CHAPTER 39

Configuring Users and Common Roles

The CLI and SNMP use common roles in all switches in the Cisco MDS 9000 Family. You can use the CLI to modify a role that was created using SNMP and vice versa.

Users, passwords, and roles for all CLI and SNMP users are the same. A user configured through the CLI can access the switch using SNMP (for example, the Fabric Manager or the Device Manager) and vice versa.

This chapter includes the following sections:

Role-Based Authorization

Switches in the Cisco MDS 9000 Family perform authentication based on roles. Role-based authorization limits access to switch operations by assigning users to roles. This kind of authentication restricts you to management operations based on the roles to which you have been added.

When you execute a command, perform command completion, or obtain context sensitive help, the switch software allows the operation to progress if you have permission to access that command.

This section includes the following topics:

About Roles

Each role can contain multiple users and each user can be part of multiple roles. For example, if role1 users are only allowed access to configuration commands, and role2 users are only allowed access to debug commands, then if Joe belongs to both role1 and role2, he can access configuration as well as debug commands.

Note If you belong to multiple roles, you can execute a union of all the commands permitted by these roles. Access to a command takes priority over being denied access to a command. For example, suppose you belong to a TechDocs group and you were denied access to configuration commands. However, you also belong to the engineering group and have access to configuration commands. In this case, you will have access to configuration commands.

Tip Any role, when created, does not allow access to the required commands immediately. The administrator must configure appropriate rules for each role to allow access to the required commands.

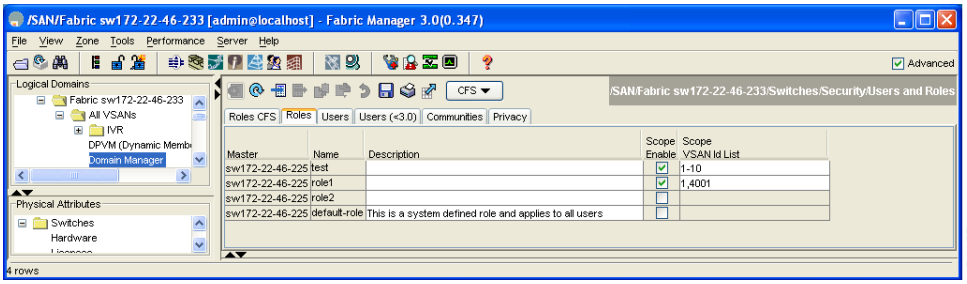
Configuring Roles and Profiles

To create an additional role or to modify the profile for an existing role using Fabric Manager, follow these steps:

Step 1 Expand **Switches > Security** and then select **Users and Roles** from the Physical Attributes pane. Click the **Roles** tab in the Information pane.

You see the information Figure 39-1

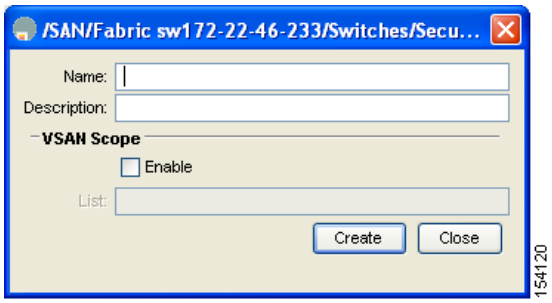
Figure 39-1 Roles Tab in Users and Roles Screen



Step 2 Click **Create Row** to create a role in Fabric Manager.

You see the Roles - Create dialog box in Figure 39-2.

Figure 39-2 Create Roles Dialog Box



Step 3 Select the switches on which to configure a role.

Step 4 Enter the name of the role in the Name field.

Step 5 Enter the description of the role in the Description field.

Step 6 Optionally, check the **Enable** check box to enable the VSAN scope and enter the list of VSANs in the Scope field to which you want to restrict this role.

Step 7 Click **Create** to create the role, or click **Close** to close the Roles - Create dialog box without creating the common role.

Note Device Manager automatically creates six roles that are required for Device Manager to display a view of a switch. These roles are: **system**, **snmp**, **module**, **interface**, **hardware**, and **environment**.

Deleting Common Roles

To delete a common role using Fabric Manager, follow these steps:

Step 1 Expand **Switches > Security** and then select **Users and Roles** from the Physical Attributes pane. Click the **Roles** tab in the Information pane.

Step 2 Click the role you want to delete.

Step 3 Click **Delete Row** to delete the common role.

Step 4 Click **Yes** to confirm the deletion or **No** to cancel it.

About the VSAN Policy

Configuring the VSAN policy requires the ENTERPRISE_PKG license (see Chapter 10, "Obtaining and Installing Licenses").

You can configure a role so that it only allows tasks to be performed for a selected set of VSANs. By default, the VSAN policy for any role is permit, which allows tasks to be performed for all VSANs. You can configure a role that only allows tasks to be performed for a selected set of VSANs. To selectively allow VSANs for a role, set the VSAN policy to deny, and then set the configuration to permit or the appropriate VSANs.

Note Users configured in roles where the VSAN policy is set to deny cannot modify the configuration for E ports. They can only modify the configuration for F or FL ports (depending on whether the configured rules allow such configuration to be made). This is to prevent such users from modifying configurations that may impact the core topology of the fabric.

Tip Roles can be used to create VSAN administrators. Depending on the configured rules, these VSAN administrators can configure MDS features (for example, zone, fcdomain, or VSAN properties) for their VSANs without affecting other VSANs. Also, if the role permits operations in multiple VSANs, then the VSAN administrators can change VSAN membership of F or FL ports among these VSANs.

Users belonging to roles in which the VSAN policy is set to deny are referred to as VSAN-restricted users.

Modifying the VSAN Policy

To modify the VSAN policy for an existing role using Fabric Manager, follow these steps:

Step 1 Expand **Switches > Security** and then select **Users and Roles** from the Physical Attributes pane. Click the **Roles** tab in the Information pane.

Step 2 Check the **Scope Enable** check box if you want to enable the VSAN scope and restrict this role to a subset of VSANs.

Step 3 Enter the list of VSANs in the Scope VSAN Id List field that you want to restrict this role to.

