CHAPTER 4

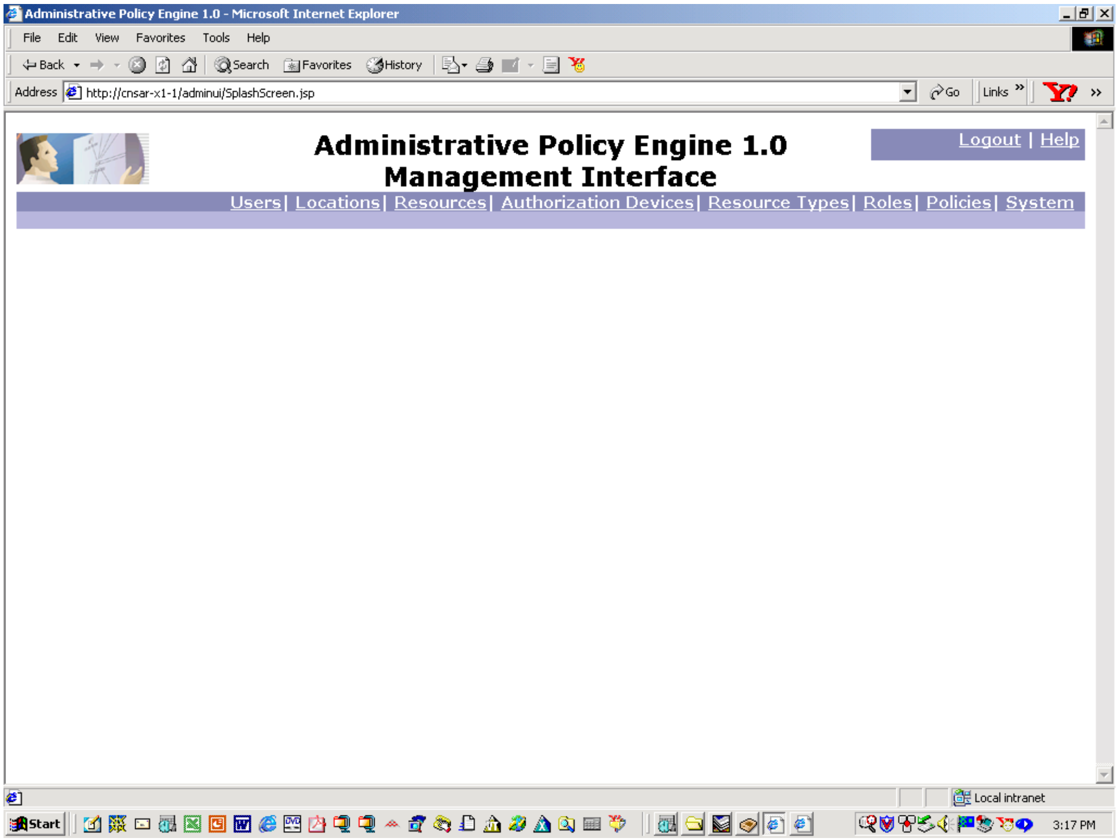
Using Cisco Administrative Policy Engine

This chapter describes the following procedures:

Note You can do the following tasks for different objects in any order. The objects appear in the same order as in the Management Interface.

Figure 4-1 shows the Cisco Administrative Policy Engine Management Interface. The management interface includes comprehensive online help that you can use for doing the procedures described in this chapter.

Figure 4-1 Cisco Administrative Policy Engine Management Interface



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About the Users page on the Management Interface

Note To add a user, you require user details, like the user ID and location of the user.

To edit or find existing users, click an alphabet to see the list of all the unique user IDs beginning with that letter.

To find a specific user, enter the user id and click **Apply Filter**.

Note You can enter a wild card if you do not know the user ID. Click **Apply Filter**.

To see a list of all users, enter * (asterisk) and click **Apply Filter**.

You can also use pattern matching. For example:

- Dev* matches all devices that start with Dev
- Dev? matches a single-digit number, like Dev1

To add a new user, see "Adding a User" section on page 4-4.

To edit a user, see "Editing a User" section on page 4-4.

Adding a User

To add a user, follow these steps:

Step 1 Enter the name of the user.

