



CHAPTER 4

Managing Device Credentials

VFrame requires device credentials for communicating with the devices it manages. The following topics provide more information:

- [Understanding Device Credentials, page 4-1](#)
- [Working with Device Credentials, page 4-7](#)
- [Troubleshooting Device Credentials, page 4-18](#)
- [Device Credentials Reference, page 4-19](#)

Understanding Device Credentials

VFrame must know the credentials (such as usernames, passwords, SNMP community strings) for any device you want it to manage. These sections explain more about device credentials, how VFrame uses them, and provides recommendations on how to define and organize them effectively:

- [What Are Device Credentials?, page 4-2](#)
- [Understanding How VFrame Uses the Device Credential Lists, page 4-3](#)
- [Understanding IP Address Patterns, page 4-5](#)
- [Understanding How to Organize a Credentials List and to Use Stop Flags, page 4-6](#)

What Are Device Credentials?

Device credentials are simply the usernames, passwords, and SNMP (version 1 or 2) community strings required to log into a device and obtain the information VFrame requires to discover and manage the device. The username and password is the same user account you would use to log into the device's CLI to perform system configuration.

You must configure the correct device credentials for any device you want VFrame to manage. VFrame encrypts passwords to keep them safe. As you change passwords on managed devices, ensure that you also change them in the VFrame credentials list.

VFrame separates credentials into these categories:

- **Network**—For Ethernet switches. You must define a username and both a user EXEC mode and a privileged EXEC (enable) mode password for the device. You also must define the SNMP read community string, which is required to discover the switch.
- **Network Services**—For service modules, such as FWSM and CSM, that reside in an Ethernet switch. You must define a username and both a user EXEC mode and a privileged EXEC (enable) mode password for the service module.
- **Server**—For the LOM managers that will control the servers, and the LOM interfaces on the servers:
 - **LOM Managers**—VFrame discovers servers by using a lights-out management (LOM) manager, which contains a server inventory and identifies the IP addresses for the LOM interfaces on those servers. The LOM managers log into the LOM interfaces on the servers and power on and power off the servers. You must define the username and password required to log into the LOM manager. For more information on LOM managers, see [LOM Managers, page 3-10](#).
 - **LOM**—The username and passwords for logging into the LOM interfaces on servers. The LOM managers use these credentials.

- Storage—For storage devices. There are three categories of storage credential:
 - SNMP—If your storage network contains SAN fabric devices, you must define the SNMP read and write community strings for the device. VFrame requires both SNMP read and write community strings to manage the inventory of the MDS switch.
 - NAS—If your storage network contains NAS filers, you must define a username and password for the device.
 - SAN Manager (Storage Manager)—If you are using storage managers to manage storage arrays, you must define the username and password for the storage manager. During the VFrame installation, if you selected to manage your SAN in storage array mode (through an MDS switch and a storage manager), you must configure the storage manager credentials. For details, see [Storage Array Mode, page 3-7](#).

Related Topics

- [Understanding How VFrame Uses the Device Credential Lists, page 4-3](#)
- [Understanding IP Address Patterns, page 4-5](#)
- [Understanding How to Organize a Credentials List and to Use Stop Flags, page 4-6](#)

Understanding How VFrame Uses the Device Credential Lists

Each category of device credential is a separate list of credentials. When VFrame needs the credential for a device, it searches the appropriate list from top to bottom looking for a match. Thus, it is important how you arrange your credential list.

This is how VFrame processes a credential list when trying to find the credentials for a device:

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- Step 1** VFrame starts at the top of the credentials list for the appropriate type of device, and compares the device's IP address to the IP address pattern defined for each credential. (For more information about the IP address patterns used in credentials, see [Understanding IP Address Patterns, page 4-5.](#))
- Step 2** For any given entry in the credential list:
- If the device's IP address **does not** match the IP address pattern in the credential, VFrame moves to the next entry in the list.
 - If the device's IP address **does** match the IP address pattern in the credential, VFrame tries the credential.
 - If the credential works, VFrame proceeds with its device management task and does not try any other credentials.
 - If the credential **does not** work, **and** there is a **stop flag** on the credential (Stop in the On Failure field), VFrame issues an error to the job log. If the device being processed is the only device in the job, the job fails; otherwise, the job continues with the next device.
 - If the credential **does not** work, **and** there is **no stop flag** on the credential (nothing in the On Failure field), VFrame continues to the next entry in the credentials list.
- Step 3** If VFrame gets to the end of the credentials list without finding a correct credential, VFrame issues an error message to the job log and continues to the next device (if there is one).
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Related Topics

- [What Are Device Credentials?, page 4-2](#)
- [Understanding IP Address Patterns, page 4-5](#)
- [Understanding How to Organize a Credentials List and to Use Stop Flags, page 4-6](#)

Understanding IP Address Patterns

When you create a device credential, you must include one or more IP addresses of the devices that use the credential. When VFrame searches the credentials list, it looks for a match to the IP address of the device it is trying to manage.

Instead of entering credentials for every unique IP address used by your devices, you can create IP address patterns or variable expressions. Thus, you can match a set of IP addresses with a single credential entry or IP address definition.