Step 4 Click **Apply Changes** to save these changes or click **Undo Changes** to discard any unsaved changes.

About Rules and Features for Each Role

Up to 16 rules can be configured for each role. These rules reflect what CLI commands are allowed. The user-specified rule number determines the order in which the rules are applied. For example, rule 1 is applied before rule 2, which is applied before rule 3, and so on. A user not belonging to the network-admin role cannot perform commands related to roles.

For example, if user A is permitted to perform all **show** CLI commands, user A cannot view the output of the **show role** CLI command if user A does not belong to the network-admin role

A **rule** specifies operations that can be performed by a specific role. Each rule consists of a rule number, a rule type (permit or deny), a CLI command type (for example, **config**, **clear**, **show**, **exec**, **debug**), and an optional feature name (for example, FSPF, zone, VSAN, fcping, or interface).

Note In this case, **exec** CLI commands refer to all commands in the EXEC mode that do not fall in the **show**, **debug**, and **clear**, CLI command categories.

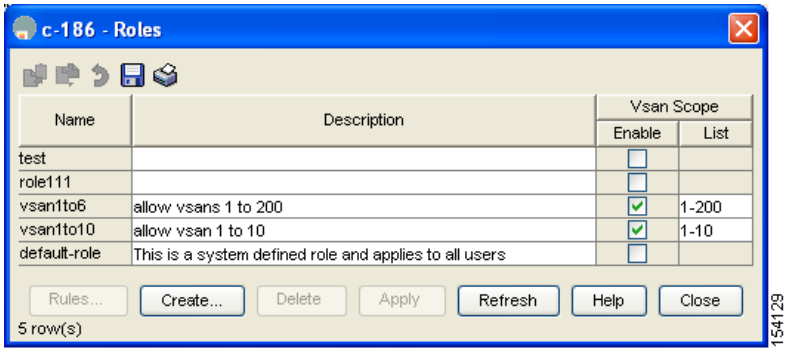
Modifying Rules

To modify the rules for an existing role using Device Manager, follow these steps:

Step 1 Click **Security** > **Roles**.

Step 2 You see the Common Roles dialog box shown in Figure 39-3.

Figure 39-3 Common Roles Dialog Box in Device Manager

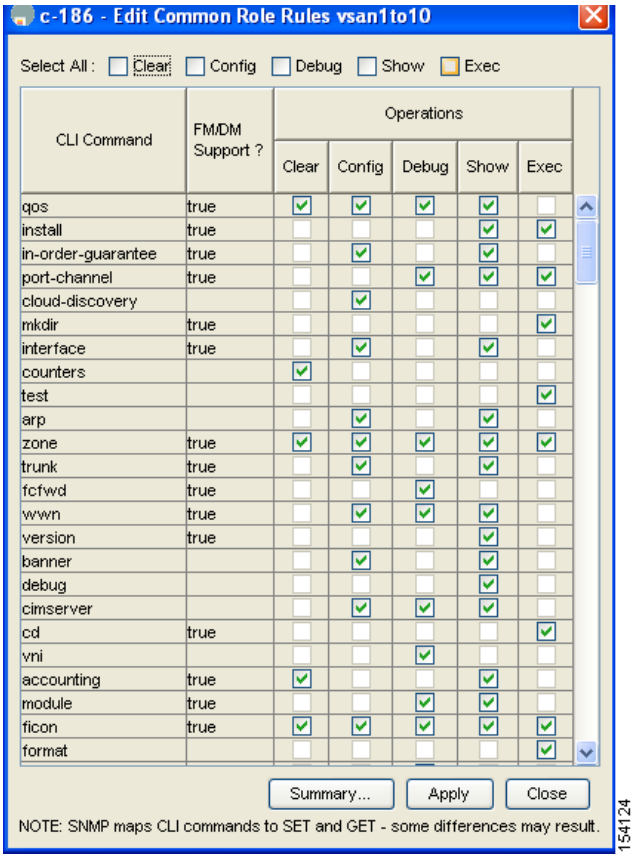


Step 3 Click the role for which you want to edit the rules.

Step 4 Click **Rules** to view the rules for the role.

You see the Rules dialog box shown in Figure 39-4. It may take a few minutes to display.

Figure 39-4 Edit Common Role Rules Dialog Box



Step 5 Edit the rules you want to enable or disable for the common role.

Step 6 Click **Apply** to apply the new rules and close the Rules dialog, or click **Close** to close the Rules dialog without applying the rules.

Rule 1 is applied first, thus permitting, for example, sangroup users access to all **config** CLI commands. Rule 2 is applied next, denying FSPF configuration to sangroup users. As a result, sangroup users can perform all other **config** CLI commands, except **fspf** CLI configuration commands.

Note The order of rule placement is important. If you had swapped these two rules and issued the **deny config feature fspf** rule first and issued the **permit config** rule next, you would be allowing all sangroup users to perform all configuration commands because the second rule globally overrode the first rule.

Displaying Role-Based Information

The rules are displayed by rule number and are based on each role. All roles are displayed if the role name is not specified.

To view rules for a role using Device Manager, follow these steps:

Step 1 Click **Security > Roles.**

You see the Roles dialog box.

Step 2 Select a role name and click **Rules**.

You see the Rules dialog box.

Step 3 Click **Summary** to get a summarized view of the rules configured for this role.

Role Distributions

Role-based configurations use the Cisco Fabric Services (CFS) infrastructure to enable efficient database management, and to provide a single point of configuration for the entire fabric (see Chapter 13, "Using the CFS Infrastructure").

The following configurations are distributed:

- Role names and descriptions
- List of rules for the roles
- VSAN policy and the list of permitted VSANs

This section includes the following topics:

About Role Databases

Role-based configurations use two databases to accept and implement configurations.

- Configuration database—The running database currently enforced by the fabric.
- Pending database—Your subsequent configuration changes are stored in the pending database. If you modify the configuration, you need to commit or discard the pending database changes to the configuration database. The fabric remains locked during this period. Changes to the pending database are not reflected in the configuration database until you commit the changes.

