

# Basic Line Level Security



- With line level security all administrators log in with the same password

```
R1(config)#line console 0
```

```
R1(config-line)#password Flackbox1
```

```
R1(config-line)#login (use line level password)
```

```
R1(config)#line vty 0 15
```

```
R1(config-line)#password Flackbox1
```

```
R1(config-line)#login
```

# Username Level Security



- More granular security can be provided by configuring individual usernames and passwords for different administrators

```
R1(config)#username admin1 secret Flackbox1
```

```
R1(config)#username admin2 secret Flackbox2
```

```
R1(config)#line console 0
```

```
R1(config-line)#login local (use local usernames)
```

```
R1(config)#line vty 0 15
```

```
R1(config-line)#login local
```

# Username Level Security



```
C:\>telnet 10.0.0.1
```

```
Trying 10.0.0.1 ...Open
```

```
User Access Verification
```

```
Username: admin1
```

```
Password: <Flackbox1>
```

```
R1>
```

# Privilege Levels



- There are 16 privilege levels of admin access (0-15) available on a Cisco router or switch
- Usernames can be assigned a privilege level. The default level is 1.
- You can also configure different passwords for direct access to the different privilege levels
- Each available command in IOS can be assigned a privilege level. An administrator must be logged in with that privilege level or higher to run the command

# Privilege Levels



- By default, three levels of privilege are used - zero, user, and privileged. All commands are at one of these three levels by default
- Zero-level access allows only five commands—logout, enable, disable, help, and exit.
- User level (level 1) provides very limited read-only access to the router. When you enter User Exec Mode you're at Privilege Level 1 by default
- Privileged level (level 15) provides complete control over the router. When you enter Privileged Exec Mode with the 'enable' command you're at Level 15 by default

# Username Level Security



```
R1(config)#username admin1 secret Flackbox1
```

```
R1(config)#username admin2 privilege 15 secret  
Flackbox2
```

```
R1(config)#line console 0
```

```
R1(config-line)#login local
```

```
R1(config)#line vty 0 15
```

```
R1(config-line)#login local
```

# Username Level Security – Admin1



```
C:\>telnet 10.0.0.1
Trying 10.0.0.1 ...Open

User Access Verification

Username: admin1
Password: <Flackbox1>
R1>
R1>show privilege
Current privilege level is 1
```

# Username Level Security – Admin2



```
C:\>telnet 10.0.0.1
Trying 10.0.0.1 ...Open

User Access Verification

Username: admin2
Password: <Flackbox2>
R1#
R1#show privilege
Current privilege level is 15
```



# Configuring Command Privilege Levels Example

```
R1 (config)#username admin1 secret Flackbox1
```

```
R1 (config)#username admin2 privilege 15 secret  
Flackbox2
```

```
R1 (config)#username admin3 privilege 5 secret  
Flackbox3
```

# Configuring Command Privilege Levels Example

```
C:\>telnet 10.0.0.1
Trying 10.0.0.1 ...Open
User Access Verification
Username: admin1
Password: <Flackbox1>
```

```
R1>show ip interface brief
Interface IP-Address OK? Method Status Protocol
GigabitEthernet0/0 10.0.0.1 YES manual up up
GigabitEthernet0/1 10.0.1.1 YES manual up up
GigabitEthernet0/2 unassigned YES unset administratively down down
Vlan1 unassigned YES unset administratively down down
```

```
R1>show run
^
% Invalid input detected at '^' marker.
```

# Configuring Command Privilege Levels Example

```
C:\>telnet 10.0.0.1
Trying 10.0.0.1 ...Open
User Access Verification
Username: admin3
Password: <Flackbox3>
```

```
R1>show ip interface brief
Interface IP-Address OK? Method Status Protocol
GigabitEthernet0/0 10.0.0.1 YES manual up up
GigabitEthernet0/1 10.0.1.1 YES manual up up
GigabitEthernet0/2 unassigned YES unset administratively down down
Vlan1 unassigned YES unset administratively down down
```

```
R1>show run
^
% Invalid input detected at '^' marker.
```

# Configuring Command Privilege Levels Example

```
C:\>telnet 10.0.0.1
Trying 10.0.0.1 ...Open
User Access Verification
Username: admin2
Password: <Flackbox3>
```

```
R1#sh run
Building configuration...
Current configuration : 1380 bytes
version 15.1
!
```

```
R1#configure terminal
R1(config)#
```

# Configuring Command Privilege Levels Example

```
R1(config)#privilege exec level 5 show running-  
config
```

# Configuring Command Privilege Levels Example

```
C:\>telnet 10.0.0.1
Trying 10.0.0.1 ...Open
User Access Verification
Username: admin1
Password: <Flackbox1>
```

```
R1>show run
^
% Invalid input detected at '^' marker.
```

# Configuring Command Privilege Levels Example

```
C:\>telnet 10.0.0.1
Trying 10.0.0.1 ...Open
User Access Verification
Username: admin3
Password: <Flackbox3>
```

```
R1#sh run
Building configuration...
Current configuration : 1380 bytes
version 15.1
!

R1#configure terminal
^
% Invalid input detected at '^' marker.
```

# Configuring Command Privilege Levels Example

```
R1(config)#enable secret secret1 (sets password for  
privilege level 15)
```

```
R1(config)#enable secret level 5 secret2 (sets  
password for privilege level 5)
```



# Configuring Command Privilege Levels Example

```
C:\>telnet 10.0.0.1
Trying 10.0.0.1 ...Open
User Access Verification
Username: admin1
Password: <Flackbox1>
```

```
R1>show run
^
% Invalid input detected at '^' marker.
```

```
R1>enable 5
Password: <secret2>
R1#show run
Building configuration...
```

```
Current configuration : 1380 bytes
!
version 15.1
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname R1
```