

Partner

RADIUS/LDAP Authentication Configuration

V005

2022/03/28



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Contents

Preface	2
1. RADIUS Configuration.....	4
1.1 Install FreeRADIUS Package	4
1.2 Create Dictionary Text	5
1.3 Set Connection Information	6
1.4 Set Account and Password for Authentication	7
1.5 Activate RADIUS.....	8
2. LDAP Configuration.....	10
2.1 Set Windows AD account	10
3. N-Cloud / N-Reporter Configuration	14
3.1 Configure RADIUS.....	14
3.1.1 Configure Connection Information	14
3.1.2 Login	15
3.2 Configure LDAP.....	16
3.2.1 Set Connection Information	16
3.2.2 Login	17
3.2.3 Edit Permission in Backend	18

Preface

This document is about RADIUS/LDAP configuration and how to set RADIUS/LDAP authentication for N-Reporter/N-Cloud. The examples here are based on N-Reporter/N-Cloud 6.1.142.

Environment:

CentOS 8/Debian 10 with FreeRADIUS package.

Windows 2019 with Active Directory account.



Chapter 1

RADIUS Configuration



1. RADIUS Configuration

1.1 Install FreeRADIUS Package

➤ CentOS 8

- (1) Install FreeRADIUS package

```
# dnf -y install freeradius freeradius-utils
```

- (2) Check FreeRADIUS version

```
# radiusd -v
```

```
[root@CentOS8 ~]# radiusd -v
radiusd: FreeRADIUS Version 3.0.20, for host x86_64-redhat-linux-gnu
FreeRADIUS Version 3.0.20
Copyright (C) 1999-2019 The FreeRADIUS server project and contributors
There is NO warranty; not even for MERCHANTABILITY or FITNESS FOR A
PARTICULAR PURPOSE
You may redistribute copies of FreeRADIUS under the terms of the
GNU General Public License
For more information about these matters, see the file named COPYRIGHT
[root@CentOS8 ~]#
```

➤ Debian 10

- (1) Download FreeRADIUS package

```
# apt -y install freeradius freeradius-utils
```

- (2) Check FreeRADIUS version

```
# freeradius -v
```

```
root@debian10:~# freeradius -v
radiusd: FreeRADIUS Version 3.0.17, for host x86_64-pc-linux-gnu, built on Apr 22 2019 at 21:23:36
FreeRADIUS Version 3.0.17
Copyright (C) 1999-2017 The FreeRADIUS server project and contributors
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GNU General Public License
For more information about these matters, see the file named COPYRIGHT
```

1.2 Create Dictionary Text

- In Dictionary text, please set parameter names of each brand and the corresponding value or type. They will be used to analyze RADIUS packets, and the data will be shown in debug pattern or log files.

```
# vi /usr/share/freeradius/dictionary.npartner
# -*- text -*-
# Copyright (C) 2015 The FreeRADIUS Server project and contributors
#####
#
#       N-Partner attributes
#
#       $Id$
#
#####

VENDOR          N-Partner          39693
BEGIN-VENDOR    N-Partner

ATTRIBUTE       N-Partner-Domain    1      integer
ATTRIBUTE       N-Partner-Menu      2      integer
ATTRIBUTE       N-Partner-Email    3      string

END-VENDOR N-Partner

# -*- text -*-
# Copyright (C) 2015 The FreeRADIUS Server project and contributors
#####
#
#       N-Partner attributes
#
#       $Id$
#
#####

VENDOR          N-Partner          39693
BEGIN-VENDOR    N-Partner

ATTRIBUTE       N-Partner-Domain    1      integer
ATTRIBUTE       N-Partner-Menu      2      integer
ATTRIBUTE       N-Partner-Email    3      string

END-VENDOR N-Partner
```

- Edit dictionary text

(1) CentOS 8

```
# vi /etc/raddb/dictionary
```

(2) Debian 10

```
# vi /etc/freeradius/3.0/dictionary
```

- Add a command at the bottom to include “dictionary.npartner”

```
$INCLUDE /usr/share/freeradius/dictionary.npartner
```

1.3 Set Connection Information

At the bottom, configure the secret key N-Reporter/N-Cloud and RADIUS server need to connect with each other. The IP address set here is the external IP of N-Reporter/N-Cloud.