Locking the Fabric

The first action that modifies the database creates the pending database and locks the feature in the entire fabric. Once you lock the fabric, the following situations apply:

- No other user can make any configuration changes to this feature.
- A copy of the configuration database becomes the pending database along with the first change.

Committing the Changes

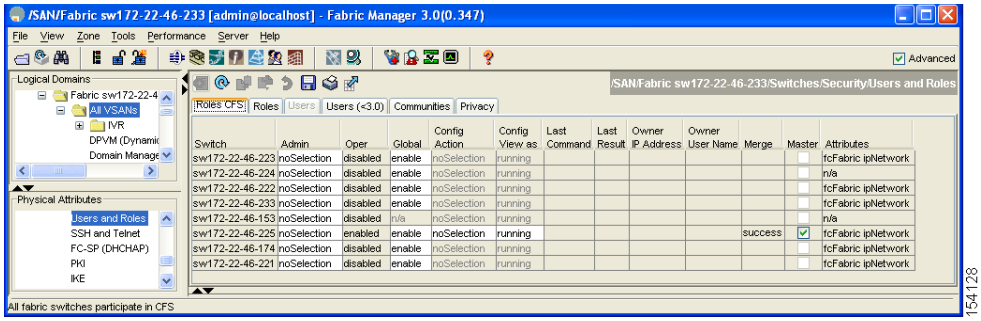
If you commit the changes made to the pending database, the configuration is committed to all the switches in the fabric. On a successful commit, the configuration change is applied throughout the fabric and the lock is released. The configuration database now contains the committed changes and the pending database is now cleared.

To commit role-based configuration changes using Fabric Manager, follow these steps:

Step 1 Expand **Switches > Security** and then select **Users and Roles** in the Physical Attributes pane. Click the **Roles CFS** tab in the Information pane.

You see the screen shown in Figure 39-5.

Figure 39-5 Roles CFS Tab



Step 2 Set the Global drop-down menu to **enable** to enable CFS.

Step 3 Click **Apply Changes** to save this change.

Step 4 Set the Config Action drop-down menu to **commit** to commit the roles using CFS.

Step 5 Click **Apply Changes** to save this change.

Discarding the Changes

If you discard (abort) the changes made to the pending database, the configuration database remains unaffected and the lock is released.

To discard role-based configuration changes using Fabric Manager, follow these steps:

Step 1 Expand **Switches > Security** and then select **Users and Roles** in the Physical Attributes pane. Click the **Roles CFS** tab in the Information pane.

Step 2 Set the Config Action drop-down menu to **abort** to discard any uncommitted changes.

Step 3 Click **Apply Changes** to save this change.

Enabling Distribution

To enable role-based configuration distribution using Fabric Manager, follow these steps:

Step 1 Expand **Switches > Security** and then select **Users and Roles** in the Physical Attributes pane. Click the **Roles CFS** tab in the Information pane.

Step 2 Set the Global drop-down menu to **enable** to enable CFS distribution.

Step 3 Click **Apply Changes** to save this change.

Clearing Sessions

To forcibly clear the existing role session in the fabric using Fabric Manager, follow these steps:

Step 1 Expand **Switches > Security** and then select **Users and Roles** in the Physical Attributes pane. Click the **Roles CFS** tab in the Information pane.

Step 2 Set the Config Action drop-down menu to **clear** to clear the pending database.

Step 3 Click **Apply Changes** to save this change.

Note Any changes in the pending database are lost when you clear a session.

Database Merge Guidelines

Fabric merge does not modify the role database on a switch. If two fabrics merge, and the fabrics have different role databases, the software generates an alert message.

See the "CFS Merge Support" section on page 13-11 for detailed concepts.

- Verify that the role database is identical on all switches in the entire fabric.
- Be sure to edit the role database on any switch to the desired database and then commit it. This synchronizes the role databases on all the switches in the fabric.

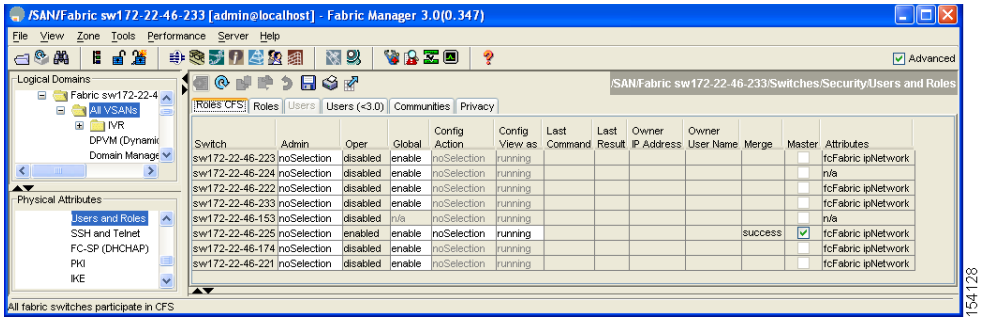
Displaying Roles When Distribution is Enabled

When you enable distribution for roles, you can view either the pending role database (the database before it is distributed) or the running database.

To view the roles using Fabric Manager, follow these steps:

Step 1 Expand **Switches > Security** and then select **Users and Roles** in the Physical Attributes pane. Click the **Roles CFS** tab in the Information pane (see Figure 39-6).

Figure 39-6 Roles CFS Tab



Step 2 Set the View Config As drop-down value to **pending** to view the pending database or set the View Config As drop-down menu to **running** to view the running database.

Step 3 Click **Apply Changes** to save this change.

User Accounts

Every Cisco MDS 9000 Family switch user has the account information stored by the system. Your authentication information, user name, user password, password expiration date, and role membership are stored in your user profile.

The tasks explained in this section enable you to create users and modify the profile of an existing user. These tasks are restricted to privileged users as determined by your administrator.

The password should have the strong characteristics, such as the following:

- Are at least eight characters long
- Not contain many consecutive characters (such as “abcd”)
- Not contain many repeating characters (such as “aaabbb”)
- Not contain dictionary words
- Contain both upper- and lowercase characters
- Contain numbers

The following are examples of strong passwords:

- If2CoM18
- 2004AsdfLkj30
- Cb1955S21

Note Clear test passwords can only contain alphanumeric characters. Special characters such as the dollar sign ($) or the percent sign (%) are not allowed.