These are the ways you can define IP addresses in a credential entry:

- Single IP address—A complete IP address, such as 10.100.30.10.
- IP address with wildcard—An IP address with wildcards used to represent any number within an octet. The wildcard is the asterisk (*). For example, 10.100.10.* matches any address from the 10.100.10.0 to 10.100.10.255 range.

To create a default credential, one that matches any IP address, you can create a credential for the *.*.*.* IP address. Place default credentials last in the credential list.

- IP address range—You can specify a range of IP addresses using the [x-y] characters, where x is the first value in the range, and y is the last value. For example, 10.100.10.[13-15] matches the IP addresses 10.100.10.13, 10.100.10.14, and 10.100.10.15.
- Combination of wildcards and ranges—You can include both * and [x-y] expressions within a single IP address pattern. For example, 10.[10-12].*.*.

Related Topics

- [What Are Device Credentials?, page 4-2](#)
- [Understanding How VFrame Uses the Device Credential Lists, page 4-3](#)
- [Understanding How to Organize a Credentials List and to Use Stop Flags, page 4-6](#)

Understanding How to Organize a Credentials List and to Use Stop Flags

When you add a credential, VFrame places the new credential at the bottom of the list. However, this might not be the best placement for the credential you are adding. Use the up and down arrow keys to create your desired sequence of entries. You can also set stop flags to control whether VFrame tries additional entries after a credential fails.

In general, you should organize your credentials list so that more specific credentials are at the top of the list, and more general ones are at the bottom of the list. This ensures that VFrame will always first try a credential that most closely matches a device's IP address.

Consider the entries shown in [Figure 4-1](#). If VFrame is looking for a credential for 10.100.90.15, it will use the test1 credential (username admin) because 10.100.90.15 fits the 10.100.90.[10-20] IP address pattern. If the credential fails, VFrame will try the test2 credential (user root) because the IP address also matches the 10.100.90.* pattern. However, if that credential fails, VFrame will not try any additional credentials because there is a stop flag on the test2 credential, that is, **Stop** appears in the On Failure field.

On the other hand, if VFrame is looking for a credential for 10.100.70.8, it will first try the test1 credential. If that fails, it will pass by test2 because the IP address does not match any IP address pattern defined in test2. Thus, the stop flag will not prevent VFrame from continuing down the list to the Default credential, which it will also try, because *.*.*.* matches all IP addresses.

Figure 4-1 Example Network CLI Credentials List

Name	IP Ranges	User	On Failure
test1	10.100.90.[10-20],10.100.70.*	admin	
test2	10.100.30.*,10.100.90.*	root	Stop
test3	10.100.30.*	admin	
Default	*.*.*.*	admin	

1	Stop flag	2	Up and Down buttons
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Now consider the list shown in [Figure 4-2](#), where the test1 and test2 credentials are switched. This time when VFrame processes 10.100.90.15, it will try the test2 credential first. If the test2 credential fails, the test1 credential will **not** be tried because of the stop flag on the test1 credential. In this case, defining 10.100.90.[10-20] in the test1 credential is pointless, because all IP addresses in the 10.100.90.* address space will either succeed using the test2 credential, or VFrame will stop looking for another credential.

Figure 4-2 Example Network CLI Credential Reordered

Name	IP Ranges	User	On Failure
test2	10.100.30.*, 10.100.90.*	root	Stop
test1	10.100.90.[10-20], 10.100.70.*	admin	
test3	10.100.30.*	admin	
Default	*.*.*	admin	

Related Topics

- [What Are Device Credentials?, page 4-2](#)
- [Understanding How VFrame Uses the Device Credential Lists, page 4-3](#)
- [Understanding IP Address Patterns, page 4-5](#)

Working with Device Credentials

These topics describe how to create and manage device credential lists:

- [Configuring Device Credentials, page 4-8](#)
- [Editing or Modifying Device Credentials, page 4-15](#)
- [Deleting Device Credentials, page 4-16](#)
- [Rearranging the Device Credentials List and Using Stop Flags, page 4-17](#)

Configuring Device Credentials

The following topics describe how to configure credentials:

- [Configuring Network Credentials, page 4-8](#)
- [Configuring Network Services Credentials, page 4-9](#)
- [Configuring NAS Credentials, page 4-10](#)
- [Configuring SNMP Credentials for SAN Fabric Devices, page 4-11](#)
- [Configuring Storage Manager Credentials, page 4-13](#)
- [Configuring Server Credentials, page 4-14](#)

Configuring Network Credentials

You must configure CLI and SNMP credentials so that VFrame can communicate with Ethernet switches. CLI credentials are required for logging into a switch. The SNMP read community string is required for discovering a switch.

Before You Begin

Determine the usernames, passwords, and SNMP read community strings for each of the switches that VFrame will manage.

Procedure

-
- Step 1** Select **Tools > Device Credentials** to open the Device Credentials tab (see [Device Credentials Tab, page 4-20](#)).
 - Step 2** Select **Network**. The CLI tab is selected by default.
 - Step 3** Click **New** to open the CLI Credentials dialog box for defining the username and passwords required to log into the device and enter privileged EXEC (enable) mode. For more information on the fields on this dialog box, see [CLI Credential Dialog Box, page 4-25](#).

