Backup and Restore Operations

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Restore Cisco vManage

This article describes how to restore the vManage NMS in case the server on which the vManage NMS virtual machine (VM) is running fails. This article provides procedures for restoring a vManage NMS using two different VMware interfaces, vSphere Client and vSphere Web Client.

/!\

Caution

When you restore vManage, any vManage certificates are reset to their original state. Any changes to the certificates are lost as a result of restoring vManage; and you would have to reconfigure any certificates that you had customized earlier.

The vManage NMS database is the repository for the overlay network device configurations, events, alarms, and monitoring information. The vManage NMS database is stored on a separate virtual hard disk on the vManage NMS server; specifically, it is stored on hard disk 2. Hard disk 1 contains the Viptela operating system software.

We recommend that you set up periodic crash-consistent backups of the vManage NMS database. (In a crash-consistent backup, all the VM's data are captured at exactly the same time.) Then, if the vManage NMS server fails, you simply create a new vManage NMS instance and attach the vManage NMS database backup to that instance.

The procedures in this article each encompass both of the following scenarios:

- If you have a backup of the vManage NMS database, you create a new vManage NMS and attach the disk that contains your backup database.
- If you do not have a backup of the vManage database, you create a new vManage NMS and create a new virtual hard disk for the database.

Restore vManage NMS Using vSphere Client

 Create a vManage VM instance. See Launch vSphere Client and Create a vManage VM Instance, in Create a vManage VM Instance. 2. In the left navigation bar of the vSphere Client screen, select the vManage VM instance you just created, and click Edit virtual machine settings.



The vManage - Virtual Machine Properties screen is displayed.

3. Click Add to add a new virtual disk, and click OK.

| 🔗 vManage - Virtual Ma | achine Properties | |
|------------------------|-------------------|----------------------------|
| Hardware Ontions Reso | Nirces | Virtual Machine Version: 8 |
| Show All Devices | Add Remove | |
| Hardware | Summary | |
| Memory | 4096 MB | |
| CPUs | 2 | |
| 📃 Video card | Video card | |
| VMCI device | Restricted | |
| USB controller | Present | |
| SCSI controller 0 | LSI Logic Paral | |
| CD/DVD drive 1 | cdrom0 | |
| Hard disk 1 | Virtual Disk | |
| Floppy drive 1 | floppy0 | |
| Network adapter 1 | VLAN 150 - Ali | |
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| Help | | OK Cancel |
| | | |

The Add Hardware window opens with the Select a Disk screen displayed. If you have a backup of the vManage NMS database, complete Step 4. If you do not have a backup database, skip to Step 5.

- 1. If you have a backup of the vManage NMS database, complete the following steps:
 - a. In the Select a disk screen, select Use an existing virtual disk, and click Next.

| <u>Select a Disk</u> | A virtual disk is composed of one or more files on the host file system. Together |
|----------------------|---|
| Select Existing Disk | files appear as a single hard disk to the guest operating system. |
| Advanced Options | Select the type of disk to use. |
| Ready to Complete | Disk Create a new virtual disk Use an existing virtual disk Reuse a previously configured virtual disk. Raw Device Mappings Give your virtual machine direct access to SAN. This option allows you to use existing SAN commands to manage the storage and continue to access it using a datastore. |

The Select Existing Disk screen is displayed.

b. Click Browse.

| 🛃 Add Hardware | | | | × |
|---|-----------------------------------|-----|--------|--------|
| Select Existing Disk Which existing disk do you | want to use as this virtual disk? | | | |
| Device Type Select a Disk Select Existing Disk Advanced Options Ready to Complete | Disk File Path | | Browse | |
| Help | < B | ack | Next > | Cancel |

The Browse Datastores window opens and displays the datastores on the server

c. Navigate to the location of your backup database, and click OK.

| Device Type Select a Dis | Browse Datastores | . | | |
|-----------------------------|---------------------|--------------------------|------------------------------------|--|
| Advanced C | , Name | File Size | Last Modified | |
| recoury to c | 📇 vmanage_1.vmdk | 8 GB | 8/28/2015 3:11:22 AM | |
| | | | | |
| | • | | Þ | |
| | File type: Compatib | ole Virtual Disks (*.vmd | OK k, *.dsk, *. Cancel | |

d. In the Select Existing Disk screen, click Next.

| 🛃 Add Hardware | | X |
|---|--|--------|
| Select Existing Disk Which existing disk do you | want to use as this virtual disk? | |
| Device Type Select a Disk Select Existing Disk Advanced Options Ready to Complete | Disk File Path [datastore1] vm12/vmanage_1.vmdk Browse | |
| Help | < Back Next > | Cancel |

The Advanced Options screen is displayed. Skip Step 5 and proceed to Step 6.

