Toepassingsniveaus voor opdrachtautorisatie en rechten voor Cisco Secure UNIX

Inhoud

Inleiding

Dit document geeft informatie over het gebruik van authenticatie, autorisatie en accounting (AAA) voor gecentraliseerde shell en commando controle.

Voorwaarden

Vereisten

Er zijn geen specifieke vereisten van toepassing op dit document.

Gebruikte componenten

De informatie in dit document is gebaseerd op de volgende software- en hardware-versies:

- Cisco IOS®-softwarereleases 12.0(5)T en hoger
- Cisco Secure voor UNIX 2.3(6)

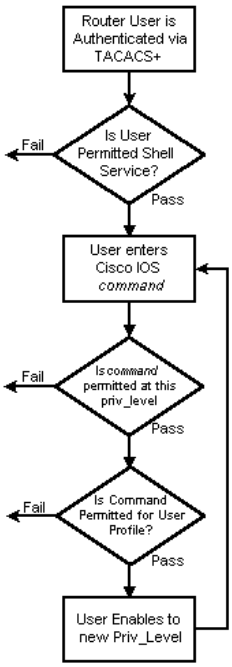
De informatie in dit document is gebaseerd op de apparaten in een specifieke laboratoriumomgeving. Alle apparaten die in dit document worden beschreven, hadden een

opgeschoonde (standaard)configuratie. Als uw netwerk live is, moet u de potentiële impact van elke opdracht begrijpen.

Conventies

Raadpleeg de Cisco Technical Tips Convention voor meer informatie over documentconventies.

Steekproef AAA-stroom

	Cisco IOS (AAA-client)	Cisco Secure (AAA-server)
	`aaa authentication login default group tacacs+ local`	gebruiker=fred { password=des}
	`aaa authorization exec default group tacacs+ local`	service-shell-set priv-level=x}
	`bevoorrecht exec niveau x opdracht` (zie opmerkingen hieronder)	
	`aaa authorization commands # default \ group tacacs none aaa authorization config-commands`	service=shell standaard cmd=(licentie/ontkenning) verbod cmd=x cmd=y {}
	`enable secretaaa authentication enable default \ group tacacs+ enable`	privilege = des "*******" 15

Niveaus

Standaard zijn er drie opdrachtniveaus op de router:

- bevoorrechtingsniveau 0 - Omvat de opdrachten **voor uitschakelen**, **inschakelen**, **afsluiten**, **helpen** en **uitloggen**
- bevoorrechtingsniveau 1 - Omvat alle opdrachten op *gebruikersniveau* op de `router>`prompt
- bevoorrechtingsniveau 15—Omvat alle opdrachten op ondernemingsniveau op de `router>`prompt

U kunt met deze opdracht opdrachten tussen voorkeursniveaus verplaatsen:

```
privilege exec level priv-lvl command
```

Console poortverificatie

Console poorttoestemming werd niet als optie toegevoegd tot de implementatie van Cisco bug ID CSCdi82030 (alleen geregistreerde klanten). Een console-poortvergunning is standaard uitgeschakeld om de kans te verminderen dat de router per ongeluk wordt afgesloten. Als een gebruiker fysieke toegang tot de router via de console heeft, is de console poortautorisatie niet zeer effectief. Maar voor beelden waarin Cisco bug-ID CSCdi82030 wordt geïmplementeerd, kunt u de console poortautorisatie onder regel 0 inschakelen met de verborgen opdracht **als autorisatie-console**.

Cisco Secure-gebruikersprofiel

Deze uitvoer toont een voorbeeldgebruikersprofiel.

```
# ./ViewProfile -p 9900 -u fred
User Profile Information
user = fred{
profile_id = 189
profile_cycle = 1
password = clear "********"
privilege = clear "********" 15
service=shell {
cmd=show {
permit "users"
}
}

}
```

Routerconfiguratie

```
Partial router configuration:

aaa new-model
aaa authentication login default group tacacs+ local
aaa authentication enable default group tacacs+ none
aaa authorization exec default group tacacs+ none
aaa authorization commands 1 default group tacacs+ none
tacacs-server host 172.18.124.113
tacacs-server key cisco
```

Uitvoer van monster

Merk op dat sommige output vanwege ruimtelijke overwegingen op twee regels is verpakt.