When you finish defining the credential, click **OK** to add it to the end of the credential table. Use the up and down arrows to reposition the credential in the list as desired. See these topics for information on the importance of credential order and stop flag usage:

- [Understanding How to Organize a Credentials List and to Use Stop Flags, page 4-6](#)
- [Rearranging the Device Credentials List and Using Stop Flags, page 4-17](#)

Step 4 Click the **SNMPv1n2** tab.

Step 5 Click **New** to open the SNMPv1n2 Credential dialog box for defining the SNMP read community string required to discover the device. For more information on the fields on this dialog box, see [SNMPv1n2 Credential Dialog Box, page 4-26](#).

When finished defining the credential, click **OK** to add it to the end of the credential table. Use the up and down arrows to reposition the credential in the list as desired.

Next Step

After you add the credentials, you can discover the Ethernet switch (see [Discovering Ethernet Switches and Service Modules, page 6-6](#)).

Related Topics

- [Understanding Device Credentials, page 4-1](#)
- [Editing or Modifying Device Credentials, page 4-15](#)
- [Deleting Device Credentials, page 4-16](#)

Configuring Network Services Credentials

Network services credentials are the credentials required for logging into service modules such as FWSM and CSM. These service modules reside in an Ethernet switch.

Before You Begin

Determine the usernames and passwords for each of the service modules that VFrame will manage.

Procedure

-
- Step 1** Select **Tools > Device Credentials** to open the Device Credentials tab (see [Device Credentials Tab, page 4-20](#)).
- Step 2** Select **Network Services**. The Network Services CLI tab is selected by default.
- Step 3** Click **New** to open the CLI Credentials dialog box for defining the username and passwords required to log into the service module and enter privileged EXEC (enable) mode. For more information on the fields on this dialog box, see [CLI Credential Dialog Box, page 4-25](#).

When you finish defining the credential, click **OK** to add it to the end of the credential table. Use the up and down arrows to reposition the credential in the list as desired. See these topics for information on the importance of credential order and stop flag usage:

- [Understanding How to Organize a Credentials List and to Use Stop Flags, page 4-6](#)
 - [Rearranging the Device Credentials List and Using Stop Flags, page 4-17](#)
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Next Step

After you add the credentials, you can discover the Ethernet switch and its service modules. (see [Discovering Ethernet Switches and Service Modules, page 6-6](#)).

Related Topics

- [Understanding Device Credentials, page 4-1](#)
- [Editing or Modifying Device Credentials, page 4-15](#)
- [Deleting Device Credentials, page 4-16](#)

Configuring NAS Credentials

If you are using NAS filers, configure the NAS credentials so that VFrame can communicate with them.

Before You Begin

Determine the usernames and passwords for each of the NAS filers that VFrame will manage.

Procedure

- Step 1** Select **Tools > Device Credentials** to open the Device Credentials tab (see [Device Credentials Tab, page 4-20](#)).
- Step 2** Select **Storage**.
- Step 3** Click the **NAS** tab.
- Step 4** Click **New** to open the NAS Credentials dialog box for defining the username and password required to log into the device. For more information on the fields on this dialog box, see [NAS Credential Dialog Box, page 4-27](#).

When you finish defining the credential, click **OK** to add it to the end of the credential table. Use the up and down arrows to reposition the credential in the list as desired. See these topics for information on the importance of credential order and stop flag usage:

- [Understanding How to Organize a Credentials List and to Use Stop Flags, page 4-6](#)
 - [Rearranging the Device Credentials List and Using Stop Flags, page 4-17](#)
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Next Step

After you add the credentials, you can discover the NAS filer and its volumes (see [Discovering NAS Filers and Their Components, page 6-10](#)).

Related Topics

- [Understanding Device Credentials, page 4-1](#)
- [Editing or Modifying Device Credentials, page 4-15](#)
- [Deleting Device Credentials, page 4-16](#)

Configuring SNMP Credentials for SAN Fabric Devices

If you are using SAN fabric devices, configure the SNMP credentials so that VFrame can communicate with them.

Before You Begin

Determine the SNMP read and write community strings for each of the MDS switches that VFrame will manage.

Procedure

-
- Step 1** Select **Tools > Device Credentials** to open the Device Credentials tab (see [Device Credentials Tab, page 4-20](#)).
- Step 2** Select **Storage**.
- Step 3** Click the **SNMPv1n2** tab.
- Step 4** Click **New** to open the SNMPv1n2 Credential dialog box for defining the SNMP read and write community strings that are required for managing the inventory on the MDS switch. For more information on the fields on this dialog box, see [SNMPv1n2 Credential Dialog Box, page 4-26](#).

When you finish defining the credential, click **OK** to add it to the end of the credential table. Use the up and down arrows to reposition the credential in the list as desired. See these topics for information on the importance of credential order and stop flag usage:

- [Understanding How to Organize a Credentials List and to Use Stop Flags, page 4-6](#)
 - [Rearranging the Device Credentials List and Using Stop Flags, page 4-17](#)
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Next Step

After you add the credentials, you can discover SAN fabric devices, such as the MDS switches in the fabric and the VSANs, target ports in the VSANs, and LUNs associated with the target ports (see [Discovering SAN Fabric Devices and Their Components, page 6-8](#)).

