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This guide is part of an older series of Cisco Validated Designs.

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CISCO VALIDATED DESIGN

Device Management Using ACS

Technology Design Guide

April 2014

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Preface

Cisco Validated Designs (CVDs) provide the foundation for systems design based on common use cases or current engineering system priorities. They incorporate a broad set of technologies, features, and applications to address customer needs. Cisco engineers have comprehensively tested and documented each CVD in order to ensure faster, more reliable, and fully predictable deployment.

CVDs include two guide types that provide tested and validated design and deployment details:

- **Technology design guides** provide deployment details, information about validated products and software, and best practices for specific types of technology.
- **Solution design guides** integrate or reference existing CVDs, but also include product features and functionality across Cisco products and may include information about third-party integration.

Both CVD types provide a tested starting point for Cisco partners or customers to begin designing and deploying systems using their own setup and configuration.

How to Read Commands

Many CVD guides tell you how to use a command-line interface (CLI) to configure network devices. This section describes the conventions used to specify commands that you must enter.

Commands to enter at a CLI appear as follows:

    configure terminal

Commands that specify a value for a variable appear as follows:

    ntp server **10.10.48.17**

Commands with variables that you must define appear as follows:

    class-map **[highest class name]**

Commands at a CLI or script prompt appear as follows:

    Router# **enable**

Long commands that line wrap are underlined. Enter them as one command:

    police rate 10000 pps burst 10000 packets conform-action set-discard-class-
    transmit 48 exceed-action transmit

Noteworthy parts of system output or device configuration files appear highlighted, as follows:

    interface Vlan64
      ip address 10.5.204.5 255.255.255.0

Comments and Questions

If you would like to comment on a guide or ask questions, please use the feedback form.

For the most recent CVD guides, see the following site:

    http://www.cisco.com/go/cvd/campus

CVD Navigator

The CVD Navigator helps you determine the applicability of this guide by summarizing its key elements: the use cases, the scope or breadth of the technology covered, the proficiency or experience recommended, and CVDs related to this guide. This section is a quick reference only. For more details, see the Introduction.

Use Cases

This guide addresses the following technology use cases:

- **Controlling Change to the Network Configuration**—As the number of network devices increases and as network administrators change over time, deploying a centralized access and identity policy enforcement point lowers the administrative burden of ensuring the reliability of a network.

For more information, see the "Use Cases" section in this guide.

Scope

This guide covers the following areas of technology and products:

- Integration of Cisco Secure Access Control System and Microsoft Active Directory to provide differentiated management access based on user and device.

For more information, see the "Design Overview" section in this guide.

Proficiency

This guide is for people with the following technical proficiencies—or equivalent experience:

- **CCNA Security**—1 to 3 years installing, monitoring, and troubleshooting network devices to maintain integrity, confidentiality, and availability of data and devices

- **VCP VMware**—At least 6 months installing, deploying, scaling, and managing VMware vSphere environments

Introduction

Technology Use Case

The number of different IP data types is constantly increasing. So is the sheer volume of data. This growth requires comparable scaling of the supporting network infrastructure—routers, switches, firewalls, wireless LAN controllers, and so on. Enterprise network infrastructures can be composed of hundreds, even thousands, of network devices.

Controlling and monitoring change to the network configuration are essential parts of meeting the availability requirements of the critical services the network provides. However, when you control and monitor change to the network configuration separately on each device, the difficulty and complexity increase as the number of devices increase.

As the number of network devices in a typical network has grown, the number of administrators required to keep the network operating has likewise increased. These administrators are inevitably spread across the organization, and they may be employed by different departments. The larger and more complex the network and organization, the more complex the resulting system administration structure becomes. Without a mechanism to control who can perform specified commands upon specified devices, problems with the security and reliability of the network infrastructure become unavoidable.

Use Case: Controlling Change to the Network Configuration

Without a centralized access and identity policy enforcement point, it's difficult to ensure the reliability of a network as the number of network devices and administrators increases.

This design guide enables the following capabilities:

- Control of administrator authentication and authorization to the network devices from a central location
- Control of who can manage the network, based on Active Directory (AD) user group and network device type
- Control of what level of management access an administrator has, based on AD user group and network device type

Design Overview

Cisco Secure Access Control System (ACS) is the centralized identity and access policy solution that ties together an organization's network access policy and identity strategy. Cisco Secure ACS operates as a centralized authentication, authorization, and accounting (AAA) server that combines user authentication, user and administrator access control, and policy control in a single solution.

