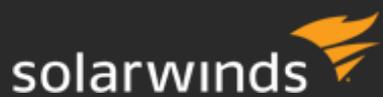




INSTALLATION GUIDE

Virtualization Manager

Version 7.1



Last Updated: May 30, 2017

Retrieve the latest version from: [https://support.solarwinds.com/success_center/Virtualization_Manager_\(VMAN\)/VMAN_Documentation](https://support.solarwinds.com/success_center/Virtualization_Manager_(VMAN)/VMAN_Documentation)

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SolarWinds Virtualization Manager Installation Guide, Version 7.1

SolarWinds Virtualization Manager, Version 7.1

SolarWinds Virtual Infrastructure Monitor, Version 7.1

Revised: 5/30/2017

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VMAN installation overview

Supported Version: VMAN 7.1 and earlier

Maintaining a virtual or hybrid environment requires using native tools to review mountains of data. Virtual machines allow companies to exponentially expand and scale environments far cheaper and faster than adding physical systems. The ease of expansions can lead to sprawling environments with numerous clusters and hosts, under or over allocated resources, and difficulties in finding and understanding the metrics needed to manage VMs effectively.

Virtualization Manager provides intensive metrics gathering and data breakdowns into dashboards and details pages so you can easily evaluate environments and react to issues. Use VMAN to manage your sprawling VM virtual and cloud environment through a single console with account management and direct VM tool capabilities.

This guide supports the following installation scenarios:

- Stand-alone installation
- Integrated with an existing Orion Platform
- Evaluation installation

Stand-alone installation

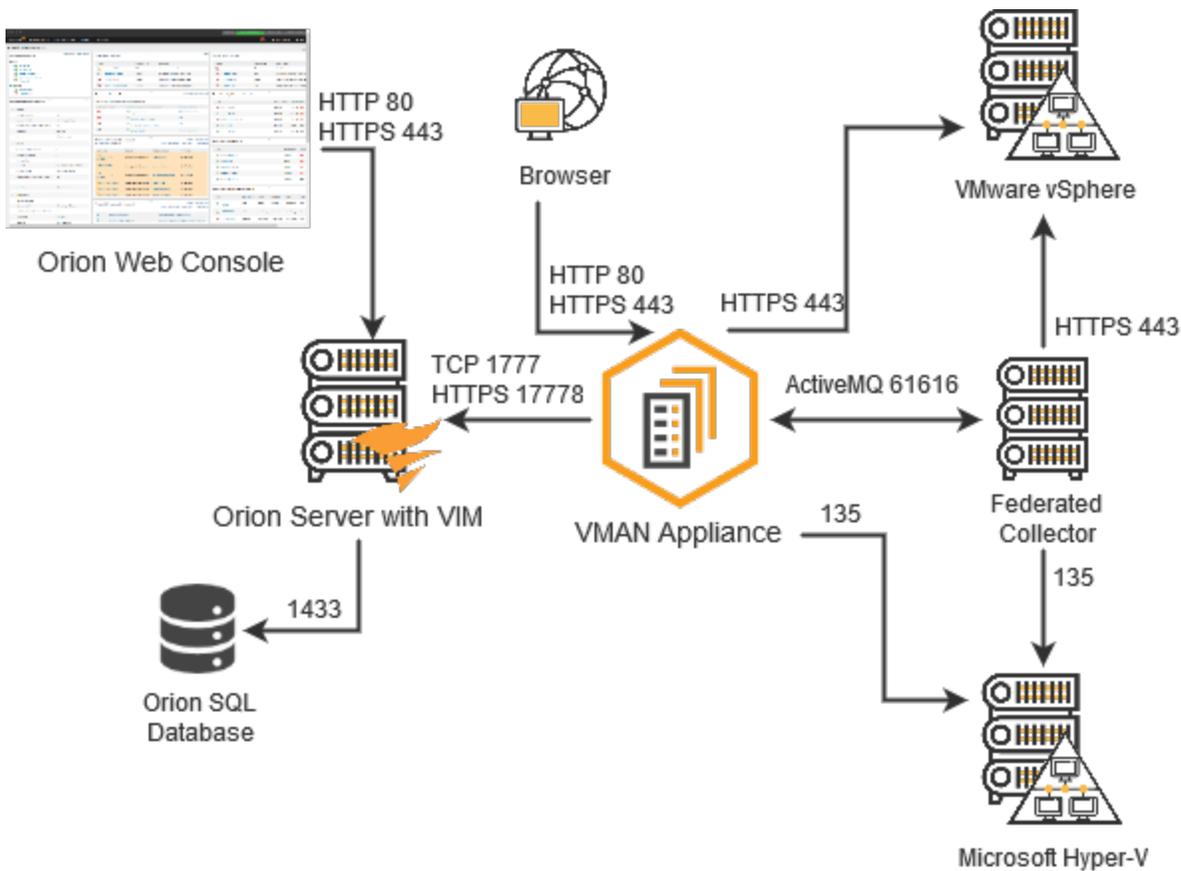
For a stand-alone installation of Virtualization Manager, you will install VMAN and the stand-alone Orion Platform (also called Virtual Infrastructure Monitor) on a dedicated server. This installation also requires a dedicated server for the Orion SQL database to store monitored data, configurations, and more.

1. [Deploy the VMAN appliance to a VM](#)
2. (optional) [Install federated collectors in VMAN](#)
3. [Prepare the Orion SQL database for VMAN stand-alone](#)
4. [Install the Orion Platform and VIM](#)

 You must integrate the VMAN appliance with an Orion Platform (using VIM) to gain access to all VMAN features, including Recommendations.

 This installation assumes you have not installed any other SolarWinds Orion Platform products on the target server.

With this installation, you need to activate the [primary license](#) on the VMAN appliance and [secondary license](#) on the Orion server.

