



Enabling vTracker

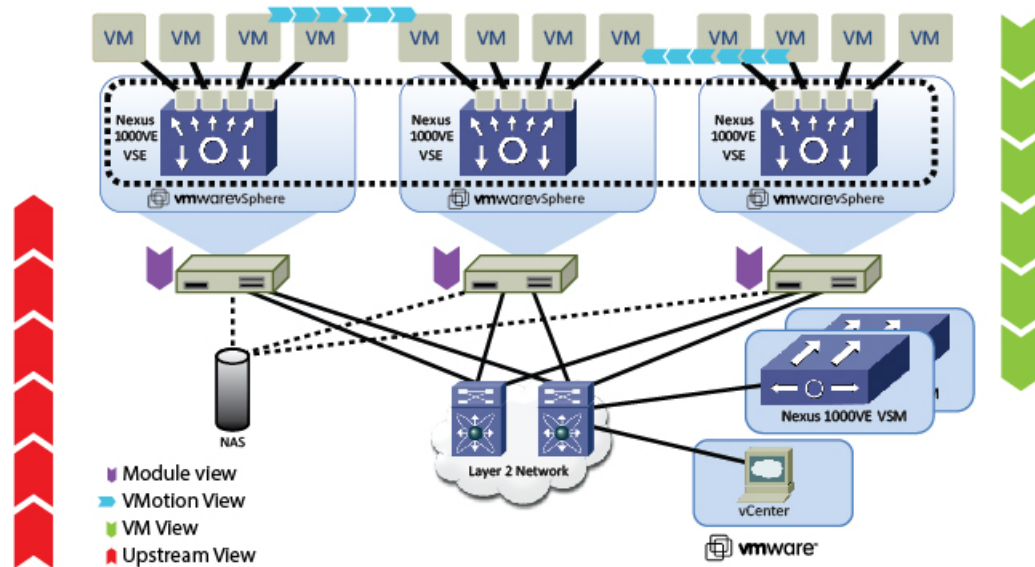
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Information About vTracker

The following illustration displays the vTracker setup diagram:

Figure 1: vTracker Setup Diagram in the Cisco Nexus 1000VE Environment



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The vTracker feature on the Cisco Nexus 1000VE switch provides information about the virtual network environment. Once you enable vTracker, it becomes aware of all the modules and interfaces that are connected with the switch. vTracker provides various views that are based on the data sourced from the vCenter, the Cisco Discovery Protocol (CDP), and other related systems connected with the virtual switch. You can use vTracker to troubleshoot, monitor, and maintain the systems. Using vTracker show commands, you can access consolidated network information across the following views:

- Upstream View—Provides information on all the virtual ports connected to an upstream physical switch. The view is from top of the network to the bottom.
- VM View—Supports two sets of data:
 - VM vNIC View—Provides information about the virtual machines (VMs) that are managed by the Cisco Nexus 1000VE switch. The vNIC view is from the bottom to the top of the network.
 - VM Info View—VM Info View—Provides information about all the VMs that run on each server module.
- Module pNIC View—Provides information about the physical network interface cards (pNIC) that are connected to each Virtual Service Engine (VSE).
- VLAN View—Provides information about all the VMs that are connected to specific VLANs.
- vMotion View—Provides information about all the ongoing and previous VM migration events.



Note vTracker is available with both Essential and Advanced edition of Cisco Nexus 1000VE.

Guidelines and Limitations

vTracker has the following configuration guidelines and limitations:

- For VM and vMotion views, you should connect the Virtual Supervisor Module (VSM) with the OpenStack for the vTracker **show** commands to work.
- vTracker is disabled by default.
- While the Cisco Nexus 1000VE switch information is validated, the information sourced by vTracker from the OpenStack is not verifiable.
- All vTracker views are valid for a given time only, because the virtual environment is dynamic and constantly changing.
- In a scaled-up environment, vTracker can experience delays in retrieving real-time information, which is distributed across VSEs and OpenStack, among other components.

Default Settings for vTracker Parameters

Parameters	Default
feature vtracker	Disabled globally

Enabling vTracker Globally

- vTracker can be configured only globally, not on individual interfaces.
- By default, vTracker is disabled.