Cisco Secure ACS uses a rule-based policy model, which allows for security policies that grant access privileges based on many different attributes and conditions in addition to a user's identity.

The capabilities of Cisco Secure ACS coupled with an AAA configuration on the network devices reduce the administrative issues that surround having static local account information on each device. Cisco Secure ACS can provide centralized control of authentication, which allows the organization to quickly grant or revoke access for a user on any network device.

Rule-based mapping of users to identity groups can be based on information available in an external directory or an identity store such as Microsoft Active Directory. Network devices can be categorized in multiple device groups, which can function as a hierarchy based on attributes such as location, manufacturer, or role in the network. The combination of identity and device groups allows you to easily create authorization rules that define which network administrators can authenticate against which devices.

These same authorization rules allow for privilege-level authorization. Privilege-level authorization can be used to give limited access to the commands on a device. Cisco IOS Software has 16 privilege levels: 0 to 15. By default, upon the first connection to a device command line, a user's privilege level is set to 1. Privilege level 1 includes all user-level commands at the **device>** prompt. To change the privilege level, the user must run the enable command and provide the enable password. If the password is correct, privilege level 15 is granted, which includes all enable-level commands at the **device**# prompt. Authorization rules can assign minimum and maximum privilege levels. For example, a rule can give network administrators enable-level (that is, Level 15) access as soon as they log in, or limit helpdesk users so they can issue user-level (Level 1) commands only.

Deployment Details

PROCESS

Deploying Authentication and Authorization

1. Register the software license certificate

2. Set up the Cisco Secure ACS platform

3. Enable the default network device

4. Create internal identity store groups

5. Create internal identity store users

6. Create an external identity store

7. Create an identity store sequence

8. Create shell profiles

9. Map external groups to internal groups

10. Create authorization policy rules

The following process outlines the procedures for deploying Cisco Secure ACS for network device administration. It assumes you have already loaded the Cisco Secure ACS software on a server. The procedures provide instructions for setting up two policies that apply different privileges to helpdesk users and network administrators. The procedures also explain how to configure Cisco Secure ACS to authenticate users against Microsoft Active Directory and then against its local identity store, as well as how to pull group membership information from the Active Directory service.

| **Procedure 1** | Register the software license certificate |

A product authorization key (PAK) for each Cisco Secure ACS license that you purchase is affixed as a sticky label to the bottom of the Software License Claim Certificate card included in your package. You must submit the PAK that you received in order to obtain valid license files for your system. For each PAK that you submit, you receive a license file via email. You should save the license file to disk. You must install these license files when you set up Cisco Secure ACS.

Step 1: Carefully follow the instructions on the Software License Claim Certificate card.

Step 1: Power on the Cisco Secure ACS. At the login prompt, type **setup**, and then press **Enter**.

```
************************************************
Please type 'setup' to configure the appliance
************************************************
localhost login: setup

 Enter the platform login parameters.
Press 'Ctrl-C' to abort setup
Enter hostname[]: acs
Enter IP address []: 10.4.48.15
Enter IP default netmask[]: 255.255.255.0
Enter IP default gateway[]: 10.4.48.1
Enter default DNS domain[]: cisco.local
Enter Primary nameserver[]: 10.4.48.10
Add secondary nameserver? Y/N [N]: N
Enter NTP server[time.nist.gov]: 10.4.48.17
Add another NTP server? Y/N [N]: N
Enter system timezone[UTC]: US/Pacific
Enable SSH service? Y/N [N]: Y
Enter username[admin]:
Enter password: ********
Enter password again: ********
Bringing up network interface...
Pinging the gateway...
Pinging the primary nameserver ...
Do not use 'Ctrl-C' from this point on...
Generating configuration...
Installing Applications...
Installing ACS ...
Unbundling Application Package...
Initiating Application Install...
Rebooting...
```

The system reboots automatically and displays the Cisco Secure ACS login prompt. Next, you use the configured username and password to log in.

Step 2: Verify the Cisco Secure ACS installation.

```
acs/admin# show application version acs
Cisco ACS VERSION INFORMATION
----------------------------
Version : 5.5.0.46
Internal Build ID : B.723
acs/admin# show application status acs
ACS role: PRIMARY
Process 'database'                  running
Process 'management'                running
Process 'runtime'                   running
Process 'ntpd'                      running
Process 'view-database'             running
Process 'view-jobmanager'           running
Process 'view-alertmanager'         running
Process 'view-collector'            running
Process 'view-logprocessor'         running
```

Step 3: Using a web browser, log in to Cisco Secure ACS via the GUI (https://**acs.cisco.local**). The GUI login is a different account than the platform login you created in Step 1. Enter the default credentials: **acsadmin/default**. You are prompted to change the password.