Related Topics

- [Understanding Device Credentials, page 4-1](#)
- [Editing or Modifying Device Credentials, page 4-15](#)
- [Deleting Device Credentials, page 4-16](#)

Configuring Storage Manager Credentials

During initial VFrame configuration after installation if you selected to manage your SAN in storage array mode (through an MDS switch and a storage manager), you must configure the storage manager credentials so that VFrame can communicate with the storage managers.

Before You Begin

Determine the usernames and passwords for each of the storage managers that VFrame will manage.

Procedure

- Step 1** Select **Tools > Device Credentials** to open the Device Credentials tab (see [Device Credentials Tab, page 4-20](#)).
- Step 2** Select **Storage**.
- Step 3** Click the **SAN Manager** tab.
- Step 4** Click **New** to open the SAN Manager Credentials dialog box for defining the username and password required to log into the storage manager. For more information on the fields on this dialog box, see [SAN Manager Credential Dialog Box, page 4-29](#).

When you finish defining the credential, click **OK** to add it to the end of the credential table. Use the up and down arrows to reposition the credential in the list as desired. See these topics for information on the importance of credential order and stop flag usage:

- [Understanding How to Organize a Credentials List and to Use Stop Flags, page 4-6](#)
 - [Rearranging the Device Credentials List and Using Stop Flags, page 4-17](#)
-

Next Step

After you add the credentials, you can discover storage managers and the LUNs and ports associated with them (see [Discovering Storage Arrays and Their Components Through Storage Managers, page 6-11](#)).

Related Topics

- [Understanding Device Credentials, page 4-1](#)
- [Editing or Modifying Device Credentials, page 4-15](#)
- [Deleting Device Credentials, page 4-16](#)

Configuring Server Credentials

You must configure the LOM manager credentials so that VFrame can communicate with the LOM managers to run inventory and to power on and power off the servers. VFrame controls the power management of the servers through LOM managers. You must also configure the LOM interface credentials so that the LOM managers can log into the interfaces.

Before You Begin

Determine the usernames and passwords for each of the LOM managers that VFrame will use, and for the LOM interfaces on each application, and optionally, on each model server.

Procedure

-
- Step 1** Select **Tools > Device Credentials** to open the Device Credentials tab (see [Device Credentials Tab, page 4-20](#)).
 - Step 2** Select **Servers**. The LOM Manager tab is selected by default.
 - Step 3** On the LOM Manager tab, click **New** to open the LOM Manager Credentials dialog box for defining the username and password required to log into the LOM manager. For more information on the fields on this dialog box, see [LOM Manager Credential Dialog Box, page 4-30](#).

When you finish defining the credential, click **OK** to add it to the end of the credential table. Use the up and down arrows to reposition the credential in the list as desired. See these topics for information on the importance of credential order and stop flag usage:
 - [Understanding How to Organize a Credentials List and to Use Stop Flags, page 4-6](#)
 - [Rearranging the Device Credentials List and Using Stop Flags, page 4-17](#)
 - Step 4** Click the **LOM** tab.

- Step 5** Click **New** to open the LOM Credential dialog box for defining the username and password required to log into the LOM interfaces on application or model servers. For more information on the fields on this dialog box, see [LOM Credential Dialog Box, page 4-31](#).

When finished defining the credential, click **OK** to add it to the end of the credential table. Use the up and down arrows to reposition the credential in the list as desired.

Next Step

After you add the credentials, you can discover LOM managers and the servers they control (see [Discovering Servers, page 6-13](#)).

Related Topics

- [Understanding Device Credentials, page 4-1](#)
- [Editing or Modifying Device Credentials, page 4-15](#)
- [Deleting Device Credentials, page 4-16](#)

Editing or Modifying Device Credentials

If a credential is no longer correct, you can modify it. You can change the IP address range, usernames, passwords, or SNMP community strings.

Procedure

- Step 1** Select **Tools > Device Credentials** to open the Device Credentials tab (see [Device Credentials Tab, page 4-20](#)).
- Step 2** Select the category and tab that contains the credential you want to modify.
- Step 3** Double-click the desired credential. Alternatively, you can select it and click **Edit** or select **Edit** from the right-click shortcut menu.

This opens one of these dialog boxes so that you can modify the credential.

- [CLI Credential Dialog Box, page 4-25](#)
- [SNMPv1n2 Credential Dialog Box, page 4-26](#)
- [NAS Credential Dialog Box, page 4-27](#)
- [SAN Manager Credential Dialog Box, page 4-29](#)
- [LOM Manager Credential Dialog Box, page 4-30](#)
- [LOM Credential Dialog Box, page 4-31](#)

After making your modifications, click **OK**.

Related Topics

- [Understanding Device Credentials, page 4-1](#)
- [Configuring Device Credentials, page 4-8](#)
- [Deleting Device Credentials, page 4-16](#)

Deleting Device Credentials

If you no longer need a credential, you can delete it. Make sure that the credential is not needed by any VFrame-managed device.