AAA-sessie - gebruikersopname

```
telnet 10.32.1.64
Trying 10.32.1.64...
Connected to 10.32.1.64.
```

```
Escape character is '^]'.


User Access Verification

Username: fred
Password:

vpn-2503>show users
    Line       User       Host(s)              Idle       Location
   0 con 0                 idle                 00:00:51
*  2 vty 0     fred       idle                 00:00:00 rtp-cherry.cisco.com

  Interface      User        Mode                    Idle     Peer Address

vpn-2503>enable
Password:
vpn-2503#
```

AAA-sessie - Cisco IOS-debug

```
vpn-2503#show debug
General OS:
  TACACS access control debugging is on
  AAA Authentication debugging is on
  AAA Authorization debugging is on
vpn-2503#terminal monitor
vpn-2503#
!--- In this capture, AAA authentication first tries the TACACS+ !--- server (and goes to local
authentication only if the server is down), !--- as configured in aaa authentication login
default group tacacs+ local.

*Mar 15 18:21:25: AAA: parse name=tty3 idb type=-1 tty=-1
*Mar 15 18:21:25: AAA: name=tty3 flags=0x11 type=5 shelf=0 slot=0 adapter=0
   port=3 channel=0
*Mar 15 18:21:25: AAA/MEMORY: create_user (0x524528) user='' ruser='' port='tty3'
   rem_addr='172.18.124.113' authen_type=ASCII service=LOGIN priv=1
*Mar 15 18:21:25: AAA/AUTHEN/START (4191717920): port='tty3' list=''
   action=LOGIN service=LOGIN
*Mar 15 18:21:25: AAA/AUTHEN/START (4191717920): using "default" list
*Mar 15 18:21:25: AAA/AUTHEN/START (4191717920): Method=tacacs+ (tacacs+)
 !--- Test TACACS+ for user authentication. *Mar 15 18:21:25: TAC+: send AUTHEN/START packet
ver=192 id=4191717920 *Mar 15 18:21:25: TAC+: Using default tacacs server-group "tacacs+" list.
*Mar 15 18:21:25: TAC+: Opening TCP/IP to 172.18.124.113/49 timeout=5 *Mar 15 18:21:25: TAC+:
Opened TCP/IP handle 0x5475C8 to 172.18.124.113/49 *Mar 15 18:21:25: TAC+: 172.18.124.113
(4191717920) AUTHEN/START/LOGIN/ASCII queued *Mar 15 18:21:25: TAC+: (4191717920)
AUTHEN/START/LOGIN/ASCII processed *Mar 15 18:21:25: TAC+: ver=192 id=4191717920 received AUTHEN
status = GETUSER *Mar 15 18:21:25: AAA/AUTHEN (4191717920): status = GETUSER *Mar 15 18:21:27:
AAA/AUTHEN/CONT (4191717920): continue_login (user='(undef)') *Mar 15 18:21:27: AAA/AUTHEN
(4191717920): status = GETUSER *Mar 15 18:21:27: AAA/AUTHEN (4191717920): Method=tacacs+
(tacacs+) *Mar 15 18:21:27: TAC+: send AUTHEN/CONT packet id=4191717920 *Mar 15 18:21:27: TAC+:
172.18.124.113 (4191717920) AUTHEN/CONT queued *Mar 15 18:21:27: TAC+: (4191717920) AUTHEN/CONT
processed *Mar 15 18:21:27: TAC+: ver=192 id=4191717920 received AUTHEN status = GETPASS *Mar 15
18:21:27: AAA/AUTHEN (4191717920): status = GETPASS *Mar 15 18:21:29: AAA/AUTHEN/CONT
(4191717920): continue_login (user='fred') *Mar 15 18:21:29: AAA/AUTHEN (4191717920): status =
GETPASS *Mar 15 18:21:29: AAA/AUTHEN (4191717920): Method=tacacs+ (tacacs+) *Mar 15 18:21:29:
TAC+: send AUTHEN/CONT packet id=4191717920 *Mar 15 18:21:29: TAC+: 172.18.124.113 (4191717920)
AUTHEN/CONT queued *Mar 15 18:21:29: TAC+: (4191717920) AUTHEN/CONT processed *Mar 15 18:21:29:
TAC+: ver=192 id=4191717920 received AUTHEN status = PASS *Mar 15 18:21:29: AAA/AUTHEN
(4191717920): status = PASS !--- TACACS+ passes user authentication. There is a check !--- to
see if shell access is permitted for this user, as configured in !--- aaa authorization exec
default group tacacs+ local.
```

```
*Mar 15 18:21:29: TAC+: Closing TCP/IP 0x5475C8 connection to 172.18.124.113/49
*Mar 15 18:21:29: tty3 AAA/AUTHOR/EXEC (3409614729): Port='tty3' list='' service=EXEC
*Mar 15 18:21:29: AAA/AUTHOR/EXEC: tty3 (3409614729) user='fred'
*Mar 15 18:21:29: tty3 AAA/AUTHOR/EXEC (3409614729): send AV service=shell
*Mar 15 18:21:29: tty3 AAA/AUTHOR/EXEC (3409614729): send AV cmd*
*Mar 15 18:21:29: tty3 AAA/AUTHOR/EXEC (3409614729): found list "default"
*Mar 15 18:21:29: tty3 AAA/AUTHOR/EXEC (3409614729): Method=tacacs+ (tacacs+)
*Mar 15 18:21:29: AAA/AUTHOR/TAC+: (3409614729): user=fred
*Mar 15 18:21:29: AAA/AUTHOR/TAC+: (3409614729): send AV service=shell
*Mar 15 18:21:29: AAA/AUTHOR/TAC+: (3409614729): send AV cmd*
*Mar 15 18:21:29: TAC+: using previously set server 172.18.124.113 from group tacacs+
*Mar 15 18:21:29: TAC+: Opening TCP/IP to 172.18.124.113/49 timeout=5