Before you begin

- You are logged in to the VSM CLI in EXEC mode or the configuration mode of any node.
- vTracker does not change any VSM configuration settings or behavior. Rather, it only tracks and displays the current configuration views.

Procedure

	Command or Action	Purpose
Step 1	switch# configure terminal	Enters global configuration mode.
Step 2	switch(config)# [no] feature vtracker	Enables the vTracker feature. Use the no form of this command to disable this feature.
Step 3	(Optional) switch(config)# copy running-config startup-config	Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration.

Example

The following example enables vTracker:

```
switch# configure terminal
switch(config)# feature vtracker
switch(config)# copy running-config startup-config
```

Virtual Machine (VM) View

Virtual Machine (VM) View Overview

The VM view provides you with comprehensive information about the VMs that are connected with the Cisco Nexus 1000VE switch.

- VM vNIC View—Provides information about all the vNICs (virtual network interface cards) adapters that are managed by the Cisco Nexus 1000VE switch.



Note The VSM must be connected with the vCenter in order to generate the required VM view output. You can enter the **show vsvs connections** command on the VSM to verify the connection.

Displaying the VM vNIC View

To display the VM vNIC view, follow the given step.

Procedure

```
show vtracker vm-view vnic [module number | vm name]
```

Note The timeout for this command is 180 seconds.

The following examples show the vTracker VM vNIC view in a VSM:

Example:

```
switch(config)# show vtracker vm-view vnic
* Network: For Access interface - Access vlan, Trunk interface - Native vlan,
  VXLAN interface - Segment Id.
```

Mod	VM-Name HypvPort	VethPort Adapter	Drv Type Mode	Mac-Addr IP-Addr	State	Network	Pinning
3	gentoo-2 1025	Veth3 Adapter 3	Vmxnet3 access	0050.56b5.37de n/a	up	339	Eth3/8
3	gentoo-2 1026	Veth4 Adapter 4	E1000 access	0050.56b5.37df n/a	up	339	Eth3/8
3	gentoo-2 1024	Veth5 Adapter 2	Vmxnet2 access	0050.56b5.37dd n/a	up	339	Eth3/8
4	Fedora-VM1 4258	Veth7 Adapter 2	E1000 pvlan	0050.56bb.4fc1 10.104.249.49	up	406	Eth4/3
5	Fedora-VM2 100	Veth1 Adapter 1	E1000 trunk	0050.56b5.098b n/a	up	1	Po9
5	Fedora-VM2 3232	Veth2 Adapter 3	E1000 pvlan	0050.56b5.098d 10.104.249.60	up	405	Po9

Example:

```
switch(config)# show vtracker vm-view vnic module 4
* Network: For Access interface - Access vlan, Trunk interface - Native vlan,
  VXLAN interface - Segment Id.
```

Mod	VM-Name HypvPort	VethPort Adapter	Drv Type Mode	Mac-Addr IP-Addr	State	Network	Pinning
4	Fedora-VM1	Veth7	E1000	0050.56bb.4fc1	up	406	Eth4/3

```
4258           Adapter 2   pvlan       10.104.249.49
```

VM vNIC View Field Description

The column headings in the VM vNIC view examples above are described in the following table:

Column	Description
Mod	Module number on which the VM resides.
VM-Name	VM name.
HypvPort	Generated port ID in the hypervisor. For VMware hypervisor, it is called the dvPort ID.
VethPort	vEthernet interface number in the Cisco Nexus 1000V switch.
Adapter	Network adapter number of the vEthernet interface.
Drv Type	Driver type of the network adapter. Supported values are as follows: <ul style="list-style-type: none"> • E1000 • E1000e • PCNet32 • Vmxnet2 • Vmxnet3
Mode	Interface modes. Supported values are as follows: <ul style="list-style-type: none"> • access—Access port/Virtual Extensible Local Area Network (VXLAN) port • trunk—Trunk port • pvlan—Private VLAN (PVLAN) host mode or pvlan promiscuous mode
Mac-Addr	MAC address of the network adapter.
IP-Addr	IPv4 address of the network adapter, if the VMware tools are installed on the OS.
State	Operational status of the network adapter.

