

Administrator's and Developer's Guide

VMware Infrastructure Management Assistant 1.0 for

VMware Infrastructure 3 version 3.5

Administrator's and Developer's Guide

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About This Book

The VMware® Infrastructure Management Assistant (VIMA) is a virtual machine which includes prepackaged software that developers and administrators can use to run agents and scripts to manage ESX and ESXi systems. One important function of VIMA is noninteractive login. You can use VIMA to perform many of the tasks commonly performed in the ESX service console.

This book, the *Administrator's and Developer's Guide*, provides information about installing and using VIMA and includes reference information for VIMA CLIs and libraries.

Revision History

This book, the *Administrator's and Developer's Guide*, is revised with each release of the product or when necessary. A revised version can contain minor or major changes. [Table 1](#) summarizes the significant changes in each version of this book.

Table 1. Revision History

Revision	Description
2008103	First version of the VIMA 1.0 documentation.

To view the current version of this guide, go to http://www.vmware.com/support/pubs/sdk_pubs.html.

Intended Audience

This guide is for administrators who want to use VIMA's automated authentication facilities and other VIMA tools to interact with ESX/ESXi hosts and for developers who want to create and run agents that interact with ESX/ESXi hosts.

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Introduction to VIMA

This chapter introduces VIMA. It explains VIMA capabilities and limitations, and includes a component overview and use cases. To get started with VIMA right away, go to [“Getting Started with VIMA”](#) on page 13.

This chapter includes the following topics:

- [“ESX Service Console and ESXi Systems”](#) on page 7
- [“VIMA Component Overview”](#) on page 8
- [“VIMA Use Cases”](#) on page 10

ESX Service Console and ESXi Systems

The ESX service console is primarily used as follows:

- Administrators of large VMware Infrastructure installations run scripts in the ESX service console to perform management tasks and retrieve ESX log files.
- VMware partners develop agents that can communicate with their proprietary hardware or software and can monitor ESX hosts, and run those agents in the service console.

VIMA offers an alternative for small-footprint ESXi systems, which have no service console. VMware also recommends VIMA for ESX systems, which have a service console, because VIMA is more secure than service console.

VIMA allows administrators and developers to run scripts or agents that interact with ESX and ESXi systems without having to explicitly authenticate each time. VIMA can also collect logging information from ESX and ESXi hosts and store the information on VIMA for analysis.

VIMA has the following main capabilities:

- VIMA supports single-target or multitarget mode:
 - When you set a single target server for VIMA, you can manage the target server from the VIMA console, similar to using an ESX service console.
 - When you set multiple target servers for VIMA, you can interact with all target servers without additional authentication. That approach allows for execution of the same script or agent on multiple ESX/ESXi hosts.
- VIMA allows you to reuse service console scripts you already have for ESX administration, though minor modifications to the scripts are usually necessary.
- VIMA comes preconfigured with two accounts, vi-admin and vi-user. When you log in to VIMA as vi-user you can perform only tasks on the target server that do not require administrative privileges.

Agents that make proprietary hardware or software components compatible with VMware ESX currently run in the service console of existing ESX servers. Most agent code can be modified to run in VIMA, calling the VI API and CIM providers if necessary. Developers must move any agent code that directly interfaces with hardware into a CIM (Common Information Model) provider.

VIMA Component Overview

When you install VIMA, the following components become available from the virtual machine:

- 64-bit Enterprise Linux – While the ESX service console runs on the ESX host, VIMA runs Linux on the virtual machine. You can move the files from the ESX/ESXi host to the VIMA console (and back) using the vi fs Remote CLI command.
- VMware Tools – Interface to the hypervisor.
- Remote CLIs – Perl CLIs that correspond to most commonly-used service console commands.
- VI Perl Toolkit – Client-side Perl framework that provides an easy-to-use scripting interface to the VMware Infrastructure API. The toolkit includes samples and utility applications for many common tasks.
- Java JRE version 1.5 – Runtime engine for Java-based applications built with the VMware Infrastructure SDK.

VIMA also includes an authentication component (vi-fastpass) and a logging component (vi-logger), which are discussed next.

An SNMP Server which serves the core SNMP MIBs specified in RFCs 3418, 2863, 4293, and 2790, runs in VIMA. VIMA does not export any configuration using SNMP and does not export or proxy SNMP information about its target servers

VMware Infrastructure Authentication Component (vi-fastpass)

The VMware Infrastructure authentication component (vi-fastpass) supports unattended authentication to an ESX/ESXi host. After vi-fastpass has been enabled, applications can use VI APIs through the Remote CLI, the VI Perl Toolkit, or the VMware SDK. Applications can also use the SMASH/Server Management APIs, either directly or through the Web Services for Management Perl interface. These applications can be unattended cron jobs that wake up intermittently to collect data or perform operations on an ESX/ESXi host.

When an ESX/ESXi host is added as a target server, vi-fastpass creates two users with obfuscated passwords on the ESX/ESXi host:

- vi-admin (administrator privilege user)
- vi-user (read-only privilege user)

vi-fastpass stores obfuscated password information for the host on VIMA.

NOTE The passwords are obfuscated, not encrypted.