Step 2 (Optional) Enter a description of the user.

Step 3 Enter the password.

Note The password is case sensitive.

Step 4 In the Confirm Password field, enter the password again. Make sure that this password is identical to the password you entered in Step 3.

Note If a pop-up window appears saying that the passwords are not identical, re-enter the identical password.

Step 5 (Optional) Enter the first name of the user.

Step 6 (Optional) Enter the last name of the user.

Step 7 (Optional) Enter the ID number of the user.

Step 8 (Optional) Enter the phone number of the user.

Step 9 (Optional) Enter the name of the user's supervisor.

Step 10 Choose the location of the user from the location drop-down menu.

Note To create a new location specific to a user, see "Adding a Location" section on page 4-5.

Step 11 Click **Submit**.

Step 12 To reset the information to the old values, click **Reset**.

Step 13 To cancel the information and to go back to the Users page, click **Cancel**.

Step 14 To delete a user, select the user and click **Delete**.

Editing a User

To edit a user, follow these steps:

Step 1 Click the user ID.

Step 2 On the Edit User page, enter the required changes.

Step 3 Click **Submit**.

Note To assign Cisco IOS enable passwords to a user, click **Advanced**. The password levels are directly proportional to the authorizations a user has, that is, the higher the level number, the more authorizations the user has.

Assigning Advanced User Options

Step 1 To assign Cisco IOS enable passwords to a user, click **Advanced**.

Step 2 Enter the passwords you want to assign to a user.

Note The password levels are directly proportional to the authorizations a user has, that is, the higher the level number, the more the authorizations are for the user.

Step 3 To save your changes, click **Submit**.

Step 4 (Optional) To delete the values, click **Delete**.

Step 5 (Optional) To reset the changes to the old values, click **Reset**.

Step 6 (Optional) To cancel and go back to the Edit Users page, click **Cancel**.

To go to the users page, click **Users**.

To assign a Role to the user, click **Role Assignment**.

About the Locations Page on the Management Interface

Note The " /" root location is the default reserved location. You cannot delete or rename the root location.

To see a tree of all locations, click **Locations**. Click the **+** sign to see locations within a tree.

Note A location is arranged by a geographical hierarchy. For example: /USA/Massachusetts/Boston

To edit a location, see the "Editing a Location" section on page 4-6.

To add a new location, see the "Adding a Location" section on page 4-5.

Adding a Location

To add a new location, follow these steps:

Step 1 From the Locations page, Click **Add Location**.

Step 2 Enter the name of the location.

Step 3 (Optional) Enter a description of the location.

Step 4 From the Parent drop-down menu, select the parent of the location.

Step 5 Click **Submit**.

Step 6 (Optional) To delete the location, click **Delete**.

Step 7 To reset the information to the old values, click **Reset**.

Step 8 To cancel and go back to the Locations page, click **Cancel**.

Editing a Location

To edit a Location, follow these steps:

Step 1 Click the Location name.

Step 2 On the Edit Location page, enter the required changes.

Step 3 Click **Submit**.

Step 4 (Optional) To delete the location, click Delete.

Step 5 (Optional) To reset the changes to the old values, click **Reset**.

Step 6 (Optional) To cancel and go back to the Edit Locations page, click **Cancel**.

Step 7 (Optional) To go to the Edit Locations page, click **Edit Locations**.

Step 8 (Optional) To go back to the Locations page, click **Locations**.

Adding a User-Defined Location Attribute

User defined location attributes are name-value pairs that you can define. You can add any number of named attributes to all locations. You can assign values to the attributes on the Editing a Location page.

To assign a user-defined location attribute, follow these steps:

Step 1 Click **User-Defined Location Attributes**.

Step 2 Enter the attribute that you want to add in the **Attribute to Add** field.

Step 3 Click **Add**.

Removing a User-Defined Location Attribute

To remove a user-defined location attribute, follow thses steps:

Step 1 Click on the attribute that you want to remove in the **User-Defined Attributes** column.

Step 2 Click **Remove**.

Caution Removing a user-defined location attribute removes all the values from all the locations.

About the Resources Page on the Management Interface

To edit or find existing resources, click the index to see the list of all the resource names beginning with a letter.