*Mar 15 18:21:29: TAC+: Opened TCP/IP handle 0x547A10 to 172.18.124.113/49
*Mar 15 18:21:29: TAC+: Opened 172.18.124.113 index=1
*Mar 15 18:21:29: TAC+: 172.18.124.113 (3409614729) AUTHOR/START queued
*Mar 15 18:21:29: TAC+: (3409614729) AUTHOR/START processed
*Mar 15 18:21:29: TAC+: (3409614729): received author response status = PASS_ADD
*Mar 15 18:21:29: TAC+: Closing TCP/IP 0x547A10 connection to 172.18.124.113/49
*Mar 15 18:21:29: AAA/AUTHOR (3409614729): Post authorization status = PASS_ADD
*Mar 15 18:21:29: AAA/AUTHOR/EXEC: Authorization successful
*Mar 15 18:21:32: tty3 AAA/AUTHOR/CMD (4185871454): Port='tty3' list='' service=CMD
 !--- TACACS+ passes exec authorization and wants to perform the !--- show users command, as
configured in !--- aaa authorization commands 1 default group tacacs+ none.

*Mar 15 18:21:32: AAA/AUTHOR/CMD: tty3 (4185871454) user='fred'
*Mar 15 18:21:32: tty3 AAA/AUTHOR/CMD (4185871454): send AV service=shell
*Mar 15 18:21:32: tty3 AAA/AUTHOR/CMD (4185871454): send AV cmd=show
*Mar 15 18:21:32: tty3 AAA/AUTHOR/CMD (4185871454): send AV cmd-arg=users
*Mar 15 18:21:32: tty3 AAA/AUTHOR/CMD (4185871454): send AV cmd-arg=
*Mar 15 18:21:32: tty3 AAA/AUTHOR/CMD (4185871454): found list "default"
*Mar 15 18:21:32: tty3 AAA/AUTHOR/CMD (4185871454): Method=tacacs+ (tacacs+)
*Mar 15 18:21:32: AAA/AUTHOR/TAC+: (4185871454): user=fred
*Mar 15 18:21:32: AAA/AUTHOR/TAC+: (4185871454): send AV service=shell
*Mar 15 18:21:32: AAA/AUTHOR/TAC+: (4185871454): send AV cmd=show
*Mar 15 18:21:32: AAA/AUTHOR/TAC+: (4185871454): send AV cmd-arg=users
*Mar 15 18:21:32: AAA/AUTHOR/TAC+: (4185871454): send AV cmd-arg=
*Mar 15 18:21:32: TAC+: using previously set server 172.18.124.113 from group tacacs+
*Mar 15 18:21:32: TAC+: Opening TCP/IP to 172.18.124.113/49 timeout=5
*Mar 15 18:21:32: TAC+: Opened TCP/IP handle 0x54F26C to 172.18.124.113/49
*Mar 15 18:21:32: TAC+: Opened 172.18.124.113 index=1
*Mar 15 18:21:32: TAC+: 172.18.124.113 (4185871454) AUTHOR/START queued
*Mar 15 18:21:33: TAC+: (4185871454) AUTHOR/START processed
*Mar 15 18:21:33: TAC+: (4185871454): received author response status = PASS_ADD
*Mar 15 18:21:33: TAC+: Closing TCP/IP 0x54F26C connection to 172.18.124.113/49
*Mar 15 18:21:33: AAA/AUTHOR (4185871454): Post authorization status = PASS_ADD
 !--- TACACS+ passes command authorization and wants to !--- get into enable mode, as configured
in !--- aaa authentication enable default group tacacs+ enable.

*Mar 15 18:21:34: AAA/MEMORY: dup_user (0x523E58) user='fred' ruser=''
   port='tty3' rem_addr='172.18.124.113' authen_type=ASCII service=ENABLE
   priv=15 source='AAA dup enable'
*Mar 15 18:21:34: AAA/AUTHEN/START (125091438): port='tty3' list=''
   action=LOGIN service=ENABLE
*Mar 15 18:21:34: AAA/AUTHEN/START (125091438): using "default" list
*Mar 15 18:21:34: AAA/AUTHEN/START (125091438): Method=tacacs+ (tacacs+)
*Mar 15 18:21:34: TAC+: send AUTHEN/START packet ver=192 id=125091438
*Mar 15 18:21:34: TAC+: Opening TCP/IP to 172.18.124.113/49 timeout=5
*Mar 15 18:21:34: TAC+: Opened TCP/IP handle 0x54D080 to 172.18.124.113/49
*Mar 15 18:21:34: TAC+: Opened 172.18.124.113 index=1
*Mar 15 18:21:34: TAC+: 172.18.124.113 (125091438) AUTHEN/START/LOGIN/ASCII queued
*Mar 15 18:21:34: TAC+: (125091438) AUTHEN/START/LOGIN/ASCII processed
*Mar 15 18:21:34: TAC+: ver=192 id=125091438 received AUTHEN status = GETPASS
*Mar 15 18:21:34: AAA/AUTHEN (125091438): status = GETPASS
*Mar 15 18:21:37: AAA/AUTHEN/CONT (125091438): continue_login (user='fred')
```

```
*Mar 15 18:21:37: AAA/AUTHEN (125091438): status = GETPASS
*Mar 15 18:21:37: AAA/AUTHEN (125091438): Method=tacacs+ (tacacs+)
*Mar 15 18:21:37: TAC+: send AUTHEN/CONT packet id=125091438
*Mar 15 18:21:37: TAC+: 172.18.124.113 (125091438) AUTHEN/CONT queued
*Mar 15 18:21:37: TAC+: (125091438) AUTHEN/CONT processed
*Mar 15 18:21:37: TAC+: ver=192 id=125091438 received AUTHEN status = PASS
*Mar 15 18:21:37: AAA/AUTHEN (125091438): status = PASS
*Mar 15 18:21:37: TAC+: Closing TCP/IP 0x54D080 connection to 172.18.124.113/49
*Mar 15 18:21:37: AAA/MEMORY: free_user (0x523E58) user='fred' ruser=''
   port='tty3' rem_addr='172.18.124.113' authen_type=ASCII service=ENABLE priv=15
 !--- TACACS+ passes enable authentication.
```

