User Accounts for Devices

Managed devices include a default **admin** account for CLI access. This chapter discusses how to create custom user accounts. See Logging into the Firepower System for detailed information about logging into the managed device with a user account.

About User Accounts for Devices

You can add custom user accounts on managed devices, either as internal users or, for the FTD, as external users on a LDAP or RADIUS server. Each managed device maintains separate user accounts. For example, when you add a user to the FMC, that user only has access to the FMC; you cannot then use that username to log directly into a managed device. You must separately add a user on the managed device.

Internal and External Users

Managed devices support two types of users:

- Internal user—The device checks a local database for user authentication. For more information about internal users, see Add an Internal User at the CLI, on page 3. The FTD, NGIPSv, and ASA FirePOWER support internal users.
- External user (FTD only)—If the user is not present in the local database, the system queries an external LDAP or RADIUS authentication server. For more information about external users, see Configure External Authentication for the FTD, on page 5. Only the FTD supports external users.

CLI Access

Firepower devices include a Firepower CLI that runs on top of Linux. You can create internal users on devices using the CLI. You can establish external users on FTD devices using the FMC. For detailed information about the management UIs, see Firepower System User Interfaces.

Caution Users with CLI Config level access can access the Linux shell using the **expert** command, and obtain `sudoers` privileges in the Linux shell, which can present a security risk. For system security reasons, we strongly recommend:

- Only use the Linux shell under TAC supervision or when explicitly instructed by Firepower user documentation.
- Make sure that you restrict the list of users with CLI access appropriately.
- When granting CLI access privileges, restrict the list of users with Config level access.
- Do not add users directly in the Linux shell; only use the procedures in this chapter.
- Do not access Firepower devices using CLI expert mode unless directed by Cisco TAC or by explicit instructions in the Firepower user documentation.

CLI User Roles

On managed devices, user access to commands in the CLI depends on the role you assign.

None

The user cannot log into the device on the command line.

Config

The user can access all commands, including configuration commands. Exercise caution in assigning this level of access to users.

Basic

The user can access non-configuration commands only. Only internal users and Firepower Threat Defense external RADIUS users support the Basic role.

Requirements and Prerequisites for User Accounts for Devices

Model Support

- FTD—Internal and external users
- ASA FirePOWER—Internal users
- NGIPSv—Internal users

Supported Domains

Any

User Roles

Configure external users—Admin FMC user

Configure internal users—Config CLI user

Guidelines and Limitations for User Accounts for Devices

Defaults

All devices include an **admin** user as a local user account; you cannot delete the **admin** user. The default initial password is **Admin123**; the system forces you to change this during the initialization process. See the getting started guide for your model for more information about system initialization.

Add an Internal User at the CLI

Use the CLI to create internal users on the Firepower Threat Defense, ASA FirePOWER, and NGIPSv devices.

Procedure

Step 1 Log into the device CLI using an account with Config privileges.

The **admin** user account has the required privileges, but any account with Config privileges will work. You can use an SSH session or the Console port.

For certain the Firepower Threat Defense models, the Console port puts you into the FXOS CLI. Use the **connect ftd** command to get to the Firepower Threat Defense CLI.

Step 2 Create the user account.

configure user add *username* {**basic** | **config**}

- *username*—Sets the username. The username must be Linux-valid:
  - Maximum 32 alphanumeric characters, plus hyphen (-) and underscore (_)
  - All lowercase
  - Cannot start with hyphen (-); cannot be all numbers; cannot include a period(.), at sign (@), or slash (/)
- **basic**—Gives the user basic access. This role does not allow the user to enter configuration commands.
- **config**—Gives the user configuration access. This role gives the user full administrator rights to all commands.

Example:

The following example adds a user account named johncrichton with Config access rights. The password is not shown as you type it.

```
> configure user add johncrichton config
Enter new password for user johncrichton: newpassword
Confirm new password for user johncrichton: newpassword
> show user
Login              UID   Auth Access  Enabled Reset    Exp Warn  Str Lock Max
admin             1000  Local Config  Enabled    No  Never  N/A  Dis   No N/A
johncrichton      1001  Local Config  Enabled    No  Never  N/A  Dis   No   5
```

Note
Tell users they can change their own passwords using the **configure password** command.

Step 3 (Optional) Adjust the characteristics of the account to meet your security requirements.

You can use the following commands to change the default account behavior.

- **configure user aging** *username max_days warn_days*

  Sets an expiration date for the user's password. Specify the maximum number of days for the password to be valid followed by the number of days before expiration the user will be warned about the upcoming expiration. Both values are 1 to 9999, but the warning days must be less than the maximum days. When you create the account, there is no expiration date for the password.

- **configure user forcereset** *username*

  Forces the user to change the password on the next login.

- **configure user maxfailedlogins** *username number*

  Sets the maximum number of consecutive failed logins you will allow before locking the account, from 1 to 9999. Use the **configure user unlock** command to unlock accounts. The default for new accounts is 5 consecutive failed logins.

- **configure user minpasswdlen** *username number*

  Sets a minimum password length, which can be from 1 to 127.

- **configure user strengthcheck** *username* {**enable** | **disable**}

  Enables or disables password strength checking, which requires a user to meet specific password criteria when changing their password. When a user's password expires or if the **configure user forcereset** command is used, this requirement is automatically enabled the next time the user logs in.

Step 4 Manage user accounts as necessary.

Users can get locked out of their accounts, or you might need to remove accounts or fix other issues. Use the following commands to manage the user accounts on the system.

- **configure user access** *username* {**basic** | **config**}

  Changes the privileges for a user account.

- **configure user delete** *username*

  Deletes the specified account.