- 2. If you do not have an existing vManage NMS database, you must create a new virtual disk for the vManage database:
 - a. In the Select a Disk screen, select Create a new virtual disk and click Next.

| 🛃 Add Hardware | |
|--|--|
| Select a Disk | |
| Device Type Select a Disk Create a Disk Advanced Options Ready to Complete | A virtual disk is composed of one or more files on the host file system. Together these files appear as a single Select the type of disk to use. Disk Create a new virtual Cuse an existing virtual Reuse a previously configured virtual disk. CRaw Device Give your virtual machine direct access to SAN. This option allows you to use existing SAN |
| Help | < Back Next > Cancel |

The Create a Disk screen is displayed.

a. Enter a disk capacity for the vManage database of 100 GB, and click Next.

| Add Hardware Create a Disk Specify the virt | ual disk size and provisioning policy | | |
|---|--|----------|--------------|
| Device Type Select a Disk Create a Disk Advanced Options Ready to Complete | Capacity Disk 100 ± GI ▼ Disk Provisioning • Thick Provision Lazy Zeroed • Thick Provision Eager Zeroed • Thin Provision Location • Store with the virtual machine • Specify a datastore or datastore cluster: Brows | | |
| 4 Ⅲ → | | | |
| Help | | < Back N | ext > Cancel |

The Advanced Options screen is displayed.

3. In the Advanced Options screen, select IDE for the virtual device node, and click Next.

| 🛃 Add Hardware | |
|---|---|
| Advanced Options These advanced options of | do not usually need to be changed. |
| Device Type Select a Disk Select Existing Disk Advanced Options Ready to Complete | Specify the advanced options for this virtual disk. These options do not normally need to be changed. Virtual Device Node IDE (0:1) Mode Independent Independent disks are not affected by snapshots. Persistent Changes are immediately and permanently written to the disk. Nonpersistent Changes to this disk are discarded when you power off or revert to the snapshot. |
| Help | < Back Next > Cancel |

The Ready to Complete screen is displayed.

4. Click Finish.

| 🛃 Add Hardware | | | |
|---|---|---|---------------|
| Ready to Complete Review the selected opt | ions and click Finish to add | the hardware. | |
| Device Type Select a Disk | Options: | | |
| Select Existing Disk Advanced Options Ready to Complete | Hardware type: Create disk: Virtual Device Node: Disk file path: Disk mode: | Hard Disk Use existing disk IDE (0:1) [datastore1] vm12/vmanage_1.vmdk Persistent | |
| | | | |
| | | | |
| Help | | < Back | Finish Cancel |

The data volume is added to the vManage NMS.

5. To verify that the new disk has been created, in the vManage Virtual Machine Properties screen, select the Hardware tab. Hard disk 2—the virtual disk that stores the vManage database—is shown in the hardware list.



6. In the left navigation bar of the vSphere Client, select the vManage VM instance you just created, and click Power on the virtual machine.



The vManage virtual machine is powered on.

7. Select the Console tab to connect to the vManage console. The vManage console is displayed.



8. At the vManage login prompt, log in with the default username, which is **admin**, and the default password, which is **admin**. The system prompts you to select the storage device to use.



- 1. Select the appropriate storage device.
- 2. In response to the question

```
Would you like to format x?
```

• If you attached an existing disk with a backup of the vManage database, type n.



- If you created a new virtual disk for the vManage database, type y.
- 3. Configure the vManage NMS. See vManage NMS Initial Configuration .
- 4. Generate a certificate for the new vManage NMS. See Generate vManage Certificate .
- 5. Add the serial number of the new vManage NMS to all the vBond orchestrators in the overlay network, as described later in this article.

Restore vManage NMS Using vSphere Web Client

- 1. Create a vManage VM instance. See Launch vSphere Client and Create a vManage VM Instance, in Create a vManage VM Instance .
- 2. Log in to the vSphere Web Client.
- 3. Select the VM instance for your vManage NMS.

