



N7K-A RADIUS Config:

```
N7K-A-Pod8(config)# radius-server host 172.16.100.201 key DCMNTEST
N7K-A-Pod8(config)# radius-server host 172.16.100.202 key DCMNTEST
N7K-A-Pod8(config)# aaa group server radius RADDCCN
N7K-A-Pod8(config-radius)# server 172.16.100.201
N7K-A-Pod8(config-radius)# server 172.16.100.202
N7K-A-Pod8(config-radius)# ip radius source-interface vlan 100
N7K-A-Pod8(config)# show radius-server groups
total number of groups:2

following RADIUS server groups are configured:
  group radius:
    server: all configured radius servers
    deadline is 0
  group RADDCCN:
    server: 172.16.100.201 on auth-port 1812, acct-port 1813
    server: 172.16.100.202 on auth-port 1812, acct-port 1813
    deadline is 0
  vrf is default
```

N9K-A RADIUS Config:

```
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  group RADDCCN:
    server: 172.16.100.201 on auth-port 1812, acct-port 1813
    server: 172.16.100.202 on auth-port 1812, acct-port 1813
    deadline is 0
  vrf is default
```

RADIUS-1 Ping Test:

```
root@radius1 ~# ping 172.16.100.202
PING 172.16.100.202 (172.16.100.202) 56(84) bytes of data.
64 bytes from 172.16.100.202: icmp_seq=1 ttl=64 time=0.330 ms
64 bytes from 172.16.100.202: icmp_seq=2 ttl=64 time=0.264 ms
64 bytes from 172.16.100.202: icmp_seq=3 ttl=64 time=0.296 ms
64 bytes from 172.16.100.202: icmp_seq=4 ttl=64 time=0.254 ms
64 bytes from 172.16.100.202: icmp_seq=5 ttl=64 time=0.331 ms
^C
--- 172.16.100.202 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4000ms
rtt min/avg/max/mdev = 0.254/0.295/0.331/0.032 ms

root@radius1 ~# ping 10.10.1.202
PING 10.10.1.202 (10.10.1.202) 56(84) bytes of data.
64 bytes from 10.10.1.202: icmp_seq=1 ttl=64 time=0.211 ms
64 bytes from 10.10.1.202: icmp_seq=2 ttl=64 time=0.191 ms
64 bytes from 10.10.1.202: icmp_seq=3 ttl=64 time=0.180 ms
64 bytes from 10.10.1.202: icmp_seq=4 ttl=64 time=0.221 ms
64 bytes from 10.10.1.202: icmp_seq=5 ttl=64 time=0.151 ms
^C
--- 10.10.1.202 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 3999ms
rtt min/avg/max/mdev = 0.151/0.190/0.221/0.030 ms
```

RADIUS-1 RADIUS Test:

```
root@radius1 ~# radtest user1 pass1 172.16.100.202 1813 DCMNTEST
Sent Access-Request Id 177 from 0.0.0.0:34004 to 172.16.100.202:1812 length 75
  User-Name = "user1"
  User-Password = "pass1"
  NAS-IP-Address = 10.10.1.201
  NAS-Port = 1813
  Message-Authenticator = 0x00
  Cleartext-Password = "pass1"
Received Access-Accept Id 177 from 172.16.100.202:1812 to 0.0.0.0:0 length 20
  Radius:
  User-Name = "user1"
  User-Password = "pass1"
  NAS-IP-Address = 10.10.1.201
  NAS-Port = 1813
  Message-Authenticator = 0x00
  Cleartext-Password = "pass1"
Sent Access-Request Id 103 from 0.0.0.0:57496 to 172.16.100.202:1812 length 75
  User-Name = "user2"
  User-Password = "pass2"
  NAS-IP-Address = 10.10.1.201
  NAS-Port = 1813
  Message-Authenticator = 0x00
  Cleartext-Password = "pass2"
Received Access-Accept Id 103 from 172.16.100.202:1812 to 0.0.0.0:0 length 20
  Radius:
  User-Name = "user2"
  User-Password = "pass2"
  NAS-IP-Address = 10.10.1.201
  NAS-Port = 1813
  Message-Authenticator = 0x00
  Cleartext-Password = "pass2"
Sent Access-Request Id 214 from 0.0.0.0:42217 to 172.16.100.202:1812 length 75
  User-Name = "user3"
  User-Password = "pass3"
  NAS-IP-Address = 10.10.1.201
  NAS-Port = 1813
  Message-Authenticator = 0x00
  Cleartext-Password = "pass3"
Received Access-Accept Id 214 from 172.16.100.202:1812 to 0.0.0.0:0 length 20
  Radius:
  User-Name = "user3"
  User-Password = "pass3"
  NAS-IP-Address = 10.10.1.201
  NAS-Port = 1813
  Message-Authenticator = 0x00
  Cleartext-Password = "pass3"
```