Step 4: Browse to the license file, and then click **Install**. The license is installed.

Procedure 3	Enable the default network device

Step 1: Navigate to **Network Resources > Default Network Device**.

Step 2: In the **Default Network Device Status** list, choose **Enabled**.

Next, you must show the TACACS+ configuration.

Step 3: Under Authentication Options, click the arrow next to **TACACS+**.

Step 4: In the Shared Secret box, type the secret key that is configured on the organization's network infrastructure devices. (Example: SecretKey)

Step 5: Clear the **RADIUS** check box, and then click **Submit**.

Procedure 4   Create internal identity store groups

Create groups in the Cisco Secure ACS internal identity store for network device administrators and helpdesk users. Users in the network device administrator group have enable-level EXEC access to the network devices when they log in, while helpdesk users must type in the enable password on the device in order to get enable-level access.

Table 1 – Internal identity group

Group name	Description
Helpdesk	Users who are allowed to log in to a device but not make changes
Network Admins	Users who are allowed to log in to a device and make changes

Step 1: Navigate to **Users and Identity Stores > Identity Groups**.

Step 2: Click **Create**.

Step 3: In the **Name** box, enter **Network Admins**, and then enter a description for the group.

Step 4: Click **Submit**.

Step 5: Repeat Step 2 through Step 4 for the Helpdesk group, using the values from Table 1.

Users and Identity Stores > Identity Groups

Identity Groups

Filter: [▼] Match if: [▼] [Go] ▼

	Name ▲	Description
☐	▼ All Groups	Identity Group Root
☐	Helpdesk	
☐	Network Admins	

[Create] [Duplicate] [Edit] [Delete] | [File Operations] [Export]
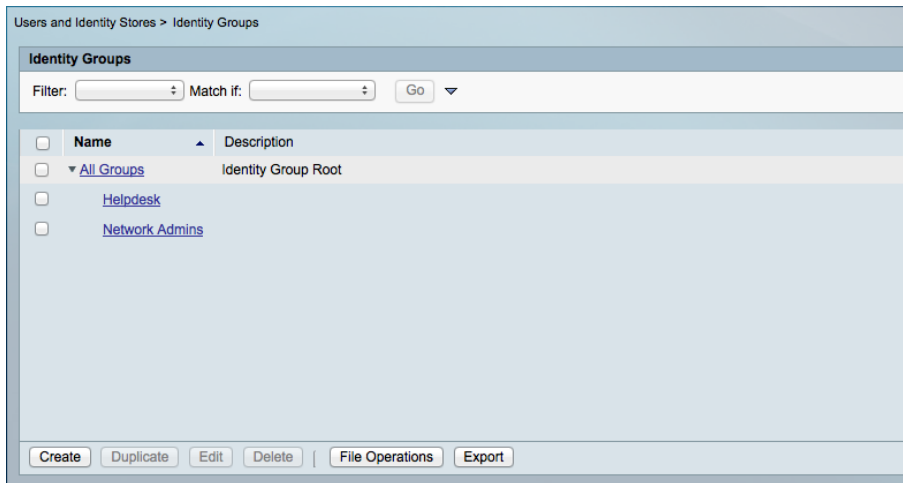
Procedure 5 Create internal identity store users

The Cisco Secure ACS internal identity store can contain all the network administrator accounts or just accounts that require a policy exception if an external identity store (such as Microsoft Active Directory) is available. A common example of an account that requires an exception is one associated with a network management system that allows the account to perform automated configuration and monitoring.

Step 1: Navigate to **Users and Identity Stores > Internal Identity Stores > Users**.

Step 2: Click **Create**.

Step 3: Enter a name, description, and password for the user account.

Users and Identity Stores > Internal Identity Stores > Users > Create

General

⚙ Name: [admin]   Status: [Enabled ▼] ⬤

Description: [Example Network Device Manager]

⚙ Identity Group: [All Groups]   [Select]

Account Disable

☐ Disable Account if Date Exceeds: [2014-Feb-14] ▦ (yyyy-Mmm-dd)

Password Lifetime

☐ Password Never Expired/Disabled: Overwrites user account blocking in case password expired/disabled

Password Information   **Enable Password Information**
Password must: Password must:
  ● Contain 8 - 32 characters   ● Contain 8 - 32 characters

⚙ Password Type: [Internal Users]   Enable Password: [   ]
                 [Select]   Confirm Password: [   ]

⚙ Password: [••••••••]

⚙ Confirm Password: [••••••••]

☐ Change password on next login

User Information
  There are no additional identity attributes defined for user records

⚙ = Required fields

[Submit] [Cancel]

Step 4: To the right of Identity Group, click **Select**.