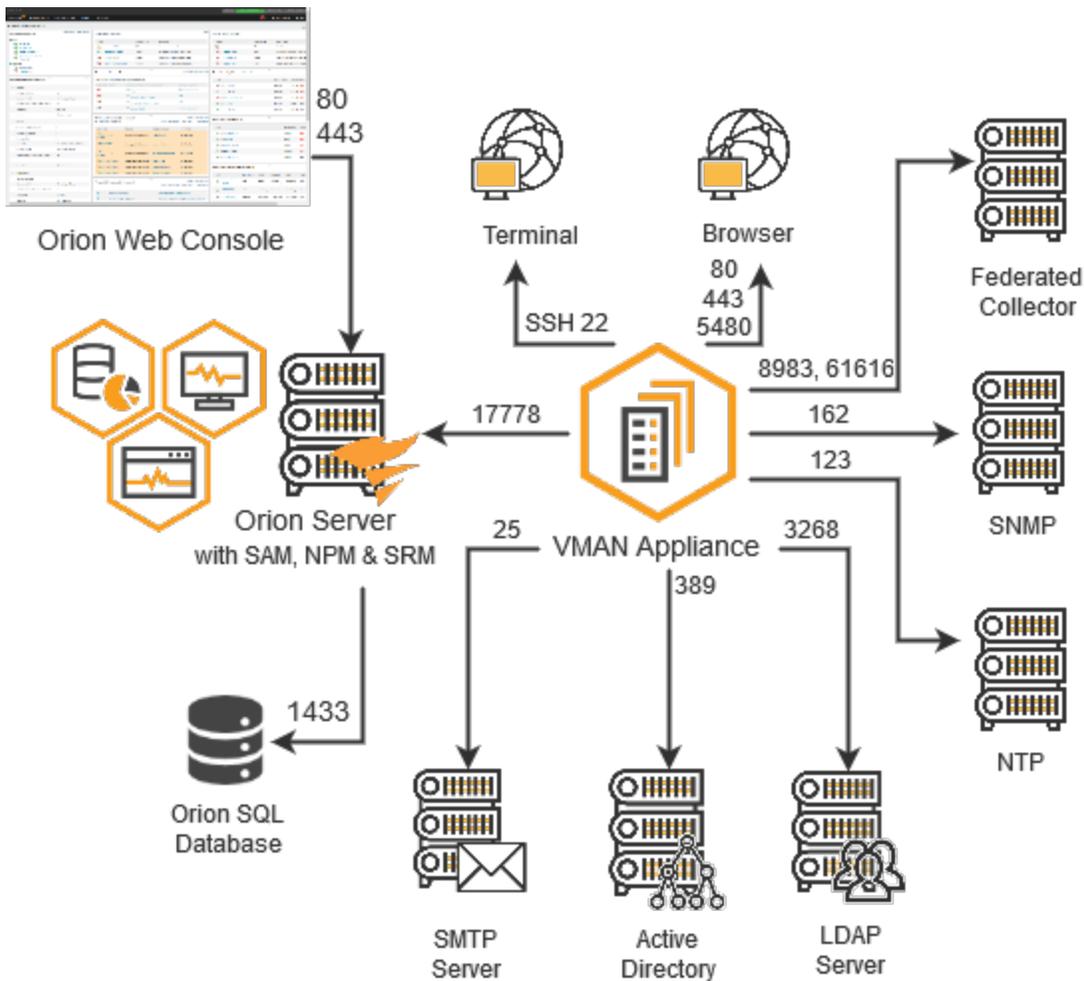


Integrated with an existing Orion Platform

Virtualization Manager supports an integrated installation into an existing Orion Platform. For this installation, you install the VMAN appliance on a VM, install Virtual Infrastructure Monitor (VIM) onto the existing Orion server, and integrate VMAN into the Orion Platform. As part of this installation, verify if installed products need to be upgraded prior to installing the new product. If your environment uses [SolarWinds High Availability](#), follow the additional instructions as part of the installation.

1. [Deploy the VMAN appliance to a VM](#)
2. (optional) [Install federated collectors in VMAN](#)
3. [Install the Orion Platform and VIM](#)

With this installation, you only need to activate the [primary license](#) on the VMAN appliance. You will also select the existing Orion SQL database in your environment.



Evaluation installation

Virtualization Manager supports an [evaluation installation](#) with a trial period. This installation is a full installation of VMAN with a 30-day license. To continue with a full product license, contact SolarWinds Sales.

VMAN installation files

To install VMAN, you deploy an OVA or HVD file to a virtual system and integrate with an Orion Platform (existing or available by installing the Virtual Infrastructure Monitor).

When you download VMAN from the Customer Portal, you can download the following file options:

- SolarWinds-VIM-<version>-Full.zip - Full installation, evaluation
- SolarWinds-VIM-<version>-FullWithSql.zip - Full install, evaluation, and SQL Express

- SolarWinds-VIM-<version>-Poller.zip - Additional poller installs
- SolarWinds-VIM-<version>-WebOnly.zip - Additional web server installs
- SolarWinds-VIM-<version>-Eval.zip - Full evaluation including VMAN appliance and VIM

The VMAN product includes the appliance deployed on a VM and the integration with the Orion Web Console. Each zip file includes the following files:

- **VMAN-Appliance-Install-1st.ova**: deploys the VMAN appliance. Run this file first when deploying the VMAN appliance to Hyper-V or vSphere servers. A Hyper-V zip file is also available for those servers.
- **VMAN-Orion-Install-2nd.exe**: installs the Virtual Infrastructure Monitor (VIM) for a standalone Orion Platform. If you do not have an existing Orion Platform, VIM provides all Orion and additional VMAN features through the Orion Web Console.

Terminology

Virtual Infrastructure Monitor (VIM)

The stand-alone Orion Platform for your VMAN deployment. This product comes with full and evaluation zip files for VMAN and is the second part of your deployment. You should always install VIM, even in an existing Orion Platform. To verify the VIM version, check the version listed in the Orion Web Console footer.

VIM includes all core Orion features and specific VMAN additions, such as Recommendations.

Orion Web Console

The console access for all Orion Platform products. You can access VMAN data and any other installed and integrated Orion Platform data and metrics. Many customers have VMAN integrated with NPM, SAM, SRM, and others. You will need to integrate the VMAN appliance to manage virtual environments, review data, remediate issues. For example, you can review Recommendations and troubleshoot issues with PerfStack, configure alerts, generate reports, and manage virtual resources all through this one console.

Orion Platform

This platform is a series of products and modules that provide a single pane of glass for discovery, monitoring, and troubleshooting your entire environment. As you add additional products, features extend your monitoring options, alerting options, and data for troubleshooting.

VMAN system requirements

Before installing Virtualization Manager, make sure you meet the minimum requirements. The following requirements include VMAN Appliance, VMware and Hyper-V account permissions, and integration with SolarWinds Orion Platform requirements (including the Virtual Infrastructure Monitor).

- [VMAN system requirements and deployments](#)
- [VMAN port requirements](#)
- [Account permission requirements for VMAN and VIM](#)
- [Multi-module system guidelines](#)
- [VMAN licensing information](#)

VMAN system requirements and deployments

The following requirements are for installing the [VMAN appliance](#) on a VM and [Orion Platform](#). Additional requirements include [port requirements](#) and [account permissions](#).

If you are adding VMAN to an existing Orion Platform with multiple Orion Platform products, see the [Multi-module system guidelines](#).

When deploying VMAN, you fully install:

- VMAN appliance on a VM
- VIM on a stand-alone server or existing Orion server

Deployment sizes and requirements

When determining the deployment size and requirements for your VMAN deployment, consider the following:

- In medium and large deployments, SolarWinds recommends that you deploy federated collectors or Additional Polling Engines (APE) for each 2000-3000 virtual machines, and split the collection load in a way that each collector or APE collects similar amounts of data.
- In medium and large deployments, delegate all collection jobs to federated collectors and APEs from the Virtualization Manager master appliance and the Orion Server.
- If you collect data from large vCenters containing more than 4000-5000 VMs, increase the memory assigned to the federated collector that collects from the vCenter.
- Any one of the deployment factors could cause the recommended size to grow from small to medium to large. For example, the number of VMs per vCenter significantly affects the amount of resources you need.

As environments grow, you can scale your Virtualization Manager deployment without extensive migration. You can expand disk space, assign additional shared or dedicated CPU and RAM resources, and the virtual appliance dynamically takes advantage of these new resources.

To install federated collectors, see [Install federated collectors in VMAN](#).

VMAN appliance requirements

The appliance cannot be installed on a Windows server, or on the same server with the Orion Platform.

SOFTWARE/ HARDWARE	REQUIREMENTS
Virtualization software	<p>VMware vSphere 5.x or later</p> <p>VMware vCenter 6.5</p> <p>VMware vCenter Server Appliance (vCSA) 6.5</p> <p>VMware ESX or ESXi 5.x or later, managed or unmanaged hosts</p> <p>Microsoft Hyper-V Server 2008 R2</p> <p>Microsoft Hyper-V Server 2012</p> <p>Microsoft Hyper-V Server 2012 R2*</p> <p>Microsoft Hyper-V Server 2016</p> <div data-bbox="412 842 1511 947"><p> Virtualization Manager only supports the default, English localization of Hyper-V.</p></div> <p>*Not supported with this software:</p> <ul style="list-style-type: none">• vm.processorSocketCount• vm.processorCoresPerSocket• vm.processorCount• host.vSwitch.maxChimneyOffloads• host.vSwitch.numLearnableAddresses• host.vSwitch.port.accessVlan• host.vSwitch.port.defaultVLAN• host.vSwitch.port.nativeVLAN <p>Class replacements for configuration and performance collections against 2012 R2 servers include:</p> <ul style="list-style-type: none">• Msvm_SwitchLANEndpoint class replaced by Msvm_LANEndpoint• Msvm_VirtualSwitch class replaced by Msvm_VirtualEthernetSwitch• Msvm_VmLANEndpoint class replaced by Msvm_LANEndpoint• Msvm_SwitchPort class replaced by Msvm_EthernetSwitchPort• Msvm_VLANEndpointSettingData class replaced by Msvm_EthernetSwitchPortVlanSettingData• Msvm_ResourceAllocationSettingData class replaced by Msvm_StorageAllocationSettingData