After an ESX/ESXi host has been added as a target, users have two options:

- Execute `vi fp init` to initialize the host. Then run VI Perl Toolkit scripts and most Remote CLI commands or scripts on that host without additional authentication.
- Call `LoginByFasspass` in a Perl or Java program. The program can then run without additional authentication.

Target servers remain targets across reboots, you need to perform initialization using `vi fp init` or `LoginByFasspass` each time you log out and log in again.

VMware Infrastructure Logging Component (vi-logger)

The VMware Infrastructure Logging Component (vi-logger) collects log files from target ESX/ESXi hosts according to the specified log policy. vi-logger consists of a log daemon that collects and processes log files and the `vi logger` CLI for logger configuration.

The log daemon starts when VIMA boots. The daemon starts collecting logs when logging is enabled on a specified server for a specified log. The daemon does not download logs that were created before logging was enabled inside VIMA. The daemon wakes up periodically to retrieve log information according to the log policy. If the time difference between the ESX/ESXi host and VIMA is more than one second, the log daemon adjusts the time stamps in the log to correspond to VIMA time and time zone. If the ESX/ESXi host and VIMA are time synchronized, no time stamp adjustment is needed.

VIMA Samples

VIMA samples illustrate the VIMA CLIs and the `viplib` library. The samples are available in VIMA at `/opt/vmware/vima/samples`.

- `vitop` – Java example that shows the CPU, memory, disk, and network resources consumed by each target server and the number of virtual machines running on the target server.
- `multiversion.pl` – Perl example that displays the ESX version for all `vi-fastpass` targets without requiring user name or password.

VIMA Use Cases

This section lists a few typical use cases.

- A partner or customer writes a new agent in Perl.
When a partner or customer writes a new agent in Perl, the Perl script must import the `viplib` Perl module and all VI Perl Toolkit modules. Instead of calling the `Util::Connect(targetUrl, username, password)` Perl Toolkit subroutine, the agent calls `Vifplib::LoginByFastpass(targetUrl)`.
- A partner or customer ports an agent to VIMA that is running in the service console and was originally written in Perl or Java.

The agent uses code like the following Perl-like pseudo code to log in to ESX/ESXi hosts:

```

LoginToMyEsx() {
  SessionManagerLocalTicket tkt =
    SessionManager.AcquireLocalTicket(userName);
  UserSession us = sm.login(tkt.userName, tkt.passwordFilePath);
}

```

The partner changes the agent to code like the following pseudo-code instead:

```
LoginToMyEsx() {  
  hostname[] = vifplib.EnumerateHosts();  
  UserSession us = vifplib.LoginByFastpass(hostname[0]);  
}
```

This pseudo-code assumes only one vi-fastpass target. In case of multiple target servers, the code can specify any target server or loop through a list of target servers.

- A partner or customer ports an agent written in Perl and running outside the ESX/ESXi system.

Instead of calling the VI Perl Toolkit `Util::Connect()` method, the agent calls the `vifp` library's `vifplib::LoginByFastpass()` method.

Getting Started with VIMA

2

This chapter gets you up and running with VIMA. It explains how to import and configure VIMA, how to add and remove target servers, and how to prepare and run scripts. The chapter also includes troubleshooting information.

Read [Chapter 1, “Introduction to VIMA,”](#) on page 7 for background information on VIMA functionality and available VIMA components.

To set up VIMA, you should have some experience setting up a Linux system and working in a Linux environment.

This chapter includes the following topics:

- [“Prerequisites”](#) on page 14
- [“Importing VIMA”](#) on page 14
- [“Configuring VIMA”](#) on page 16
- [“Working with vi-user”](#) on page 17
- [“Adding Target Servers to VIMA”](#) on page 18
- [“Removing Target Servers from VIMA”](#) on page 19
- [“Modifying Scripts”](#) on page 20
- [“Shutting down VIMA”](#) on page 21
- [“Deleting VIMA”](#) on page 22
- [“Troubleshooting VIMA”](#) on page 22

Prerequisites

To set up VIMA, you need the following hardware and software:

- ESX/ESXi host – Because VIMA runs a 64-bit Linux guest operating system the ESX/ESXi host on which it runs must support 64-bit virtual machines.

The ESX host must have one of the following CPUs:

- AMD Opteron, rev E or later
- Intel processors with EM64T and VT support

Opteron 64-bit processors earlier than rev E and Intel processors that have EM64T support but not VT support can run ESX but do not support a 64-bit guest operating system.

- VI Client – You need a VI Client available for importing VIMA into the ESX/ESXi host.
- VIMA – 512MB of memory are recommended for VIMA.

When you initially configure VIMA, you need the following user name and password information. Be sure to obtain the information before you start VIMA configuration.

- ESX/ESXi host – For each ESX/ESXi host you want to add as a vi-fastpass target, you need the root password or the user name and password for a user with administrative privileges. You need the same authentication information when you want to remove a target host.
- VIMA – VIMA prompts you for passwords for the vi-admin user when you first log in to VIMA. The vi-admin user has root privileges on VIMA.