➤ CentOS 8

```
# vi /etc/raddb/clients.conf
```

➤ Debian 10

```
# vi /etc/freeradius/3.0/clients.conf
```

Set connection information at the bottom

```
client n-reporter{  
    ipaddr = 192.168.8.4  
    secret = npartner  
    shortname = npartner  
}
```

```
client n-reporter{  
    ipaddr = 192.168.8.4  
    secret = npartner  
    shortname = npartner  
}
```

The red part above contains the IP address of N-Reporter/N-Cloud and the secret key.

1.4 Set Account and Password for Authentication

Please set accounts and passwords for RADIUS server authentication and set the domain ID, menu ID, and E-mail. Users can search for the former two in "Domain Management" and "User" of N- Reporter/N- Cloud.

➤ CentOS 8

```
# vi /etc/raddb/users
```

➤ Debian 10

```
# vi /etc/freeradius/3.0/users
```

Enter an account and password for authentication at the bottom

```
npartner Cleartext-Password := "npartner"  
Reply-Message = "RADIUS npartner",  
N-Partner-Domain = 1001,  
N-Partner-Menu = 2,  
N-Partner-Email = "npartner@npartner.local"
```

```
npartner Cleartext-Password := "npartner"  
Reply-Message = "RADIUS npartner",  
N-Partner-Domain = 1001,  
N-Partner-Menu = 2,  
N-Partner-Email = "npartner@npartner.local"
```

The red part above contains the account/password for authentication, N-Partner domain ID, N-Partner menu ID, and N-Partner E-mail.

1.5 Activate RADIUS

If there are RADIUS authentication errors, please check RADIUS log files.

➤ CentOS 8

(1) Activate the service

```
# systemctl restart radiusd && systemctl status radiusd
```

```
[root@CentOS8 ~]# systemctl restart radiusd && systemctl status radiusd
● radiusd.service - FreeRADIUS high performance RADIUS server.
   Loaded: loaded (/usr/lib/systemd/system/radiusd.service; enabled; vendor preset: disabled)
   Active: active (running) since Wed 2021-10-27 17:11:04 CST; 6ms ago
     Process: 6546 ExecStart=/usr/sbin/radiusd -d /etc/raddb (code=exited, status=0/SUCCESS)
     Process: 6542 ExecStartPre=/usr/sbin/radiusd -C (code=exited, status=0/SUCCESS)
     Process: 6533 ExecStartPre=/bin/sh /etc/raddb/certs/bootsrap (code=exited, status=0/SUCCESS)
     Process: 6532 ExecStartPre=/bin/chown -R radiusd.radiusd /var/run/radiusd (code=exited, status=0/SUCCESS)
   Main PID: 6548 (radiusd)
     Tasks: 6 (limit: 11514)
    Memory: 77.0M
    CGroup: /system.slice/radiusd.service
            └─6548 /usr/sbin/radiusd -d /etc/raddb

Oct 27 17:11:04 CentOS8.localdomain systemd[1]: Stopped FreeRADIUS high performance RADIUS server..
Oct 27 17:11:04 CentOS8.localdomain systemd[1]: Starting FreeRADIUS high performance RADIUS server....
Oct 27 17:11:04 CentOS8.localdomain sh[6533]: server.pem: OK
Oct 27 17:11:04 CentOS8.localdomain systemd[1]: Started FreeRADIUS high performance RADIUS server..
[root@CentOS8 ~]#
```

(2) Set to enable radius while booting

```
# systemctl enable radiusd
```

```
[root@CentOS8 ~]# systemctl enable radiusd
Created symlink /etc/systemd/system/multi-user.target.wants/radiusd.service → /usr/lib/systemd/system/radiusd.service.
[root@CentOS8 ~]#
```