- **configure user disable** *username*

Disables the specified account without deleting it. The user cannot log in until you enable the account.

- **configure user enable** *username*

  Enables the specified account.

- **configure user password** *username*

  Changes the password for the specified user. Users should normally change their own password using the **configure password** command.

- **configure user unlock** *username*

  Unlocks a user account that was locked due to exceeding the maximum number of consecutive failed login attempts.

Configure External Authentication for the FTD

To enable external authentication for FTD devices, you need to add one or more external authentication objects.

About External Authentication for the FTD

When you enable external authentication for FTD users, the FTD verifies the user credentials with an LDAP or RADIUS server as specified in an *external authentication object*.

External authentication objects can be used by the FMC and Firepower Threat Defense devices. You can share the same object between the different appliance/device types, or create separate objects. For the Firepower Threat Defense, you can only activate one external authentication object in the platform settings that you deploy to the devices.

Note The timeout range is different for the FTD and the FMC, so if you share an object, be sure not to exceed the FTD's smaller timeout range (1-30 seconds for LDAP, and 1-300 seconds for RADIUS). If you set the timeout to a higher value, the FTD external authentication configuration will not work.

Note External authentication is not supported on Firepower Threat Defense virtual devices.

Only a subset of fields in the external authentication object are used for Firepower Threat Defense SSH access. If you fill in additional fields, they are ignored. If you also use this object for other device types, those fields will be used.

LDAP users always have Config privileges. RADIUS users can be defined as either Config or Basic users.

You can either define users on the RADIUS server (with the Service-Type attribute), or you can pre-define the user list in the external authentication object. For LDAP, you can specify a filter to match CLI users on the LDAP server.

Note Users with CLI access can gain Linux shell access with the **expert** command. Linux shell users can obtain root privileges, which can present a security risk. Make sure that you:

- Restrict the list of users with Linux shell access.
- Do not create Linux shell users.

About LDAP

The Lightweight Directory Access Protocol (LDAP) allows you to set up a directory on your network that organizes objects, such as user credentials, in a centralized location. Multiple applications can then access those credentials and the information used to describe them. If you ever need to change a user's credentials, you can change them in one place.

Microsoft has announced that Active Directory servers will start enforcing LDAP binding and LDAP signing in 2020. Microsoft is making these a requirement because when using default settings, an elevation of privilege vulnerability exists in Microsoft Windows that could allow a man-in-the-middle attacker to successfully forward an authentication request to a Windows LDAP server. For more information, see 2020 LDAP channel binding and LDAP signing requirement for Windows on the Microsoft support site.

If you have not done so already, we recommend you start using TLS/SSL encryption to authenticate with an Active Directory server.

About RADIUS

Remote Authentication Dial In User Service (RADIUS) is an authentication protocol used to authenticate, authorize, and account for user access to network resources. You can create an authentication object for any RADIUS server that conforms to RFC 2865.

Firepower devices support the use of SecurID tokens. When you configure authentication by a server using SecurID, users authenticated against that server append the SecurID token to the end of their SecurID PIN and use that as their password when they log in. You do not need to configure anything extra on the Firepower device to support SecurID.

Add an LDAP External Authentication Object for FTD

Add an LDAP server to support external users for FTD management.

In a multidomain deployment, external authentication objects are only available in the domain in which they are created.

Sharing External Authentication Objects

External LDAP objects can be used by the FMC and Firepower Threat Defense devices. You can share the same object between the FMC and devices, or create separate objects.

Note For LDAP, the timeout range is different for the FTD and the FMC, so if you share an object, be sure not to exceed the FTD's smaller timeout range (1-30 seconds). If you set the timeout to a higher value, the deployment to the FTD will fail.

Firepower Threat Defense Supported Fields

Only a subset of fields in the LDAP object are used for Firepower Threat Defense SSH access. If you fill in additional fields, they are ignored. If you also use this object for the FMC, those fields will be used. This procedure only covers the supported fields for the Firepower Threat Defense. For other fields, see Add an LDAP External Authentication Object for FMC.

Usernames

Usernames must be Linux-valid usernames and be lower-case only, using alphanumeric characters plus period (.) or hyphen (-). Other special characters such as at sign (@) and slash (/) are not supported. You cannot add the **admin** user for external authentication. You can only add external users (as part of the External Authentication object) in the FMC; you cannot add them at the CLI. Note that internal users can only be added at the CLI, not in the FMC.

If you previously configured the same username for an internal user using the **configure user add** command, the Firepower Threat Defense first checks the password against the internal user, and if that fails, it checks the LDAP server. Note that you cannot later add an internal user with the same name as an external user; only pre-existing internal users are supported.

Privilege Level

LDAP users always have Config privileges.

Before you begin

You must specify DNS server(s) for domain name lookup on your device. Even if you specify an IP address and not a hostname for the LDAP server on this procedure, the LDAP server may return a URI for authentication that can include a hostname. A DNS lookup is required to resolve the hostname. See Modify Device Management Interfaces at the CLI to add DNS servers.

Procedure

Step 1 Choose **System** > **Users**.

Step 2 Click the **External Authentication** tab.

Step 3 Click **Add External Authentication Object**.

Step 4 Set the **Authentication Method** to **LDAP**.

Step 5 Enter a **Name** and optional **Description**.

Step 6 Choose a **Server Type** from the drop-down list.

Step 7 For the **Primary Server**, enter a **Host Name/IP Address**.

If you are using a certificate to connect via TLS or SSL, the host name in the certificate must match the host name used in this field. In addition, IPv6 addresses are not supported for encrypted connections.

Step 8 (Optional) Change the **Port** from the default.

Step 9 (Optional) Enter the **Backup Server** parameters.