N7K-A RADIUS Config:

```
N7K-A-Pod8(config)# aaa authentication login default group RADDCCN
```

N7K-A RADIUS Test:

```
login as: user1
User Access Verification
Using keyboard-interactive authentication.
Password:
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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such license is available at
http://www.opensource.org/licenses/gpl-2.0.php and
http://www.opensource.org/licenses/lgpl-2.1.php
N7K-A-Pod8# show users
NAME      LINE      TIME      IDLE      PID COMMENT
admin    pts/0      Jan 2 13:10 00:01    22669 (192.168.10.98) session=ssh
user1    pts/2      Jan 2 14:22      .      32114 (192.168.10.98) session=ssh *
```

N9K-A RADIUS Config:

```
N9K-A-Pod8(config)# aaa authentication login default group RADDCCN
```

N9K-A RADIUS Test:

```
login as: user1
User Access Verification
Using keyboard-interactive authentication.
Password:
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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http://www.opensource.org/licenses/lgpl-2.1.php and
http://www.gnu.org/licenses/old/licenses/library.txt.
N9K-A-Pod8#
N9K-A-Pod8# show users
NAME      LINE      TIME      IDLE      PID COMMENT
admin    pts/2      Jan 2 22:14 00:02    18398 (10.10.1.20) session=ssh
user1    pts/3      Jan 2 22:25      .      4047 (10.10.1.20) session=ssh *
```

N9K-A RADIUS Config:

```
N9K-A-Pod8(config)# aaa authentication login default group RADDCCN
N9K-A-Pod8(config)# radius-server deadline 15
N9K-A-Pod8(config)# int eth1/5
N9K-A-Pod8(config-if)# shut
N9K-A-Pod8(config-if)# no shut
N9K-A-Pod8(config-if)# show radius-server statistics 172.16.100.201
Server is dead since 0 hrs, 0 min, 0 sec

Monitoring Statistics
Time in previous state: 1 hrs, 6 min, 1 sec
Number of times dead: 1
Total time in dead state: 0 hrs, 0 min, 0 sec

Authentication Statistics
failed transactions: 1
successful transactions: 1
requests sent: 4
requests timed out: 3
responses with no matching requests: 0
responses not processed: 0
responses containing errors: 0

Accounting Statistics
failed transactions: 0
successful transactions: 0
requests sent: 0
requests timed out: 0
responses with no matching requests: 0
responses not processed: 0
responses containing errors: 0
```

N7K-B RADIUS Config:

```
N7K-B-Pod8(config)# radius-server host 172.16.100.201 key DCMNTEST
N7K-B-Pod8(config)# radius-server host 172.16.100.202 key DCMNTEST
N7K-B-Pod8(config)# aaa group server radius RADDCCN
N7K-B-Pod8(config-radius)# server 172.16.100.201
N7K-B-Pod8(config-radius)# server 172.16.100.202
N7K-B-Pod8(config-radius)# ip radius source-interface vlan 100
N7K-B-Pod8(config)# show radius-server groups
total number of groups:2

following RADIUS server groups are configured:
  group radius:
    server: all configured radius servers
    deadline is 0
  group RADDCCN:
    server: 172.16.100.201 on auth-port 1812, acct-port 1813
    server: 172.16.100.202 on auth-port 1812, acct-port 1813
    deadline is 0
  vrf is default
```

