERR : RESULT ERROR CIFS SMB PASSWORD MUST CHANGE:335 in
doLocalUserAuth() at Common/SecLibrary/Src/Nt4Ctx.cpp:283
ERR : RESULT ERROR CIFS SMB PASSWORD MUST CHANGE:335 in
acceptContext() at Common/SecLibrary/Src/Nt4Ctx.cpp:147
ERR : RESULT ERROR CIFS SMB PASSWORD MUST CHANGE: 335 in secd rpc auth
pass through 1 svc() at authentication/secd rpc auth.cpp:866
debug: SecD RPC Server sending reply to RPC 152: secd rpc auth pass
through { in secdSendRpcResponse() at server/secd rpc server.cpp:1405 }
ERR : RESULT ERROR CIFS SMB PASSWORD MUST CHANGE:335 in
getFailureCode() at utils/secd thread task journal.cpp:292
ERR : Error: User authentication procedure failed
ERR : [ 0 ms] Login attempt by domain user 'nativelhadministrator'
using NTLMv2 style security
ERR : [
             0] Using a cached connection to cifsqa-dc-1.cifsqa.lab.
netapp.com
ERR : [ 1] Authentication failed. (Status: 0xc0000064)
              1] Login attempt by local user 'administrator' using
         Γ
ERR :
NTLMv2 style security
ERR : **[ 1] FAILURE: login-cifs failed
debug: Journaling CIFS auth with unhandled failureCode: 335 { in
secdLogJournal() at server/secd rpc server.cpp:932 }
debug: Logged EMS message for journal. Status = 0 { in
secdLogJournal() at server/secd rpc server.cpp:982 }
|-----
                  RPC completed at Mon Nov 12 22:30:23
2012
                  End of log for failed RPC secd_rpc_auth_pass_
through
```

| ' | | |
|---|------|------|
| | | |

It can be seen from the above <code>secd.log</code> that while attempting to authenticate a trusted domain user 'nativelhadministrator', the DC returns the error <code>0xc0000064(STATUS_NO_SUCH_USER)</code>. Therefore, a local user is attempted, as seen from the message <code>Login</code> attempt by local user 'administrator' using <code>NTLMv2</code> style security.

Resolution:

- 1. Log in to DC and open the Active Directory Domains and Trusts tool from Start >Programs >Administrative Tools >Active Directory Domains and Trusts
- 2. Select the domain and right-click it.
- 3. Go to Properties and click the Trusts tab.

Ensure your trusted domain is listed in the **Domains trusted by this domain** list. Then, select the trusted domain and click **Properties**.

A window will be displayed, attempt to validate the trusted domain by providing the credentials. Ensure that the validation succeeds.

Additional Information

Add your text here.