To find a specific resource, enter the name of the resource and click **Apply Filter**.

To see a list of all resources, enter * (asterisk) and click **Apply Filter**.

You can also use pattern matching. For example:

Dev* matches all devices that start with Dev

Dev? matches a single-digit number, like Dev1

To add a resource, see "Adding a Resource" section on page 4-7.

To edit a resource, see "Editing a Resource" section on page 4-8.

To add a Hunt group resource, see "Adding a Hunt Group Resource" section on page 4-9.

Adding a Resource

To add a new resource, follow these steps:

Step 1 From the Resources page, click **Add Resource**.

Step 2 Enter the name of the resource.

Note You cannot add a special character, for example, an apostrophe (') or a semi-colon (;) to the resource name.

Step 3 (Optional) Enter a description of the resource.

Step 4 Enter the IP Address of the resource.

Step 5 Enter the Network Port number.

Step 6 To enable the resource, click **Enabled**.

Step 7 (Optional) Enter the Domain Name System (DNS) name of the resource.

Step 8 From the Locations drop-down menu, select the location of the resource.

Step 9 From the Resource Type drop-down menu, select the resource type.

Note To add a new resource type, go to the Resource Types page.

Step 10 From the Authorization Device drop-down menu, select the authorization device.

Step 11 Click **Submit**.

Step 12 (Optional) To delete the resource, click **Delete**.

Step 13 (Optional) To reset the information to the old values, click **Reset**.

Step 14 (Optional) To cancel and go back to the Resources screen, click **Cance**l.

Step 15 (Optional) To go back to the Resources page, click **Resources**.

Editing a Resource

To edit a resource, follow these steps:

Step 1 Click the resource name.

Step 2 On the Resource Information page, enter the required changes.

Step 3 Click **Submit**.

Assigning a Resource to an Authorization Device

You can assign resources to an authorization device from the Resource Assignment page:

Step 1 To assign a resource to an authorization device, click **Resource Assignment**.

Step 2 From the **Assignable Resources** field, select the resources that you want to add.

Step 3 Click **Add**.

Removing a Resource from an Authorization Device

Step 1 To remove a resource from an authorization device, click **Resource Assignment**.

Step 2 From the **Assigned Resources** field, select the resources that you want to remove.

Step 3 Click **Remove**.

Assigning a Role to a Resource

To assign a role to a resource, follow these steps:

Step 1 Click **Roles** or **Role Assignment**.

Step 2 From the list of Assignable Roles, select the role that you want to assign to the resource.

Step 3 Click **Add**.

Step 4 Click **Submit**.

Removing a Role from a Resource

To remove a role from a resource, follow these steps:

Step 1 Click **Roles** or **Role Assignment**.

Step 2 From the list of Assigned Roles, select the role that you want to remove from the resource.

Step 3 Click **Remove**.

Step 4 Click **Submit**.

Step 5 (Optional) To delete the resource, click **Delete**.

Step 6 (Optional) To reset the information to the old values, click **Reset**.

Step 7 (Optional) To cancel and go back to the Edit Resources page, click **Cancel**.

Step 8 (Optional) To go to the Edit Resources page, click **Edit Resources**.

Step 9 (Optional) To go back to the Resources page, click **Resources**.

Adding a Hunt Group Resource

You can add a Hunt group resource to a role instead of manually adding all the resources in that Hunt group to that role.

Step 1 To add a Hunt group resource from the Resources page, click **Add Hunt Group Resource**.

Step 2 Enter the name of the Hunt group resource.

> **Note** You cannot add a special character, for example, an apostrophe (') or a semi-colon (;) to a hunt group resource name.

Step 3 (Optional) Enter a description of the Hunt group resource.

Step 4 Enter the IP Address of the Hunt group resource.

Step 5 Enter the Network Port number.

Step 6 To enable the Hunt group resource, click **Enabled**.

Step 7 (Optional) Enter the Domain Name System (DNS) name of the Hunt group resource.

Step 8 From the Locations drop-down menu, select the location of the Hunt group resource.

Step 9 From the Resource Type drop-down menu, select the Hunt group resource type.

Step 10 From the Authorization Device drop-down menu, select the authorization device.

Step 11 Click **Submit**.