Column	Description
Network	<p>Network interface ID. Supported values are as follows:</p> <ul style="list-style-type: none"> • access vlan—Access interface • trunk interface—Native VLAN • vxlan interface—Segment ID • pvlan interface—Promiscuous - primary VLAN; Isolated - secondary VLAN; Community-secondary VLAN <p>Note To know the interface type, refer the Mode value.</p>
Pinning	<ul style="list-style-type: none"> • For LACP or static port-channels, pinning columns only display the port-channel number. The link the VM traffic travels depends upon the hashing algorithm the port-channel is using. • For a vPC CDP/Manual/MAC Pinning port-channel, each vEthernet port is pinned to a sub-group of the port-channel. The sub-group corresponds to an Ethernet or its uplink interface. This column shows the Ethernet port members of the sub-group. • If the Ethernet ports are not part of the port channel in any module, this column is blank.

Displaying the VM Info View

To display the VM Info view, follow the given step.

Procedure

```
show vtracker vm-view info [module number | vm name]
```

Note The timeout for this command is 180 seconds.

The following examples show the vTracker VM Info view in a VSM:

Example:

```
switch(config)# show vtracker vm-view info
Module 4:
  VM Name:          Fedora-VM1
  Guest Os:         Other Linux (32-bit)
  Power State:      Powered On
  VM Uuid:          421871bd-425e-c484-d868-1f65f4f1bc50
  Virtual CPU Allocated: 1
  CPU Usage:        1 %
```

```

Memory Allocated:      256 MB
Memory Usage:          1 %
VM FT State:           Unknown
Tools Running status:  Not Running
Tools Version status:  not installed
Data Store:            NFS1_4
VM Uptime:             1 day 29 minutes 46 seconds

VM Name:                Fedora-VM2
Guest Os:               Other Linux (32-bit)
Power State:            Powered On
VM Uuid:                4218ab37-d56d-63e4-3b00-77849401071e
Virtual CPU Allocated: 1
CPU Usage:              1 %
Memory Allocated:      256 MB
Memory Usage:          1 %
VM FT State:           Unknown
Tools Running status:  Not Running
Tools Version status:  not installed
Data Store:            NFS1_4
VM Uptime:             58 minutes 30 seconds

```

```

Module 5:
VM Name:                gentoo-cluster2-1
Guest Os:               Other (64-bit)
Power State:            Powered Off
VM Uuid:                4235edf5-1553-650f-ade8-39565ee3cd57
Virtual CPU Allocated: 1
CPU Usage:              0 %
Memory Allocated:      512 MB
Memory Usage:          0 %
VM FT State:           Unknown
Tools Running status:  Not Running
Tools Version status:  not installed
Data Store:            datastore1 (2)
VM Uptime:             n/a

```

Example:

```

switch(config)# show vtracker vm-view info vm Fedora-VM1
Module 4:
VM Name:                Fedora-VM1
Guest Os:               Other Linux (32-bit)
Power State:            Powered On
VM Uuid:                421871bd-425e-c484-d868-1f65f4f1bc50
Virtual CPU Allocated: 1
CPU Usage:              1 %
Memory Allocated:      256 MB
Memory Usage:          1 %
VM FT State:           Unknown
Tools Running status:  Not Running
Tools Version status:  not installed
Data Store:            NFS1_4
VM Uptime:             1 day 29 minutes 46 seconds

```

VM Info View Field Description

The column headings in the VM Info view examples above are described in the following table:

Column	Description
Module	Module number on which the VM resides.
VM Name	VM name.
Guest OS	Guest operating system name, which is running on the VM.
Power State	Operational state of the VM. Supported status values are as follows: <ul style="list-style-type: none"> • Unknown • Powered On • Powered Off • Suspended • Non Available
VM Uuid	UUID of the VM.
Virtual CPU Allocated	Number of the virtual CPUs allocated for the VM.
CPU Usage	VM usage in percentage.
Memory Allocated	Memory allocated to the VM in megabytes.
Memory Usage	VM memory usage in percentage.
VM FT State	Fault tolerance state of the VM. Supported values are as follows: <ul style="list-style-type: none"> • Unknown • FT Primary • FT Secondary • Not Available
Tools Running status	VMware tools running status. Supported values are as follows: <ul style="list-style-type: none"> • Unknown • Starting • Running • Not Running • Not Available