SOFTWARE/ HARDWARE	REQUIREMENTS																							
CPU	Quad Core, 2 GHz																							
Virtual CPUs	4 vCPUs																							
Memory	<p>8 GB or more</p> <table border="1" data-bbox="410 541 1507 1010"> <thead> <tr> <th data-bbox="410 541 824 617">NUMBER OF ESX HOSTS</th> <th data-bbox="824 541 1143 617">NUMBER OF VMS</th> <th data-bbox="1143 541 1507 617">MEMORY</th> </tr> </thead> <tbody> <tr> <td data-bbox="410 617 824 684">100</td> <td data-bbox="824 617 1143 684">1000</td> <td data-bbox="1143 617 1507 684">8 GB</td> </tr> <tr> <td data-bbox="410 684 824 751">125</td> <td data-bbox="824 684 1143 751">1250</td> <td data-bbox="1143 684 1507 751">10 GB</td> </tr> <tr> <td data-bbox="410 751 824 819">150</td> <td data-bbox="824 751 1143 819">1500</td> <td data-bbox="1143 751 1507 819">12 GB</td> </tr> <tr> <td data-bbox="410 819 824 886">175</td> <td data-bbox="824 819 1143 886">1750</td> <td data-bbox="1143 819 1507 886">14 GB</td> </tr> <tr> <td data-bbox="410 886 824 953">200</td> <td data-bbox="824 886 1143 953">2000</td> <td data-bbox="1143 886 1507 953">16 GB</td> </tr> <tr> <td data-bbox="410 953 824 1010">> 200</td> <td data-bbox="824 953 1143 1010">> 2000</td> <td data-bbox="1143 953 1507 1010">Contact Support</td> </tr> </tbody> </table> <p data-bbox="410 1041 1458 1157">To review the requirements for integration with the Orion Platform and Virtual Infrastructure Monitor, see Virtual Infrastructure Monitor recommended requirements. Recommendations requirements are available in that section.</p> <p data-bbox="410 1188 1341 1262">To learn more about memory requirements, see Reduce the memory requirements of Virtualization Manager.</p>			NUMBER OF ESX HOSTS	NUMBER OF VMS	MEMORY	100	1000	8 GB	125	1250	10 GB	150	1500	12 GB	175	1750	14 GB	200	2000	16 GB	> 200	> 2000	Contact Support
NUMBER OF ESX HOSTS	NUMBER OF VMS	MEMORY																						
100	1000	8 GB																						
125	1250	10 GB																						
150	1500	12 GB																						
175	1750	14 GB																						
200	2000	16 GB																						
> 200	> 2000	Contact Support																						
Disk space	<p>200 GB or more.</p> <p>At least 200 GB of disk space is recommended. At the default collection interval, a virtualized environment containing 1000 VMs and 100 hosts requires 40 GB of storage during the first month, and an additional 60 GB of storage over the next five years.</p> <p>To estimate the disk space requirements over time, download the SolarWinds Virtualization Manager Storage Calculator.</p> <p>To learn more about disk space requirements, see Expand the provisioned disk size on VMware.</p>																							
Virtual NIC	1 Gigabit vNIC																							
Supported browsers	<p>Internet Explorer 8 or later</p> <p>Mozilla Firefox two latest versions</p>																							

SOFTWARE/ HARDWARE	REQUIREMENTS
	Google Chrome two latest versions
Adobe Flash	Adobe Flash Player 9 or later

REDUCE THE MEMORY REQUIREMENTS OF VIRTUALIZATION MANAGER

The minimum memory requirement is 8 GB, but more memory might be necessary to handle peak demands. You can reduce the memory requirement for collecting from multiple vCenters (VC) in these ways:

- Schedule the configuration data collection jobs for the different VCs in a way that they do not overlap, by setting the start times at least three hours apart. This also means reducing the frequency of configuration collection to one or two times per day.
- Instead of using the actual total number of ESX hosts in the environment, calculate an approximate number of hosts according to the formula:
 1. Take the largest number of hosts managed by a single VC instance.
 2. Add 15% for each additional VC in your environment, regardless of its size.

For example, if you have three VCs and the largest VC manages 90 hosts, your "proxy number of hosts" is 117.

$$117 = 90 + 0.15 \times 90 + 0.15 \times 90$$

The number of ESX hosts above is guidance only, and is based on a typical virtualization environment with approximately 10 VMs and one datastore per ESX host server. More dense environments require larger memory sizes.

EXPAND THE PROVISIONED DISK SIZE ON VMWARE

The VMware appliance might allow thin provisioning to let you install with less than 200 GB of free disk space. SolarWinds Virtualization Manager stops collecting data when less than 1 GB of storage space remains. At that point, increase the available storage space, and change the provisioned size or the virtual hard disk.

1. Increase the provisioned size of Hard disk 2 of the appliance.
 - a. Run the vSphere client, and connect to the vCenter that hosts the appliance.
 - b. Select the SolarWinds Virtualization Manager appliance, and edit the settings.
 - c. Increase the Provisioned Size of Hard disk 2.

- Restart the appliance virtual machine.

To expand the disk on Microsoft Hyper-V, contact [Support](#).

Orion Platform recommended requirements for VMAN

The following requirements are for the stand-alone Orion Platform with Virtual Infrastructure Monitor (VIM) installation.

i If integrating VMAN into an existing Orion environment with multiple modules, see the [Multi-module system guidelines](#).

SOFTWARE/ HARDWARE	REQUIREMENT	
Operating System	Production	Evaluation Only
	Windows Server 2008 R2 SP1	Windows 7 SP1
	Windows Server 2012, 2012 R2	Windows 8 (except Standard edition)
	Windows Server 2016	Windows 8.1 (except Standard edition)
		Windows 8.1 Update 1 (except Standard edition)
		Windows 10
CPU	Quad Core, 3.0 GHz	
Memory	8 GB Recommendations feature also requires an additional 8 GB	
HDD	10 GB minimum SolarWinds recommends higher disk allowance for database growth.	
.NET Framework	.NET 4.0 and 4.5	
SQL Server	SQL Server 2008, 2008 SP1, 2008 SP2, 2008 SP3, or 2008 SP4 SQL Server 2008 R2, 2008 R2 SP1, 2008 R2 SP2, or 2008 R2 SP3 SQL Server 2012 SQL Server 2012 SP1, SP2, SP3 SQL Server 2014 SQL Server 2014 SP1	

SOFTWARE/ HARDWARE	REQUIREMENT
	SQL Server 2016
Browser	Microsoft Internet Explorer version 11 or later with Active scripting Microsoft Edge Firefox 45.0 or later (Toolset Integration is not supported on Firefox) Chrome 49.0 or later

Use the table to determine how to modify your VMware and Hyper-V environments for integration with your Orion platform product.

ORION POLLING METHOD	VMWARE (HOST)	HYPER-V (HOST)	VMWARE (GUEST)	HYPER-V (GUEST)
No Status	Yes	No	Yes	Yes
ICMP	Yes	No	Yes	Yes
WMI/ICMP	N/A	Yes	Not applicable for ESX hosts and the vCenter appliance.	Yes
SNMP/ICMP	Yes	No	Deprecated on ESX hosts and the vCenter appliance.	Yes

Depending on your polling method and Virtualization Manager environment, you might get different results.

Deprecated software versions

Be aware of the following hardware, software, and features deprecation notices. The Microsoft SQL Server and Windows Server versions are still supported with VIM 7.1. Future versions will no longer support the listed versions.

Microsoft SQL Server	<p>Support for SQL 2008 and 2008 R2 is deprecated as of this release.</p> <div style="border: 1px solid orange; padding: 5px; background-color: #fff9c4;"> <p> Future releases will no longer support using SQL 2008 or 2008 R2 as your database server.</p> </div> <p>SolarWinds recommends that you upgrade directly to SQL 2016 at your earliest convenience.</p>
Microsoft Windows	Support for Windows Server 2008 R2 is deprecated as of this release.

Server

 Future releases will no longer support installing on Windows Server 2008 R2, though you can continue to monitor computers running Windows Server 2008 R2.

SolarWinds recommends that you upgrade to Windows Server 2012, 2012 R2, or 2016 at your earliest convenience.