(3) Check the log file

```
# tail /var/log/radius/radius.log
```

➤ Debian 10

(1) Activate the service

```
# systemctl restart freeradius && systemctl status freeradius
```

```
root@debian10:~# systemctl restart freeradius && systemctl status freeradius
● freeradius.service - FreeRADIUS multi-protocol policy server
   Loaded: loaded (/lib/systemd/system/freeradius.service; disabled; vendor preset: enabled)
   Active: active (running) since Mon 2020-07-20 03:31:57 EDT; 3ms ago
     Docs: man:radiusd(8)
           man:radiusd.conf(5)
           http://wiki.freeradius.org/
           http://networkradius.com/doc/
     Process: 775 ExecStartPre=/usr/sbin/freeradius $FREERADIUS_OPTIONS -cxm -lstdout (code=exited, status=0/SUCCESS)
     Process: 772 ExecStart=/usr/sbin/freeradius $FREERADIUS_OPTIONS (code=exited, status=0/SUCCESS)
   Main PID: 779 (freeradius)
     Tasks: 6 (limit: 2354)
    Memory: 9.7M
    CGroup: /system.slice/freeradius.service
            └─779 /usr/sbin/freeradius


Jul 20 03:31:57 debian10 freeradius[775]: [/etc/freeradius/3.0/mods-config/attr_filter/access_reject]:11 Check item "FreeRADIUS-Response-Delay-UseC" found in filter list for realm "
Jul 20 03:31:57 debian10 freeradius[775]: tls: Using cached TLS configuration from previous invocation
Jul 20 03:31:57 debian10 freeradius[775]: tls: Using cached TLS configuration from previous invocation
Jul 20 03:31:57 debian10 freeradius[775]: rlm_cache (cache_eap): Driver rlm_cache_rbtree (module rlm_cache_rbtree) loaded and linked
Jul 20 03:31:57 debian10 freeradius[775]: Ignoring "sql" (see raddb/mods-available/README.rst)
Jul 20 03:31:57 debian10 freeradius[775]: Ignoring "ldap" (see raddb/mods-available/README.rst)
Jul 20 03:31:57 debian10 freeradius[775]: # Skipping contents of "if" as it is always "false" -- /etc/freeradius/3.0/sites-enabled/inner-tunnel:331
Jul 20 03:31:57 debian10 freeradius[775]: radiusd:### Skipping IP addresses and Ports ###
Jul 20 03:31:57 debian10 freeradius[775]: Configuration appears to be OK
Jul 20 03:31:57 debian10 systemd[1]: Started FreeRADIUS multi-protocol policy server.
```

(2) Set to enable freeradius while booting

```
# systemctl enable freeradius
```