Column	Description
Tools Version status	VMware tools that display the version status. Supported values are as follows: <ul style="list-style-type: none"> • Unknown • Current • Need Upgrade • Not Installed • Unmanaged • Blacklisted • Supported New • Supported Old • Too New • Too Old • Not Available
Data Store	Data store name on which the VM resides.
VM Uptime	How long the VM has been running.

Module pNIC View

Module pNIC View Overview

The Module pNIC View provides information about the physical network interface cards (pNICs) that are connected to each of the VSE server module in the network.

Displaying the Module pNIC View

To display the Module pNIC view, follow the given step.

Procedure

```
show vtracker module-view pnic [module number]
```

The following examples show the vTracker Module pNIC view in a VSM:

Example:

```
switch# show vtracker module-view pnic
```

```

Mod  EthIf      Adapter      Mac-Address      Driver
-----
3    Eth3/1     eth1         000c.2983.4b53  uio_pci_generic
      VMXNET3 Ethernet Controller 07b0

4    Eth4/1     eth1         000c.29d1.2373  uio_pci_generic
      VMXNET3 Ethernet Controller 07b0

```

Example:

```
switch(config)# show vtracker module-view pnic module 3
```

```

Mod  EthIf      Adapter      Mac-Address      Driver
-----
3    Eth3/1     eth1         000c.2983.4b53  uio_pci_generic
      VMXNET3 Ethernet Controller 07b0

```

Module pNIC View Field Description

The column headings in the Module pNIC view examples above is described in the following table:

Column	Description
Mod	Server module name on which the VM resides.
EthIf	Ethernet interface ID of the server module.
Adapter	Ethernet adapter name as seen by the Hypervisor.
Description	Manufacturer name of the above adapter.
Mac-Address	MAC address of the Ethernet interface.
Driver	Driver type of the interface.

VLAN View

VLAN View Overview

The VLAN view provides information about all the VMs that are connected to a specific VLAN or a range of VLANs. It is a view from the VLAN perspective.

Displaying the VLAN View

To display the VLAN view, follow the given step.

Procedure

show vtracker vlan-view vnic [vlan number/range]

The following examples show the vTracker VLAN view in a VSM:

Example:

```
switch(config)# show vtracker vlan-view
* R = Regular Vlan, P = Primary Vlan, C = Community Vlan
  I = Isolated Vlan, U = Invalid
```

VLAN	Type	VethPort	VM Name	Adapter Name	Mod
1	R	-	-	-	-
233	R	-	-	-	-
335	R	-	-	-	-
336	R	-	-	-	-
337	R	-	-	-	-
338	R	-	-	-	-
339	R	Veth3	gentoo-2	Net Adapter 3	3
		Veth4	gentoo-2	Net Adapter 4	3
		Veth5	gentoo-2	Net Adapter 2	3
340	R	-	-	-	-
341	R	-	-	-	-
400	R	Veth1	Fedora-VM2	Net Adapter 1	5
401	R	Veth1	Fedora-VM2	Net Adapter 1	5
402	R	Veth1	Fedora-VM2	Net Adapter 1	5
403	R	-	-	-	-
404	P	Veth6	Fedora-VM1	Net Adapter 1	4
405	C	Veth2	Fedora-VM2	Net Adapter 3	5
406	I	Veth7	Fedora-VM1	Net Adapter 2	4

Example:

```
switch(config)# show vtracker vlan-view vlan 233-340
* R = Regular Vlan, P = Primary Vlan, C = Community Vlan
  I = Isolated Vlan, U = Invalid
```