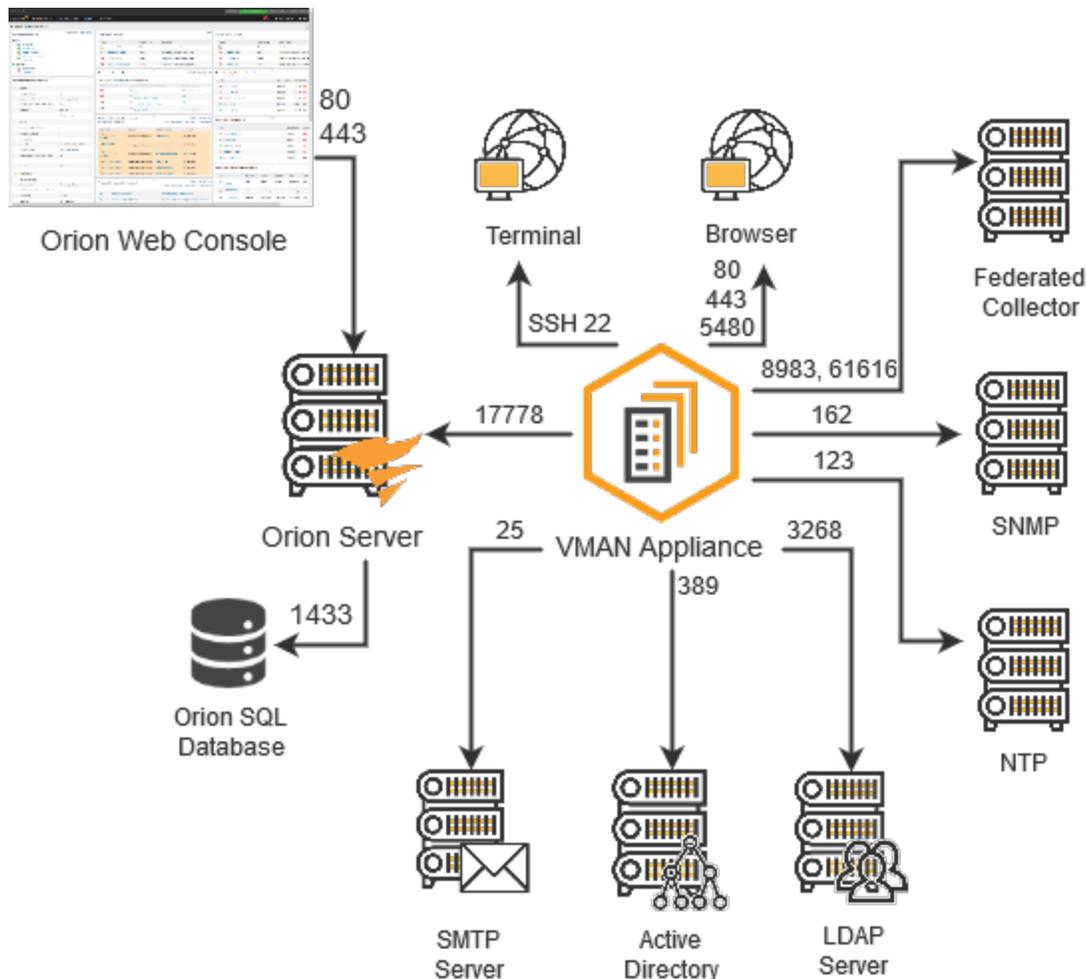
VMAN port requirements

Review the following port requirements for the VMAN appliance, the Orion server, Federated Collectors, virtual environments, and additional systems. These ports are required for data collection and management actions.

Features and components affecting the port requirements of the Virtualization Manager appliance include:

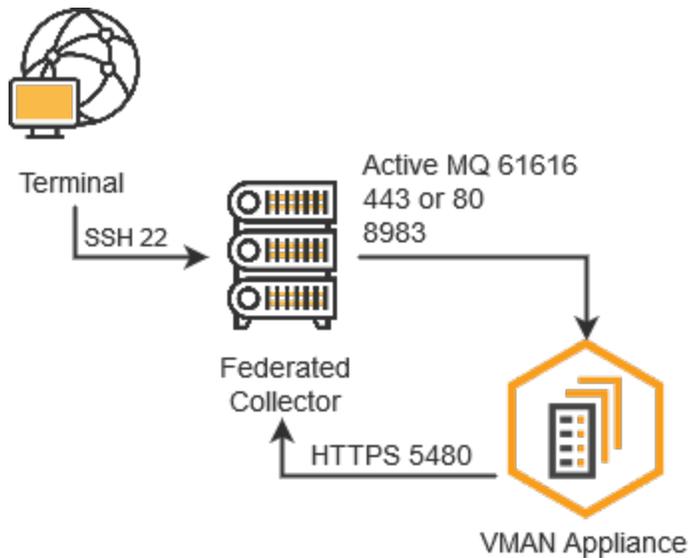
- VMware data collection
- Hyper-V data collection
- Active Directory and LDAP authentication
- Sending email notifications (in alerting and reporting)
- Sending SNMP traps (in alerting)
- Orion integration
- Federated collectors

Port requirements of the master appliance



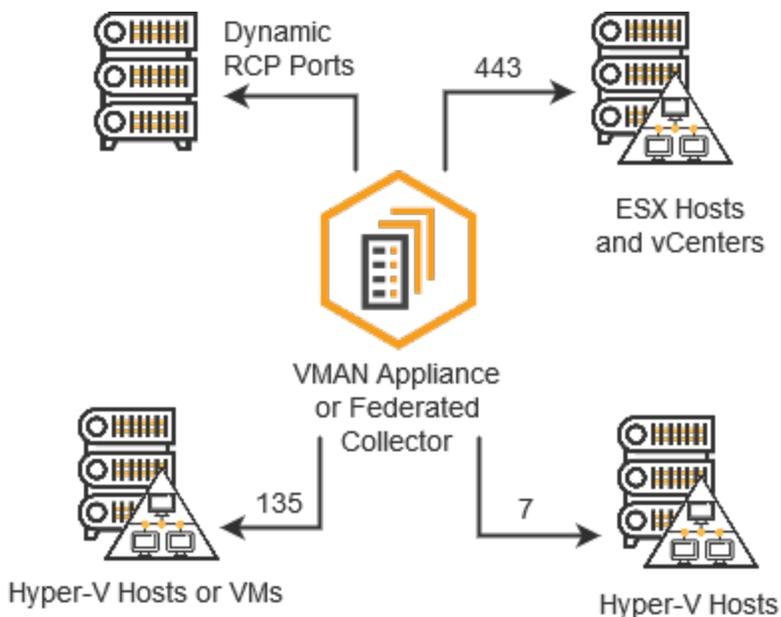
PORT	PROTOCOL	SERVICE/ PROCESS	DIRECTION	DESCRIPTION
22	TCP	SSH	Inbound	SSH access to the virtual appliance
25	TCP		Outbound	Sends emails through SMTP
123	UDP	NTP	Outbound	Uses the Network Time Protocol (NTP) service
162	UDP		Outbound	Sends SNMP traps
389	TCP, UDP		Outbound	Active Directory authentication
443	HTTPS		Inbound	HTTPS access to the Virtualization Manager user interface
443 or 80	TCP		Inbound	Performs auto-upgrade or version upgrade on federated collectors if federated collectors are configured
3268	TCP		Outbound	LDAP authentication and requests
5480	HTTPS		Inbound	HTTPS access to the Management Console
8983			Inbound	Access from federated collectors to the master appliance during initial setup
17777	TCP	SolarWinds Information Service	Bidirectional	The port used for communication from your polling engine to the Orion Web Console, and from the Orion Web Console to your polling engine.
17778	HTTPS and TCP	SSL	Outbound	Communicates with the SolarWinds Orion server and SolarWinds Information Service if the integration with Orion is enabled <div style="border: 1px solid #ccc; padding: 5px; background-color: #e6f2ff;"> <p>i If you use Virtualization Manager integrated with NPM or SAM in an environment with multiple polling engines and federated collectors, open TCP port 17778 from the primary collector to every polling engine that is used to poll virtualization data.</p> </div>
61616	TCP		Inbound	Active MQ master-collector communication

Port requirements for the federated collector



PORT	PROTOCOL	SERVICE / PROCESS	DIRECTION	DESCRIPTION
22	TCP	SSH	Inbound	SSH access to the federated collector
443 or 80	TCP		Outbound	Performing auto-upgrade or version upgrade
5480	HTTPS		Inbound	HTTPS access to the federated collector
8983				Access from federated collectors to the master appliance during initial setup

Port requirements for data collection



Configure the following outbound ports on the master or the collector for data collection.