(3) Check the log file

```
# tail /var/log/freeradius/radius.log
```



Chapter 2

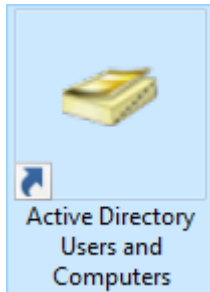
LDAP Configuration



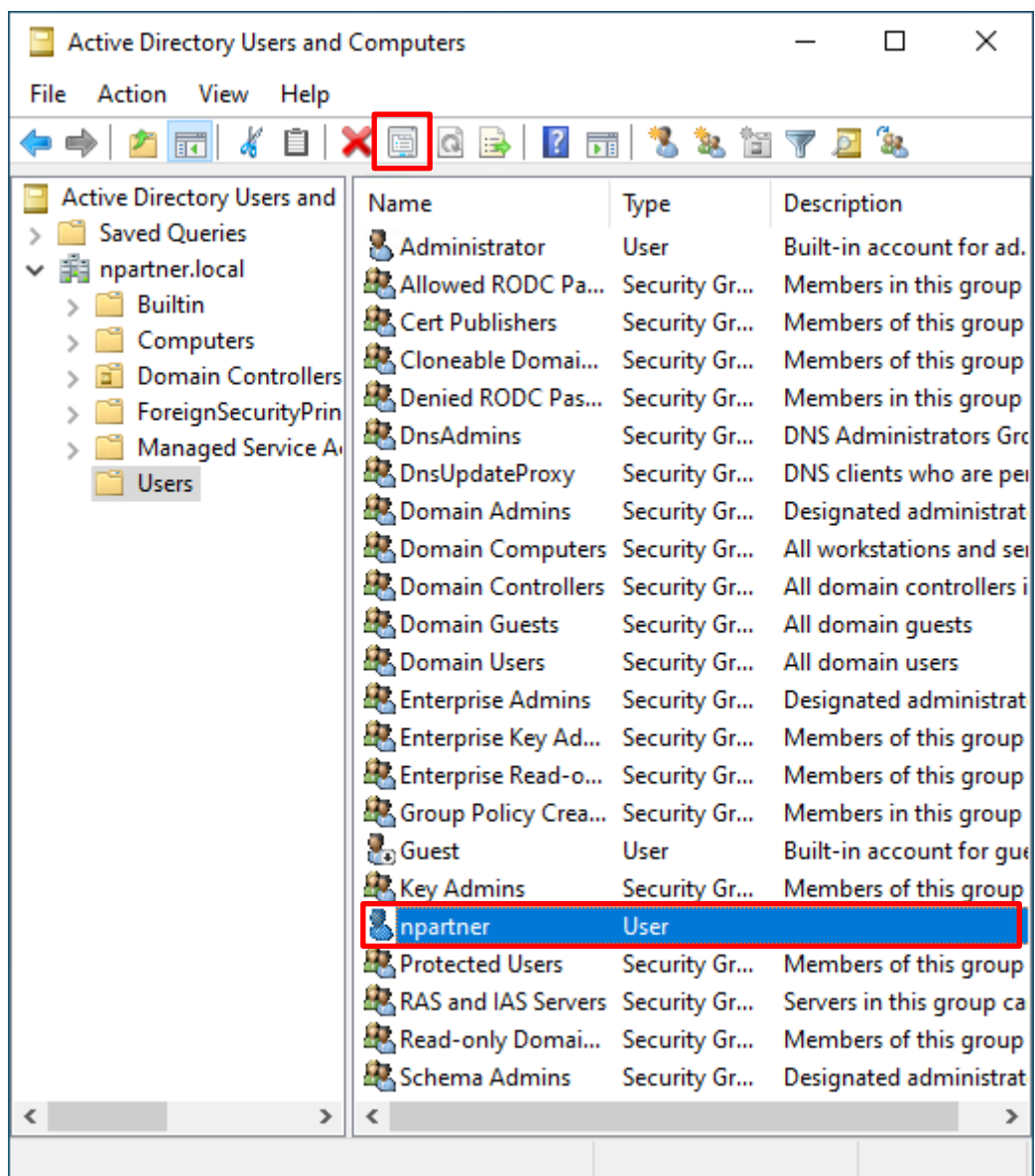
2. LDAP Configuration

2.1 Set Windows AD account

- Open “Active Directory Users and Computers”