NOTE The root user account is disabled on VIMA. To run privileged commands, type `sudo <command>`. You are prompted for the vi-admin user's password the first time you use `sudo`. By default, only vi-admin can run `sudo` commands.

Importing VIMA

You can import VIMA from a file or from the VMware Virtual Appliance Marketplace. To import from a file, download and unzip the VIMA ZIP file before you start the import process.

To import VIMA

- 1 Log in to a VI Client connected to a VirtualCenter Server (version 2.5 or later) or an ESX/ESXi host (version 3.5 or later).
- 2 Select the import host for VIMA in the inventory pane.
- 3 Select **File > Virtual Appliance > Import**.
The Import Virtual Appliance wizard is launched.
- 4 Select one of these options:

Option	Description
Import from URL	Select this option and click Next . Type http://www.vmware.com/go/importvima/vima1.ovf into the field and click Next .
Import from File	Select this option if you have already downloaded and unzipped the VIMA virtual appliance package. Click Browse , select the OVF, and click Next

- 5 Click **Next** when the download details are displayed and accept the license agreement.
- 6 Specify a name (optional), and choose a location for the virtual machine when prompted.
If you are connected to a VirtualCenter Server, you can choose a folder.
- 7 Select the resource pool for the virtual machine.
You can leave the default, which is the top-level root resource pool.
- 8 Select the datastore to store the virtual machine on and click **Next**.
- 9 Select the network mapping and click **Next**.

NOTE Make sure VIMA is connected to the management network on which the ESX/ESXi systems that are intended VIMA targets reside.

- 10 Review the information and click **Finish**.

The wizard imports the VIMA virtual machine on the host you selected.
The import process can take several minutes.

The next task is configuring your VIMA virtual machine. You perform this task when you first log in to VIMA.

Configuring VIMA

This section discusses the initial configuration of a VIMA virtual machine. VIMA is considered configured when the following information has been specified:

- Host name for VIMA.
- Network configuration for the virtual machine: IP address, subnet mask, and gateway. By default, VIMA uses DHCP.
- Password for the vi-admin user.

VIMA prompts you for this information when you first start the virtual machine.

NOTE Do not resize the VI Client window before you start the configuration. You might have problems with the display otherwise.

To configure VIMA

- 1 In the VI Client, right-click the virtual machine, and click **Power On**.
- 2 Select the Console tab.
- 3 Set up the virtual machine's network using the Tab and Space keys of the Linux configuration tool. You can make changes to the default, or to exit that dialog if no customization is necessary.
 - a Select the virtual network adapter for VIMA.
 - b Select network settings for the network adapter. By default, VIMA uses DHCP.
- 4 When prompted, specify a host name for VIMA.

You can later change this host name by modifying the `/etc/sysconfig/network` file, as you would for any Linux host.

- 5 When prompted, specify a password for vi-admin on this virtual machine. This user has root privileges.

The prompt uses the Linux `passwd` utility.

- If you specify a password considered insecure, for example, a dictionary word or a word with less than six characters, a **Bad Password** informational message is displayed, but the password is accepted after confirmation.
- You can use special characters directly at the prompt. Do not use escape characters or quotes for special characters.

You can later change the password for the vi-admin user using the Linux `passwd` command.

VIMA is now configured and prompts you to log in as vi-admin. When you log in as vi-admin, you can add servers to VIMA and execute commands from the VIMA console.

Working with vi-user

As part of configuration, VIMA creates a vi-user account. Initially, that user has no password, and you cannot use the vi-user account until you have specified a vi-user password.

To specify the vi-user password

- 1 Log in to VIMA as vi-admin.
- 2 Execute the Linux `passwd` command for vi-user as follows:

```
sudo passwd vi-user
```

If this is the first time you use `sudo` on VIMA, an information message about root user privileges appears, and you are prompted for the VIMA root password.

- 3 (Optional) If you are prompted for the VIMA root password, specify the vi-admin password.

Next you are prompted for the password for vi-user.

- 4 Type and confirm the password for vi-user.

After vi-user has been enabled on VIMA, that account has normal privileges on VIMA but is not in the `sudoers` list.

When you add target servers, VIMA creates two users on each target server:

- vi-admin has administrative privileges on the target ESX/ESXi system.
- vi-user has read-only privileges on the target ESX/ESXi system. Each time you add a target server to VIMA, VIMA creates vi-user on the target, even if vi-user is not currently enabled on VIMA.

When a user is logged in to VIMA as vi-user, VIMA uses that account on target ESX/ESXi hosts and the user can execute only commands on target ESX/ESXi hosts that do not require administrative privileges.

Adding Target Servers to VIMA

After you have configured VIMA, you can add target servers. VIMA 1.0 supports target servers that run on ESX/ESXi version 3.5 or later.

The following task illustrates how you can add the ESX/ESXi host without specifying a user name. For that case, you are prompted for the root password for the ESX/ESXi host. If you run `addserver` with the `--username` option, the user must have root privileges on the ESX/ESXi host.

To make an ESX/ESXi host a VIMA target

- 1 Log in to VIMA as the administrator user (`vi-admin`).