Procedure

- Step 1** Select **Tools > Device Credentials** to open the Device Credentials tab (see [Device Credentials Tab, page 4-20](#)).
 - Step 2** Select the category and tab that contains the credential you want to delete.
 - Step 3** Select the credential and click **Delete**. Alternatively, you can select **Delete** from the right-click shortcut menu.
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Related Topics

- [Understanding Device Credentials, page 4-1](#)
- [Configuring Device Credentials, page 4-8](#)
- [Editing or Modifying Device Credentials, page 4-15](#)

Rearranging the Device Credentials List and Using Stop Flags

The order in which device credentials appear in a credentials list matters. When searching for the credential for a specific device, VFrame starts from the top of the credentials list and searches down, looking for a credential with an IP address pattern that matches the IP address of the device. If the credential does not work, VFrame continues to search the list. If a credential matches, a stop flag prevents VFrame from trying additional entries in the list in case a credential does not work.

For a complete explanation, with examples, of how VFrame processes a credentials list and handles credential order and stop flags, read these topics:

- [Understanding How VFrame Uses the Device Credential Lists, page 4-3](#)
- [Understanding How to Organize a Credentials List and to Use Stop Flags, page 4-6](#)

To rearrange the credentials and modify stop flag settings:

- To move a credential up or down in the list, select the credential and click the up or down arrows as appropriate (Figure 4-3).

Figure 4-3 Up and Down Buttons for Credentials

Name	IP Ranges	User	On Failure
test1	10.100.90.[10-20],10.100.70.*	admin	
test2	10.100.30.*,10.100.90.*	root	Stop
test3	10.100.30.*	admin	
Default	*,*,*,*	admin	

1 2

1	Stop flag	2	Up and Down buttons
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- To set a stop flag on a credential, select the credential and click **Stop Trying Credentials** (or right-click it and select **Stop Trying/Try Additional Credentials**).
- To remove a stop flag, select a credential that has a stop flag (Stop appears in the On Failure field) and click **Try Additional Credentials** (or right-click it and select **Stop Trying/Try Additional Credentials**).

Related Topics

- [Understanding Device Credentials, page 4-1](#)
- [Device Credentials Tab, page 4-20](#)

Troubleshooting Device Credentials

These are some problems you might encounter with device credentials and their solutions:

- [The correct credential is in the credentials list, but VFrame cannot log into a device.](#)
- [The server credentials are in the list, but VFrame cannot discover the servers.](#)
- [VFrame used to be able to log into a device, but now it cannot.](#)

Problem The correct credential is in the credentials list, but VFrame cannot log into a device.

Solution First, check that the credential is defined in the correct list. For example, FWSM credentials must appear in the Network Services CLI list, not the Network CLI list. Next, check to see if there is a stop flag set on a credential above the correct credential (that is, Stop appears in the On Failure field). If the IP address of the failing device matches the IP address pattern in the credential with the stop flag, that flag is preventing VFrame from trying the correct credential. Either remove the stop flag, or move the correct credential above the credential with the stop flag. If none of these are the problem, carefully check the IP address pattern of the credential to ensure that it actually matches the IP address of the failing device. Also, check username, password, or SNMP configuration on the device itself.

Problem The server credentials are in the list, but VFrame cannot discover the servers.

Solution The credentials list for the Server category contains the credentials for the LOM managers, not the servers themselves. The LOM manager is the device that manages connections to the servers. Although VFrame can act as a LOM manager, you must set it up to do so. You will still have to define VFrame's LOM manager credentials in this list rather than the server credentials. For more information, see [What Are Device Credentials?](#), page 4-2.

Problem VFrame used to be able to log into a device, but now it cannot.

Solution Check to see if the passwords or SNMP community strings on the device were changed. You must update the credential list in VFrame whenever you change passwords or community strings on the devices.

Device Credentials Reference

These topics describe the fields available for managing device credentials and reference information on using the various GUI features:

- [Device Credentials Tab](#), page 4-20
- [CLI Credential Dialog Box](#), page 4-25
- [SNMPv1n2 Credential Dialog Box](#), page 4-26
- [NAS Credential Dialog Box](#), page 4-27
- [SAN Manager Credential Dialog Box](#), page 4-29
- [LOM Manager Credential Dialog Box](#), page 4-30
- [LOM Credential Dialog Box](#), page 4-31
- [Credentials Shortcut Menu Options](#), page 4-32

Device Credentials Tab

Use the Device Credentials tab to define and manage the credentials (such as usernames, passwords, SNMP community strings) for the devices you want VFrame to manage. You must keep this list up-to-date as you change passwords on the devices.

How to Get to This Tab

Select **Tools > Device Credentials** to open the Device Credentials page.

Related Topics


- [Understanding Device Credentials, page 4-1](#)
 - [What Are Device Credentials?, page 4-2](#)
 - [Understanding How VFrame Uses the Device Credential Lists, page 4-3](#)
 - [Understanding IP Address Patterns, page 4-5](#)
 - [Understanding How to Organize a Credentials List and to Use Stop Flags, page 4-6](#)
- [Configuring Device Credentials, page 4-8](#)
- [Editing or Modifying Device Credentials, page 4-15](#)
- [Deleting Device Credentials, page 4-16](#)
- [Rearranging the Device Credentials List and Using Stop Flags, page 4-17](#)