This section includes the following topics:

About Users

The passphrase specified in the **snmp-server user** option and the password specified **username** option are synchronized (see the “SNMPv3 CLI User Management and AAA Integration” section on page 31-3).

By default, the user account does not expire unless you explicitly configure it to expire. The **expire** option determines the date on which the user account is disabled. The date is specified in the YYYY-MM-DD format.

Tip The following words are reserved and cannot be used to configure users: bin, daemon, adm, lp, sync, shutdown, halt, mail, news, uucp, operator, games, gopher, ftp, nobody, nscd, mailnull, rpc, rpcuser, xfs, gdm, mtsuser, ftpuser, man, and sys.

Note User passwords are not displayed in the switch configuration file.

Tip If a password is trivial (short, easy-to-decipher), your password configuration is rejected. Be sure to configure a strong password as shown in the sample configuration. Passwords are case-sensitive. “admin” is no longer the default password for any Cisco MDS 9000 Family switch. You must explicitly configure a strong password.

Caution Cisco MDS SAN-OS does not support all numeric user names, whether created with TACACS+ or RADIUS, or created locally. Local users with all numeric names cannot be created. If an all numeric user name exists on an AAA server and is entered during login, the user is not logged in.

Configuring Users

To configure a new user or to modify the profile of an existing user using Fabric Manager, follow these steps:

Step 1 Expand **Switches > Security** and then select **Users and Roles** from the Physical Attributes pane. Click the **Users** tab in the Information pane to see a list of users like the one in Figure 39-7.

Figure 39-7 Users listed under the Users Tab

Switch	User	Primary Role	Other Role	Digest	Encryption
sw172-22-46-182	admin	network-admin		MD5	NoPriv
sw172-22-46-224	abcd	network-operator	network-admin	MD5	DES
sw172-22-46-153	admin	network-admin		MD5	NoPriv
sw172-22-46-182	md5usr	network-operator		MD5	DES
sw172-22-46-224	admin	network-admin		MD5	DES
sw172-22-46-224	mchinn	network-operator	network-admin	MD5	DES
sw172-22-46-224	md5usr	network-admin		MD5	DES
sw172-22-46-153	mchinn	network-operator	network-admin	MD5	DES
sw172-22-46-224	mchinn1	network-operator	network-admin	MD5	NoPriv
sw172-22-46-224	shadmin	network-operator	network-admin	SHA	DES
sw172-22-46-153	md5usr	network-admin		MD5	DES
sw172-22-46-153	junknew	network-operator	network-admin	MD5	DES
sw172-22-46-153	mchinn1	network-operator	network-admin	MD5	DES
sw172-22-46-153	mchinn5	network-operator	network-admin	MD5	NoPriv
sw172-22-46-153	shadmin	network-operator	network-admin	SHA	DES
sw172-22-46-153	testUser	network-operator	test	MD5	DES

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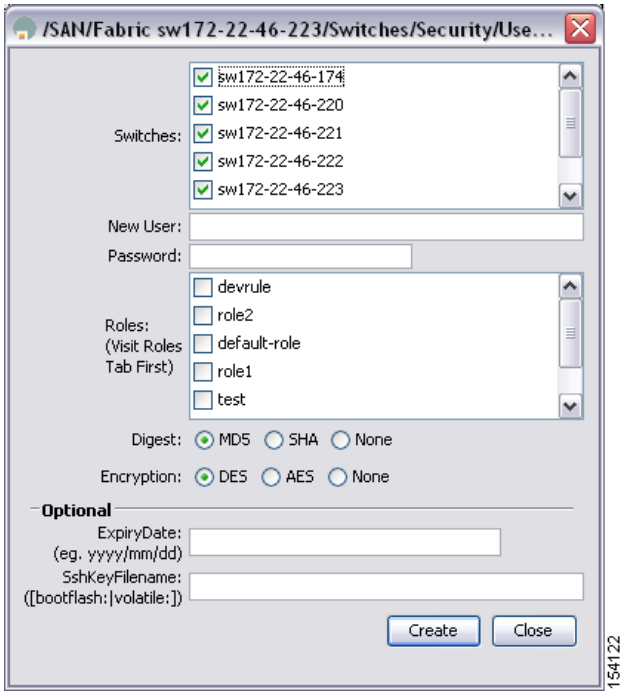
Step 2 Click **Create Row**.

You see the Create Users dialog box shown in Figure 39-8.

Figure 39-8 Create Users Dialog Box



Step 3 Optionally alter the Switches check boxes to specify one or more switches.

Step 4 Enter the user name in the New User field.

Step 5 Select a role from the Role drop-down menu. You can also enter a new role name in the field if you do not want to select one from the drop-down menu. If you do this, go back and configure this role appropriately (see the "User Accounts" section on page 39-10).

Step 6 Enter the password for the user in the New Password and Confirm Password fields. Enter the same new password in the New Password and Confirm Password fields.

Step 7 Check the **Privacy** check box and complete the password fields to encrypt management traffic.

Step 8 Click **Create** to create the entry or click **Close** to discard any unsaved changes and close the dialog box.

Deleting a User

To delete a user using Fabric Manager, follow these steps:

Step 1 Expand **Switches > Security** and then select **Users and Roles** from the Physical Attributes pane. Click the **Users** tab in the Information pane to see a list of users.

Step 2 Click the name of the user you want to delete.

Step 3 Click **Delete Row** to delete the selected user.

Step 4 Click **Apply Changes** to save this change.

Displaying User Account Information

To display configured information about user accounts using Fabric Manager, follow these steps:

Step 1 Expand **Security** and then select **Users and Roles** in the Physical Attributes pane.

Step 2 Click the **Users** tab. You see the list of SNMP users shown in Figure 39-9 in the Information pane.