Step 12 (Optional) To delete the resource, click **Delete**.

Step 13 (Optional) To reset the information to the old values, click **Reset**.

Step 14 (Optional) To cancel and go back to the Resources page, click **Cancel**.

Step 15 (Optional) To go back to the Resources page, click **Resources**.

Editing a Hunt Group Resource

Step 1 To edit a hunt group resource, click the hunt group resource name.

Step 2 On the Edit Hunt Group Resource page, enter the required changes.

Step 3 To save your changes, click **Submit**.

Step 4 (Optional) To delete the resource, click **Delete**.

Step 5 (Optional) To reset the information to the old values, click **Reset**.

Step 6 (Optional) To cancel and go back to the Edit Hunt Group Resources page, click **Cancel**.

Step 7 (Optional) To go back to the Resources page, click **Resources**.

Step 8 (Optional) To assign a role to a hunt group resource, click **Role Assignment**.

Step 9 (Optional) To assign a resource to a hunt group resource, click **Resource Assignment**.

Assigning a Role to Hunt Group Resources

Step 1 To assign a role to a hunt group resource, click **Roles** or **Role Assignment**.

Step 2 Select the role from the list of Assignable Roles that you want to assign to the resource.

Step 3 Click **Add**.

Step 4 To save your changes, click **Submit**.

Step 5 (Optional) To delete the resource, click **Delete**.

Step 6 (Optional) To reset the information to the old values, click **Reset**.

Step 7 (Optional) To cancel and go back to the Edit Resources page, click **Cancel**.

Step 8 (Optional) To go to the Edit Hunt Group Resources page, click **Edit Hunt Group Resources**.

Step 9 (Optional) To assign a role to the hunt group resource, click on **Role Assignment**.

Step 10 (Optional) To go back to the Resources page, click **Resources**.

Removing a Role from a Hunt Group Resource

Step 1 To remove a role from the hunt group resource, click Roles or Role Assignment.

Step 2 Select the role from the list of Assigned Roles that you want to remove from the hunt group resource.

Step 3 Click **Remove**.

Step 4 To save your changes, click **Submit**.

Step 5 (Optional) To delete the resource, click **Delete**.

Step 6 (Optional) To reset the information to the old values, click **Reset**.

Step 7 (Optional) To cancel and go back to the Edit Resources page, click **Cancel**.

Step 8 (Optional) To go to the Edit Hunt Group Resources page, click **Edit Hunt Group Resources**.

Step 9 (Optional) To assign a role to the hunt group resource, click on **Role Assignment**.

Step 10 (Optional) To go back to the Resources page, click **Resources**.

Assigning a Resource to a Hunt Group Resource

Step 1 To assign a resource to a hunt group resource, click **Resource Assignment** or **Resources**.

Step 2 From the list of Assignable Resources, select the resource that you want to assign to the hunt group resource.

Step 3 Click **Add**.

Step 4 To save your changes, click **Submit**.

Step 5 (Optional) To reset the changes to the old values, click **Reset**.

Step 6 (Optional) To cancel and go back to the Edit Hunt Group Resource page, click **Cancel**.

Removing a Resource from a Hunt Group Resource

Step 1 To remove a resource from a hunt group resource, click **Resource Assignment** or **Resources**.

Step 2 From the Assigned Resources column, select the resource you want to remove.

Step 3 Click **Remove**.

Step 4 (Optional) To save your changes, click **Submit**. To reset the changes to the old values, click **Reset**.

Step 5 (Optional) To cancel and go back to the Edit Hunt Group Resource page, click **Cancel**.

Step 6 (Optional) To assign a role to the hung group resource, click **Role Assignment**.

About the Authorization Devices Page on the Management Interface

To edit or find existing authorization devices, click the index to see the list of all the authorization device names beginning with a letter.

To find a specific authorization device, enter the name of the authorization device and click **Apply Filter**.

To see a list of all authorization devices, enter * (asterisk) and click **Apply Filter**.

You can also use pattern matching. For example:

- **Dev*** matches all devices that start with Dev
- **Dev?** matches a single-digit number, like Dev1

Adding an Authorization Device

To add an authorization device, follow these steps:

Step 1 From the Authorization Device page, click **Add Authorization Devices**.