- 2 Execute `addserver` to add a server as a `vi-fastpass` target, as follows:

```
sudo vifp addserver <servername>
```

If this is the first time you use `sudo` on VIMA, an information message about root user privileges appears, and you are prompted for the VIMA root password.

- 3 (Optional) Specify the `vi-admin` password if prompted for the VIMA root password.

Next, you are prompted for the root user for the target server as follows:

```
root@<servername>'s password:
```

- 4 Supply the root password for the ESX/ESXi host you want to add.

VIMA does not retain the root password. Instead, VIMA adds `vi-admin` and `vi-user` users to the ESX/ESXi host and stores the obfuscated passwords it generates for those users in the VMware credential store.

In a VI Client connected to the target server, the Recent Tasks panel displays information about the users being added. The target server's Users and Groups panel displays the users if you select it.



CAUTION Do not remove users added by VIMA from the target server, unless you deleted the VIMA virtual machine and forgot to remove the target servers.

- 5 Verify that the target server has been added:

```
vifp listservers
```

- 6 Initialize `vi-fastpass` for use of VI Perl Toolkit and Remote CLI scripts on the target server, as follows:

```
vi fpinit <servername>
```

The `<servername>` is optional if this is the only target server.

- 7 Verify that you can execute an Remote CLI command without authentication by running a command, for example:

```
vicfg-nics.pl -l
```

NOTE If the name of a target server changes, you have to remove the target server using `removeserver` with the old name, then add the server using `vi fp addserver` with the new name.

Adding Multiple Target Servers

If you add a single target server to VIMA, commands you run on VIMA are executed on that server.

If you have added a second target server, VIMA executes commands on the first server that you added by default. However, it is best to specify the server explicitly.

To use multiple target servers

- 1 Add the first server and run `vi fpinit` for that server, as described in [“To make an ESX/ESXi host a VIMA target”](#) on page 18.
- 2 Add a second server and run `vi fpinit` for that server.

```
sudo vi fp addserver <server2>
vi fpinit server2
```

When you run a Remote CLI command or VI Perl Toolkit script, specify the server to run the command on but not the authentication information. For example:

```
vicfg-mpath --server server2 --list
```

Removing Target Servers from VIMA

If you decide to delete the VIMA virtual machine, VMware recommends that you remove all target servers from VIMA. If you do not remove the target servers, the `vi-admin` and `vi-user` users are not removed from the target servers.

To remove an ESX/ESXi host from VIMA

- 1 Log in to VIMA as the administrator user (vi-admin).
- 2 Execute `removeserver` once for each server that is a vi-fastpass target.

```
sudo vifp removeserver <servername>
```

You are prompted for the root user for that server as follows:

```
root@<servername>'s password:
```

- 3 Supply the root password for the server you want to remove.

The Recent Tasks panel of the target server displays information about two users being removed. The Users and Groups panel of the target server no longer displays the two users when you select it.

Modifying Scripts

You can modify service console scripts to run from VIMA on ESX/ESXi hosts.

- **Service console commands** – Scripts running in VIMA cannot use Linux commands in the way that they did on the ESX service console. The Linux installation is running on VIMA, not on the ESX/ESXi host.
- **References to localhost** – Scripts cannot refer to `localhost`.
 - If VIMA has only one target server, all commands apply to that target server.
 - If VIMA has multiple target servers, specify the host name or the IP address for the target server.
- **Access to ESX/ESXi files** – If you need access to folders or files on an ESX/ESXi host, you can make that host a target server and use the `vifs` Remote CLI command to view, retrieve, or modify folders or files.
- **Programmatic connection** – In Perl scripts or Java programs, call `login_by_fastpass` and specify the host to connect to. VIMA takes care of authentication if the server has been established as a target server. Programs can use `vifplib` library commands. See “[vifplib Library](#)” on page 36.
- **No proc nodes** – Some service console scripts still use `proc` nodes, which were officially made obsolete with ESX Server 3.0 and will become unavailable in future ESX/ESXi releases. You can extract information that was available in VMware `proc` nodes using the Remote CLI commands available on VIMA.
- **Target specification** – In multi-target mode, you must specify the target server when you execute commands or scripts. In single-target mode, all Remote CLI commands you execute run on that target.

You can use the following VIMA components for modifying scripts that include `proc` nodes and Linux commands:

Table 2-1. VIMA Components for Use In Scripts

VIMA Component	Use	See
Remote CLI commands	Managing ESX/ESXi hosts and virtual machines	<i>VMware Infrastructure Command-Line Interface Installation and Reference Guide.</i>
vifs Remote CLI command	Performing common operations such as copy, remove, get, and put on files and directories	Discussed in <i>VMware Infrastructure Command-Line Interface Installation and Reference Guide.</i>
VI Perl Toolkit	Access the VI API, a Web-services based API for managing, monitoring, and controlling the lifecycle of all VMware Infrastructure components.	Documented in the <i>VI Perl Toolkit Programming Guide.</i> See http://www.vmware.com/support/pubs/sdk_pubs.html
VI Perl Toolkit utility applications and sample scripts	Perform common administrative tasks	Find the commands on VIMA in <code>/usr/lib/vmware-viperl/apps</code>
VI Perl Toolkit WS Management component	Access CIM/SMASH data. ESX Server 3 supports over a dozen Systems Management Architecture for Server Hardware (SMASH) profiles, enabling system management client applications to check the status of underlying server components such as CPU, fans, power supplies, and so on.	Documented in the <i>VI Perl Toolkit Programming Guide.</i>

Shutting down VIMA

Before you power off VIMA, shut down the virtual machine.