Field Reference

Table 4-1 Device Credentials Tab

Element	Description
New button	<p>Click this button to add a credential to the credentials list displayed in the tab below this button. A different dialog box opens for you to enter the credential information depending on the type of credential you are defining:</p> <ul style="list-style-type: none"> • Network CLI, Network Services CLI—See CLI Credential Dialog Box, page 4-25. • Network SNMPv1n2—See SNMPv1n2 Credential Dialog Box, page 4-26. • Network Services CLI—See CLI Credential Dialog Box, page 4-25. • LOM Manager—See LOM Manager Credential Dialog Box, page 4-30. • LOM—See LOM Credential Dialog Box, page 4-31. • Storage SNMPv1n2 (for SAN fabric devices)—See SNMPv1n2 Credential Dialog Box, page 4-26. • NAS—See NAS Credential Dialog Box, page 4-27. • SAN Managers (Storage Managers)—See SAN Manager Credential Dialog Box, page 4-29.
Edit button	Click this button to modify the selected credential.
Delete button	Click this button to delete the selected credential.
Stop Trying Credentials, Try Additional Credentials buttons	<p>Click the Stop Trying Credentials button to add a stop flag to the selected row, or the Try Additional Credentials button to remove the stop flag from the selected row. If a flag is set on a credential, Stop appears in the On Failure field.</p> <p>For information on how stop flags affect credential processing, see Understanding How to Organize a Credentials List and to Use Stop Flags, page 4-6.</p>

Table 4-1 **Device Credentials Tab (continued)**

Element	Description
Up and Down arrows (on the right side of the window) 	Click the up or down arrows to move the selected row up or down in the credentials list. When searching for a device credential, VFrame searches the list from top to bottom. Therefore, the order of the credentials is important and affects processing. For an explanation of how credential ordering affects processing, see Understanding How to Organize a Credentials List and to Use Stop Flags , page 4-6.

Categories (left pane) and Associated Credential Tabs (right pane)

When you select a category from the left pane, tabs appear in the right pane. Each tab represents a separate credentials list. When searching for device credentials, VFrame only searches the list appropriate for the type of device it is accessing, and the type of action it needs to take. The following information describes these credential lists and their usage.

The table column headings are explained after the categories.

Network category	The credentials required for Ethernet switches: <ul style="list-style-type: none"> • CLI tab—Credentials for logging into the device. Define a username and both a user EXEC mode and a privileged EXEC (enable) mode password for the device. • SNMPv1n2—The SNMP read community string, which is required to discover the switch.
Network Services category	The credentials required for Ethernet services modules such as FWSM and CSM. <ul style="list-style-type: none"> • Network Services CLI—Credentials for logging into the service module. Define a username and both a user EXEC mode and a privileged EXEC (enable) mode password for the module.

Table 4-1 **Device Credentials Tab (continued)**

Element	Description
Server category	<p>The credentials for the lights-out management (LOM) managers that will control the servers.</p> <ul style="list-style-type: none"> • LOM Manager—Credentials for logging into the LOM manager. These are not the credentials for logging into the servers. The LOM manager contains a server inventory and the usernames and passwords required to log into the LOM interfaces on the servers to power on and power off the servers. <p>Define the username and password required to log into the LOM manager. For more information on LOM managers, see LOM Managers, page 3-10.</p> <ul style="list-style-type: none"> • LOM—Credentials for logging into the LOM interfaces on servers. Define the username and password required for logging into the LOM interface. The LOM managers use these credentials.
Storage category	<p>The credentials required for the storage devices.</p> <ul style="list-style-type: none"> • SNMPv1n2—Credentials for SAN fabric devices. Define the SNMP read and write community strings for the device. VFrame requires both SNMP read and write community strings to manage the inventory of the MDS switch. • NAS—Credentials for NAS filers. Define a username and password for logging into the device. • SAN Manager—Credentials for storage managers. If you are using storage managers to manage storage arrays, define the username and password for logging into the storage manager. During the VFrame installation, if you selected to manage your SAN in storage array mode (through an MDS switch and a storage manager) you must configure the storage manager credentials. For details, see Storage Array Mode, page 3-7.

Table 4-1 **Device Credentials Tab (continued)**

Element	Description
Credential Tables (right pane)	
<p>The following information describes the table columns for the credential lists. There are essentially two types of lists: CLI credentials and SNMP credentials. Most attributes are common to both types of lists; differences are noted.</p> <p>Each row in the table is a separate credential.</p>	
Name	The name of the credential. This name is a label for your use in identifying the purpose of a credential. It is not used when accessing a device.
IP Ranges	The IP address patterns defined for this credential. VFrame compares a device's IP address to the IP address patterns in this list to find a match. For more information about IP address patterns, see Understanding IP Address Patterns, page 4-5 .
User	<p>The username defined for the credential.</p> <p>The User field only appears for CLI, Network Services CLI, LOM manager, NAS, or SAN Manager (Storage Manager) credentials.</p>
Read Community	<p>The SNMP read community string for the credential. Even if the credential requires a write community string, only the read string is shown in the table.</p> <p>The Read Community field only appears for SNMPv1n2 credentials.</p>
On Failure	<p>Whether there is a stop flag defined for this credential.</p> <p>When Stop appears in this field, if VFrame tries to use this credential when accessing a specific device and the credential fails, no additional credentials are tried. The stop flag takes effect only if VFrame tries the credential, that is, if the IP address of the device fits an IP address pattern in the credential.</p> <p>If the field is blank, VFrame continues to the next credential if the credential fails.</p>

CLI Credential Dialog Box

Use the CLI Credential dialog box to create or modify credentials for logging into an Ethernet switch or its service modules.