Step 10 Enter **LDAP-Specific Parameters**.

a) Enter the **Base DN** for the LDAP directory you want to access. For example, to authenticate names in the Security organization at the Example company, enter `ou=security,dc=example,dc=com`. Alternatively click **Fetch DNs**, and choose the appropriate base distinguished name from the drop-down list.

b) (Optional) Enter the **Base Filter**. For example, if the user objects in a directory tree have a `physicalDeliveryOfficeName` attribute and users in the New York office have an attribute value of `NewYork` for that attribute, to retrieve only users in the New York office, enter `(physicalDeliveryOfficeName=NewYork)`.

c) Enter a **User Name** for a user who has sufficient credentials to browse the LDAP server. For example, if you are connecting to an OpenLDAP server where user objects have a `uid` attribute, and the object for the administrator in the Security division at your example company has a `uid` value of `NetworkAdmin`, you might enter `uid=NetworkAdmin,ou=security,dc=example,dc=com`.

d) Enter the user password in the **Password** and the **Confirm Password** fields.

e) (Optional) Click **Show Advanced Options** to configure the following advanced options.

- **Encryption**—Click **None**, **TLS**, or **SSL**.

  If you change the encryption method after specifying a port, you reset the port to the default value for that method. For **None** or **TLS**, the port resets to the default value of 389. If you choose SSL encryption, the port resets to 636.

- **SSL Certificate Upload Path**—For SSL or TLS encryption, you must choose a certificate by clicking **Choose File**.

  If you previously uploaded a certificate and want to replace it, upload the new certificate and redeploy the configuration to your devices to copy over the new certificate.

  Note
  TLS encryption requires a certificate on all platforms. For SSL, the Firepower Threat Defense also requires a certificate. For other platforms, SSL does not require a certificate. However, we recommend that you *always* upload a certificate for SSL to prevent man-in-the-middle attacks.

- (Not Used) **User Name Template**—Not used by the Firepower Threat Defense.

- **Timeout**—Enter the number of seconds before rolling over to the backup connection, between 1 and 30. The default is 30.

  Note
  The timeout range is different for the FTD and the FMC, so if you share an object, be sure not to exceed the FTD's smaller timeout range (1-30 seconds). If you set the timeout to a higher value, the FTD LDAP configuration will not work.

Step 11 (Optional) Set the **CLI Access Attribute** if you want to use a CLI access attribute other than the user distinguished type. For example, on a Microsoft Active Directory Server, use the `sAMAccountName` CLI access attribute to retrieve CLI access users by typing `sAMAccountName` in the **CLI Access Attribute** field.

Note
Users with CLI access can gain Linux shell access with the **expert** command. Linux shell users can obtain root privileges, which can present a security risk. Make sure that you restrict the list of users with CLI or Linux shell access.

Step 12 Set the **CLI Access Filter**.

Choose one of the following methods:

- To use the same filter you specified when configuring authentication settings, choose **Same as Base Filter**.

- To retrieve administrative user entries based on attribute value, enter the attribute name, a comparison operator, and the attribute value you want to use as a filter, enclosed in parentheses. For example, if all network administrators have a `manager` attribute which has an attribute value of `shell`, you can set a base filter of `(manager=shell)`.

The usernames must be Linux-valid:

- Maximum 32 alphanumeric characters, plus hyphen (-) and underscore (_)
- All lowercase
- Cannot start with hyphen (-); cannot be all numbers; cannot include a period (.), at sign (@), or slash (/)

Note
If you previously configured the same username for an internal user, the Firepower Threat Defense first checks the password against the internal user, and if that fails, it checks the LDAP server. Note that you cannot later add an internal user with the same name as an external user; only pre-existing internal users are supported.

Step 13 Click **Save**.

Step 14 Enable use of this server. See Configure External Authentication for SSH.

Step 15 If you later add or delete users on the LDAP server, you must refresh the user list and redeploy the Platform Settings on managed devices.

a) Click the **Refresh** ( ) next to each LDAP server.