To shut down the VIMA virtual machine

- 1 Shut down the operating system using the Linux `halt` command.
- 2 Power off the VIMA virtual machine using the VI Client.

Deleting VIMA

If you decide to import a newer version of VIMA, or if you no longer need VIMA, you can delete the VIMA virtual machine.

To delete the VIMA virtual machine

- 1 Remove all servers you added.

```
sudo vifp removeserver <server>
```
- 2 Shut down the operating system using the Linux `halt` command.
- 3 Power off the virtual machine using the VI Client.
- 4 In the VI Client, right-click the virtual machine and choose **Delete from Disk**.

NOTE If you delete VIMA without removing all servers, the `vi-admin` and `vi-user` users remain on the target ESX/ESXi hosts.

Troubleshooting VIMA

This section includes some troubleshooting information.

Table 2-2. Troubleshooting VIMA

Issue	Resolution
You cannot install VIMA.	Check whether your setup meets the hardware and software requirements listed in “Prerequisites” on page 14.
You add a server but the Remote CLI command or Perl script still prompts for authentication.	Execute <code>vifpinit</code> for the target server.
You have added multiple servers. How can you know where VIMA will execute Remote CLI commands?	The first server you added to VIMA is the default target server. If you want to target a different server, specify the server as an argument to a the Remote CLI command, or specify the server by running <code>vifpinit <servername></code> .

Table 2-2. Troubleshooting VIMA (Continued)

Issue	Resolution
<p>The first time you use <code>sudo</code> on VIMA, for example, <code>sudo vi fp addserver</code>, the following message appears:</p> <pre>We trust you have received the usual lecture from the System Administrator. It usually boils down to these three things: #1 Respect the privacy of others. #2 Think before you type #3 With great power comes great responsibility. You are prompted for the root password.</pre>	<p>The message and prompt is a security feature of <code>sudo</code> and was left enabled to make VIMA more secure.</p> <p>Type the <code>vi-admin</code> password you set up for VIMA.</p> <p>You are prompted only once.</p>
<p>You want to enable DNS resolution in VIMA.</p>	<p>You can configure the DNS resolution name server for VIMA by updating the <code>/etc/resolv.conf</code> file. Add the following line for each DNS server in your network:</p> <pre>nameserver <dns server ip address></pre> <p>Type <code>man resolv.conf</code> for details on that file.</p>

VIMA Interfaces

This chapter is a reference to VIMA CLIs and to the `vifplib` library.

The chapter includes the following topics:

- [“VIMA Interface Overview”](#) on page 25
- [“vifpinit Command for vi-fastpass Initialization”](#) on page 26
- [“vilogger Daemon and Log Management Commands”](#) on page 31
- [“vifplib Library”](#) on page 36

VIMA Interface Overview

Table 3-1. VIMA Command-Line Interface Overview

Interface / Library	Commands / Methods	See
vifpinit	vifpinit	“vifpinit Command for vi-fastpass Initialization” on page 26.
vifp (administrative interface)	addserver removeserver rotatpassword listservers	“vifp Target Management Commands” on page 27.

Table 3-1. VIMA Command-Line Interface Overview (Continued)

Interface / Library	Commands / Methods	See
vilogger (logging interface)	enable disable updatepolicy list	“vilogger Daemon and Log Management Commands” on page 31.
vifplib (library, Perl and Java)	enumerate_targets / enumerateTargets query_target / queryTarget login_by_fastpass / loginByFastpass	“vifplib Library” on page 36.

vifpinit Command for vi-fastpass Initialization

Initializes vi-fastpass for Remote CLI and VI Perl Toolkit.

Usage

```
vifpinit [<server>]
```

Description

The `vifpinit` command enables seamless authentication for Remote CLI and VI Perl Toolkit commands.

When you execute `vifpinit` with no arguments, it initializes vi-fastpass for the first target server you added to VIMA.

If you add more than one target server, you must execute `vifpinit <server>` for each additional target server. After that, all VI Perl Toolkit and Remote CLI commands work without authentication on each initialized target server if you specify the `--server` option. If you do not specify `--server`, commands are executed on the first target server you added.

NOTE VMware recommends that you specify the server if multiple target servers have been added.

While hosts remain a target servers across VIMA reboots, you need to run `vifpinit` again for each target after each log out.

vifp Target Management Commands

The `vifp` interface allows administrators to add, list, and remove target servers and to manage the `vi-admin` user's password.

NOTE With the exception of `listservers`, all `vifplib` commands require superuser privileges. Because `vi-admin` has superuser privileges, you can prefix the commands with `sudo`, for example, `sudo vifp addserver <server>`.

vifp addserver

Adds an ESX/ESXi host.

