Image Management for View Desktops using Mirage

VMware Mirage 5.9.1

vmware®

You can find the most up-to-date technical documentation on the VMware Web site at:

https://docs.vmware.com/

The VMware Web site also provides the latest product updates.

If you have comments about this documentation, submit your feedback to:

docfeedback@vmware.com

Contents

About This View and VMware Mirage Interoperability Guide 1

The *Image Management for View Desktops using VMware Mirage Guide* describes the interoperability between desktops using the View Agent and Mirage for device image management.

Intended Audience

This information is intended for the View administrator to provide the capabilities of using Mirage as a device image management for View users.

Managing View Desktops with Mirage

<div align="right">2</div>

Mirage lets administrators use Mirage base and app layering capabilities to manage full-clone, dedicated assignment View desktop machines.

With Mirage, a View administrator of a large scale environment can automatically update operating system and infrastructure software, add and remove application layers, and fix software problems. Users in View persistent desktop pools with Mirage image management can preserve user data customizations and user installed applications through Mirage image updates.

Desktop devices undergoing a Mirage layer update require more resources than usual. Mass image management operations can affect user experience for users in an updated pool and in neighboring pools with which it shares resources. To diminish this effect, Mirage must limit the level of concurrency when you perform image management operations in the View pool. An administrator can control the concurrent level through the concurrency value, which controls the effect Mirage has on the ESX resources.

Supported Configurations

Mirage supports the following View configurations.

- Full-clone, dedicated assignment desktop pools
- View Persona management is not supported with Mirage.

Supported Mirage Operations

The following Mirage operations are supported with View:

Table 2-1. Supported Mirage Operations in View

Mirage Operation	Supported with View
App layer assignment	Yes
Base layer assignment	Yes
Enforce layers	Yes
Apply driver library	Yes
Centralization	No
File Portal	No
HW migration	No
Endpoint provisioning	No
Restore	No
Revert to snapshot	No

Table 2-1. Supported Mirage Operations in View (Continued)

Mirage Operation	Supported with View
Steady state uploads	No
Windows OS migration	No

Behavior of Mirage CVDs with the View Policy

CVDs that use the View optimized policy have special characteristics.

No data protection	The corresponding devices do not upload files to the data center. You cannot revert the devices to a Mirage snapshot or restore user files to previous versions. Mirage only periodically uploads metadata about these devices, for example the list of installed applications.
No WAN optimizations	To improve performance for managing View pools, Mirage disables most WAN optimizations for these CVDs because they are generally hosted in the same data center as the Mirage server.

This chapter includes the following topics:

Workflow for Managing View Desktops

The workflow for managing a View desktop pool consists of various procedures.

1   Capture initial base and app layers.

2   Create a virtual machine.

3   Assign the base layer and any app layers to the virtual machine.

4   Create a template from the virtual machine and create a full-clone View desktop pool from the template.

5   Create CVDs for all desktops in the newly created pool.

When you need to update a base layer or app layer, perform an image update on the relevant CVDs.

1   Capture new or updated base layers or app layers.

2   Assign the new layers to the pool.

The desktop machines are updated until all the machines have the new layers.

Capturing a Base Layer

The base layer usually contains the operating system, and core or infrastructure software, and common applications, for example, Microsoft Office.

Follow the instructions described in *VMware Mirage Administrator's Guide* to create a base layer.

Considerations and Recommendations when Creating the Base Layer

Keep the following information in mind when you create the base layer.

- Use a virtual machine as the reference machine for base layer capture.

- When you create the reference CVD, select the default Mirage policy. Do not select the View policy.

- If you are using the VMware OS Optimization Tool to optimize the performance of the operating system for View, do not disable the following features, as they are required for the Mirage operation:

    - Volume Shadow Copy Service

    - Microsoft Software Shadow Copy Provider

Capturing App Layers

App layers are useful when you are distributing certain applications to a discrete group of users. You can also use them to update or replace specific applications, instead of having to recapture new base layers.