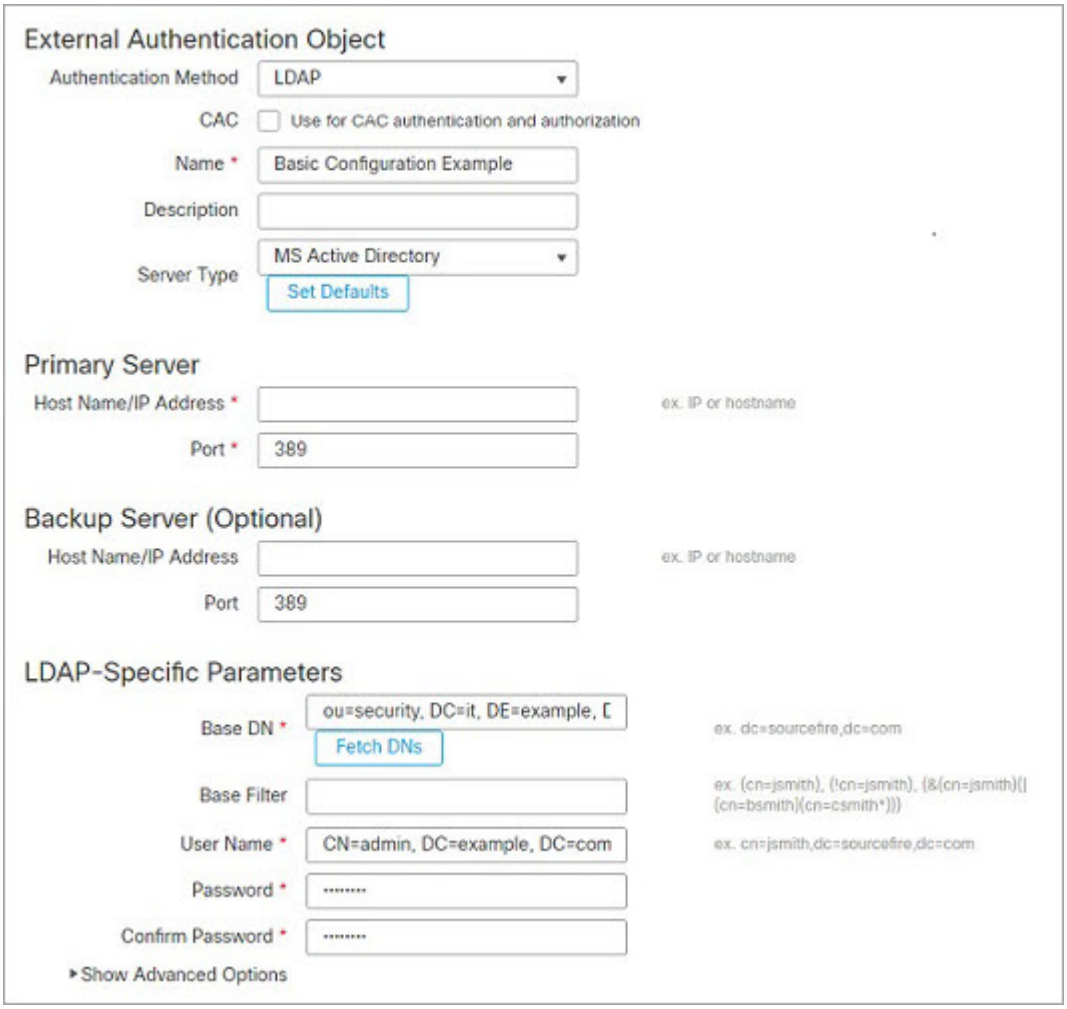
If the user list changed, you will see a message advising you to deploy configuration changes for your device.

b) Deploy configuration changes; see Deploy Configuration Changes.

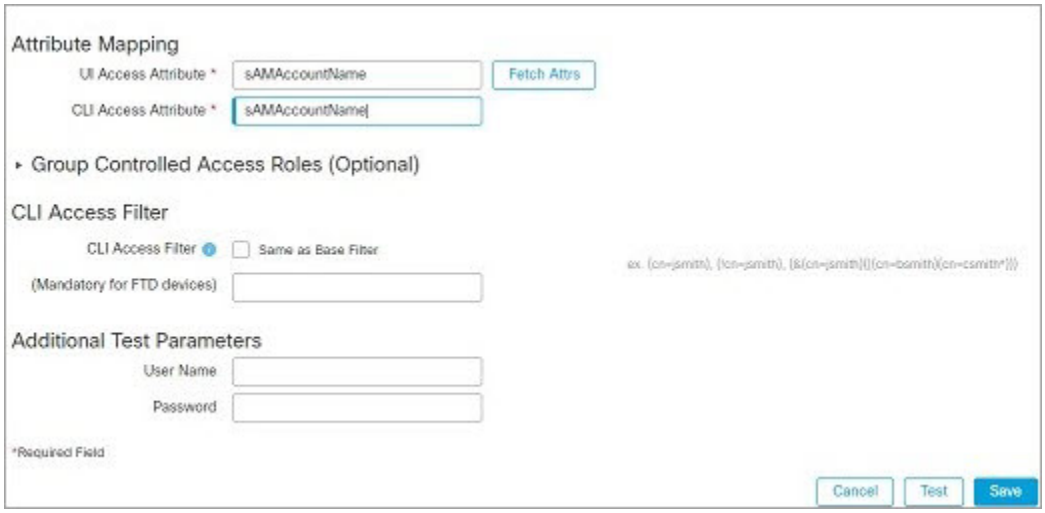
Examples

Basic Example

The following figures illustrate a basic configuration of an LDAP login authentication object for a Microsoft Active Directory Server. The LDAP server in this example has an IP address of 10.11.3.4. The connection uses port 389 for access.



This example shows a connection using a base distinguished name of `OU=security,DC=it,DC=example,DC=com` for the security organization in the information technology domain of the Example company.

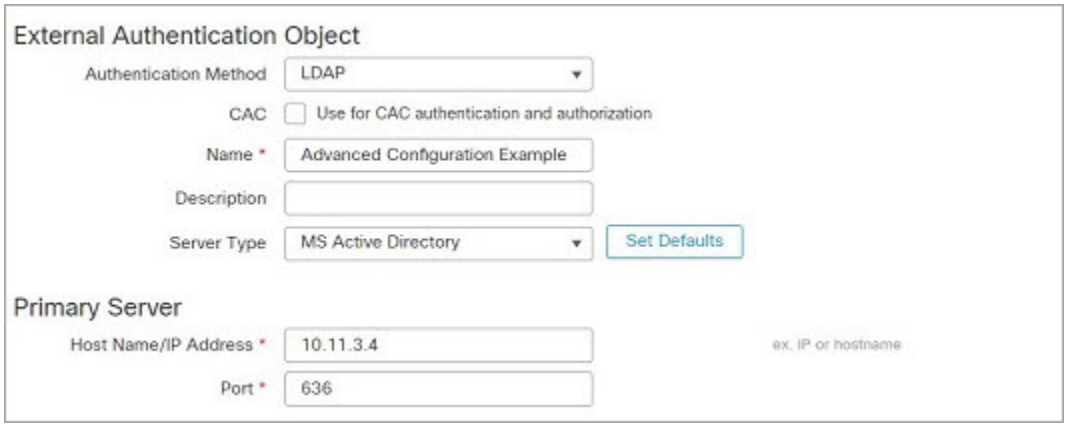


A **CLI Access Attribute** of `sAMAccountName` causes each `sAMAccountName` attribute to be checked for all objects in the directory for matches when a user logs into the FTD.