N9K-B RADIUS Config:

```
N9K-B-Pod8(config)# radius-server host 172.16.100.201 key DCMNTEST
N9K-B-Pod8(config)# radius-server host 172.16.100.202 key DCMNTEST
N9K-B-Pod8(config)# aaa group server radius RADDCCN
N9K-B-Pod8(config-radius)# server 172.16.100.201
N9K-B-Pod8(config-radius)# server 172.16.100.202
N9K-B-Pod8(config-radius)# ip radius source-interface vlan 100
N9K-B-Pod8(config)# show radius-server groups
total number of groups:2

following RADIUS server groups are configured:
  group radius:
    server: all configured radius servers
    deadline is 0
  group RADDCCN:
    server: 172.16.100.201 on auth-port 1812, acct-port 1813
    server: 172.16.100.202 on auth-port 1812, acct-port 1813
    deadline is 0
  vrf is default
```

RADIUS-2 Ping Test:

```
root@radius2 ~# ping 172.16.100.201
PING 172.16.100.201 (172.16.100.201) 56(84) bytes of data.
64 bytes from 172.16.100.201: icmp_seq=10 ttl=64 time=0.561 ms
64 bytes from 172.16.100.201: icmp_seq=11 ttl=64 time=0.242 ms
64 bytes from 172.16.100.201: icmp_seq=12 ttl=64 time=0.280 ms
64 bytes from 172.16.100.201: icmp_seq=13 ttl=64 time=0.260 ms
64 bytes from 172.16.100.201: icmp_seq=14 ttl=64 time=0.356 ms
^C
--- 172.16.100.201 ping statistics ---
14 packets transmitted, 5 received, 64% packet loss, time 12999ms
rtt min/avg/max/mdev = 0.242/0.339/0.561/0.119 ms

root@radius2 ~# ping 10.10.1.201
PING 10.10.1.201 (10.10.1.201) 56(84) bytes of data.
64 bytes from 10.10.1.201: icmp_seq=1 ttl=64 time=0.345 ms
64 bytes from 10.10.1.201: icmp_seq=2 ttl=64 time=0.241 ms
64 bytes from 10.10.1.201: icmp_seq=3 ttl=64 time=0.187 ms
64 bytes from 10.10.1.201: icmp_seq=4 ttl=64 time=0.198 ms
64 bytes from 10.10.1.201: icmp_seq=5 ttl=64 time=0.157 ms
^C
--- 10.10.1.201 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4000ms
rtt min/avg/max/mdev = 0.157/0.225/0.345/0.067 ms
```

RADIUS-2 RADIUS Test:

```
root@radius2 ~# radtest user1 pass1 172.16.100.201 1813 DCMNTEST
Sent Access-Request Id 54 from 0.0.0.0:47412 to 172.16.100.201:1812 length 75
  User-Name = "user1"
  User-Password = "pass1"
  NAS-IP-Address = 10.10.1.202
  NAS-Port = 1813
  Message-Authenticator = 0x00
  Cleartext-Password = "pass1"
Received Access-Accept Id 54 from 172.16.100.201:1812 to 0.0.0.0:0 length 20
  Radius:
  User-Name = "user1"
  User-Password = "pass1"
  NAS-IP-Address = 10.10.1.202
  NAS-Port = 1813
  Message-Authenticator = 0x00
  Cleartext-Password = "pass1"
Sent Access-Request Id 199 from 0.0.0.0:59910 to 172.16.100.201:1812 length 75
  User-Name = "user2"
  User-Password = "pass2"
  NAS-IP-Address = 10.10.1.202
  NAS-Port = 1813
  Message-Authenticator = 0x00
  Cleartext-Password = "pass2"
Received Access-Accept Id 199 from 172.16.100.201:1812 to 0.0.0.0:0 length 20
  Radius:
  User-Name = "user2"
  User-Password = "pass2"
  NAS-IP-Address = 10.10.1.202
  NAS-Port = 1813
  Message-Authenticator = 0x00
  Cleartext-Password = "pass2"
Sent Access-Request Id 205 from 0.0.0.0:37867 to 172.16.100.201:1812 length 75
  User-Name = "user3"
  User-Password = "pass3"
  NAS-IP-Address = 10.10.1.202
  NAS-Port = 1813
  Message-Authenticator = 0x00
  Cleartext-Password = "pass3"
Received Access-Accept Id 205 from 172.16.100.201:1812 to 0.0.0.0:0 length 20
  Radius:
  User-Name = "user3"
  User-Password = "pass3"
  NAS-IP-Address = 10.10.1.202
  NAS-Port = 1813
  Message-Authenticator = 0x00
  Cleartext-Password = "pass3"
```

