

## Cisco CCNA (200-301)

### Identifying Elements of AAA security

Learning Objective: Identify AAA security elements

Description: Password security is no longer enough to help secure our network devices or control access. You will learn about what is included in AAA security: Authentication, Authorization and Accounting.

- 5.8 Differentiate authentication, authorization, and accounting concepts
  - **Authentication**—User must prove that they really are who they say they are, utilizing a username and password, challenge/response, token cards, etc:  
*"I am Ronnie, and my password Cisco123 proves it."*
  - **Authorization**—After authenticating the user, authorization services decide which resources the user is allowed to access and which operations the user is allowed to perform:  
*"User Ronnie can access NYEDGE1 with Telnet."*
  - **Accounting**—Accounting records what the user actually did, what he accessed, and how long he accessed it, for accounting, billing, and auditing purposes. Accounting keeps track of how network resources are used. Auditing can be used to track network access and to detect network intrusions:  
*"User Ronnie accessed NYEDGE1 with Telnet 15 times."*
- Before lab steps Windows Server NPS configured on PLABCSCO01
  - Open Client and Servers, right click on NYEDGE1> properties, create a new key (CCNAnext)
  - Administrative tools, users and groups, right click on *cisco-admin*
    - reset password to *cisco123*
- Configure for NYEDGE1 for AAA new-model security
  - Radius Server must be configured on PLABCSCO01
  - Configure a backup account in case AAA fails
  - ```
username admin privilege 15 secret CCNA
```
  - Enable AAA
  - ```
NYEDGE1(config)#aaa new-model
```
  - Configure radius servers
  - ```
NYEDGE1(config)#radius server RADIUS
NYEDGE1(config)#address ipv4 192.168.16.10
NYEDGE1(config)#key CCNAnext
```
  - Configure AAA authentication method list
  - ```
NYEDGE1(config)#aaa authentication login default group radius local
```
  - Configure AAA authorization list
  - ```
aaa authorization exec default group radius local
```
  - Enforce AAA authentication on console and teletype lines
  - ```
NYEDGE1(config)# line console 0
NYEDGE1(config-line)# login authentication default
NYEDGE1(config)# line vty 0 4
NYEDGE1(config-line)# login authentication default
NYEDGE1(config-line)#end
NYEDGE1#debug aaa authentication
NYEDGE1#exit
```
  - Login with *cisco-admin* and password you created...then log out
  - Verify AAA is in use from PLABCSCO01(remote access)

- ```
Putty.exe
telnet 192.168.16.1
(verify you are logged in and at privilege mode.)
```

**Endnotes, External and Etc.**

- 5.8 Differentiate authentication, authorization, and accounting concepts
- 5.3 Configure device access control using local passwords