Step 5: Select the option button next to the group with which you want to associate the user account.

Step 6: Click **OK**, and then click **Submit**.

Step 7: Repeat Step 2 through Step 6 for each user account you want to create.

Procedure 6	Create an external identity store

An *external identity store* allows designated users to authenticate against a network device by using their pre-existing credentials. You can also use attributes (such as group membership) in the external store when defining authorization policy rules.

Step 1: Navigate to **Users and Identity Stores > External Identity Stores > Active Directory**, and then click **Join/Test Connection**.

Step 2: Enter the Microsoft Active Directory domain name and user credentials, and then click **Join**.

Connection Details

⚙ Active Directory Domain Name: cisco.local

Please specify the credentials used to join this machine to the Active Directory Domain:

⚙ Username: administrator

⚙ Password: ••••••••

You may use the Test Connection Button to ensure credentials are correct and Active Directory Domain is reachable.

[Join] [Test Connection] [Cancel]

The status changes to Joined and Connected.

Users and Identity Stores > External Identity Stores > Active Directory

General | Directory Groups | Directory Attributes | Machine Access Restrictions

Connection Details

	Node	Node Role	Status	Domain Name	Domain Controller Name
☐	acs	Primary	Joined and Connected	cisco.local	ad.cisco.local

[Join/Test Connection] [Leave]

Click on 'Save Changes' to save AD configuration. Once you have successfully connected to the Domain, you can select Directory Groups and Directory Attributes to be available for use in policy rules. Pressing on 'Clear Configuration' will remove the AD configuration and remove ACS machine from the Domain.

End User Authentication Settings
- ☑ Enable password change
- ☑ Enable machine authentication
- ☐ Enable dial-in check
- ☐ Enable callback check for dial-in clients

⚙ = Required fields

Step 3: Click the **Directory Groups** tab, and then click **Select**.

Users and Identity Stores > External Identity Stores > Active Directory

| General | **Directory Groups** | Directory Attributes | Machine Access Restrictions |

Directory groups must be selected on this page to be available as options in group mapping conditions in policy rules. Click 'Select' to launch a dialog to select groups from the directory.

Selected Directory Groups:

Group Name

| Add ∧ | Edit ∨ | Replace ∧ | Deselect | Select |

Group Name

Example for group format :
cisco.com/Users/Domain Users

✿ = Required fields

Step 4: Select the check box next to each Microsoft Active Directory group that you want to use during the definition of the Cisco Secure ACS authentication policies, and then click **OK**.

External User Groups

Search Base DN DC=cisco,DC=local

Search Filter [   ] Go

☐	**Group Name** ▲	Group Type
☐	cisco.local/Builtin/Cryptographic Operators	LOCAL
☐	cisco.local/Builtin/Distributed COM Users	LOCAL
☐	cisco.local/Builtin/Event Log Readers	LOCAL
☐	cisco.local/Builtin/Guests	LOCAL
☑	cisco.local/Builtin/Helpdesk	GLOBAL
☐	cisco.local/Builtin/IIS_IUSRS	LOCAL
☐	cisco.local/Builtin/Incoming Forest Trust Builders	LOCAL
☐	cisco.local/Builtin/Network Configuration Operators	LOCAL
☑	cisco.local/Builtin/Network Device Admins	GLOBAL
☐	cisco.local/Builtin/Partner	GLOBAL
☐	cisco.local/Builtin/Performance Log Users	LOCAL

| OK | Cancel |

Step 5: Click **Save Changes**.

Users and Identity Stores > External Identity Stores > Active Directory

| General | **Directory Groups** | Directory Attributes | Machine Access Restrictions |

Directory groups must be selected on this page to be available as options in group mapping conditions in policy rules. Click 'Select' to launch a dialog to select groups from the directory.

Selected Directory Groups:

Group Name
cisco.local/Builtin/Helpdesk
cisco.local/Builtin/Network Device Admins

[Add ∧] [Edit ∨] [Replace ∧] [Deselect] [Select]

Group Name

Example for group format :
cisco.com/Users/Domain Users

☼ = Required fields

[Save Changes] [Discard Changes] [Clear Configuration]

Procedure 7 ▸ Create an identity store sequence

An *identity store sequence* allows Cisco Secure ACS to try to authenticate a user against one identity store (such as Microsoft Active Directory) before trying another identity store (such as the internal identity store). This capability allows you to build simple authentication rules regardless of which identity store contains the user.