Note that because no base filter is applied to this server, the FTD checks attributes for all objects in the directory indicated by the base distinguished name. Connections to the server time out after the default time period (or the timeout period set on the LDAP server).

Advanced Example

This example illustrates an advanced configuration of an LDAP login authentication object for a Microsoft Active Directory Server. The LDAP server in this example has an IP address of 10.11.3.4. The connection uses port 636 for access.



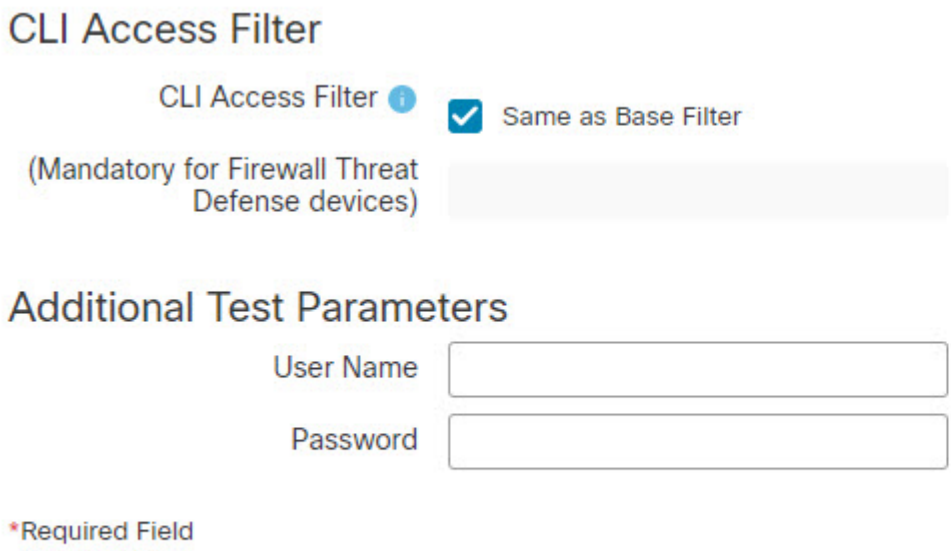
This example shows a connection using a base distinguished name of `OU=security,DC=it,DC=example,DC=com` for the security organization in the information technology domain of the Example company. However, note that this server has a base filter of `(cn=*smith)`. The filter restricts the users retrieved from the server to those with a common name ending in `smith`.

The connection to the server is encrypted using SSL and a certificate named `certificate.pem` is used for the connection. In addition, connections to the server time out after 60 seconds because of the **Timeout** setting.

Because this server is a Microsoft Active Directory server, it uses the `sAMAccountName` attribute to store user names rather than the `uid` attribute.

The **CLI Access Atrribute** of `sAMAccountName` causes each `sAMAccountName` attribute to be checked for all objects in the directory for matches when a user logs into the FTD.

In the following example, the CLI access filter is set to be the same as the base filter.



Add a RADIUS External Authentication Object for FTD

Add a RADIUS server to support external users for the FTD.

In a multidomain deployment, external authentication objects are only available in the domain in which they are created.

Sharing External Authentication Objects

You can share the same object between the FMC and devices, or create separate objects. Note that the Firepower Threat Defense supports defining users on the RADIUS server, while the FMC requires you to predefine the user list in the external authentication object. You can choose to use the predefined list method for the Firepower Threat Defense, but if you want to define users on the RADIUS server, you must create separate objects for the Firepower Threat Defense and the FMC.

Note The timeout range is different for the FTD and the FMC, so if you share an object, be sure not to exceed the FTD's smaller timeout range (1-300 seconds). If you set the timeout to a higher value, the FTD RADIUS configuration will not work.

Firepower Threat Defense Supported Fields

Only a subset of fields in the RADIUS object are used for Firepower Threat Defense SSH access. If you fill in additional fields, they are ignored. If you also use this object for the FMC, those fields will be used. This procedure only covers the supported fields for the Firepower Threat Defense. For other fields, see Add a RADIUS External Authentication Object for FMC.

Usernames

You cannot add the **admin** user for external authentication. You can only add external users (as part of the External Authentication object) in the FMC; you cannot add them at the CLI. Note that internal users can only be added at the CLI, not in the FMC.

If you previously configured the same username for an internal user using the **configure user add** command, the Firepower Threat Defense first checks the password against the internal user, and if that fails, it checks the RADIUS server. Note that you cannot later add an internal user with the same name as an external user; only pre-existing internal users are supported. For users defined on the RADIUS server, be sure to set the privilege level to be the same as any internal users; otherwise you cannot log in using the external user password.

Procedure

Step 1 Define users on the RADIUS server using the Service-Type attribute.

The following are supported values for the Service-Type attribute:

- Administrator (6)—Provides Config access authorization to the CLI. These users can use all commands in the CLI.
- NAS Prompt (7) or any level other than 6—Provides Basic access authorization to the CLI. These users can use read-only commands, such as **show** commands, for monitoring and troubleshooting purposes.

The names must be Linux-valid usernames:

- Maximum 32 alphanumeric characters, plus hyphen (-) and underscore (_)
- All lowercase
- Cannot start with hyphen (-); cannot be all numbers; cannot include at sign (@) or slash (/)

Alternatively, you can predefine users in the external authentication object (see Step Step 13, on page 15). To use the same RADIUS server for the Firepower Threat Defense and FMC while using the Service-Type attribute method for the Firepower Threat Defense, create two external authentication objects that identify the same RADIUS server: one object includes the predefined **CLI Access Filter** users (for use with the FMC), and the other object leaves the **CLI Access Filter** empty (for use with Firepower Threat Defenses).