Step 2 (Optional) Enter a description of the authorization device.

Step 3 Enter the TACACS+ key string. This can be a string of words and numbers unique to Cisco Administrative Policy Engine and the authorization device, and the string must be identical at both ends.

> **Note** The TACACS+ key must have the same information as the router configuration. This is essential for encryption.

Step 4 Enter the name of the authorization device.

Step 5 Enter the IP address of the authorization device.

Step 6 Select the location of the authorization device from the drop-down menu.

Step 7 To save your changes, click **Submit**.

Step 8 (Optional) To delete the authorization device, click **Delete**.

Step 9 (Optional) To reset the information to the old values, click **Reset**.

Step 10 (Optional) To cancel and go back to the Authorization Devices page, click **Cancel**.

Step 11 (Optional) To go back to the Authorization Devices page, click **Authorization Devices**.

Editing an Authorization Device

To edit an authorization device, follow these steps:

Step 1 Click the authorization device name.

Step 2 On the Authorization Device Information page, enter the required parameters.

Step 3 Click **Submit**.

About the Resource Types Page on the Management Interface

To see a tree of all resource types, click **Resource Types**. Click on the + sign to see the resource types within a tree.

To add a new resource type, see "Adding a Resource Type" section on page 4-13.

To edit a resource type, see "Editing a Resource Type" section on page 4-13.

Adding a Resource Type

To add a resource type, follow these steps:

Step 1 From the Resource Types page, click **Add Resource Types**.

Step 2 Enter the name of the resource type.

Step 3 (Optional) Enter a description of the resource type.

Step 4 From the drop-down menu, select the parent of the resource type.

Step 5 Click **Submit**.

Step 6 (Optional) To delete the resource type, click **Delete**.

Step 7 To reset the information to the old values, click **Reset**.

Step 8 To cancel and go back to the Resource Types page, click **Cancel**.

Step 9 To go back to the Resource Types page, click **Resource Types**.

Editing a Resource Type

To edit a resource type, follow these steps:

Step 1 Click the resource type name.

Step 2 On the Edit Resource Type page, enter the required changes.

Step 3 Click **Submit.**

Step 4 (Optional) To delete the resource type, click **Delete**.

Step 5 (Optional) To clear the information from all the fields, click **Reset**.

Step 6 (Optional) To cancel and go back to the Edit resource type page, click **Cancel**.

Step 7 (Optional) To go to the Edit Resource Type page, click **Edit Resource Type**.

Step 8 (Optional) To go back to the Resource Type page, click **Resource Type**.

About the Roles Page on the Management Interface

Note You can assign a user to one or more roles. You can also give permissions to a role which would allow a user assigned to that role to perform a limited number of tasks.

To find existing roles, click the index to see the list of all the role names beginning with a letter.

To find a specific role, enter the name of the role and click **Apply Filter**.

To see a list of all roles, enter * (asterisk) and click **Apply Filter**.

You can also use pattern matching. For example:

- **Dev*** matches all devices that start with Dev
- **Dev?** matches a single-digit number, like Dev1

To add a new role, see "Adding a Role" section on page 4-14.

To edit an existing role, see "Editing a Role" section on page 4-14.

Adding a Role

To add a new role, follow these steps:

Step 1 From the Roles page, click **Add Role**.

Step 2 Enter the name of the role, for example, administrator.

Step 3 (Optional) Enter a description of the role.

Step 4 Select the hierarchical parent of the role from the drop-down menu. For example, if you specify role B, and mark it as "contained by A," then role B inherits properties from role A.

Step 5 Select the permission that you want to apply to the role. For example, if you want to give permissions to a user having the role of an administrator to access resources, click **Resource Access**.

Note You must assign a user to a role that has a permission, or a role can inherit the permission from a parent role.

Step 6 Click **Submit**.

Step 7 (Optional) To delete the role, click **Delete**.

Step 8 (Optional) To reset the information to the old values, click **Reset**.

Step 9 (Optional) To cancel and go back to the Roles page, click **Cancel**.

Step 10 (Optional) To go back to the Roles page, click **Roles**.

Editing a Role

To edit a role, follow these steps:

Step 1 Click the role name.

Step 2 On the User Information page, enter the required changes.