Step 1: Navigate to **Users and Identity Stores > Identity Store Sequences**.

Step 2: Click **Create**.

Step 3: In the **Name** box, enter **AD then Local DB**.

Step 4: Select **Password Based**.

Step 5: Use the arrow buttons to move the AD1 and Internal Users identity stores from the **Available** list to the **Selected** list.

Step 6: Use the up and down arrow buttons to promote the AD1 identity store so it is the first item in the **Selected** list.

Step 7: Click the arrow next to Advanced Options.

Step 8: Select **Continue to next identity store in the sequence**.

Step 9: Click **Submit**.

Procedure 8   Create shell profiles

Shell profiles allow you to define the level of access granted to users when they manage a device. The following procedure creates two profiles: one that grants enable-level access upon login (Level15), and another that allows a user to log in but requires a separate device-level password for enable-level access (Level1).

Table 2 - Shell profiles

Profile name	Default privilege	Maximum privilege
Level1	1	15
Level15	15	15

Step 1: Navigate to **Policy Elements > Authorization and Permissions > Device Administration > Shell Profiles**.

Step 2: Click **Create**.

Step 3: Enter a name and description for the shell profile, and then click the **Common Tasks** tab.

Policy Elements > Authorization and Permissions > Device Administration > Shell Profiles > Create

| General | Common Tasks | Custom Attributes |

❂ Name: Level15

Description: Enable Prompt at Login

❂ = Required fields

Submit   Cancel

Step 4: Select the Shell Profile just created (Example: Level15), and then click the **Common Tasks** tab.

Step 5: In the **Default Privilege** and **Maximum Privilege** drop-down lists, choose **Static**.

Policy Elements > Authorization and Permissions > Device Administration > Shell Profiles > Edit: "Level15"

| General | Common Tasks | Custom Attributes |

Privilege Level

Default Privilege: Static ÷   Value 15 ÷

Maximum Privilege: Static ÷   Value 15 ÷

Shell Attributes

Access Control List: Not in Use ÷

Auto Command: Not in Use ÷

No Callback Verify: Not in Use ÷

No Escape: Not in Use ÷

No Hang Up: Not in Use ÷

Timeout: Not in Use ÷

Idle Time: Not in Use ÷

Callback Line: Not in Use ÷

Callback Rotary: Not in Use ÷

❂ = Required fields

Submit   Cancel

Step 6: Define the privilege level according to the preceding table by choosing a value from both of the **Value** drop-down lists, and then click the **Custom Attributes** tab.

Step 7: Under Manually Entered, in the **Attribute** box, enter **waas_rbac_groups**. This enables network administrators to log in to Cisco Wide Area Application Services (WAAS) devices as well as Cisco IOS Software devices.

Step 8: In the **Requirement** list, choose **Optional**.

Step 9: In the **Attribute Value** list, choose **Static**.

Step 10: In the text box for **Attribute Value**, enter **Network Admins**, and then click **Add /**.

Step 11: Click **Submit**.

Step 12: Repeat Step 2 through Step 11 for the Level1 shell profile, using the values from Table 2.

> ## **i** Tech Tip
>
> If you have Cisco AireOS–based wireless LAN controllers, you will need to create a specific shell profile for the WLC in order to allow authorization for this additional shell type. For more information, see the Campus Wireless LAN Technology Design Guide.
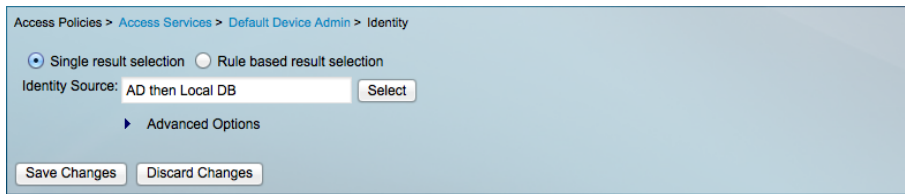
Procedure 9 | Map external groups to internal groups

In order to reduce the number of authorization rules, you can map attributes (such as group membership) in the external identity store to attributes in the internal identity store. Mapping allows the authorization rules to be defined using only the internal attributes, and rules that use the external attributes are not required.

Step 1: Navigate to **Access Policies > Access Services > Default Device Admin > Identity**.

Step 2: Click **Select**.