N7K-B RADIUS Config:

```
N7K-B-Pod8(config)# aaa authentication login default group RADDCCN
```

N7K-B RADIUS Test:

```
login as: user1
User Access Verification
Using keyboard-interactive authentication.
Password:
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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such license is available at
http://www.opensource.org/licenses/gpl-2.0.php and
http://www.opensource.org/licenses/lgpl-2.1.php
N7K-B-Pod8# show users
NAME      LINE      TIME      IDLE      PID COMMENT
admin    pts/0      Jan 2 13:06 00:01    16925 (192.168.10.98) session=ssh
user1    pts/1      Jan 2 14:17      .      26034 (192.168.10.98) session=ssh *
```

N9K-B RADIUS Config:

```
N9K-B-Pod8(config)# aaa authentication login default group RADDCCN
```

N9K-B RADIUS Test:

```
login as: user2
User Access Verification
Using keyboard-interactive authentication.
Password:
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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http://www.opensource.org/licenses/lgpl-2.1.php and
http://www.gnu.org/licenses/old/licenses/library.txt.
N9K-B-Pod8#
N9K-B-Pod8# show users
NAME      LINE      TIME      IDLE      PID COMMENT
admin    pts/2      Jan 2 21:25      .      21085 (10.10.1.20) session=ssh
user2    pts/3      Jan 2 22:36      .      6531 (10.10.1.20) session=ssh *
```

N9K-B RBAC Config:

```
N9K-B-Pod8(config-role) role name foruser3
N9K-B-Pod8(config-role) rule 70 deny command clear *
N9K-B-Pod8(config-role) rule 80 permit command show radius-server groups
N9K-B-Pod8(config-role) rule 90 permit command clear qos statistics
N9K-B-Pod8(config-role) rule 100 deny command clear *
N9K-B-Pod8(config-role-interface) interface eth1/49
N9K-B-Pod8(config-role-interface) vlan policy deny
N9K-B-Pod8(config-role-vlan) vrf policy deny
N9K-B-Pod8(config-role-vrf) vrf policy deny
N9K-B-Pod8(config-role-vrf) vrf policy deny
N9K-B-Pod8(config-role) show role name foruser3

Role: foruser3
Description: dcm_role
Vlan policy: deny
Permitted vlans: 10,100
Interface policy: deny
Permitted interfaces:
Ethernet1/49
Vrf policy: deny
Permitted vlans: default

Rule      Perm      Type      Scope      Entity
-----
100      deny      command      show radius-server
80      permit      command      show radius-server groups
90      permit      command      clear qos statistics
70      deny      command      clear *
```

N9K-B RBAC Test:

```
N9K-B-Pod8# show radius-server
* Permission denied for the role
N9K-B-Pod8# show radius-server groups
total number of groups:2

following RADIUS server groups are configured:
  group radius:
    server: all configured radius servers
    deadline is 0
  group RADDCCN:
    server: 172.16.100.201 on auth-port 1812, acct-port 1813
    server: 172.16.100.202 on auth-port 1812, acct-port 1813
    deadline is 0
  vrf is default

N9K-B-Pod8# clear ip arp
* Permission denied for the role
N9K-B-Pod8# clear qos statistics
N9K-B-Pod8# conf t
Enter configuration commands, one per line. End with CNTL/Z.
```