How to Get to This Dialog Box

When viewing the CLI or Network Services CLI tabs on the Device Credentials page (select **Tools > Device Credentials**):

- Click **New** to create a new credential.
- Select a credential and click **Edit**, or double-click on a credential.

Related Topics

- [Configuring Network Credentials, page 4-8](#)
- [Configuring Network Services Credentials, page 4-9](#)
- [Understanding Device Credentials, page 4-1](#)
- [Troubleshooting Device Credentials, page 4-18](#)

Field Reference

Table 4-2 *CLI Credential Dialog Box*

Element	Description
Name	<p>A name assigned to the credential. This name is to help you identify the purpose of a credential. It is not used when accessing a device.</p> <p>The name must be unique within the credentials list to which you are adding the credential.</p> <p>You cannot modify the name after you create the credential.</p>
IP Ranges	<p>A comma-separated list of IP address patterns. When VFrame searches for a credential for a device, it compares the device's IP address to the IP address patterns entered here, and uses the credential if there is a match. You can use an asterisk (*) as a wildcard to match any number in an octet (for example, 10.100.10.*), or [x-y] to match a range of numbers (from x to y, for example, 10-20).</p> <p>For a more thorough explanation of IP address patterns, see Understanding IP Address Patterns, page 4-5.</p>

Table 4-2 CLI Credential Dialog Box (continued)

Element	Description
User	The username configured on the switch.
Password Confirm Password	The user EXEC mode password configured for the username. Enter the password in both fields.
Enable Password Confirm Enable Password	The privileged EXEC (enable) mode password configured on the switch, if any. Enter the password in both fields.

SNMPv1n2 Credential Dialog Box

Use the SNMPv1n2 dialog box to create or modify the SNMP community strings for Ethernet switches or SAN fabric devices.

How to Get to This Dialog Box

When viewing the SNMPv1n2 tab in the Network or Storage categories on the Device Credentials page (select **Tools > Device Credentials**):

- Click **New** to create a new credential.
- Select a credential and click **Edit**, or double-click on a credential.

Related Topics

- [Configuring Network Credentials, page 4-8](#)
- [Configuring SNMP Credentials for SAN Fabric Devices, page 4-11](#)
- [Understanding Device Credentials, page 4-1](#)
- [Troubleshooting Device Credentials, page 4-18](#)

Field Reference

Table 4-3 SNMPv1n2 Credential Dialog Box

Element	Description
Name	<p>A name assigned to the credential. This name is to help you identify the purpose of a credential. It is not used when accessing a device.</p> <p>The name must be unique within the credentials list to which you are adding the credential.</p> <p>You cannot modify the name after you create the credential.</p>
IP Ranges	<p>A comma-separated list of IP address patterns. When VFrame searches for a credential for a device, it compares the device's IP address to the IP address patterns entered here, and uses the credential if there is a match. You can use an asterisk (*) as a wildcard to match any number in an octet (for example, 10.100.10.*), or [x-y] to match a range of numbers (from x to y, for example, 10-20).</p> <p>For a more thorough explanation of IP address patterns, see Understanding IP Address Patterns, page 4-5.</p>
Read Community	The SNMP read community string. This is used for Ethernet device discovery and MDS switch inventory management.
Write Community (Storage only)	The SNMP write community string. This is required for MDS switch inventory management.

NAS Credential Dialog Box

Use the NAS Credential dialog box to create or modify the NAS filer credentials.

How to Get to This Dialog Box

When viewing the NAS tab in the Storage category on the Device Credentials page (select **Tools > Device Credentials**):

- Click **New** to create a new credential.
- Select a credential and click **Edit**, or double-click on a credential.

Related Topics

- [Configuring NAS Credentials, page 4-10](#)
- [Understanding Device Credentials, page 4-1](#)
- [Troubleshooting Device Credentials, page 4-18](#)

Field Reference**Table 4-4 NAS Credential Dialog Box**

Element	Description
Name	<p>A name assigned to the credential. This name is to help you identify the purpose of a credential. It is not used when accessing a device.</p> <p>The name must be unique within the credentials list to which you are adding the credential.</p> <p>You cannot modify the name after you create the credential.</p>
IP Ranges	<p>A comma-separated list of IP address patterns. When VFrame searches for a credential for a device, it compares the device's IP address to the IP address patterns entered here, and uses the credential if there is a match. You can use an asterisk (*) as a wildcard to match any number in an octet (for example, 10.100.10.*), or [x-y] to match a range of numbers (from x to y, for example, 10-20).</p> <p>For a more thorough explanation of IP address patterns, see Understanding IP Address Patterns, page 4-5.</p>
User	(Optional) The username configured on the NAS filer.
Password	The password configured for the username. Enter the password in both fields.
Confirm Password	

SAN Manager Credential Dialog Box

Use the SAN Manager Credential dialog box to enter the storage manager credentials.

How to Get to This Dialog Box

When viewing the SAN Manager tab in the Storage category on the Device Credentials page (select **Tools > Device Credentials**):

- Click **New** to create a new credential.
- Select a credential and click **Edit**, or double-click on a credential.