Step 3: In the **Identity Store** list, choose **AD then Local DB**, and then click **OK**.
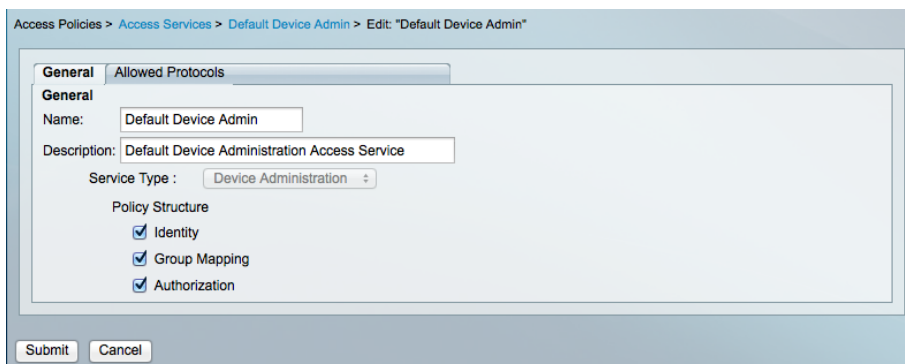
The Identity Source field is populated with the selection.

Step 4: Click **Save Changes**.

Step 5: Navigate to **Access Policies > Access Services > Default Device Admin**.
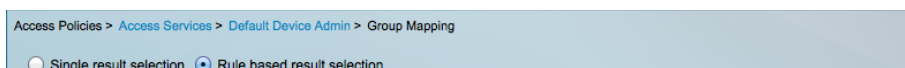
Step 6: Select **Group Mapping**.
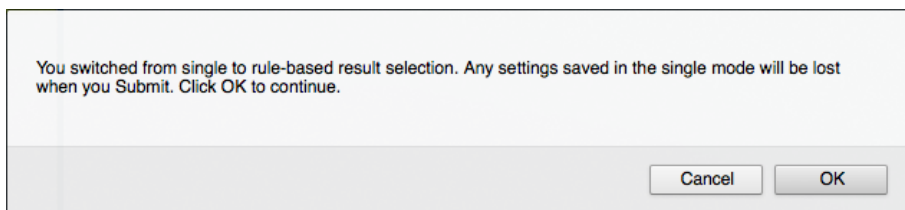
Step 7: Click **Submit**.

Step 8: Navigate to **Access Policies > Access Services > Default Device Admin > Group Mapping**.

Step 9: Select **Rule based result selection**.

Step 10: On the message that appears, click **OK**.

Step 11: Click **Create**.

Step 12: Select **Compound Condition**.

Step 13: To the right of Attribute, click **Select**.

Step 14: In the Attribute list, select **ExternalGroups**, and then click OK.

Step 15: Under Value, click **Select**.

Step 16: Choose a Microsoft Active Directory group, and then click **OK**.

Step 17: Click **Add V**.

Step 18: To the right of Identity Group, click **Select**. This is the identity group to which the Microsoft Active Directory group will map.

Step 19: Select **Network Admins**.

Step 20: Click **OK**, click **OK** again, and then click **Save Changes**.

Step 21: Repeat Step 11 through Step 20 for the Helpdesk group.
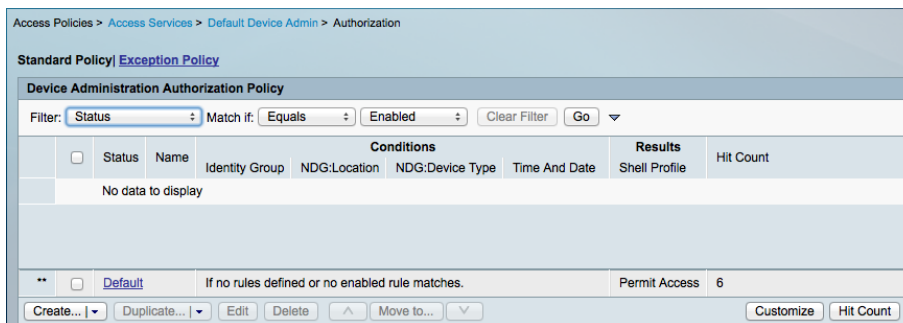
Cisco Secure ACS is preconfigured with two access services: Default Device Admin and Default Network Access (for TACACS+ and RADIUS authentications, respectively). This procedure modifies the Default Device Admin authorization policy to allow logins to network devices only for Network Admins and Helpdesk group members. You use the same policy rules to assign appropriate privilege levels.
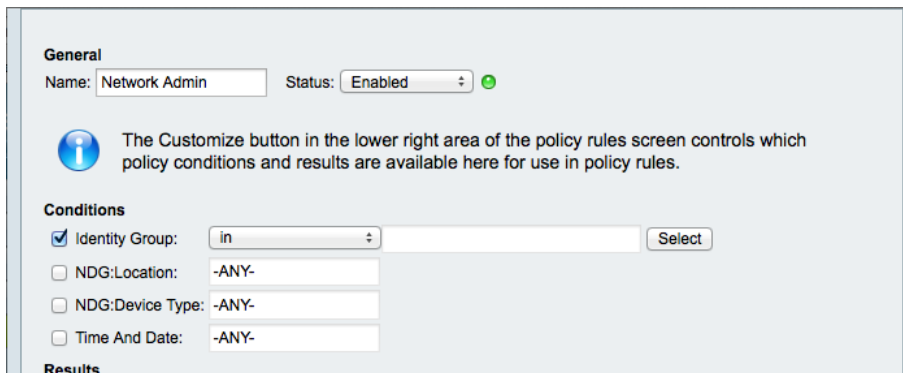
Table 3 – Access policy rules