Figure 39-9 Users listed under the Users Tab

Switch	User	Primary Role	Other Role	Digest	Encryption
sw172-22-46-182	admin	network-admin		MD5	NoPriv
sw172-22-46-224	abcd	network-operator	network-admin	MD5	DES
sw172-22-46-153	admin	network-admin		MD5	NoPriv
sw172-22-46-182	md5usr	network-operator		MD5	DES
sw172-22-46-224	admin	network-admin		MD5	DES
sw172-22-46-224	mchinn	network-operator	network-admin	MD5	DES
sw172-22-46-224	md5usr	network-admin		MD5	DES
sw172-22-46-153	mchinn	network-operator	network-admin	MD5	DES
sw172-22-46-224	mchinn1	network-operator	network-admin	MD5	NoPriv
sw172-22-46-224	shadmin	network-operator	network-admin	SHA	DES
sw172-22-46-153	md5usr	network-admin		MD5	DES
sw172-22-46-153	junknew	network-operator	network-admin	MD5	DES
sw172-22-46-153	mchinn1	network-operator	network-admin	MD5	DES
sw172-22-46-153	mchinn5	network-operator	network-admin	MD5	NoPriv
sw172-22-46-153	shadmin	network-operator	network-admin	SHA	DES
sw172-22-46-153	testUser	network-operator	test	MD5	DES

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SSH Services

The Telnet service is enabled by default on all Cisco MDS 9000 Family switches. Before enabling the SSH service, generate a server key pair (see the "Generating the SSH Server Key Pair" section on page 39-16).

This section includes the following topics:

About SSH

SSH provides secure communications to the Cisco SAN-OS CLI. You can use SSH keys for the following SSH options:

- SSH1
- SSH2, using RSA
- SSH2 using DSA

About the SSH Server Key Pair

Be sure to have an SSH server key pair with the appropriate version before enabling the SSH service. Generate the SSH server key pair according to the SSH client version used. The number of bits specified for each key pair ranges from 768 to 2048.

The SSH service accepts three types of key pairs for use by SSH versions 1 and 2.

- The **rsa1** option generates the RSA1 key pair for the SSH version 1 protocol.
- The **dsa** option generates the DSA key pair for the SSH version 2 protocol.
- The **rsa** option generates the RSA key pair for the SSH version 2 protocol.

Caution If you delete all of the SSH keys, you cannot start a new SSH session.

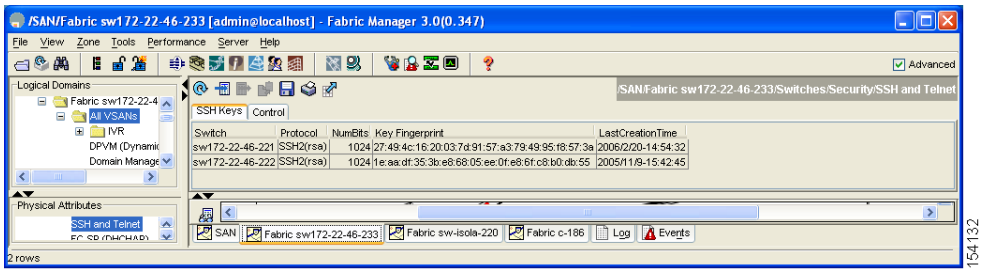
Generating the SSH Server Key Pair

To generate the SSH server key pair, follow these steps:

Step 1 Expand **Switches > Security** and then select **SSH and Telnet**.

You see the configuration shown in Figure 39-10 in the Information pane.

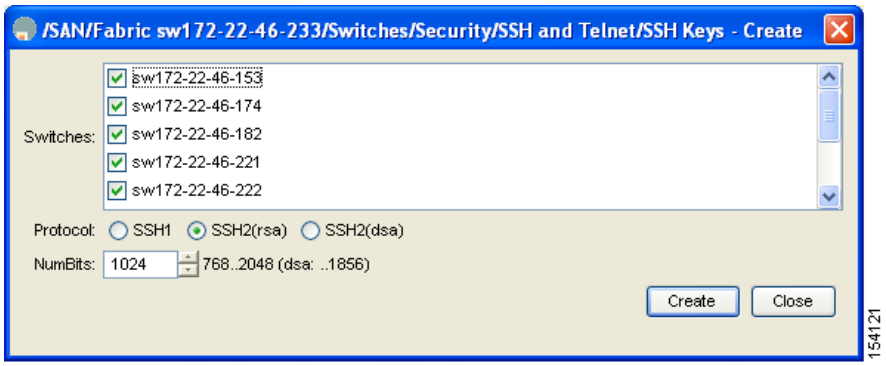
Figure 39-10 SSH and Telnet Configuration



Step 2 Click **Create Row**.

You see the SSH and Telnet Key Create dialog box shown in Figure 39-11.

Figure 39-11 Create SSH and Telnet Dialog Box



Step 3 Check the switches you want to assign to this SSH key pair.

Step 4 Choose the key pair option type from the listed Protocols. The listed protocols are SSH1, SSH2(rsa), and SSH2(dsa).

Step 5 Set the number of bits that will be used to generate the key pairs in the NumBits drop-down menu.

Step 6 Click **Create** to generate these keys or click **Close** to discard any unsaved changes.

Overwriting a Generated Key Pair

If the SSH key pair option is already generated for the required version, you can force the switch to overwrite the previously generated key pair.

To overwrite a previously generated key pair using Fabric Manager, follow these steps:

Step 1 Expand **Switches > Security** and then select **SSH and Telnet**.

You see the configuration in the Information pane.

Step 2 Highlight the key that you want to overwrite and click **Delete Row**.

Step 3 Click **Apply Changes** to save these changes or click the **Undo Changes** to discard unsaved changes.

Step 4 Click the **Create Row**.

You see the SSH and Telnet Key Create dialog box.

Step 5 Check the switches you want to assign this SSH key pair.

Step 6 Choose the key pair option type from the Protocols radio buttons.

Step 7 Set the number of bits that will be used to generate the key pairs in the NumBits drop-down menu.

Step 8 Click **Create** to generate these keys or click **Close** to discard any unsaved changes.