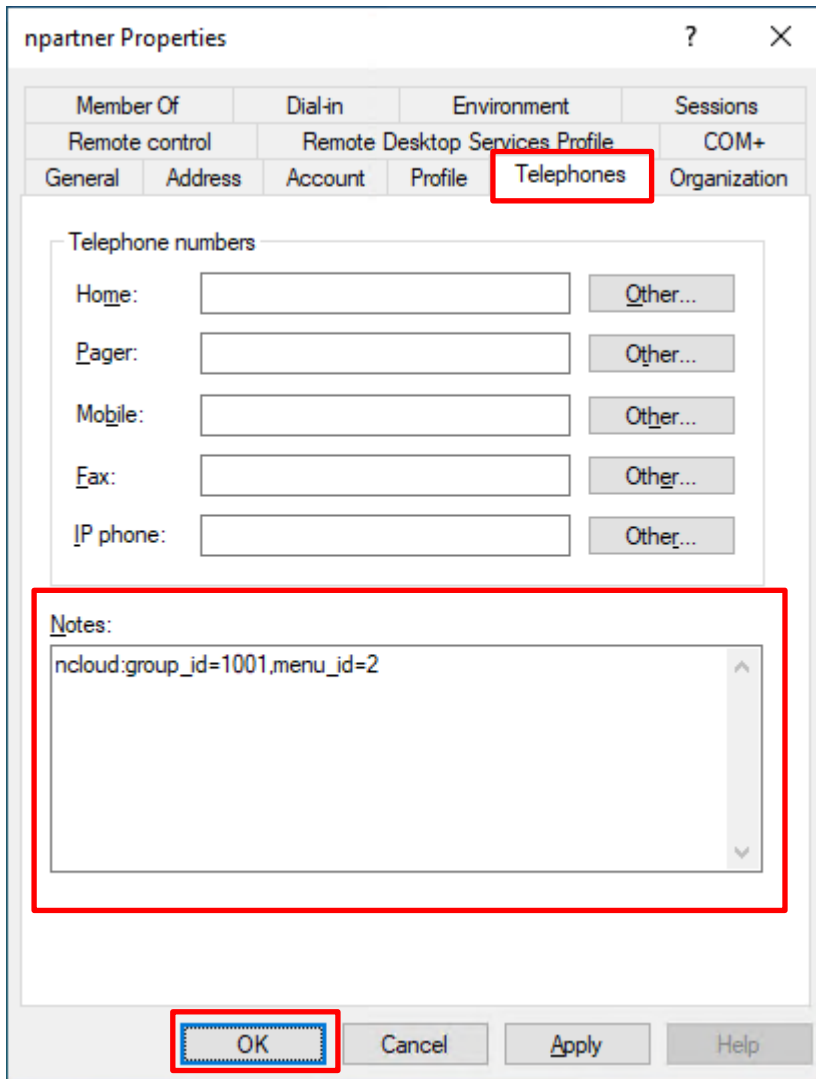
- Click the AD account and click 



➤ In tab "General," please check the E-mail

The image shows a Windows-style dialog box titled "npartner Properties". At the top, there are several tabs: "Member Of", "Dial-in", "Environment", "Sessions", "Remote control", "Remote Desktop Services Profile", and "COM+". The "General" tab is selected and highlighted with a red box. Below the tabs, there is a user icon and the name "npartner". The main area contains several input fields: "First name:", "Last name:", "Display name:" (with "npartner" entered), "Description:", "Office:", "Telephone number:" (with an "Other..." button), "E-mail:" (with "npartner@npartner.local" entered and highlighted by a red box), and "Web page:" (with an "Other..." button). At the bottom, there are buttons for "OK", "Cancel", "Apply", and "Help".

- In tab “Telephones,” enter the group ID and menu ID in “Notes”; click “OK”(essential)



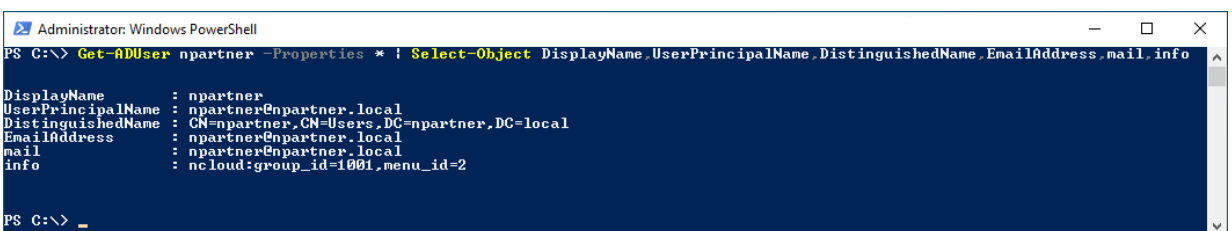
The format must be `ncloud:group_id=parameter,menu_id=parameter`

Note: group_id: The ID of the domain

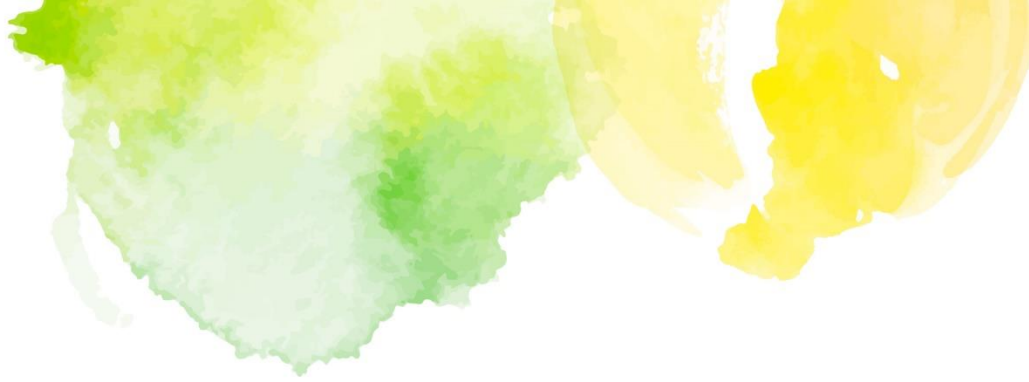
Menu_id: The ID of the menu(the information can be checked in backend)

- Check the AD account information

```
PS C:\> Get-ADUser npartner -Properties * | Select-Object
DisplayName,UserPrincipalName,DistinguishedName,EmailAddress,mail,info
```



The red part above is the Windows AD account in user's environment.