PORT	PROTOCOL	SERVICE / PROCESS	DIRECTION	DESCRIPTION
7			Outbound	Access to Hyper-V hosts that were added by using a fully qualified domain name
135	TCP		Outbound	WMI data collection from Hyper-V hosts or VMs
443	TCP		Outbound	Data collection from ESX hosts and vCenters
Dynamic RCP ports			Outbound	WMI communication. You can configure the available ports on the WMI target or policy.

Account permission requirements for VMAN and VIM

Virtualization Manager uses a set of credentials created in the appliance, in the Orion Web Console, and your VMs to issue commands and monitor data. These credentials must match to provide communication between VMAN and all VMs (VMware and Hyper-V) and VCenter.

Configure VM permissions

To properly install your products and monitor VMs, you need to set up the following accounts and permissions:

ACCOUNT TYPE	ACCOUNT PERMISSIONS
VMAN account	To enable VMAN communication with your virtual environment, create your VMAN account using the same credentials for vCenter for VMware and Hyper-V. See instructions below for creating an appliance account.
Orion Platform administrator account	You need an Orion Platform account that matches credentials with your VMware or Hyper-V installation. Without matching credentials, you will encounter communication and configuration issues. <div style="border: 1px solid #ccc; padding: 5px; background-color: #f0f8ff;"> <p> If you lose access to the admin account, you can read this article Recover an Orion Web Console admin password.</p> </div>
VMware VCenter	We recommend having your VMware VMs managed by the VCenter. When integrating with VMan, use the VCenter account credentials. All metrics will pull through the VCenter into VMAN for VCenter and all managed VMs. The VMware user account needs the following permissions: <ul style="list-style-type: none"> • For data collection, at least Read-Only permissions for the host and VMs you want to monitor • For data store collection, the Browse Datastore permission
Hyper-V	The Hyper-V account used for data collection must have the Enable Account and Remote Enable permissions. For more information about enabling account privileges in WMI, see Configuring Distributed Component Object Model and User Account Control .

Create a VMAN appliance account

You can use an existing account if it matches the virtual environment and Orion Web Console accounts.

If the account does not match, create a new account matching that information.

1. Log in to the VMAN appliance.
2. Click Setup and expand Advanced Setup.
3. Click Users.

A list of user accounts displays.

4. Click Add to create a new account, using the credentials currently used for your VMs. For the Role, select Admin.



This account must match the virtual environment and Orion Web Console accounts.

5. Click Save.

Configure Orion Web Console account permissions

With the account connections between VMs and the Orion Platform completed, create and manage account permissions for administrators and users as needed for your environment. For example, you may want to limit feature access for network administrators and general IT staff.

Each user or group account can have different privileges applied to it, such as the ability to modify alert definitions or delete snapshots.



You need administrator access to the server to install and integrate VMAN.

1. Click Settings > All Settings.
2. Click Manage Accounts in the User Accounts section.
3. Select an existing user account, and click Edit.
4. Modify account information, login options, and tasks as needed.
5. To restrict users access to Orion Web Console features, expand the Virtual Infrastructure Monitor Settings.

6. Select the views to display for VM data in the Orion Web Console. Typically, you do not need to hide VM views from users. These options only affect seeing VM data in the Orion Web Console.

The available options include view names, default, and none. If you select none, the view is hidden from the user.

VIRTUAL INFRASTRUCTURE MONITOR SETTINGS	
Integrated Virtualization Manager Summary View	Virtualization - Summary ▼
Virtualization Manager Summary View	Virtualization Summary ▼
Virtualization Manager VMware Summary View	VMware Summary ▼
Virtualization Manager Hyper-V Summary View	Hyper-V Summary ▼
Host Details View	Host Details - Virtualization Summary ▼
Virtual Machine Details View	Virtual Machine Details - Virtualization Summary ▼
Cluster Details View	Cluster Details - Summary ▼
Datacenter Details View	Datacenter Details - Summary ▼
Datastore Details View	Datastore Details ▼
Virtualization Manager Storage Summary View	Virtualization Storage Summary ▼
Virtualization Manager Sprawl View	Virtualization Sprawl ▼

- Select an option to allow or disallow users from VM management tools and functions. These permissions provide native tool features through the Orion Web Console.

For example, general IT staff should not have the capability to delete snapshots or VMs. For those user accounts, select Disallow for Snapshot Management and Delete virtual machines and datastore files.

Virtualization Manager Embedded Views	<input checked="" type="radio"/> Allow <input type="radio"/> Disallow	Allow - Allow access to embedded views such as Dashboard, Reporting, and Map. The user will be able to access Virtualization Manager from the Virtual Infrastructure Monitor. Disallow - Do not allow access to embedded views and Virtualization Manager.
Virtualization Manager Roles and Permissions	<input checked="" type="radio"/> User <input type="radio"/> Hide » Learn more about VMan role	User - Show the Storage and Virtualization subviews, and show all resources with data collected by Virtualization Manager. Hide - Do not show Virtualization Manager subviews and resources.
Virtual Machine Power Management	<input type="radio"/> Allow <input checked="" type="radio"/> Disallow	Allow - Enable the options to start, stop, or restart a virtual machine. Disallow - Do not enable the options to start, stop, or restart a virtual machine.
Snapshot Management	<input type="radio"/> Allow <input checked="" type="radio"/> Disallow	Allow - Enable the options to take snapshots of a virtual machine, or to delete snapshots. Disallow - Do not enable the options to take snapshots of a virtual machine, or to delete snapshots.
Resources Settings Management	<input type="radio"/> Allow <input checked="" type="radio"/> Disallow	Allow - Enable the options to modify resources settings of a virtual machine. Disallow - Do not enable the options to modify resources settings of a virtual machine.
Delete virtual machines and datastore files	<input type="radio"/> Allow <input checked="" type="radio"/> Disallow	Allow - Enable the options to delete virtual machines and datastore files. Disallow - Do not enable the options to delete virtual machines and datastore files.
Migration Management	<input type="radio"/> Allow <input checked="" type="radio"/> Disallow	Allow - Enable the options to migrate a virtual machine. Disallow - Do not enable the options to migrate a virtual machine.

- Click Submit.

Multi-module system guidelines

If you have more than one Orion Platform product, use these **recommended guidelines** for hardware and software deployment. The information here should be considered guidelines only. You can choose to use more or less hardware but your performance may vary depending on your deployment scenario.

 We recommend checking the admin guide for a full list of all supported versions.

In AWS, the [Elastic Block Storage](#) (EBS) volumes are not your dedicated hardware devices. For SQL and NTA Flow Storage Database, we recommend considering the purchase of [dedicated instance](#) EBS volumes for medium and large deployments. For large deployments, we also recommend EBS with [provisioned IOPS](#) for high performance for intensive database workloads.

If you have only one Orion module, refer to the system requirements listed in the administrator's guide for that module.