Follow the instructions described in *VMware Mirage Administrator's Guide* to create app layers.

Considerations and Recommendations when Creating App Layers

Keep the following information in mind when you create app layers.

- When you create the reference CVD, select the default Mirage policy.

Creating a Virtual Machine Template for the View Pool

To create a View desktop pool, you require a virtual machine template that is fully cloned to create all desktop virtual machines.

Follow the instructions in *vSphere Basic System Administration* for information about using vSphere Client to create virtual machine templates.

Considerations and Recommendations when Creating a Virtual Machine Template

Keep the following information in mind when you create a virtual machine template.

- The virtual machine template must have the Mirage client, View Agent, and VMware Tools installed.

- To shorten the mass CVD creation process, allow the designated virtual machine template to complete Mirage centralization with the default Mirage CVD policy before it is converted to a template.

- To further shorten the mass CVD creation process, ensure that the virtual machine template contains the same content as the base layer that you created. Assign the base layer and any common app layers, for example, the app layer that contains View Agent, to the virtual machine before you convert it to a template.

Creating a View Desktop Pool

Mirage is optimized for dedicated assignment desktop pools of full-clone virtual machines.

Follow the instructions in the *VMware View Administration Guide* to create a dedicated assignment desktop pool that contains full-clone virtual machines.

Considerations and Recommendations when Creating a Desktop Pool

Keep the following information in mind when you create a desktop pool.

■ Select **Ensure desktops are always powered on** so that the virtual machines receive image updates when they are available.

■ When prompted, specify the virtual machine that you created earlier. See "Creating a Virtual Machine Template for the View Pool," on page 9.

■ To simplify management when you use Mirage, use a name pattern for the created desktops.

Verifying View Agent Installation

Verify that View Agent is installed on the virtual machine template when the template is created. View Agent must be installed on the virtual machine template before creating a View desktop pool.

You cannot install View Agent using Mirage.

Create Mirage CVDs

When the View pool creation operation is finished, multiple pending devices appear in the Mirage Management console

Prerequisites

Verify that all the virtual machines in the pool are powered on.

Procedure

1 Use the View Administrator to disable the newly created pool.

This action prevents users from logging in to their View desktops while the centralization process is underway.

2 On the Common Wizards node, select the **Centralize Endpoint** wizard to create CVDs for all the devices in the newly created pool.

    a Filter by using the name pattern you defined when you created the View desktop pool to select all the devices in the newly created pool.

    b Select the **Optimize for Horizon View** policy.

    c Select the base layer that you previously created.

    d (Optional) Select other common app layers to deploy to the desktops.

3 Create a dynamic collection that contains all the CVDs in the pool, using the same filter you used in step Step 2a.

This dynamic collection will be useful when you apply updates to the entire pool. If you did not use a name pattern, you can create a static collection and add the CVDs manually.

What to do next

■ After this process is finished, an Assign Base Layer task is created. Follow the progress of this layer creation to monitor the centralization process. When the task is complete, the CVDs have completed centralization and the machines are ready for use. See the *VMware Mirage Administrator's Guide*.

■ Enable the newly created pool.

Update Base or App Layers for View Desktops

3

After you finish the setup for using Mirage to manage View desktops, you can update base or app layers.

NOTE Because Mirage does not protect virtual desktops, you should test the layer updates on a small scale deployment before proceeding to a large-scale deployment. You can use the layer conflict reports to check if there are any conflicts with user installed applications. See the *VMware Mirage Administrator's Guide* for more information about layer reports.

View uses concurrent layer updates to maintain a high level end-user experience during the time in which Mirage is performing updates. The setting also enables you to balance between the end-user experience and the urgency of the update.

■   Use the default value, or a value close to the default, to provide a good user experience.

■   Use a value that is 20-25% of the pool size for faster image deployment.