Name	In identity group	Shell profile
Helpdesk	All Groups:Helpdesk	Level1
Network Admins	All Groups: Network Admins	Level15

Step 1: Navigate to **Access Policies > Access Services > Default Device Admin > Authorization**, and then click **Create**.

Step 2: Enter a name for the rule, and then select **Identity Group**.

Step 3: To the right of Identity Group, click **Select**.

Step 4: Select **Network Admins**, and then click **OK**.

Network Device Groups

	Name ▲	Description
○	▼ All Groups	Identity Group Root
○	Helpdesk	
⦿	Network Admins	

Create   Duplicate   Edit   Delete | File Operations   Export

OK   Cancel   Help

Step 5: To the right of Shell Profile, click **Select**.

Results

Shell Profile: Level15   Select

Step 6: Select **Level15**, and then click **OK**.

Shell Profiles   Showing 1-4 of 4 50 ⬍ per page Go

Filter: [   ] ⬍ Match if: [   ] ⬍   Go ▽

	Name ▲	Description
○	DenyAccess	
○	Level1	
⦿	Level15	Enable Prompt at Login
○	Permit Access	

Create   Duplicate   Edit   Delete |◀   ◀   Page 1 of 1   ▶   ▶|

OK   Cancel   Help

Step 7: Click **OK** again. This saves the rule you just created.

Step 8: Repeat Step 1 through Step 7 for the helpdesk access policy rule, using the values in Table 3. Next, edit the default rule.

Step 9: Click **Default** link.

**	☐	Default	If no rules defined or no enabled rule matches.

Step 10: To the right of Shell Profile, click **Select**.

Results

Shell Profile: Permit Access
              Select

Step 11: Select **DenyAccess**, and then click **OK**.

Step 12: Click **OK** again.

Step 13: Click **Save Changes**.

Limiting Access to Devices Based on the User Role

1. Create a network device type group

2. Create a network device

3. Exclude users from Security Devices group

This process configures Cisco Secure ACS to allow only network administrators to log in to devices that you want to limit access to (also called security devices).

| Procedure 1 | Create a network device type group |

This procedure creates a network device type group to contain all the devices to which you want to limit access.

Step 1: Navigate to **Network Resources > Network Device Groups > Device Type**.

Step 2: Click **Create**.

Network Resources > Network Device Groups > Device Type	
Network Device Groups	
Filter: ⬚ Match if: ⬚ Go ▽	

☐	**Name** ▲	Description
☐	All Device Types	All Device Types

Create Duplicate Edit Delete | File Operations Export

Step 3: Enter a name and description for the device type group, and then click **Submit**.

Network Resources > Network Device Groups > Device Type > Create	
Device Group - General	
✿ Name:	Security Devices
Description:	
✿ Parent:	All Device Types Select
✿ = Required fields	
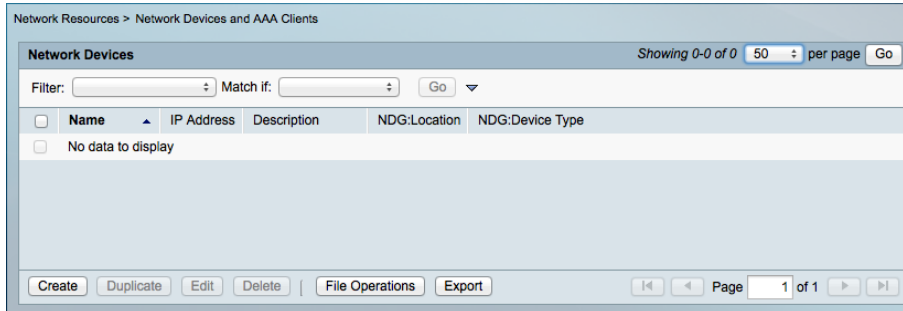
Submit Cancel