Small deployment guidelines

<p>Modules</p>	<p>You can install NTA as part of a small deployment, but it is not included in this configuration. Use the Medium Deployment guidelines for NTA.</p> <p>Choose up to 3 modules:</p> <ul style="list-style-type: none"> • NPM SL100 - SL500 (including up to 10 remote agents for DPI) • SAM AL150 - AL300 • WPM 5 - WPM 20 • VNQM IPSLA 5 - IPSLA 25 (up to 5,000 operations) • NCM DL50 - DL200 • IPAM IP1000 - IP4000 • UDT UT2500 - 5000
<p>Orion Application Server Specifications</p>	<p>Physical server or virtual machine</p> <ul style="list-style-type: none"> • Quad core processor or better • 8-16 GB RAM • 150 GB, 15,000 RPM • 1 x 1 Gb dedicated NIC • Windows Server 2012 R2, 2012, or 2008 R2 SP1 <p>The Orion installer installs IIS (32-bit mode) and .NET 4.5 if they are not already on your server.</p>

SQL Database Server Specifications	<p>Physical server recommended</p> <ul style="list-style-type: none"> • Quad core processor or better • 16 GB RAM • 100 GB¹ (or more) storage in RAID 1+0 configuration (RAID 5 not supported) • Windows Server 2012 R2, 2012, or 2008 R2 SP1 • Microsoft SQL Server 2014, 2012, or 2008 R2 Standard Edition
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¹More or less space may be needed depending on your data retention policies, number of elements measured, and polling frequency.

AWS VMS

Orion Application Server	<ul style="list-style-type: none"> • m4.large • 2 CPUs, 8GB RAM • 150GB (default is 50GB for m4.large)
Primary Database Server	<ul style="list-style-type: none"> • r3.xlarge • 4 CPUs, 16GB RAM • SSD 80GB (included in r3.xlarge) + EBS Volume 500GB

Medium deployment guidelines

Modules	<p>NPM SL500 - SL2000</p> <p>NTA for NPM SL2000</p> <ul style="list-style-type: none"> • 50,000 FPS received sustained on the main poller <p>2 - 4 additional modules:</p> <ul style="list-style-type: none"> • SAM AL700 - AL1100 • WPM 50 - WPM 200 • VNQM IPSLA 25 - IPSLA 50 (up to 10,000 operations) • NCM DL500 - DL1000 • IPAM IP16,000 • UDT UT10,000 - 25,000
Orion Application Server Specifications	<p>Physical server or virtual machine</p> <ul style="list-style-type: none"> • Quad core processor or better • 16 GB RAM • 150 GB, 15,000 RPM

	<ul style="list-style-type: none"> • 1 x 1 Gb dedicated NIC • Windows Server 2012 R2, 2012, or 2008 R2 SP1 <p>The Orion installer installs IIS (32-bit mode) and .NET 4.5 if they are not already on your server.</p>
SQL Database Server Specifications	<p>Physical server recommended</p> <ul style="list-style-type: none"> • Dual quad core processor or better • 64 GB RAM • 250 GB² (or more) storage in RAID 1+0 configuration (RAID 5 not supported) • Hardware RAID Controller (software RAID not supported) • Windows Server 2012 R2, 2012, or 2008 R2 SP1 • Microsoft SQL Server 2014, 2012, or 2008 R2 Standard Edition
NTA Flow Storage Database Server Specifications	<p>Physical server or virtual machine</p> <ul style="list-style-type: none"> • Quad core processor or better • 16 GB³ RAM • 100 GB - 1 TB⁴ of storage capacity on local NTFS disk • 1 x 1 Gb dedicated NIC • Windows Server 2012 R2, 2012, or 2008 R2 SP1

NTA-SPECIFIC INFORMATION

- NTA 4.0 - If the server is running a 32-bit operating system, NTA 4.0 stores flow data in the SQL Database (NTA Flow Storage Database is not installed). For more information, see [Requirements for the Orion Database Server](#) and [NTA 4.0 Installation: Frequently Asked Questions](#).
- NTA 4.1 - NTA 4.1 only works with a 64-bit operating system. SolarWinds recommends a separate NTA Flow Storage Database.

²More or less space may be needed depending on your data retention policies, number of elements measured, and polling frequency.

³RAM for the NTA Flow Storage Database should be increased as the database size increases.

⁴More or less space may be needed depending on your data retention policies and the number of flows stored. You need approximately 8 GB of additional storage for every 1000 flows that are retained for 30 days. For example, if you want 50,000 flows stored for 30 days, you need a base of 100 GB plus an additional 400 GB of storage.

AWS VMS

Orion Application	<ul style="list-style-type: none"> • m4.xlarge
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Server	<ul style="list-style-type: none"> • 2 CPUs, 16GB RAM • 150GB (default is 50GB for m4.large)
Primary Database Server	<ul style="list-style-type: none"> • r3.xlarge • 4 CPUs, 30.5GB RAM • SSD 80GB (included in r3.xlarge) + EBS Volume 500GB
NTA Flow Storage	<ul style="list-style-type: none"> • r3.xlarge • 4 CPUs, 30.5GB RAM • SSD 80GB (included in r3.xlarge) + EBS Volume 500GB • 8 GB for every received sustained 1000 Flows/s with 30-days retention period

Large deployment guidelines

Modules	<p>NPM SLX (with multiple pollers)</p> <p>NTA for NPM SLX</p> <ul style="list-style-type: none"> • 50,000 FPS received sustained on the main poller • Up to 6 pollers (5 in addition to the main poller) for 300,000 FPS received sustained <p>Any combination of these modules:</p> <ul style="list-style-type: none"> • SAM ALX <ul style="list-style-type: none"> • 1 APE for every 10,000 component monitors • Maximum of 50,000 component monitors per primary Orion SAM server + 4 APEs • VNQM IPX <ul style="list-style-type: none"> • ~5,000 IP SLA operations per polling engine • NCM DLX <ul style="list-style-type: none"> • 1 APE for every 10,000 devices, for NCM 7.1 and later • Maximum of 30,000 devices per NCM instance (that is, NCM server + 2 NCM APEs) • IPAM IPX <ul style="list-style-type: none"> • 750,000 IP • UDT UTX <ul style="list-style-type: none"> • 150,000 ports per polling engine
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Orion Application Server Specifications	<p>Physical server or virtual machine</p> <ul style="list-style-type: none"> • Quad core processor or better • 32 GB RAM • 150 GB, 15,000 RPM • 1 x 1 Gb dedicated NIC • Windows Server 2012 R2, 2012, or 2008 R2 SP1 <p>The Orion installer installs IIS (32-bit mode) and .NET 4.5 if they are not already on your server.</p>
SQL Database Server Specifications	<p>Physical server recommended</p> <ul style="list-style-type: none"> • Dual quad core processor or better • 128 GB RAM • Hardware RAID Controller (software RAID not supported) • Disk Subsystem 1 Array 1: 2 x 146 GB 15,000 disks RAID 1 (mirroring) operating system • Disk Subsystem 2 Array 2: 2 x 146 GB 15,000 disks RAID 1 (Pagefile + extra storage) • Disk Subsystem 3 Array 3: with 6x 15,000 146 GB or 300 GB disks configured in a RAID 1+0 arrays to allow for maximum write performance. This is for your SQL MDF AND FILEGROUPS • Disk Subsystem 4 Array 4: with 4x 15,000 146 GB or 300 GB disks configured in a RAID 1+0 arrays to allow for maximum write performance. This is for your SQL LDF Transaction LOG file • Disk Subsystem 5 Array 5: with 4x 15k 146 GB or 300 GB disks configured in a RAID 1+0 array for your tempdb data file • Disk Subsystem 6 Array 6: with 4x 15k 146 GB or 300 GB disks configured in a RAID 0 array for your tempdb log file • 1 Gb LAN port • Windows Server 2012 R2, 2012, or 2008 R2 SP1 • Microsoft SQL Server 2014, 2012, or 2008 R2 Standard Edition
NTA Flow Storage Database Server Specifications	<p>Physical server or virtual machine</p> <ul style="list-style-type: none"> • Quad core processor or better • 16 GB³ RAM • 100 GB - 1 TB⁴ of storage capacity on local NTFS disk • 1 x 1 Gb dedicated NIC • Windows Server 2012 R2, 2012, or 2008 R2

Additional Polling Engine Server Specifications	<p>Virtual machine recommended</p> <ul style="list-style-type: none"> • Quad core processor or better • 32 GB RAM • 150 GB, 15,000 RPM • 1 x 1 Gb dedicated NIC • Windows Server 2012 R2, 2012, or 2008 R2 <p>The Orion installer installs IIS (32-bit mode) and .NET 4.5 if they are not already on your server.</p>
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NTA-SPECIFIC INFORMATION

- NTA 4.0 - If the server is running a 32-bit operating system, NTA 4.0 stores flow data in the SQL Database (NTA Flow Storage Database is not installed). For more information, see [Requirements for the Orion Database Server](#) and [NTA 4.0 Installation: Frequently Asked Questions](#).
- NTA 4.1 - NTA 4.1 only works with a 64-bit operating system. SolarWinds recommends a separate NTA Flow Storage Database.