Chapter 3
N-Reporter/N-Cloud Configuration



3. N-Cloud / N-Reporter Configuration

3.1 Configure RADIUS

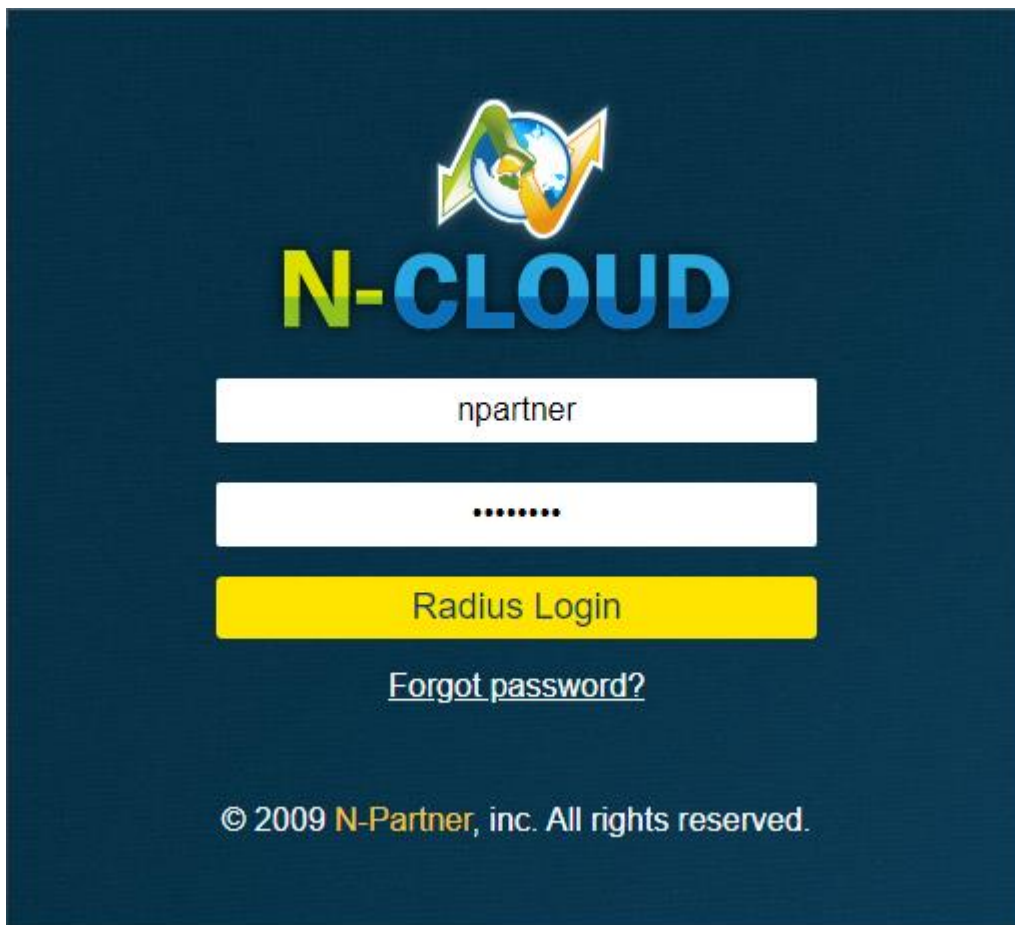
3.1.1 Configure Connection Information


Log in N-Reporter/N-Cloud with a manager account. Go to “System→ Preference→ System→ Radius / LDAP,” check “Enable Radius Authentication,” set [Radius IP](#), [secret key](#), [account for Radius test](#) and [password](#), and then click “Radius Test.” After “Radius test successful,” click “Save,” and users can log in with the Radius account.

The screenshot displays the N-Reporter configuration interface for RADIUS authentication. The left sidebar shows the navigation menu with 'System' and 'Preference' highlighted. The main content area is titled 'Home / System / Preference' and features a breadcrumb trail. The 'System' menu item is highlighted in the top navigation bar, and the 'Radius / LDAP' sub-menu item is also highlighted. The main content area is divided into two sections: 'Radius / LDAP' and 'LDAP'. The 'Radius / LDAP' section is highlighted with a red box and contains the following fields: 'Enable Radius Authentication' (checked), 'Radius IP' (192.168.9.188), 'Secret key' (masked with dots), 'Account for Radius Test' (npartner), and 'Password for Radius Test' (npartner). The 'LDAP' section contains: 'Enable LDAP Authentication' (unchecked), 'LDAP IP' (empty), 'LDAP BaseDN' (CN=Users,DC=sherman,DC=local), 'Account for LDAP Test' (empty), and 'Password for LDAP Test' (empty). At the bottom right, there are three buttons: 'Radius Test', 'LDAP Test', and 'Save'. The 'Save' button is highlighted with a red box. A green notification banner at the top right says 'Radius test successful'. The footer contains the text 'Copyright © 2009 N-Partner. All rights reserved.' and 'Last account activity © 2022-03-25 09:51:47'.