   Such a setting allocates more resources to the virtual machines and underlying ESX hosts to perform the update, resulting in a smaller resource share being available to the end user.

■   Use the maximum value when the entire system is offline for maintenance and the underlying resources are exclusively available for the update process.

By default, the degradation of the user experience when layers are being updated is, at most, 20%. With large pools, the machines that you are updating might be distributed across different ESX hosts and storage devices. In that case, you can set higher concurrency values.

Prerequisites

■   Verify that the concurrent desktop operations threshold is set. See "Set the Concurrent Desktop Operations Threshold," on page 12.

■   Verify that the View setup performance concurrency value is appropriate.

■   Verify that all the virtual machines are powered on.

■   Capture a new base layer or app layer, as required for your layer update.

Procedure

1   Use the Mirage Management console to assign the new base layer or app layers to the CVD collection of the View pool. When you select which layer updates to perform, make sure that, after the updates are completed, the CVDs are still assigned to at least one layer, base or app, that contains View Agent.

2   Wait for the layer assignment task to finish successfully.

This chapter includes the following topics:

Set the Concurrent Desktop Operations Threshold

This setting defines the maximum number of concurrent base layer or app layer updates that are performed by Mirage on the View desktop machines.

This configuration is not pool-specific. If several pools are undergoing layer updates simultaneously, the overall number of View machines undergoing layer updates are limited by that process. The limitation affects all Mirage servers, indicating that the Mirage servers will not perform a simultaneous layer update operation that is more than this value.

Procedure

1   In the Mirage Management console, right-click **System Configuration** and select **Settings**.

2   On the **General** tab, adjust the **Horizon View concurrent layer updates** parameter as required.

Sizing Considerations and Expected Performance

The impact of Mirage activities on the end-user experience depends on several factors.

The following factors can impact the user experience on Mirage activities:

- Initial load and utilization of the system

- Resource boundaries for dedicated resources such as ESX host CPU and memory

- Resource boundaries for shared resources such as storage IOPS and network bandwidth

The optimal number of concurrent layer updates should take into consideration all of the above factors. As a result, the absolute value can vary between different environments.

The baseline load and utilization of the system provides an initial range or additional load that can be applied on certain resources to the pool. Typically, VDI systems are designed to be under 85% of CPU load allowing some room for peaks. Depending on the decision by the Mirage administrator, part of this buffer can be used to address the calculations related to layer updates.

Dedicated resources, typically CPU and memory of the ESX host, are linearly scaled. When a single ESX host can handle 20% of the updating endpoints, the whole pool can handle a similar amount of updating endpoints assuming random distribution.

When the system is finally bounded by shared resources, typically back-end storage arrays, the amount of concurrent updates reflect the overall load that is done on the storage array by all users, even when a single ESX host can handle the load.

For additional sizing considerations in View environments, see the *Architecture Design Elements and Planning Guidelines* in the *View Architecture Planning* documentation.

The following reference tests describe the potential end-user impact on a single ESX host performance using different values for concurrent layer updates. All the tests were performed using a VDI workload generator that automates and measures a typical end-user activity. The automated applications used for the tests were Microsoft Office, Adobe Reader, watching a video, and so forth. Operations used on these applications were opening a file, browsing the Web, modifying files, and saving and closing files. In addition to these activities, a defined number of endpoints performed Mirage layer updates.

Test Setup

The reference tests used the following configurations:

- Single ESX host (16 cores, 196GB RAM)

- SAS Storage

- 100 VMs

- 20 and 50 concurrent layer updates

- Two types of loads:

    - Group A - CPU intensive

    - Group B - IO intensive

Test Results

The following table displays the reference test results for the number of endpoints concurrently performing Mirage layer updates.

Table 3-1. Reference Test Results

	Baseline	20 Endpoints	50 Endpoints
Response time increase: Group A	-	21%	74%
Response time increase: Group B	-	17%	83%

Index