Enabling SSH or Telnet Service

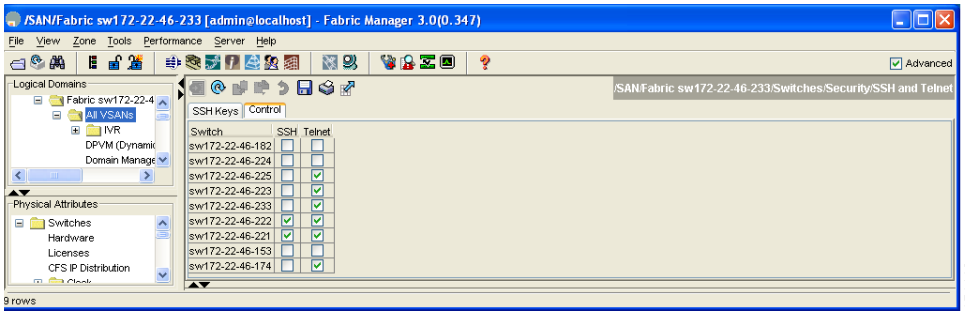
By default, the SSH service is disabled. Fabric Manager enables SSH automatically when you configure it.

To enable or disable SSH using Fabric Manager, follow these steps:

Step 1 Expand **Switches > Security** and then select **SSH and Telnet**.

Step 2 Select the **Control** tab and check an **SSH** check box or **Telnet** check box for each switch as shown in Figure 39-12.

Figure 39-12 Control Tab under SSH and Telnet



Step 3 Click **Apply Changes** to save this change or click **Undo Changes** to discard unsaved changes.

Note If you are logging in to a switch through SSH and you have issued the **aaa authentication login default none CLI** command, you must enter one or more key strokes to log in. If you press the **Enter** key without entering at least one keystroke, your log in will be rejected.

SSH Authentication Using Digital Certificates

SSH authentication on the Cisco MDS 9000 Family switches provide X.509 digital certificate support for host authentication. An X.509 digital certificate is a data item that vouches for the origin and integrity of a message. It contains encryption keys for secured communications and is "signed" by a trusted certification authority (CA) to verify the identity of the presenter. The X.509 digital certificate support provides either DSA or RSA algorithms for authentication.

The certificate infrastructure uses the first certificate that supports the Secure Socket Layer (SSL) and is returned by the security infrastructure, either through query or notification. Verification of certificates is successful if the certificates are from any of the trusted CAs.

You can configure your switch for either SSH authentication using an X.509 certificate or SSH authentication using a Public Key Certificate, but not both. If either of them is configured and the authentication fails, you will be prompted for a password.

For more information on CAs and digital certificates, see Chapter 34, "Configuring Certificate Authorities and Digital Certificates."

Creating or Updating Users

The passphrase specified in the **snmp-server user** option and the password specified **username** option are synchronized.

By default, the user account does not expire unless you explicitly configure it to expire. The **expire** option determines the date on which the user account is disabled. The date is specified in the YYYY-MM-DD format.

Tip The following words are reserved and cannot be used to configure users: bin, daemon, adm, lp, sync, shutdown, halt, mail, news, uucp, operator, games, gopher, ftp, nobody, nscd, mailnull, rpc, rpcuser, xfs, gdm, mtsuser, ftpuser, man, and sys.

Note User passwords are not displayed in the switch configuration file.

Tip If a password is trivial (short, easy-to-decipher), your password configuration is rejected. Be sure to configure a strong password as shown in the sample configuration. Passwords are case-sensitive. "admin" is no longer the default password for any Cisco MDS 9000 Family switch. You must explicitly configure a strong password.

Caution Cisco MDS SAN-OS does not support all numeric usernames, whether created with TACACS+ or RADIUS, or created locally. Local users with all numeric names cannot be created. If an all numeric username exists on an AAA server and is entered during login, the user is not logged in.

Tip To issue commands with the **internal** keyword for troubleshooting purposes, you must have an account that is a member of the network-admin group.

Note Only the network-admin users are allowed to modify other user's privileges.

To configure a new user or to modify the profile of an existing user using Fabric Manager, follow these steps:

Step 1 Expand **Switches > Security** and then select **Users and Roles** from the Physical Attributes pane. Click the **Users** tab in the Information pane to see the user information.

Step 2 Click **Create Row** to create a user.

You see the Create Users dialog box.

Step 3 Select the switches to which this user will be allowed access.

Step 4 Assign a new user name and password.

Note User account names must contain non-numeric characters.

Step 5 Select the roles that you want to assign to this new user.

Step 6 Select the digest and encryption for the user that you are creating or updating.

Step 7 Optionally, enter an expiry date and an SSH file name for the user.

Step 8 Click **Create** to create the user or **Close** to discard the changes.

Recovering the Administrator Password

You can recover the administrator password using one of two methods:

- From the CLI with a user name that has network-admin privileges.
- Power cycling the switch.

Note To recover an administrator's password, refer to the *Cisco MDS 9000 Family CLI Configuration Guide*.

Configuring Cisco ACS Servers

The Cisco Access Control Server (ACS) uses TACACS+ and RADIUS protocols to provide AAA services that ensure a secure environment.When using the AAA server, user management is normally done using Cisco ACS. Figure 39-13, Figure 39-14, Figure 39-15, and Figure 39-16 display ACS server user setup configurations for network-admin roles and multiple roles using either TACACS+ or RADIUS.

Caution Cisco MDS SAN-OS does not support all numeric usernames, whether created with TACACS+ or RADIUS, or created locally. Local users with all numeric names cannot be created. If an all numeric user name exists on an AAA server and is entered during login, the user is not logged in.

Note Each role specified in the cisco-av-pair must exist in the MDS, or the user will have the 'network-operator' role.