Usage

```
sudo vifp addserver
  <server>
  [--protocol <http | https>]
  [--portnumber <portnum>]
  [--servicepath <servicepath>]
  [--username <username>]
  [--password <password>]
```

Description

This command allows you to add one or more target servers. See [“Adding Target Servers to VIMA”](#) on page 18 and [“Adding Multiple Target Servers”](#) on page 19.

You must run `vifpinit <server>` before you run Remote CLI commands or VI Perl Toolkit scripts on that server. The host remains a target server across VIMA reboots, but you need to run `vifpinit` again after each log out. See [“vifpinit Command for vi-fastpass Initialization”](#) on page 26. After that, you can run Remote CLI or VI Perl Toolkit commands and scripts and you are no longer prompted for authentication information.

- If you add only one ESX/ESXi host, you can run commands without specifying any connection information.
- If you add multiple ESX/ESXi hosts, VMware recommends that you specify the host.

NOTE If the name of the target server changes, you have to remove the target server using the old name, then add the target server using the new name.

Changing the name can mean explicitly changing the name or giving a name to a target server that does not have a host name.

Options

Option	Description
server	ESX/ESXi host to add as a target server.
protocol	Connection protocol. Default is https.
portnumber	Connection port number of <server>. Default is 443.
servicepath	Service path URL of <server>. Default is /sdk.
username	User who connects to <server>. Default is root. The user must have superuser privileges on <server>.
password	Password of the user specified by --username.

Example

```
sudo vifp addserver myESX42
```

Adds an ESX/ESXi host to vi-fastpass. You are prompted for the target server's root password.

vifp removeserver Command

Removes a specified host that was previously added with `vifp addserver`.

Usage

```
sudo vifp removeserver
  <server>
  [--protocol <http | https>]
  [--portnumber <portnum>]
  [--servicepath <servicepath>]
  [--username <username>]
  [--password <password>]
```

Description

Allows you to remove servers that were added as target servers.

You must execute this command with superuser privileges.

NOTE Execute `vifp removeserver` for each VIMA instance before you delete the instance. If you don't, the `vi-user` and `vi-admin` users remain on the target server. If you later add a server to VIMA on which the `vi-admin` and `vi-user` already exist, VIMA uses replacement user names for those accounts. Run `vifp removeserver` to reduce clutter.

Options

Option	Description
server	ESX/ESXi host to remove.
protocol	Connection protocol. Default is https.
portnumber	Connection port number of <server>. Default is 443.
servicepath	Service path URL of <server>. Default is /sdk.
username	User who connects to <server>. Default is root. The user must have superuser privileges on <server>.
password	Password of the user specified by --username.

Examples

```
sudo vifp removeserver <serverAddress>
```

Removes an ESX/ESXi host from vi-fastpass. You are prompted for the target server's root password.

vifp rotatepassword Command

Specifies vi-admin password rotation parameters.

Usage

```
sudo vifp rotatepassword
  [--now [--server <server>] |
  --never |
  --days <days>]
```

Description

Specifies password rotation parameters for the passwords of the vi-admin and vi-user accounts. VIMA changes passwords for vi-admin and vi-user both in the local credential store and on the target server or target servers based on the specified options. VIMA attempts the password rotation at midnight VIMA time.

For example, if you add server1 on 9/1, and server2 on 9/2, and call `vifp rotatepassword --days 7`, then VIMA rotates server1's password at midnight on 9/8 and server2's password at midnight on 9/9. VIMA rotates server1's password again on 9/15 and server2's password again on 9/16. If you now call `vifp rotatepassword --days 3`, VIMA rotates server1's password on 9/18 and server2's password on 9/19.

If one or more of the target servers is down when VIMA attempts password rotation, VIMA repeats the attempt at midnight VIMA time the next day.

Options

Option	Description
now	Immediately rotate the password for all servers or a specified server.
server	ESX/ESXi host to rotate the password for. Use <code>--server</code> only with <code>--now</code> .
never	Never rotate the password for any target server.
days	Rotate the password for all target servers after the specified number of days. For example, to rotate passwords for all hosts managed by this VIMA after seven days, run: <code>sudo vifp rotatepassword --days 7</code>

Examples

```
sudo vifp rotatepassword --now
```

Immediately rotates passwords of all vi-fastpass target servers.

```
sudo vifp rotatepassword --now --server <serverAddress>
```

Immediately rotates the password of a specific server.

```
sudo vifp rotatepassword --days 5
```

Sets the password rotation policy to rotate the password of all servers every 5 days.

```
sudo vifp rotatepassword
```

Displays the current password rotation policy.

vifp listservers Command

Lists target ESX/ESXi hosts.

Usage

```
listservers
```

Description

Returns a list of target ESX/ESXi hosts. Use this command to verify that `addserver` succeeded. This command does not require administrator privileges on VIMA.

Example

```
vifp listservers
```

Lists all servers that are vi-fastpass targets.