AWS VMS

Orion Application Server	<ul style="list-style-type: none"> • m4.2xlarge • 2 CPUs, 16GB RAM • 150GB (default is 50GB for m4.large)
Primary Database Server	<ul style="list-style-type: none"> • r3.2xlarge • 4 CPUs, 30.5GB RAM • SSD 80GB (included in r3.xlarge) + EBS Volume 500GB
NTA Flow Storage	<ul style="list-style-type: none"> • r3.4xlarge • 16 CPU, 122GB RAM • SSD 320GB (included in r3.xlarge) + EBS Volume 2.5TB • 2.5TB is Flowstorage, 300k FPS with 30-days retention, EBS with Provisioned IOPS recommended.

Additional references

- [Scalability engine guidelines](#)
- [Deployment port requirements](#)

VMAN licensing information

SolarWinds Virtualization Manager is licensed according to the number of CPU sockets per monitored host. When you monitor a virtual host, VMAN collects metrics and data for all children VMs. If you try to monitor more sockets or virtual machines than your license allows, you will not be able to add more data sources or apply VMAN upgrades.

VMAN includes two licenses for VMAN 6.2 through 7.1:

- Primary license to be installed on the VMAN appliance.
- Secondary license to be installed on the Orion Web Console for a stand-alone VMAN installation.

 If you are integrating VMAN into an existing Orion Platform such as NPM, SAM, or NCM, you do not need to install the secondary license.

Virtualization Manager is licensed according to the number of processor sockets on your physical hardware. Physical hardware is ESX hosts for VMware or Windows Servers for Hyper-V.

VMAN is available in the following license sizes:

LICENSE TIER	SOCKETS
VMS8	8
VMS16	16
VMS32	32
VMS64	64
VMS112	112
VMS192	192
VMS320	320
VMS480	480
VMS640	640
VMS800	800
VMS1120	1120
VMS1440	1440
VMS1680	1680
VMS1920	1920

LICENSE TIER	SOCKETS
VMS2400	2400
VMS3040	3040
VMS3840	3840
VMS4800	4800

Get your license key

You can obtain the primary and secondary license keys through the Customer Portal.

1. Log in to the [SolarWinds Customer Portal](#).
2. Select License Management > License Management.
3. Locate an unregistered Virtualization Manager activation key. Make note of the license key.

Add a primary license key for the VMAN appliance online

You will add the primary license key on the VMAN appliance using the VMAN console. These instructions walk through adding the license online.

1. Log in to the VMAN console.
2. Click the Setup tab and select License Information.
3. Click Activate License.
4. Enter the primary license key.
5. In the Computer Name field, enter `localhost`.
6. Enter the other required information, and click Send Activation Request.

Add a primary license key for the VMAN appliance offline

You will add the primary license key on the VMAN appliance using the VMAN console. These instructions walk through adding the license offline.

1. Log in to the VMAN console.
2. Click the Setup tab and select License Information.
3. Click Unique Machine ID, copy the machine ID, and save it on a flash device.
4. From a computer with Internet access, log in to the [SolarWinds Customer Portal](#).
5. Click License Management > License Management, and locate an unregistered Virtualization Manager activation key.
6. Click Manually Register License, and enter the required information.

7. In the Computer Name field, enter `localhost`.
8. In the Unique Machine ID field, paste the machine ID copied from VMAN.
9. Click Generate License File, and download the license file.
10. Transfer the license file to a computer with access to VMAN.
11. Click Upload License File, select the license file, and click Open.

Add secondary license to stand-alone Orion Platform

The stand-alone deployment for VMAN includes installing a dedicated Orion Platform with an Orion Web Console. You receive this Orion Platform as the Virtual Infrastructure Monitor (VIM). You only need to add the secondary VMAN license in a stand-alone deployment, not in an existing Orion Platform.

1. Access the Orion Web Console of the stand-alone Orion Platform.
2. Click Settings > All Settings, and click License Manager.
3. In the License Manager, click Add/Upgrade License.



4. Enter the Activation Key and Registration Information for the VMAN secondary license, and click Activate.

Exclude hosts from monitoring

If there are not enough SolarWinds Virtualization Manager licenses to cover every powered on virtual machine managed by a vCenter server, change the access permissions of the vCenter user account to limit what it can access.

Restricting the virtual machines accessible by the user account reduces the number of virtual machines or sockets SolarWinds Virtualization Manager can collect data from. This way you can control which virtual machines are being monitored.

You can control access permissions in the VMware client by assigning the No Access role to the vCenter account for the hosts and virtual machines you want to restrict.

Deploy the VMAN appliance to a VM

These instructions detail how to deploy the VMAN appliance to a VMware or Hypver-V virtual machine. This is the first step in installing your VMAN product.

- [VMware vSphere 5.x or later](#)
- [Microsoft Hyper-V Server 2008](#)
- [Microsoft Hyper-V Server 2012 or later](#)

After deploying the appliance, you will [Install the Orion Platform and VIM](#).

VMware vSphere 5.x or later

	STEP	DESCRIPTION
<input type="checkbox"/>	Download the zip from the Customer Portal	Log in to the Customer Portal and download the Virtualization Manager installation file.
<input type="checkbox"/>	Extract the files from the zip	<p>Extract the contents of the <code>vSphere.zip</code> file.</p> <p>This file includes two installers:</p> <ul style="list-style-type: none"> • VMAN-Appliance-Install-1st.ova - deploys the VMAN appliance. Use this file in your deployment. • VMAN-Orion-Install-2nd.exe - installs the Virtual Infrastructure Monitor for a standalone Orion Platform. If you do not have an existing Orion Platform, VIM provides all Orion and additional VMAN features through the Orion Web Console.
<input type="checkbox"/>	Connect the VMware server and deploy	<ol style="list-style-type: none"> 1. Run the VMware vSphere Client. 2. Click File > Deploy OVF Template, browse for the OVA file, and click Next. 3. On the following screens, name the virtual appliance, select a location, and click Next. 4. Select a resource pool, the provisioned format, and a network. 5. Specify whether you want to use DHCP to determine the IP address of the appliance, or you want to use a fixed IP address, provide the required details, and click Finish.
<input type="checkbox"/>	Access the VMAN appliance	<ol style="list-style-type: none"> 1. Open a browser to <code>https://IP_address:5480</code> where <code>IP_address</code> is the address of the virtual appliance server. 2. Log in with the default credentials: user: <code>admin</code>, password: <code>admin</code>.

STEP	DESCRIPTION
<input type="checkbox"/> Accept the license	<p>Accept the license agreement. To add a license, see the following steps. For detailed information on VMAN licenses, see VMAN licensing information.</p> <p>To get your license key:</p> <ol style="list-style-type: none"> 1. Log in to the SolarWinds Customer Portal. 2. Select License Management > License Management. 3. Locate an unregistered Virtualization Manager activation key. Make note of the license key. <p>To add a primary license key for the VMAN appliance online:</p> <ol style="list-style-type: none"> 1. Log in to the VMAN console. 2. Click the Setup tab and select License Information. 3. Click Activate License. 4. Enter the primary license key. 5. In the Computer Name field, enter <code>localhost</code>. 6. Enter the other required information, and click Send Activation Request.
<input type="checkbox"/> Configure network access	<ol style="list-style-type: none"> 1. In the VMAN console, click Network > Address. 2. If you use DHCP to determine the IP address of the appliance, verify that it is selected. 3. If you use a static IP address, provide the required details, and save the settings. 4. Enter proxy server information if necessary, and save the settings.
<input type="checkbox"/> Integrate with the Orion Platform	<p>To integrate with an existing Orion Platform, see Integrate VMAN with an existing Orion Platform.</p> <p>To install a stand-alone Orion Web Console for VMAN, see Install the Orion Platform and VIM You will use the file VMAN-Orion-Install-2nd.exe.</p>

Microsoft Hyper-V Server 2008 R2 or Later

The installation files are in VHD format. You can convert the file to VHDx format if needed.