Step 2 In FMC, choose **System** > **Users**.

Step 3 Click **External Authentication**.

Step 4 Click **Add External Authentication Object**.

Step 5 Set the **Authentication Method** to **RADIUS**.

Step 6 Enter a **Name** and optional **Description**.

Step 7 Check the **RADIUS Server-Enabled Message Authenticator** check box to require the Message-Authenticator attribute in all RADIUS responses, ensuring that every response from the RADIUS server is securely verified by the FTD.

This feature is enabled by default for new RADIUS servers. We recommend that you enable it for existing servers after the upgrade. Disabling message authenticators may expose your firewalls to potential attacks. Ensure that your RADIUS server has the Message-Authenticator configuration.

Note the following:

- Your RADIUS server must have the Message-Authenticator configuration.
- You must have compatible FTDs that support message authenticators. Otherwise, your RADIUS logins may fail. For more information about the compatible FTDs that support this feature, see RADIUS Server-Enabled Message Authenticator Compatibility Matrix.

Step 8 For the **Primary Server**, enter a **Host Name/IP Address**.

Note
If you are using a certificate to connect via TLS or SSL, the host name in the certificate must match the host name used in this field. In addition, IPv6 addresses are not supported for encrypted connections.

Step 9 (Optional) Change the **Port** from the default.

Step 10 Enter the **RADIUS Secret Key**.

Step 11 (Optional) Enter the **Backup Server** parameters.

Step 12 (Optional) Enter **RADIUS-Specific Parameters**.

a) Enter the **Timeout** in seconds before retrying the primary server, between 1 and 300. The default is 30.

Note
The timeout range is different for the FTD and the FMC, so if you share an object, be sure not to exceed the FTD's smaller timeout range (1-300 seconds). If you set the timeout to a higher value, the FTD RADIUS configuration will not work.

b) Enter the **Retries** before rolling over to the backup server. The default is 3.

Step 13 (Optional) Instead of using RADIUS-defined users (see Step Step 1, on page 13), in the **CLI Access Filter** area **Administrator CLI Access User List** field, enter the user names that should have CLI access, separated by commas. For example, enter **`jchrichton, aerynsun, rygel`**.

You may want to use the **CLI Access Filter** method for Firepower Threat Defense so you can use the same external authentication object with Firepower Threat Defense and other platform types.

Note
If you want to use RADIUS-defined users, you must leave the **CLI Access Filter** empty.

Make sure that these usernames match usernames on the RADIUS server. The names must be Linux-valid usernames:

- Maximum 32 alphanumeric characters, plus hyphen (-) and underscore (_)
- All lowercase
- Cannot start with hyphen (-); cannot be all numbers; cannot include at sign (@) or slash (/)

Note
Users with CLI access can gain Linux shell access with the **expert** command. Linux shell users can obtain root privileges, which can present a security risk. Make sure that you restrict the list of users with CLI or Linux shell access.

Step 14 (Optional) Click **Test** to test FMC connectivity to the RADIUS server.

This function can only test FMC connectivity to the RADIUS server; there is no test function for managed device connectivity to the RADIUS server.

Step 15 (Optional) You can also enter **Additional Test Parameters** to test user credentials for a user who should be able to authenticate: enter a **User Name** and **Password**, and then click **Test**.

Tip
If you mistype the name or password of the test user, the test fails even if the server configuration is correct. To verify that the server configuration is correct, click **Test** without entering user information in the **Additional Test Parameters** field first. If that succeeds, supply a user name and password to test with the specific user.

Example:

To test if you can retrieve the `JSmith` user credentials at the Example company, enter `JSmith` and the correct password.

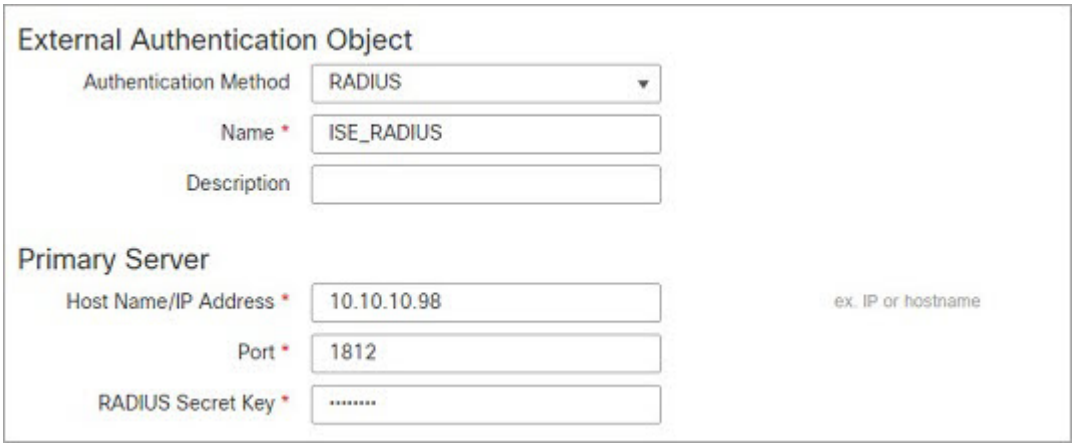
Step 16 Click **Save**.