- 4. Click the Manage tab, and click Edit. The Edit Settings screen is displayed with the Virtual Hardware tab selected.
- 5. If you have a backup of the vManage NMS database, attach it to the new vManage VM. If you do not have a backup database, skip to step 6 and create a new virtual disk for the database.
 - a. In the New device field at the bottom of the screen, click Select. A pop-up menu opens.

| vmware [®] vSphere Web Client | Virtual Hardware VM C | ptions SDRS Rules | vApp Options |
|---|--|----------------------------------|--------------|
| Navigator | | 1 | • 0 |
| Home | Memory | 1024 | • MB • |
| | ▶ 🛄 Hard disk 1 | 8.66675090789795 | GB V |
| ✓ Hu ✓ Cotillion.corp.viptela.com | ▶ 🛃 SCSI controller 0 | LSI Logic Parallel | |
| Center | Network adapter 1 | VLAN 150 - Ali Lab | Connect |
| Stadowthrone.corp.viptela.com | ▶ ▶ OD/DVD drive 1 | Host Device | Connect |
| CE-1A | Floppy drive 1 | Host Device | Connect |
| B CE-1C | USB controller | Rew Hard Disk | |
| CE-2A | Video card A | 💻 Existing Hard Disk | |
| B CE-2C | Other Devices | 🖧 RDM Disk | |
| 🗗 Cisco_ACS | Upgrade | 📕 Network | ity Upgrade |
| MPLS1-VZ | | | |
| MPLS2-L3 | | CD/DVD Drive Floppy Drive | |
| PWAZ-1A | | | |
| i PWAZ-1B PWAZ-2A | | Serial Port | |
| PWAZ-2B | | Parallel Port Host USB Device | |
| 部 RT2 VE-1A | | USB Controller | |
| ₩ VE-18 | | | |
| BVE-1C BVE-2A | | SCSI Device | |
| VE-2B | | | |
| wmanage | | SCSI Controller | |
| A vSmart | New device: | Select | Add |
| Terest Tasks | Compatibility: ESXi 5.0 an | id later (VM version 8) | OK Cancel |

b. From the pop-up menu, select Existing Hard Disk. The Select File window is displayed.

| Select File | | | | × |
|---------------------------|--------------------------|---|-------------|-----------------|
| Datastores | Contents | | Information | |
| 🕶 🗐 anomander | 🚈 corpnet-vManage.vmdk | | Name: | corpnet-vManage |
| ▶ 🛅 .sdd.sf | 💩 corpnet-vManage_1.vmdk | | Size: | 400.00 GB |
| ▶ 🧰 MediaTek-vSmart | | | Modified: | 7/16/2015 10:50 |
| ⊳ 💳 corpnet-vManage | | | | |
| ▶ 🛅 .t10.ATAST1000NM | | | | |
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| Compatible Virtual Disks(| .vmdk, *.dsk, *.raw) | ļ | | |
| | | | 0 | K Cancel |

c. In the Select File window, under Datastores, navigate to and select the appropriate .vmdk file, and click

- **6.** If you do not have an existing vManage NMS database, create a new virtual disk for the vManage NMS database:
 - a. In the New device field at the bottom of the screen, click Select. A pop-up menu opens.
 - **b.** From the pop-up menu, select New Hard Disk.

| - villallage - Eult Setti | 199 | |
|---------------------------|---------------------------------|--|
| VM C | Options SDRS Rules vApp Options | |
| CPU | 1 🖉 🛈 | |
| Memory | 1024 • MB • | |
| 🛄 Hard disk 1 | 8.66675090789795 A GB - | |
| SCSI controller 0 | LSI Logic Parallel | |
| Network adapter 1 | Existing Hard Disk | |
| CD/DVD drive 1 | RDM Disk | |
| Floppy drive 1 | Connect | |
| 🚭 USB controller | | |
| 📃 Video card <u> </u> | CD/DVD Drive | |
| S VMCI device | Floppy Drive | |
| Other Devices | 🚥 Serial Port | |
| Upgrade | Parallel Port ty Upgrade | |
| | Host USB Device | |
| | 🖶 USB Controller | |
| | SCSI Device | |
| | PCI Device | |
| | SCSI Controller | |
| New device: | Select Add | |

c. In the New Hard Disk field, enter a size for the new virtual disk of 100 GB.

| Add Hardware | | | | |
|---|---|--------|--------|--------|
| Specify the vir | tual disk size and provisioning policy | | | |
| Device Type Select a Disk Create a Disk Advanced Options Ready to Complete | Capacity Disk 100 : Gt Disk Provisioning Thick Provision Lazy Zeroed Thick Provision Eager Zeroed Thin Provision Location Store with the virtual machine Specify a datastore or datastore cluster: Rrows | | | |
| 9 111 9 | | | | |
| Help | | < Back | Next > | Cancel |

d. Click OK.