Figure 39-13 Configuring the Network-admin Role When Using RADIUS

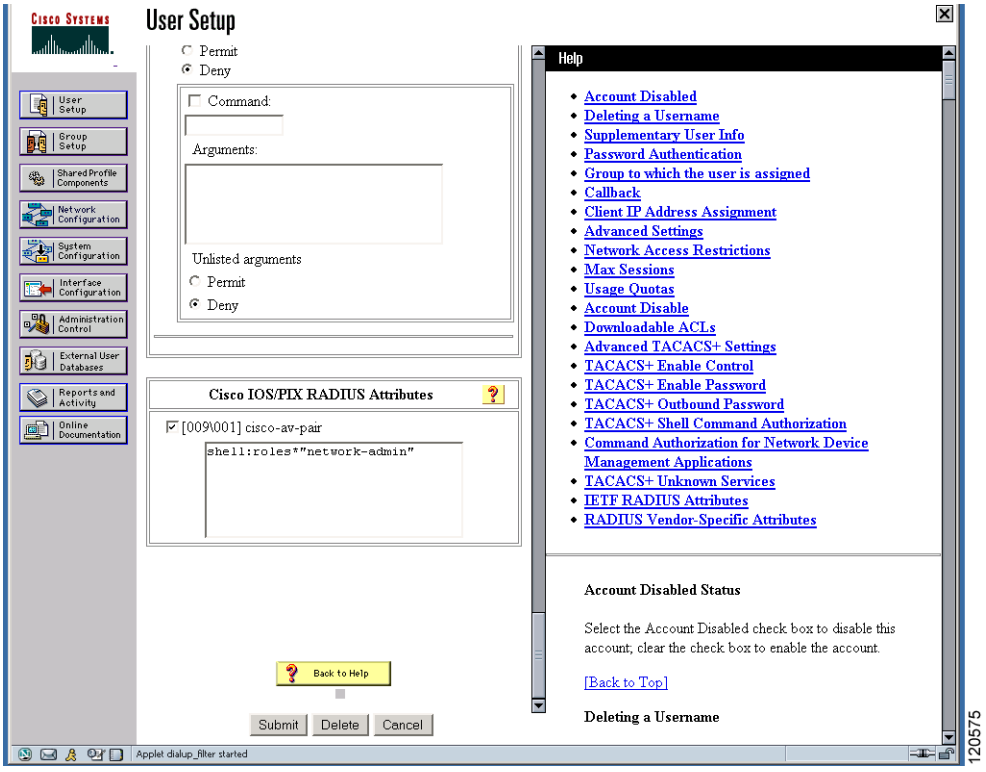


Figure 39-14 Configuring Multiple Roles with SNMPv3 Attributes When Using RADIUS

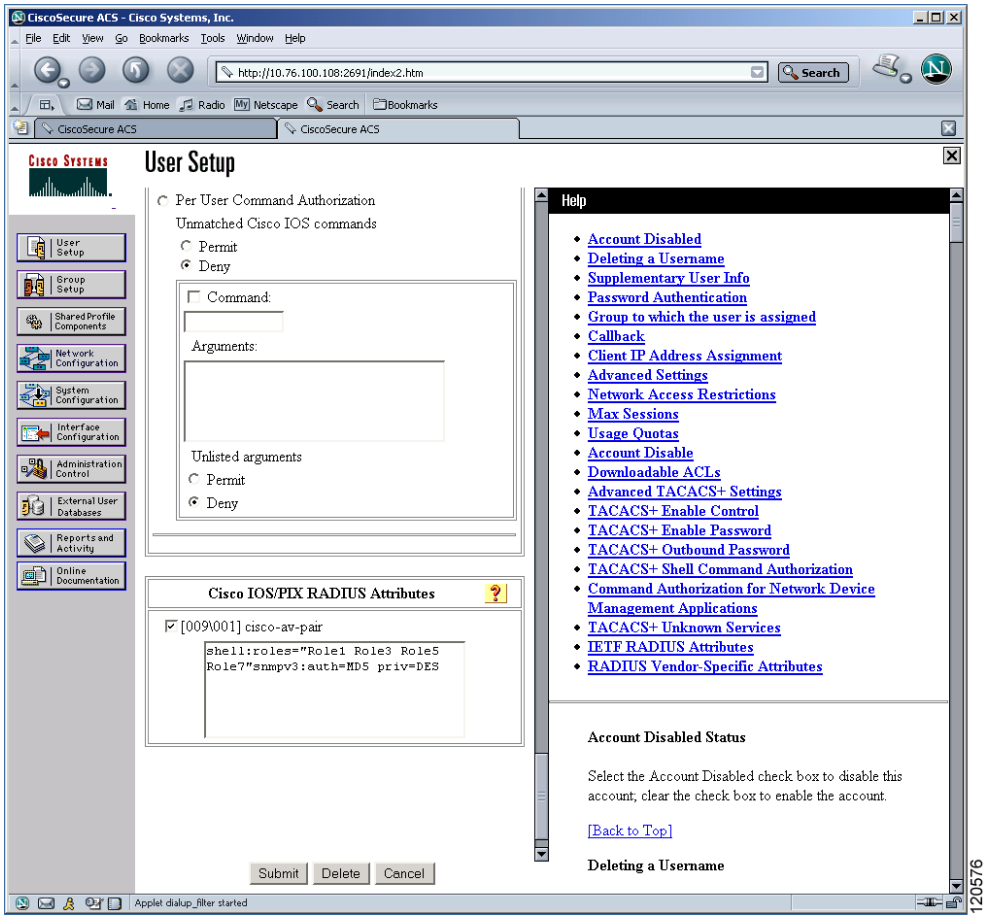


Figure 39-15 Configuring the network-admin Role with SNMPv3 Attributes When Using TACACS+