Step 17 Enable use of this server. See Configure External Authentication for SSH

Examples

Simple User Role Assignments

The following figure illustrates a sample RADIUS login authentication object for a server running Cisco Identity Services Engine (ISE) with an IP address of 10.10.10.98 on port 1812. No backup server is defined.



The following example shows RADIUS-specific parameters, including the timeout (30 seconds) and number of failed retries before the Firepower System attempts to contact the backup server, if any.

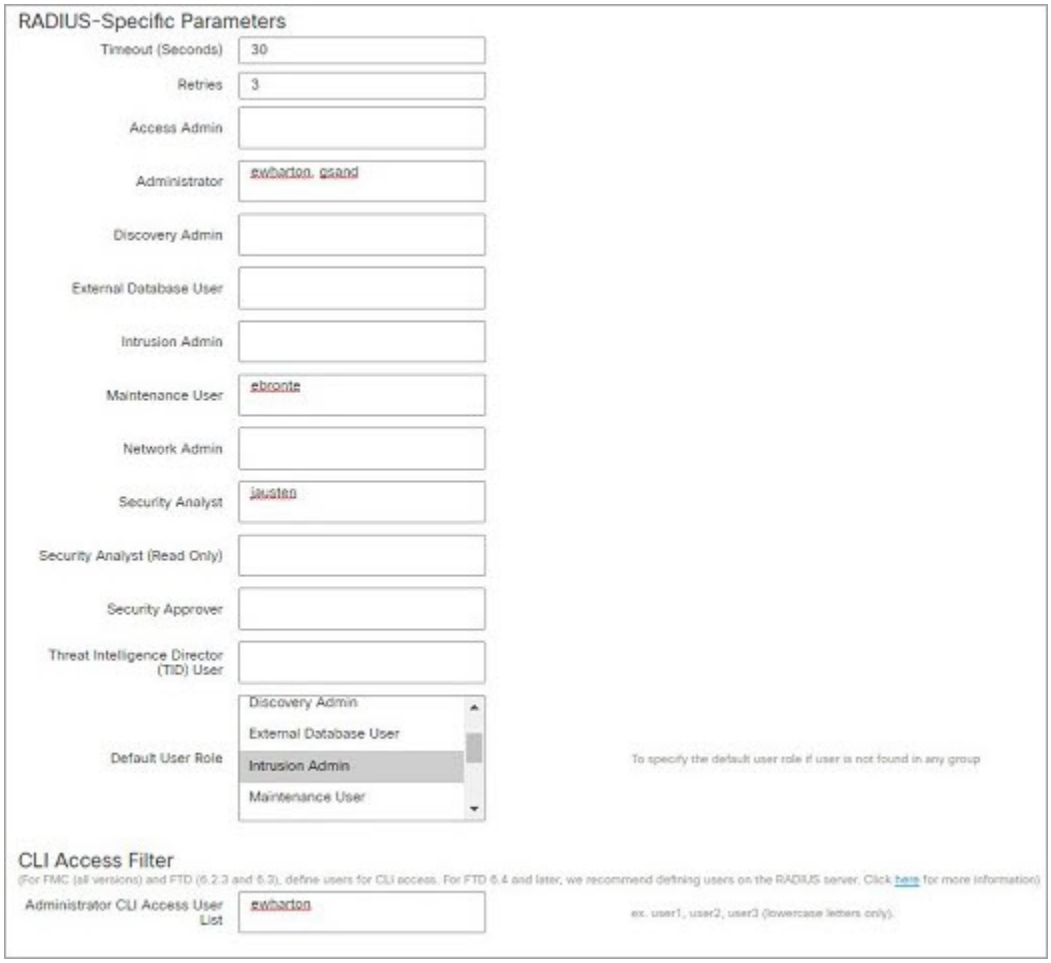
This example illustrates important aspects of RADIUS user role configuration:

Users `ewharton` and `gsand` are granted web interface Administrative access.

The user `cbronte` is granted web interface Maintenance User access.

The user `jausten` is granted web interface Security Analyst access.

The user `ewharton` can log into the device using a CLI account.



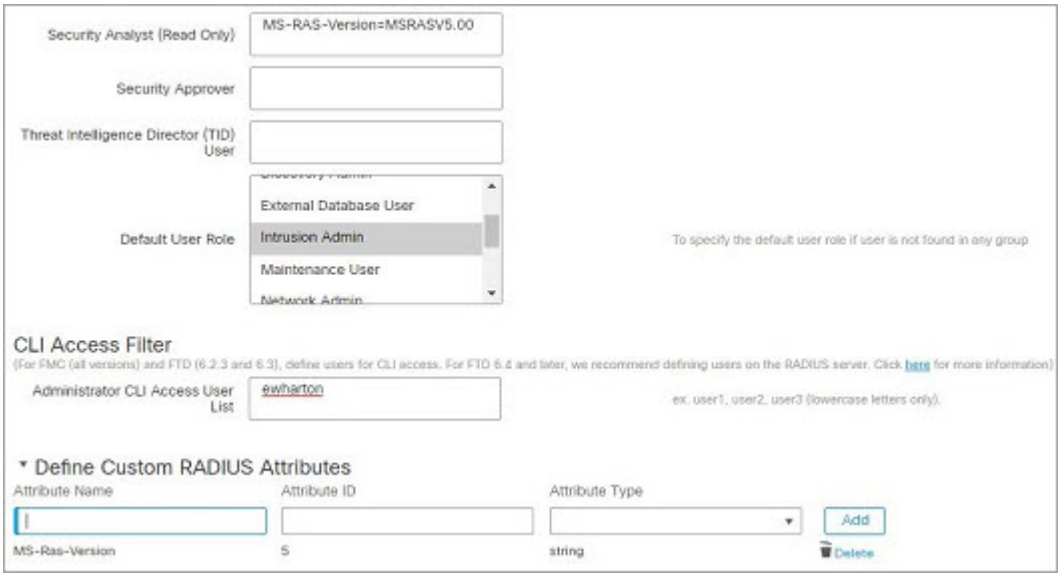
The following graphic depicts the role configuration for the example:

Roles for Users Matching an Attribute-Value Pair

You can use an attribute-value pair to identify users who should receive a particular user role. If the attribute you use is a custom attribute, you must define the custom attribute.