Target Management Example Sequence

The following sequence of commands adds a server, executes `vifpinit` to enable `vi-fastpass`, lists servers, runs an RCLI command, and removes the server.

```

sudo vifp addserver 10.20.30.40
root@10.20.30.40's password: <password, not echoed to screen>
vifpinit 10.20.30.40
vifp listservers
10.20.30.40
vicfg-mpath.pl --list
cdrom vmhba0:1:0 (0MB has 1 paths and plicy of fixed
    Local 0:7:1 vmhba0:1:0 On active preferred
.....
sudo vifp removeserver 10.20.30.40
root@10.20.30.40's password: <password, not echoed to screen>

```

vilogger Daemon and Log Management Commands

You can use the `vi logger` interface to have VIMA collect log files from the target ESX/ESXi hosts according to the specified log policy. You can manage the daemon using the daemon management interface and specify the log policy using the `vi logger` CLIs.

Management Service Interface for vilogd

The `vilogd` daemon performs the log collection. The daemon starts each time VIMA boots.

You can explicitly stop or restart the daemon at any time if you are logged in as `vi-admin`, using the following service interface:

Table 3-2. Explicit manipulation of the `vilogd` daemon

Command	Action
<code>sudo /sbin/service vmware-vilogd start</code>	Starts the <code>vilogd</code> daemon.
<code>sudo /sbin/service vmware-vilogd stop</code>	Stops the <code>vilogd</code> daemon.
<code>sudo /sbin/service vmware-vilogd restart</code>	Restarts the <code>vilogd</code> daemon.
<code>sudo /sbin/service vmware-vilogd status</code>	Checks status of the <code>vilogd</code> daemon.

The `vilogd` daemon collects all the logs that are available through the `DiagnosticManager VI API`.

- ESX/ESXi3.x service log
- VI Client Agent log
- Virtual Machine kernel core file
- System log

vilogger enable Command

Enables log collection.

Usage

```
vilogger enable
  [--server <server>]
  [--logname <logname>]
  [--collectionperiod <period_in_seconds>]
  [--numrotation <rotation>]
  [--maxfilesize <size_in_MB>]
```

Description

Enables log collection. You can enable logging for a single target or for all targets. You can also enable logging selectively for specific log files. By default, logging is disabled for a target when you add it to VIMA. You must enable logging explicitly.

Options

Option	Description
server	ESX/ESXi host to enable log collection for. Defaults to all servers.
logname	Log to enable. Default is all logs. You can display the list using <code>vilogger --list</code> .
collectionperiod	Logs are collected at regular intervals. This option specifies the interval, in seconds. Specify a number between 1 and 3600. Default is 10. Setting the log collection interval lower than 10 seconds can degrade performance of the VI API or VI Client accessing the ESX/ESXi system.
maxfilesize	Maximum size of the log file before rollover, in MB. Specify a number between 1 and 1024. Default is 5MB.
numrotation	Number of log files to keep before the oldest file is overwritten. Specify a number between 1 and 1024. Default is 5, which means five log files are kept.

Examples

vilogger enable

Enables log collection for all servers added to VIMA using default values for collection period, log rotation, and log size.

vilogger enable --server myServer42

Enables log collection for the myServer42 VIMA target server using default values for collection period, log rotation, and log size.

vilogger enable --server myServer42 --logname messages

Enables log collection for the /var/log/messages log for the myServer42 ESX/ESXi system using the default values for collection period, log rotation, and log size.

vilogger enable --collectionperiod 60

Enables log collection for all VIMA target servers using a collection period of 60 seconds.

vilogger enable --numrotation 8

Enables log collection for all VIMA target servers with log rotation set to 8.

vilogger enable --maxfilesize 10

Enables log collection for all VIMA target servers with max log file size set to 10 MB.

vilogger disable Command

Disables log collection.

Usage

```
vilogger disable
  [--server <server>]
  [--logname <logname>]
```

Description

This command disables all log collection for a specified ESX/ESXi server or for all servers until logging is enabled again. The command also allows you to disable logging on a per-log-file basis.

Options

Option	Description
server	ESX/ESXi host to enable log collection for. Defaults to all servers.
logname	Log to disable. Default is all logs. You can display the list using <code>vi logger --list</code> .

Examples

```
vi logger disable --server myserver42 --logname messages
```

Disables log collection for the `/var/log/messages` log from the `myserver42` ESX/ESXi host.

```
vi logger disable --server myserver42
```

Disables all log collection for `myserver42` ESX/ESXi host.

```
vi logger disable
```

Disables all log collection.

vi logger updatepolicy Command

Customize log collection parameters.

Usage

```
vi logger updatepolicy
  [--server <server>]
  [--logname <logname>]
  [--collectionperiod <period_in_seconds>]
  [--numrotation <rotation>]
  [--maxfilesize <size_in_MB>]
```

Description

Allows you to specify the number of rotations, collection period, and maximum log size. You can execute this command for a specific server or for all servers. This command changes collection policies only for logs that are already enabled.

Options

Option	Description
server	Server to set collection parameters for. Default is all servers.
logname	Log to change collection parameters for. Default is all logs enabled for the specified server(s). You can display the list of available logs using <code>vilogger --list</code> .
collectionperiod	Logs are collected at regular intervals. This option specifies the interval, in seconds. Specify a number between 1 and 3600. Default is 10. Setting the log collection interval lower than 10 seconds can degrade performance of the VI API or VI Client accessing the ESX/ESXi system.
maxfilesize	Maximum size of the log file before rollover, in MB. Specify a number between 1 and 1024. Default is 5MB.
numrotation	Number of log files to keep before the oldest file is overwritten. Specify a number between 1 and 1024. Default is 5, which means five log files are kept.