Related Topics

- [Configuring Storage Manager Credentials, page 4-13](#)
- [Understanding Device Credentials, page 4-1](#)
- [Troubleshooting Device Credentials, page 4-18](#)

Field Reference

Table 4-5 SAN Manager Credential Dialog Box

Element	Description
Name	<p>A name assigned to the credential. This name is to help you identify the purpose of a credential. It is not used when accessing a device.</p> <p>The name must be unique within the credentials list to which you are adding the credential.</p> <p>You cannot modify the name after you create the credential.</p>
IP Ranges	<p>A comma-separated list of IP address patterns. When VFrame searches for a credential for a device, it compares the device's IP address to the IP address patterns entered here, and uses the credential if there is a match. You can use an asterisk (*) as a wildcard to match any number in an octet (for example, 10.100.10.*), or [x-y] to match a range of numbers (from x to y, for example, 10-20).</p> <p>For a more thorough explanation of IP address patterns, see Understanding IP Address Patterns, page 4-5.</p>
User	(Optional) The username configured on the storage manager.

Table 4-5 SAN Manager Credential Dialog Box (continued)

Element	Description
Password	The password configured for the username. Enter the password in both fields.
Confirm Password	

LOM Manager Credential Dialog Box

Use the LOM Manager Credential dialog box to create or modify the LOM manager credentials.

How to Get to This Dialog Box

When viewing the LOM Manager tab in the Server category on the Device Credentials page (select **Tools > Device Credentials**):

- Click **New** to create a new credential.
- Select a credential and click **Edit**, or double-click on a credential.

Related Topics

- [Configuring Server Credentials, page 4-14](#)
- [Understanding Device Credentials, page 4-1](#)
- [Troubleshooting Device Credentials, page 4-18](#)

Field Reference

Table 4-6 LOM Manager Credential Dialog Box

Element	Description
Name	<p>A name assigned to the credential. This name is to help you identify the purpose of a credential. It is not used when accessing a device.</p> <p>The name must be unique within the credentials list to which you are adding the credential.</p> <p>You cannot modify the name after you create the credential.</p>

Table 4-6 LOM Manager Credential Dialog Box (continued)

Element	Description
IP Ranges	<p>A comma-separated list of IP address patterns. When VFrame searches for a credential for a device, it compares the device's IP address to the IP address patterns entered here, and uses the credential if there is a match. You can use an asterisk (*) as a wildcard to match any number in an octet (for example, 10.100.10.*), or [x-y] to match a range of numbers (from x to y, for example, 10-20).</p> <p>For a more thorough explanation of IP address patterns, see Understanding IP Address Patterns, page 4-5.</p>
User	<p>The username configured on the LOM manager.</p> <p>If you are using VFrame as the LOM manager, the username is macrouser.</p>
Password Confirm Password	<p>The password configured for the username. Enter the password in both fields.</p>

LOM Credential Dialog Box

Use the LOM Credential dialog box to create or modify the credentials for server LOM interfaces. You can enter credentials for both application and model servers.

How to Get to This Dialog Box

When viewing the LOM tab in the Server category on the Device Credentials page (select **Tools > Device Credentials**):

- Click **New** to create a new credential.
- Select a credential and click **Edit**, or double-click on a credential.

Related Topics

- [Configuring Server Credentials, page 4-14](#)
- [Understanding Device Credentials, page 4-1](#)
- [Troubleshooting Device Credentials, page 4-18](#)

Field Reference

Table 4-7 LOM Credential Dialog Box

Element	Description
Name	<p>A name assigned to the credential. This name is to help you identify the purpose of a credential. It is not used when accessing a device.</p> <p>The name must be unique within the credentials list to which you are adding the credential.</p> <p>You cannot modify the name after you create the credential.</p>
IP Ranges	<p>A comma-separated list of IP address patterns. When VFrame searches for a credential for a device, it compares the device's IP address to the IP address patterns entered here, and uses the credential if there is a match. You can use an asterisk (*) as a wildcard to match any number in an octet (for example, 10.100.10.*), or [x-y] to match a range of numbers (from x to y, for example, 10-20).</p> <p>For a more thorough explanation of IP address patterns, see Understanding IP Address Patterns, page 4-5.</p>
User	The username configured on the LOM interface, for example, root.
Password	The password configured for the username. Enter the password in both fields.
Confirm Password	

Credentials Shortcut Menu Options

Use the credentials shortcut menu options to perform tasks such as modifying or deleting a selected device credential, or adding or removing a stop flag on a selected device credential.

How to Open the Shortcut Menu

Select **Tools > Device Credentials** to open the Credentials page. Select a credential and right-click to display the menu options.

Related Topics

- [Understanding Device Credentials, page 4-1](#)
- [Understanding How to Organize a Credentials List and to Use Stop Flags, page 4-6](#)
- [Editing or Modifying Device Credentials, page 4-15](#)
- [Deleting Device Credentials, page 4-16](#)
- [Rearranging the Device Credentials List and Using Stop Flags, page 4-17](#)

Field Reference**Table 4-8** ***Device Credentials Shortcut Menu Options***

Element	Description
Edit	Modify the selected credentials.
Delete	Delete the selected credentials.
Stop Trying/Try Additional Credentials	Add or remove the stop flag on the selected credential.
Up arrow	Move the row up in the credentials list.
Down arrow	Move the row down in the credentials list.