This procedure defines a network device entry for each device that you want to limit access to and assigns it to the network device type group.
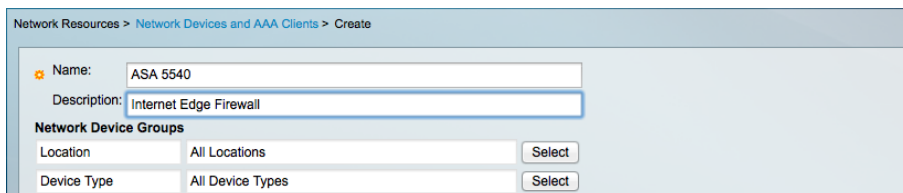
Step 1: Navigate to **Network Resources > Network Devices and AAA Clients**.

Step 2: Click **Create**.

Network Resources > Network Devices and AAA Clients

Network Devices					Showing 0-0 of 0	50	per page	Go

Filter: [   ] Match if: [   ] Go ▾

	Name ▲	IP Address	Description	NDG:Location	NDG:Device Type
☐	No data to display				

[Create] [Duplicate] [Edit] [Delete] | [File Operations] [Export] |◁ ◁ Page 1 of 1 ▷ ▷|
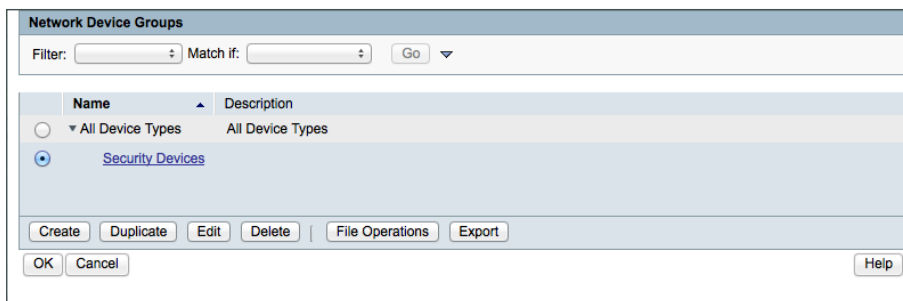
Step 3: Enter a name and description for the network device entry.

Network Resources > Network Devices and AAA Clients > Create

⚙ Name: [ASA 5540]
Description: [Internet Edge Firewall]
Network Device Groups

Location	All Locations	Select
Device Type	All Device Types	Select

Step 4: To the right of Device Type, click **Select**.

Step 5: Click the option button next to the device type group that you created in Procedure 1, "Create a network device type group," and then click **OK**.

Network Device Groups

Filter: [   ] Match if: [   ] Go ▾

	Name ▲	Description
○	▾ All Device Types	All Device Types
⊙	Security Devices	

[Create] [Duplicate] [Edit] [Delete] | [File Operations] [Export]
[OK] [Cancel]   [Help]

Step 6: In the **IP** field, enter the IP address.

Step 7: Select the **TACACS+** check box.

Step 8: In the **Shared Secret** field, enter a shared secret, and then click **Submit**.

Step 9: Repeat this procedure for every security device that you want to limit access to.

| **Procedure 3** | Exclude users from Security Devices group |

This procedure edits the existing authorization rule to prohibit helpdesk users from logging in to security devices.

Step 1: Navigate to **Access Policies > Access Services > Default Device Admin > Authorization**.

Step 2: In the list of rules, select the **Helpdesk** check box.

Step 3: Click **Edit**.

Step 4: Select **NDG:Device Type**.

Step 5: In the **NDG:Device Type** list, choose **not In**.

Step 6: To the right of the NDG:Device Type list, click **Select**.

Step 7: Select **Security Devices**, and then click **OK**.

Step 8: Click **OK** again, and then click **Save Changes**.

Appendix A: Product List

Access Control

Functional Area	Product Description	Part Numbers	Software
Authentication Services	ACS 5.5 VMWare Software And Base License	CSACS–5.5–VM–K9	5.5

Appendix B: Changes

This appendix summarizes the changes Cisco made to this guide since its last edition.

- We upgraded Cisco Secure ACS to version 5.5.
- We updated the guide to reflect minor setup and interface changes resulting from the Cisco Secure ACS upgrade.

Feedback

Please use the feedback form to send comments and suggestions about this guide.

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