AAA-sessie - Cisco Secure UNIX-debug

```
!--- In this capture, AAA authentication first tries the TACACS+ !--- server (and goes to local
authentication only if the server is down), !--- as configured in aaa authentication login
default group tacacs+ local.

Sep  7 07:22:32 rtp-cherry CiscoSecure: DEBUG - AUTHENTICATION
   START request (bace1fbf)
Sep  7 07:22:32 rtp-cherry CiscoSecure: DEBUG -
Sep  7 07:22:32 rtp-cherry User Access Verification
!--- Test TACACS+ for user authentication: Sep 7 07:22:32 rtp-cherry CiscoSecure: DEBUG -
Username: Sep 7 07:22:33 rtp-cherry CiscoSecure: DEBUG - AUTHENTICATION CONTINUE request
(bace1fbf) Sep 7 07:22:33 rtp-cherry CiscoSecure: DEBUG - Password: Sep 7 07:22:35 rtp-cherry
CiscoSecure: DEBUG - AUTHENTICATION CONTINUE request (bace1fbf) Sep 7 07:22:35 rtp-cherry
CiscoSecure: DEBUG - Authentication - LOGIN successful; [NAS=10.32.1.64, Port=tty2, User=fred,
Priv=1] !--- TACACS+ passes user authentication. There is a check !--- to see if shell access is
permitted for this user, as configured in !--- aaa authorization exec default group tacacs+
local.

Sep  7 07:22:35 rtp-cherry CiscoSecure: DEBUG -
Sep  7 07:22:36 rtp-cherry CiscoSecure: DEBUG - AUTHORIZATION request (9ad05c71)
Sep  7 07:22:36 rtp-cherry CiscoSecure: DEBUG - Authorization - Request authorized;
   [NAS = 10.32.1.64, user = fred, port = tty2, input: service=shell cmd* output: ]
!--- TACACS+ passes exec authorization and wants to perform the !--- show users command, as
configured in !--- aaa authorization commands 1 default group tacacs+ none.

Sep  7 07:22:38 rtp-cherry CiscoSecure: DEBUG - AUTHORIZATION request (563ba541)
Sep  7 07:22:38 rtp-cherry CiscoSecure: DEBUG - Authorization - Request authorized;
   [NAS = 10.32.1.64, user = fred, port = tty2, input: service=shell cmd=show
   cmd-arg=users cmd-arg= output: ]
!--- TACACS+ passes command authorization and wants to !--- get into enable mode, as configured
in !--- aaa authentication enable default group tacacs+ enable.

Sep  7 07:22:40 rtp-cherry CiscoSecure: DEBUG - AUTHENTICATION
   START request (f7e86ad4)
Sep  7 07:22:40 rtp-cherry CiscoSecure: DEBUG - Password:
Sep  7 07:22:41 rtp-cherry CiscoSecure: DEBUG - AUTHENTICATION
   CONTINUE request (f7e86ad4)
Sep  7 07:22:41 rtp-cherry CiscoSecure: DEBUG - Authentication - ENABLE successful;
   [NAS=10.32.1.64, Port=tty2, User=fred, Priv=15]
!--- TACACS+ passes enable authentication.
```