3.1.2 Login

- If users log in with account "admin" or "superuser," the system will not connect with RADIUS server to log in. If users log in with any other accounts, the system will connect with RADIUS server for authentication and get the user parameters sent back; if the entered account is not recorded in N-Reporter/N-Cloud, the system will automatically add a new user account based on the user parameters sent back.
- "Radius Login" would show in login page.




N-CLOUD

npartner

.....

Radius Login

[Forgot password?](#)

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3.2 Configure LDAP

3.2.1 Set Connection Information

Log in N-Reporter/N-Cloud with a manager account. Go to “System→ Preference→ System→ Radius / LDAP,” check “Enable LDAP Authentication,” set [LDAP IP](#), [LDAP BaseDN](#), [account for LDAP test](#) and [password](#), and then click “LDAP Test.” After “LDAP test successful,” click “Save,” and users can log in with the LDAP account.

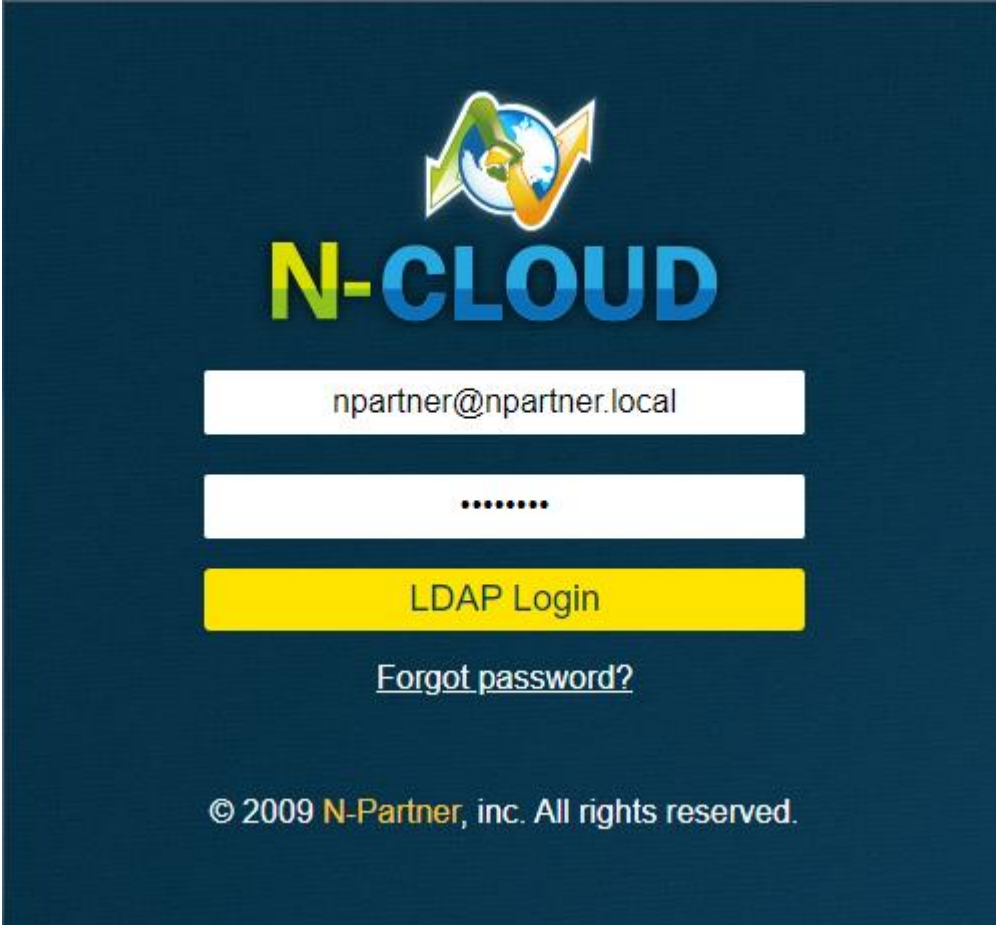
The screenshot displays the N-Reporter web interface for configuring LDAP. The left sidebar shows the navigation menu with 'System' and 'Preference' highlighted. The main content area shows the 'System' configuration page with the 'Radius / LDAP' sub-tab selected. The configuration form includes the following fields and values:

- Enable Radius Authentication
- Radius IP: [Empty field]
- Secret key: [Empty field]
- Account for Radius Test: [Empty field]
- Password for Radius Test: [Empty field]
- Enable LDAP Authentication
- LDAP IP: 192.168.8.183
- LDAP BaseDN: CN=Users,DC=npartner,DC=local
- Account for LDAP Test: npartner
- Password for LDAP Test: npartner

At the bottom of the form, there are three buttons: 'Radius Test', 'LDAP Test', and 'Save'. A green notification banner at the top right indicates 'LDAP test successful'.