7. From the New Hard Disk section, under Virtual Device Node, select IDE 1, and click OK.

| 😰 corpnet-vManage - Edit Settings | | | | |
|-----------------------------------|--|-----------|--|--|
| Virtual Hardware VM Options | SDRS Rules VApp Options | | | |
| ▶ 🗾 Network adapter 2 | Management 🗸 🗹 Connected | | | |
| 🕨 🖶 USB controller | USB 2.0 | | | |
| 🕨 🛄 Video card 🛕 | Auto-detect settings | | | |
| VMCI device | | | | |
| ▶ Other Devices | | | | |
| ▶ . New SCSI controller | LSI Logic Parallel | | | |
| 🔻 🛄 New Hard disk | ↓400 GB 🖵 | \otimes | | |
| Maximum Size | 486.14 GB | | | |
| VM storage policy | Datastore Default | | | |
| Туре | Thick provision lazy zeroed | :: | | |
| Disk File | [anomander] corpnet-vManage/corpnet- vManage_1.vmdk | | | |
| Shares | Normal 🚽 1000 | | | |
| Limit - IOPs | Unlimited • | | | |
| Virtual flash read cache | 0 GB 👻 Advanced | | | |
| Virtual Device Node | IDE 1 ▼ IDE(1:0) ▼ | | | |
| Disk Mode | New SCSI controller | * | | |
| New device: | IDE 1 Add | | | |
| Compatibility: ESXi 6.0 and later | (VM version 11) OK C | ancel | | |

- 1. From the vSphere Web Client Navigator, select the datacenter that is hosting the VM and then select Open Console from the menu. The vManage console is displayed.
- 2. At the vManage login prompt, log in with the default username, which is **admin**, and the default password, which is **admin**. The system prompts you to select the storage device to use.
- 3. Select the appropriate storage device:

```
Viptela 15.3.3
Welcome to Viptela CLI
admin connected from 127.0.0.1 using console on vmanage
Available storage devices:
1) hdb
2) hdc
Select storage device to use: _
```

1. In response to the question

```
Would you like to format x?
```

• If you attached an existing disk with a backup of the vManage database, type n.

```
Viptela 15.3.3
Welcome to Viptela CLI
admin connected from 127.0.0.1 using console on vmanage
Available storage devices:
1) hdb
2) hdc
Select storage device to use: 1
Would you like to format hdb? (y/n): n
```

- If you created a new virtual disk for the vManage database, type yto reformat the disk.
- 2. Configure the vManage NMS. See vManage NMS Initial Configuration .
- 3. Generate a certificate for the new vManage NMS. See Generate vManage Certificate .
- **4.** Add the serial number of the new vManage NMS to all the vBond orchestrators in the overlay network, as described below.

Add vManage NMS Serial Number to vBond Orchestrators

When you generate a certificate for a new vManage NMS with a new database, the serial number from the certificate is automatically sent to the vBond orchestrators. However, when you create a new vManage NMS and attach an existing database, you must manually send the new serial number to each vBond orchestrator to overwrite the serial number of the previous vManage NMS.

If you have the management IP address for the vBond orchestrator, you can use vManage NMS to send the serial number to each vBond orchestrator. Otherwise, you must use the CLI.

If you have the management IP address for the vBond orchestrator:

1. In vManage NMS, select the Configuration ► Devices screen.

- 2. From the Devices title bar, select Controllers.
- 3. Select the vBond orchestrator.
- 4. Click the More Actions icon to the right of the row and select Edit.
- 5. Enter the management IP address, username, and password for the vBond orchestrator.
- 6. Click Save.
- 7. Select the Configuration ► Certificates screen.
- 8. From the Certificates title bar, select Controllers.
- 9. Click Send to vBond to send the new vManage NMS certificate to the vBond orchestrator.

If you do not have the management IP address for the vBond orchestrator:

- 1. Find the serial number for the new vManage NMS:
 - a. In vManage NMS, select the Configuration ► Certificates screen.
 - **b.** From the Certificates title bar, select Controllers.
 - **c.** Select the vManage NMS and make a note of the serial number that is displayed in the Certificate Serial column.
- **2.** Select the Tools \blacktriangleright SSH Terminal screen.
- **3.** Select the vBond orchestrator.
- 4. Enter the username and password for the vBond orchestrator and click Login.
- 5. Enter the following command to send the certificate serial number for the new vManage NMS to the vBond orchestrator, where number is the serial number that you noted in Step 1:

vBond#

request vsmart add serial-num number

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