The following figure illustrates the role configuration and custom attribute definition in a sample RADIUS login authentication object for the same ISE server as in the previous example.

In this example, however, the `MS-RAS-Version` custom attribute is returned for one or more of the users because a Microsoft remote access server is in use. Note the `MS-RAS-Version` custom attribute is a string. In this example, all users logging in to RADIUS through a Microsoft v. 5.00 remote access server should receive the Security Analyst (Read Only) role, so you enter the attribute-value pair of `MS-RAS-Version=MSRASV5.00` in the **Security Analyst (Read Only)** field.



Enable External Authentication for Users on FTD Devices

Enable External Authentication in the Firepower Threat Defense Platform Settings, and then deploy the settings to the managed devices. See Configure External Authentication for SSH for more information.

Troubleshooting LDAP Authentication Connections

If you create an LDAP authentication object and it either does not succeed in connecting to the server you select, or does not retrieve the list of users you want, you can tune the settings in the object.

If the connection fails when you test it, try the following suggestions to troubleshoot your configuration:

- Use the messages displayed at the top of the web interface screen and in the test output to determine which areas of the object are causing the issue.
- Check that the user name and password you used for the object are valid:
  - Check that you have the rights to browse to the directory indicated in your base-distinguished name by connecting to the LDAP server using a third-party LDAP browser.
  - Check that the user name is unique to the directory information tree for the LDAP server.
  - If you see an LDAP bind error 49 in the test output, the user binding for the user failed. Try authenticating to the server through a third-party application to see if the binding fails through that connection as well.
- Check that you have correctly identified the server:
  - Check that the server IP address or host name is correct.
  - Check that you have TCP/IP access from your local appliance to the authentication server where you want to connect.

  - Check that access to the server is not blocked by a firewall and that the port you have configured in the object is open.
  - If you are using a certificate to connect via TLS or SSL, the host name in the certificate must match the host name used for the server.
  - Check that you have not used an IPv6 address for the server connection if you are authenticating CLI access.
  - If you used server type defaults, check that you have the correct server type and click **Set Defaults** again to reset the default values.

- If you typed in your base-distinguished name, click **Fetch DNs** to retrieve all the available base distinguished names on the server, and select the name from the list.
- If you are using any filters, access attributes, or advanced settings, check that each is valid and typed correctly.
- If you are using any filters, access attributes, or advanced settings, try removing each setting and testing the object without it.
- If you are using a base filter or a CLI access filter, make sure that the filter is enclosed in parentheses and that you are using a valid comparison operator (maximum 450 characters, including the enclosing parentheses).
- To test a more restricted base filter, try setting it to the base distinguished name for the user to retrieve just that user.
- If you are using an encrypted connection:
  - Check that the name of the LDAP server in the certificate matches the host name that you use to connect.
  - Check that you have not used an IPv6 address with an encrypted server connection.
- If you are using a test user, make sure that the user name and password are typed correctly.
- If you are using a test user, remove the user credentials and test the object.
- Test the query that you are using by connecting to the LDAP server and using this syntax:

```
ldapsearch -x -b 'base_distinguished_name'
-h LDAPserver_ip_address -p port -v -D
'user_distinguished_name' -W 'base_filter'
```

For example, if you are trying to connect to the security domain on `myrtle.example.com` using the `domainadmin@myrtle.example.com` user and a base filter of (`cn=*`), you could test the connection using this statement:

```
ldapsearch -x -b 'CN=security,DC=myrtle,DC=example,DC=com'
-h myrtle.example.com -p 389 -v -D
'domainadmin@myrtle.example.com' -W '(cn=*)'
```

If you can test your connection successfully but authentication does not work after you deploy a platform settings policy, check that authentication and the object you want to use are both enabled in the platform settings policy that is applied to the device.

If you connect successfully but want to adjust the list of users retrieved by your connection, you can add or change a base filter or CLI access filter or use a more restrictive or less restrictive base DN.

While authenticating a connection to Active Directory (AD) server, rarely the connection event log indicates blocked LDAP traffic although the connection to AD server is successful. This incorrect connection log occurs when the AD server sends a duplicate reset packet. The Firepower Threat Defense device identifies the second reset packet as part of a new connection request and logs the connection with Block action.

History for User Accounts for Devices

Feature	Version	Details
Support for the Service-Type attribute for Firepower Threat Defense users defined on the RADIUS server	6.4	For RADIUS authentication of Firepower Threat Defense CLI users, you used to have to pre-define the usernames in the RADIUS external authentication object and manually make sure that the list matched usernames defined on the RADIUS server. You can now define CLI users on the RADIUS server using the Service-Type attribute and also define both Basic and Config user roles. To use this method, be sure to leave the shell access filter blank in the external authentication object. New/Modified screens: **System** > **Users** > **External Authentication** > **Add External Authentication Object** > **Shell Access Filter** Supported platforms: Firepower Threat Defense
External Authentication for Firepower Threat Defense SSH Access	6.2.3	You can now configure external authentication for SSH access to the Firepower Threat Defense using LDAP or RADIUS. New/Modified screens: **Devices** > **Platform Settings** > **External Authentication** Supported platforms: Firepower Threat Defense