3.2.2 Login

- If users log in with account "admin" or "superuser," the system will not connect with LDAP server to log in. If users log in with any other accounts, the system will connect with LDAP server for authentication and get the user parameters sent back.
- "LDAP Login" would show in the login page; enter user principal name and password of the AD account to log in.



N-CLOUD

npartner@npartner.local

.....

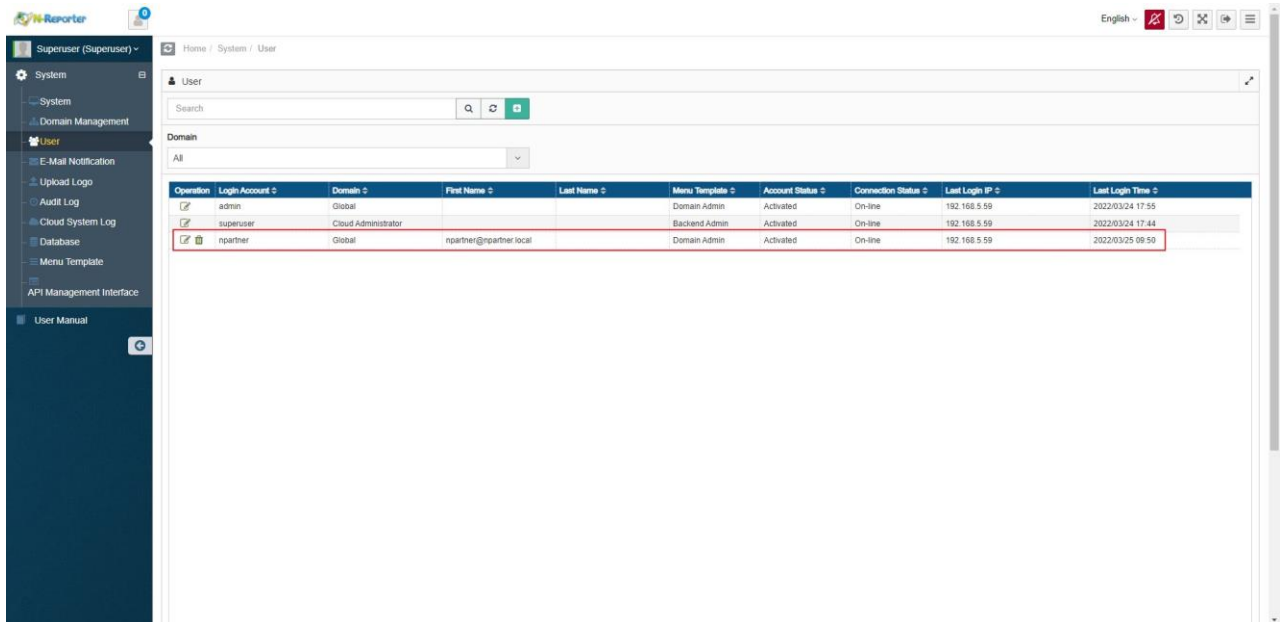
LDAP Login


[Forgot password?](#)

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3.2.3 Edit Permission in Backend

➤ After logging in backend, users can see the account in “System→ User”

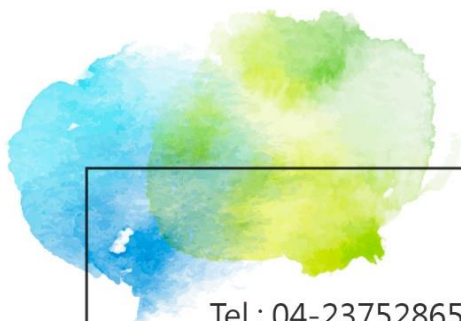


➤ To edit the account's permission, click  of the account and select a template in “Menu Template”

The 'Edit User' form contains the following fields and options:

- E-Mail Address:** npartner@npartner.local
- First Name:** npartner@npartner.local
- Last Name:** (empty)
- Mobile Phone No.:** (empty)
- Select a Language:** English
- Account Status:** Disabled, Activated, Not Activated
- Menu Template:** Domain Admin (highlighted with a red box)

Buttons: Submit, Cancel



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