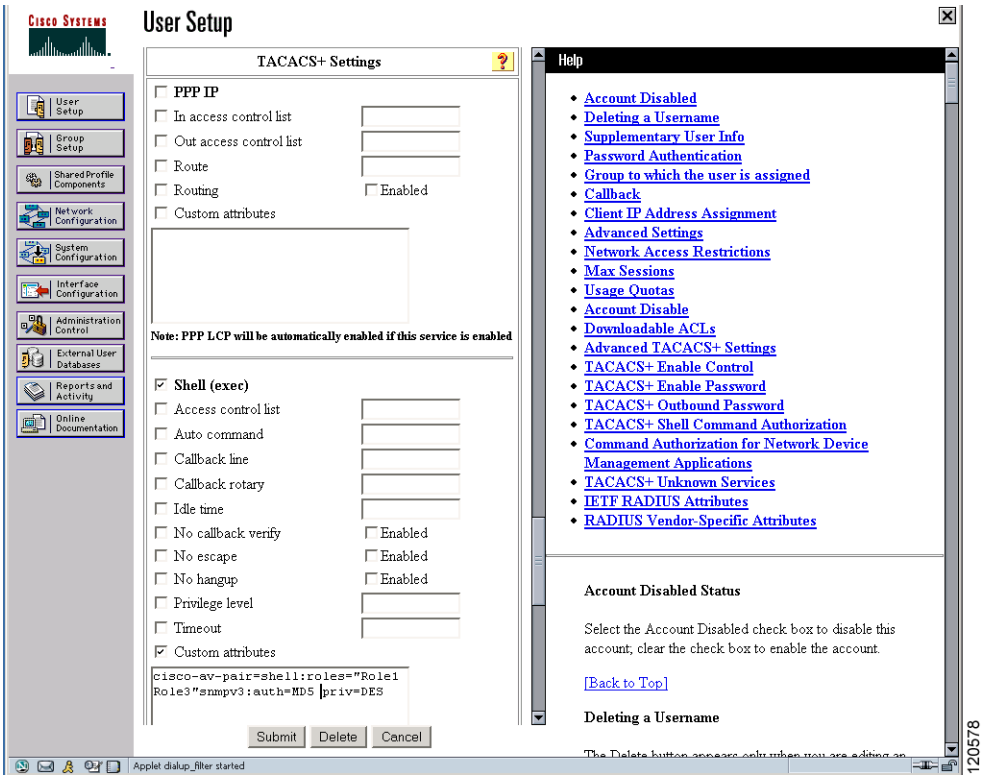
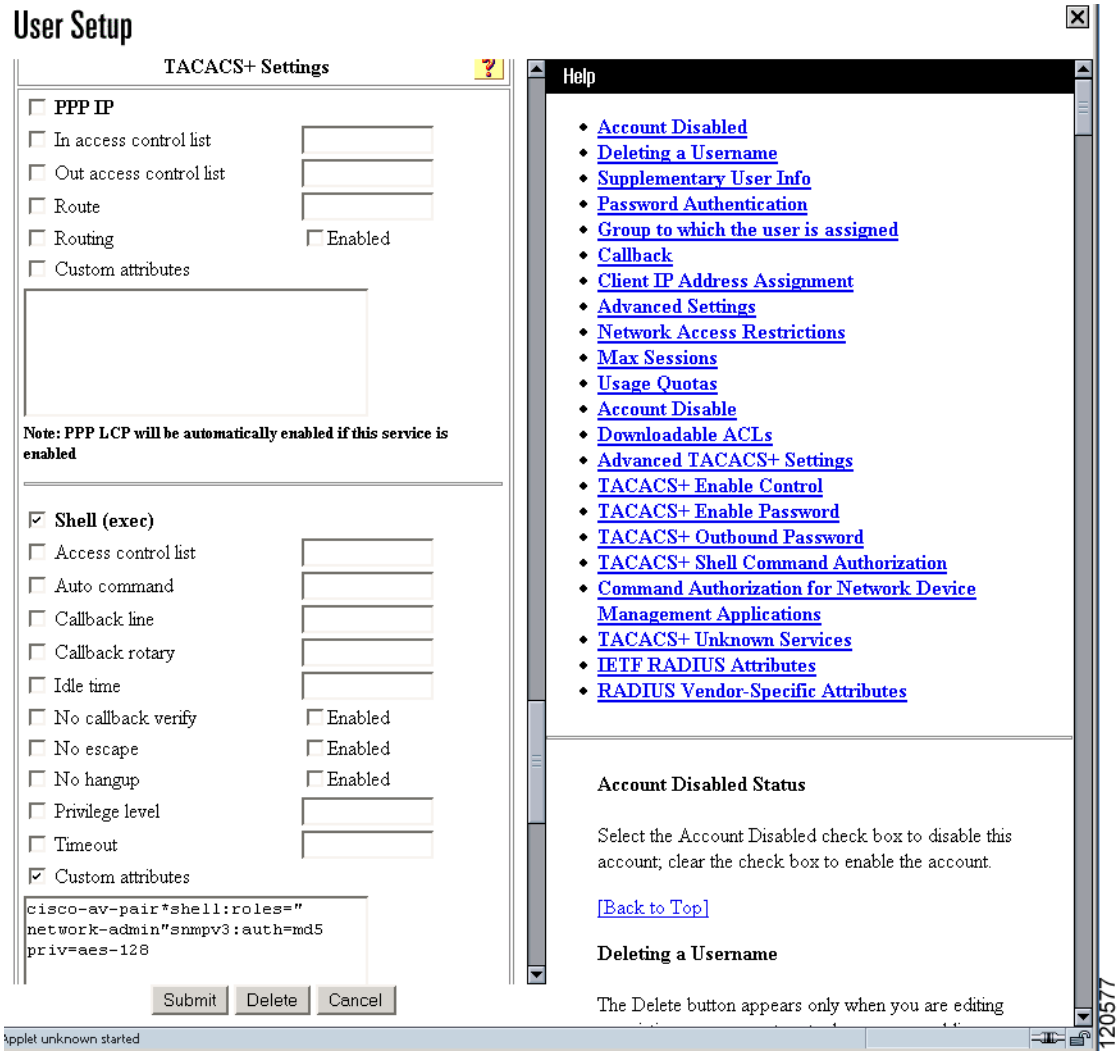


Figure 39-16 Configuring Multiple Roles with SNMPv3 Attributes When Using TACACS+



Default Settings

Table 39-1 lists the default settings for all switch security features in any switch.

Table 39-1 Default Switch Security Settings

Parameters	Default
Roles in Cisco MDS Switches	Network operator (network-operator).
AAA configuration services	Local.
Authentication port	1821.
Accounting port	1813.
Preshared key communication	Clear text.
RADIUS server time out	1 (one) second.

Table 39-1 Default Switch Security Settings (continued)

Parameters	Default
RADIUS server retries	Once.
TACACS+	Disabled.
TACACS+ servers	None configured.
TACACS+ server timeout	5 seconds.
AAA server distribution	Disabled.
VSAN policy for roles	Permit.
User account	No expiry (unless configured).
Password	None.
Accounting log size	250 KB.
SSH service	Disabled.
Telnet service	Enabled.