VLAN	Type	VethPort	VM Name	Adapter Name	Mod
233	R	-	-	-	-
335	R	-	-	-	-
336	R	-	-	-	-
337	R	-	-	-	-
338	R	-	-	-	-
339	R	Veth3	gentoo-2	Net Adapter 3	3
		Veth4	gentoo-2	Net Adapter 4	3
		Veth5	gentoo-2	Net Adapter 2	3
340	R	-	-	-	-

VLAN View Field Description

The column headings in the VLAN view examples above are described in the following table:

Column	Description
VLAN	VLAN ID on which the VM resides.
Type	VLAN type. Supported types are as follows: <ul style="list-style-type: none"> • R—Regular VLAN • P—Primary VLAN • C—Community VLAN • I—Isolated VLAN • U—Invalid VLAN
VethPort	vEthernet interface port number used by the VLAN.
VM Name	VM name of the interface.
Adapter Name	Adapter name of the interface.
Mod	Module number on which the interface resides.

VMotion View

VMotion View Overview

The vMotion view provides information about all the ongoing (if any) as well as previous VM migration events. However, only VMs that are currently being managed by the Cisco Nexus 1000VE switch are displayed in the output.



Note The VSM must be connected with the vCenter in order to generate the required VMotion view output. You can enter the **show sys connections** command on the VSM to verify the connection.

Displaying the VMotion View

To display the VMotion view, follow the given step.

Procedure

```
show vtracker vmotion-view [now | last number 1-100]
```

Note The timeout for this command is 180 seconds.

The following examples show the vTracker VMotion view in a VSM:

Example:

```
switch(config)# show vtracker vmotion-view last 20
Note: Command execution is in progress...
```

Note: VM Migration events are shown only for VMs currently managed by Nexus 1000ve.

* '-' = Module is offline or no longer attached to Nexus1000ve DVS

```
-----
VM-Name          Src Dst  Start-Time          Completion-Time
                  Mod Mod
-----
rk-ubt-1-0046    6   4   Mon Sep  3 10:42:27 2012 OnGoing
rk-ubt-1-0045    6   4   Mon Sep  3 10:42:27 2012 OnGoing
rk-ubt-1-0031    6   4   Mon Sep  3 10:42:27 2012 Mon Sep  3 10:44:10 2012
rk-ubt-1-0021    6   4   Mon Sep  3 10:42:27 2012 Mon Sep  3 10:43:42 2012
rk-ubt-1-0023    6   3   Thu Aug 16 14:25:26 2012 Thu Aug 16 14:27:55 2012
rk-ubt-1-0029    6   3   Thu Aug 16 14:25:26 2012 Thu Aug 16 14:27:50 2012
rk-ubt-1-0024    6   3   Thu Aug 16 14:25:26 2012 Thu Aug 16 14:26:13 2012
rk-ubt-1-0025    6   3   Thu Aug 16 14:25:26 2012 Thu Aug 16 14:26:12 2012
rk-ubt-1-0026    6   3   Thu Aug 16 14:25:26 2012 Thu Aug 16 14:26:09 2012
RHEL-Tool-VmServer -   3   Wed Aug  8 12:57:48 2012 Wed Aug  8 12:58:37 2012
-----
```

Example:

```
switch(config)# show vtracker vmotion-view now
Note: Command execution is in progress...
```

*Note: VM Migration events are shown only for VMs currently managed by Nexus 1000ve.

* '-' = Module is offline or no longer attached to Nexus1000ve DVS

```
-----
VM-Name          Src Dst  Start-Time          Completion-Time
                  Mod Mod
-----
rk-ubt-1-0046    6   4   Mon Sep  3 10:42:27 2012 OnGoing
rk-ubt-1-0045    6   4   Mon Sep  3 10:42:27 2012 OnGoing
-----
```

VMotion View Field Description

The column headings in the VMotion view examples above are described in the following table:

Column	Description
VM-Name	VM name.

Column	Description
Src Mod	Source module number of the migration.
Dst Mod	Destination module number of the migration.
Start-Time	Migration start time per the time zone defined in the Virtual Supervisor Module (VSM).
Completion-Time	Migration completion time in VSM time zone. For migration in progress, the status shows as "OnGoing."