Step 3 Click **Submit**.

Assigning a User to a Role

To assign a user to the role, follow these steps:

Step 1 Click **User Assignment** or **Users**.

Step 2 From the list of assignable users, select a user.

Step 3 Click **Add**.

Removing a User from a Role

To remove a user from a role, follow these steps:

Step 1 Click **User Assignment** or **Users**.

Step 2 From the Assigned Users column, select the user.

Step 3 Click **Remove**.

Assigning a Resource to a Role

To assign a resource to the role, follow these steps:

Step 1 Click **Resource Assignment** or **Resources**.

Step 2 From the list of Assignable Resources, select the resource that you want to assign to a role.

Step 3 Click **Add**.

Removing a Resource from a Role

To remove a resource from a role, follow these steps:

Step 1 Click **User Assignment** or **Resources**.

Step 2 From the Assigned Users column, select the resource that you want to remove.

Step 3 Click **Remove**.

Assigning a Policy to a Role

To assign a policy to a role, follow these steps:

Step 1 Click **Policy Assignment** or **Policies**.

Step 2 From the list of Assignable Policies, select the policy that you want to assign to the role.

Step 3 Click **Add**.

Removing a Policy from a Role

To remove a policy from a role, follow these steps:

Step 1 Click **User Assignment** or **Policies**.

Step 2 From the Assigned Users column, select the policy that you want to remove.

Step 3 Click **Remove**.

Adding a Command Line Interface Permission

To assign a CLI permission to a role, follow these steps:

Step 1 In the **Expression to Add** field, add the CLI permission expression.

Step 2 Click **Add**.

Removing a CLI Permission

To remove a CLI permission from a role, follow these steps:

Step 1 From the **CLI Permission Expressions** field, select the CLI permission expression.

Step 2 Click **Remove**.

About the Policies Page on the Management Interface

Policies are rules or logic that are applied to roles to control access to devices. This logic ensures that certain conditions are true before a role authorizes a request.

While conditions follow the Boolean logic of "and", policies follow "or" shown in the following example:

Example

If Policy A has two conditions:

Condition 1 = user.location in /MA

Condition 2 = resource.type in /Cisco/Router

and Policy B has one condition:

Condition 3 = Remote IP address = 1.2.3.4

and a Role R that has Policies A and B assigned to it, the decision is based on

Role Outcome = Policy A or Policy B.

That means

Outcome of Policy A = Condition 1 *and* Condition 2

or

Outcome of Policy B = Condition 3

In this example, "and" and "or" are Boolean logic operators. The result of the policies is true or false.

For detailed information on conditions, see "About Conditions Governing Policies" section on page 2-7

To find existing policies, click the index to see the list of all the policy names beginning with a letter.

To find a specific policy, enter the name of the policy and click **Apply Filter**.

To see a list of all policies, enter * (asterisk) and click **Apply Filter**.

You can also use pattern matching. For example:

- Dev* matches all devices that start with Dev
- Dev? matches a single-digit number, like Dev1

To add a new policy, see "Adding a Policy" section on page 4-17.

To edit an existing policy, see "Editing a Policy" section on page 4-18.

Adding a Policy

To add a new policy, follow these steps:

Step 1 From the Policies page, click **Add Policy**.

Step 2 Enter the name of the policy.

Step 3 (Optional) Enter a description of the policy.

Step 4 Select the conditions applicable to the policy.

Note You can enable one or more conditions for a policy.

Step 5 Click **Submit**.

Step 6 (Optional) To delete the policy, click **Delete**.

Step 7 (Optional) To reset the information to the old values, click **Reset**.

Step 8 (Optional) To cancel and go back to the Policies page, click **Cancel**.

Step 9 (Optional) To go back to the Policies page, click **Policies**.

Note Conditions follow the Boolean logic of "and", that is, if you click more than one condition for a user, a user has access only if all the conditions that you have selected are evaluated to be true.
Click **Enabled** for the conditions you want to enable.

Editing a Policy

To edit an existing policy, follow these steps:

Step 1 Click the policy name.

Step 2 On the User Information page, enter the required changes.

Step 3 Click **Submit**.

To add a new policy, see "Adding a Policy" section on page 4-17.