Geavanceerde Cisco Secure-profielen

`group LANadmins{`
` service=shell {`
` cmd=interface{`
`  permit "Ethernet *"`
`  deny "Serial *"`
	Dit profiel maakt het mogelijk dat een gebruiker die lid is van "LANadmins" van een groep, in een router logt en de meeste

}
cmd=aaa{
deny ".*"
}
cmd=tacacs-server{
deny ".*"
}
default cmd=permit
}
	opdrachten invoert. De gebruikers mogen geen veranderingen in de seriële interfaceconfiguratie aanbrengen of veranderingen in de AAA configuratie aanbrengen (zodat zij de opdrachtautorisatie niet kunnen verwijderen of de TACACS server niet kunnen uitschakelen).

group Boston_Admins{
service=shell {
allow "10.28.17.1" ".*"
".*"
allow bostonswitch ".*"
".*"
allow "^bostonrtr[0-9]+"
".*" ".*"
set priv-lvl=15
default cmd=permit
}
service=shell {
allow "^NYrouter[0-9]+"
".*" ".*"
set priv-lvl=1
default cmd=deny
}
}
	Dit profiel geeft zijn groepsleden privileges op de bostonswitch, de *boostonrtr1 - bostonrtr9*-apparaten en het 10.28.17.1-apparaat. Alle opdrachten zijn toegestaan voor deze apparaten. Toegang tot de *NYrouterX*-apparaten is beperkt tot alleen gebruikersniveau en alle opdrachten worden geweigerd indien om toestemming wordt gevraagd.

group NY_wan_admins{
service=shell {
allow "^NYrouter[0-9]+"
".*" ".*"
set priv-lvl=15
default cmd=permit
}
service=shell {
allow "^NYcore$" ".*" ".*"
default cmd=permit
cmd=interface{
permit "Serial 0/[0-9]+"
permit "Serial 1/[0-9]+"
}
}
}
	Deze groep heeft volledige toegang tot alle NY-routers, evenals volledige toegang tot de NY-kernrouter op de seriële 10/x en seriële 1/x-interfaces. Merk op dat gebruikers ook de mogelijkheid hebben om AAA op de kernrouter uit te schakelen.

user bob{
password = des "********"
privilege = des "********"
15
member = NY_wan_admins
}
	Deze gebruiker is lid van de "NY_wan_admins" groep en erft deze rechten. Deze gebruiker heeft ook een inlogwachtwoord en een wachtwoord voor het invoeren van een wachtwoord.

group LAN_support {	Dit profiel is ontworpen voor een Catalyst switch.

service=shell {
default cmd = deny
cmd = set{
deny "port enable 3/10"
permit "port enable *"
deny "port disable 3/10"
permit "port disable *"
permit "port name *"
permit "port speed *"
permit "port duplex *"
permit "vlan [0-9]+ [0-9]+/[0-9]+"
deny ".*"
}
cmd = show{
permit ".*"
}
cmd = enable{
permit ".*"
}
}
}
	Gebruikers zijn alleen toegestaan bepaalde **ingestelde** opdrachten. Ze mogen poort 3/10 (een boomstampoort) niet uitschakelen. De gebruikers mogen het VLAN specificeren een poort wordt toegewezen aan, maar alle andere **set VLAN** opdrachten worden ontkend.

Gerelateerde informatie

- Cisco Secure UNIX-productondersteuning
- Technische ondersteuning en documentatie – Cisco Systems