Examples

```
vilogger updatepolicy --server myserver42 --logname messages  
--collectionperiod 30
```

Updates collection period to 30 seconds for previously enabled logs.

```
vilogger updatepolicy --server myserver42 --maxfilesize 7
```

Updates the maximum log file size for all enabled logs for the specified ESX/ESXi system (myserver42) to 7MB.

vilogger list Command

Lists available logs.

Usage

```
vilogger list  
  [--server <server>]  
  [--logname <logname>]
```

Description

Lists the names of all logs available for collection from all target servers or from the specified target server. The command lists the log files and whether log collection is enabled or disabled for each file.

The following logs might be included:

- `/var/log/messages`
- `/var/log/vmkernel`
- `/var/log/vmksummary`
- `/var/log/vmkwarning`
- Host agent log
- VirtualCenter agent log

If logging is enabled, the `list` command also displays the following information:

- Location of the file where the collected logs are stored in VIMA
- Collection period
- Number of log rotations to maintain
- Maximum size the log file can grow to before it is rotated.

VIMA 1.0 does not collect log files for virtual machines.

Example

```
vilogger list
```

Lists the logging status for all VIMA target servers.

vifplib Library

The `vifplib` library has been implemented in Perl and Java.

Using vifplib to Connect to a Single Target Server

Agents can link with `vifplib` and use `vi-fastpass` functionality. The library implements the methods shown in [Table 3-3](#). See the `VIFPLIB java` library for a more detailed reference to the Java interface. You can find samples in `/opt/vmware/vima/samples`.

Using vifplib to Connect to Multiple Target Servers

The `vifplib` library allows seamless interaction with multiple targets. If you want to support multiple targets, you can:

- Retrieve a list of all servers that are `vi-fastpass` targets – `EnumerateTargets`.
- Retrieve connection information for those servers – `QueryTarget`
- Connect to the target servers – `LoginByFastpass`.

Table 3-3. VIMA Methods

Perl Method	Java Method	Description
enumerate_targets	enumerateTargets()	Returns a list of all target ESX/ESXi hosts that were added using <code>vifp addserver</code> .
query_target (<servername>)	queryTarget (string <servername>)	Returns a <code>VIUserInfo</code> object that contains details of the user that can be used to connect to the server specified using <servername>. Specify one of the servers added to fastpass using <code>vifp addserver</code> in <servername>. Agents can use this interface to retrieve login credentials from a host and then use those credentials to connect to the host.
login_by_fastpass (<servername>)	loginByFastpass (VimPortType <service>, ManagedObjectReference <svcRef>, String <servername>)	Takes a target server as an argument and logs in to the host using the VI API. Returns a session that the agent can use to execute commands on the host.

Appendix: Updating VIMA with vima-update

VIMA includes the `vima-update` utility, which allows you to download software updates, including security fixes, for the VIMA virtual machine. This appendix introduces `vima-update` and includes a reference and examples for its use. The appendix includes these topics:

- [“Introduction to vima-update”](#) on page 39
- [“Using vima-update”](#) on page 40

Introduction to vima-update

You can use `vima-update` to download patches for VIMA. VMware will host a depot of VIMA 1.0 updates online. The URL of the update depot is specified in the `/etc/vmware/esxupdate/vimaupdate.conf` file.

VMware will notify customers when VIMA updates become available. Customers can then evaluate whether they want the current set of updates, and can install it. Later updates include changes made by all previously released updates.

You can connect to the depot URL directly or specify a proxy server in the `/etc/vmware/esxupdate/vimaupdate.conf` file. If no proxy server is specified, `vima-update` requires direct connection to the Internet.

Using vima-update

You can use `vima-update` to scan for updates and to install updates.

If you want to use a proxy server, edit the `/etc/vmware/esxupdate/vimaupdate.conf` file before you use `vima-update`. For example:

```
# Proxy settings
# Uncomment these options if a proxy is required to access the
# URL specified in vima.depot

#proxy = http://proxy.example.com
#proxyport = 12345
```

To scan for updates

- 1 Log in to VIMA as `vi-admin`.
- 2 Run the following command:


```
sudo vima-update scan
```
- 3 [Optional] If prompted, provide the `vi-admin` password

VIMA displays information about available updates.

To update VIMA

- 1 Log in to VIMA as `vi-admin`.
- 2 Call `vima-update` to install all updates or update to a particular version, specified by bulletin ID. Each bulletin consists of one or more updates. Later bulletins include the updates of previous bulletins.

To update VIMA to the current version.	<code>sudo vima-update update</code>
To update VIMA to a specified update level. Includes changes from all preceding updates.	<code>sudo vima-update -b <bulletinID> update</code>

Example

The following example assumes a depot is available.

vima-update check

Lists applicable bulletins with updates, for example:

vima-update -b 'vima 1.01' update

Updates VIMA to patch level 1.01.

vima-update update

Applies all currently available updates.

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