	STEP	DESCRIPTION
☐	Download the zip from the Customer Portal	Log in to the Customer Portal and download the Virtualization Manager installation file.
☐	Extract the files from the zip	<p>Extract the contents of the <code>Hyper-V.zip</code> file.</p> <p>This file includes two installers:</p> <ul style="list-style-type: none"> • VMAN-Appliance-Install-1st - deploys the VMAN appliance. Use this file in your deployment. • VMAN-Orion-Install-2nd.exe - installs the Virtual Infrastructure Monitor for a standalone Orion Platform.
☐	Connect the Hyper-V server and deploy	<ol style="list-style-type: none"> 1. Start the Hyper-V Manager, and connect to the Hyper-V server. 2. Click Action > Import Virtual Machine, and browse to the extracted ZIP file. The default file name is <code>Virtualization-Manager-HyperV-version</code>. 3. Select Copy the virtual machine, and click Import. 4. Right-click the virtual appliance, select Network Adapter settings, and specify the network settings of the virtual machine. <div data-bbox="654 1037 1511 1142" style="border: 1px solid orange; padding: 5px; margin: 10px 0;"> <p> Using a Legacy Network Adapter might cause degradation in network connection.</p> </div> <ol style="list-style-type: none"> 5. Start the virtual machine, and connect to it. 6. Set the Virtualization Manager appliance to the same time zone as the Hyper-V host server.
☐	Configure network access	<ol style="list-style-type: none"> 1. Configure the network settings of the virtual machine. <ul style="list-style-type: none"> • If you use DHCP to determine the IP address of the appliance, enter <code>y</code>. • If you use a static IP address, enter <code>n</code>, and provide the details of the virtual appliance. 2. Enter proxy server information if necessary, and enter <code>y</code> when prompted with "Is this correct?"
☐	Access the VMAN appliance	<ol style="list-style-type: none"> 1. Open a browser to <code>http://IP_address</code>, where <code>IP_address</code> is the address shown in the console. 2. Log in with the default credentials: user: <code>admin</code>, password: <code>admin</code>.

	STEP	DESCRIPTION
☐	Accept the license	<p>Accept the license agreement. To add a license, see the following steps. For detailed information on VMAN licenses, see VMAN licensing information.</p> <p>To get your license key:</p> <ol style="list-style-type: none"> 1. Log in to the SolarWinds Customer Portal. 2. Select License Management > License Management. 3. Locate an unregistered Virtualization Manager activation key. Make note of the license key. <p>To add a primary license key for the VMAN appliance online:</p> <ol style="list-style-type: none"> 1. Log in to the VMAN console. 2. Click the Setup tab and select License Information. 3. Click Activate License. 4. Enter the primary license key. 5. In the Computer Name field, enter <code>localhost</code>. 6. Enter the other required information, and click Send Activation Request.
☐	Integrate with the Orion Platform	<p>To integrate with an existing Orion Platform, see Integrate VMAN with an existing Orion Platform.</p> <p>To install the Virtual Infrastructure Monitor (VIM), see Install the Orion Platform and VIM. You will use the file VMAN-Orion-Install-2nd.exe.</p>

Microsoft Hyper-V Server 2012 or later

These instructions support Hyper-V 2012 and 2016.

The installation files are in VHD format. You can convert the file to VHDx format if needed.

	STEP	DESCRIPTION
☐	Download the zip from the Customer Portal	Log in to the Customer Portal and download the Virtualization Manager installation file.
☐	Extract the files from the zip	<p>Extract the contents of the <code>Hyper-V.zip</code> file.</p> <p>This file includes two installers:</p>

	STEP	DESCRIPTION
		<ul style="list-style-type: none"> VMAN-Appliance-Install-1st.ova - deploys the VMAN appliance. Use this file in your deployment. VMAN-Orion-Install-2nd.exe - installs the Virtual Infrastructure Monitor for a standalone Orion Platform.
<input type="checkbox"/>	<p>Connect the Hyper-V server and deploy</p>	<ol style="list-style-type: none"> Start the Hyper-V Manager, and connect to the Hyper-V server. Click Action > Import Virtual Machine, and browse to the extracted ZIP file. The default file name is <code>Virtualization-Manager-HyperV-version</code>. On the import screen, select <code>Virtualization-Manager</code>, copy the virtual machine with a new unique ID, and click Next. Specify the location of the VM files, review your selections, and click Finish. Right-click the virtual appliance, and configure the network settings of the virtual machine. <div data-bbox="654 898 1511 999" style="border: 1px solid orange; padding: 5px; margin: 5px 0;">  Using a Legacy Network Adapter might cause degradation in network connection. </div> Start the virtual machine, and connect to it. Set the Virtualization Manager appliance to the same time zone as the Hyper-V host server.
<input type="checkbox"/>	<p>Configure network access</p>	<ol style="list-style-type: none"> Click Network > Address. <ul style="list-style-type: none"> If you use DHCP to determine the IP address of the appliance, verify that it is selected. If you use a static IP address, specify the necessary details, and save the settings. Enter proxy server information if necessary, and save the settings.
<input type="checkbox"/>	<p>Access the VMAN appliance</p>	<ol style="list-style-type: none"> Open a browser to <code>http://IP_address</code>, where <code>IP_address</code> is the address shown in the console. Log in with the default credentials: user: <code>admin</code>, password: <code>admin</code>.
<input type="checkbox"/>	<p>Accept the license</p>	<p>Accept the license agreement. To add a license, see the following steps. For detailed information on VMAN licenses, see VMAN licensing information.</p> <p>To get your license key:</p>

	STEP	DESCRIPTION
		<ol style="list-style-type: none"> 1. Log in to the SolarWinds Customer Portal. 2. Select License Management > License Management. 3. Locate an unregistered Virtualization Manager activation key. Make note of the license key. <p>To add a primary license key for the VMAN appliance online:</p> <ol style="list-style-type: none"> 1. Log in to the VMAN console. 2. Click the Setup tab and select License Information. 3. Click Activate License. 4. Enter the primary license key. 5. In the Computer Name field, enter <code>localhost</code>. 6. Enter the other required information, and click Send Activation Request.
<input type="checkbox"/>	Install VIM and integrate with the Orion Platform	<p>When installing VIM, use this file VMAN-Orion-Install-2nd.exe.</p> <p>To install stand-alone VIM and integrate with VMAN, see Install the SolarWinds Virtual Infrastructure Monitor in standalone mode.</p> <p>To install VIM into an existing Orion Platform and integrate VMAN, see .</p> <div style="border: 1px solid #f0e68c; padding: 5px; margin: 10px 0;"> <p> VIM may have additional features and options not included in an existing Orion Platform. Install this product as a stand-alone or on an existing Orion Platform server.</p> </div> <div style="border: 1px solid #f0e68c; padding: 5px; margin: 10px 0;"> <p> You must integrate the VMAN appliance with an Orion Platform (existing or using VIM) to gain access to all VMAN features, including recommendations.</p> </div>

Prepare the Orion SQL database for VMAN stand-alone

For a stand-alone VMAN deployment, you need to prepare a dedicated server for the Orion SQL database. You will select this database through the Configuration Wizard after installing the stand-alone Orion Platform (or the Virtual Infrastructure Monitor).

If you are integrating VMAN into an existing Orion Platform, use an existing SQL database. The [integration instructions](#) walk-through the selection through the Configuration Wizard.

Prepare your database using the following guidelines.

- | | |
|--------------------------|---|
| <input type="checkbox"/> | Make sure the database and database server meet the system requirements. |
| <input type="checkbox"/> | Ensure that you install the Orion database and the Orion Server on the same domain. |
| <input type="checkbox"/> | The selected SQL Server instance must support mixed-mode or SQL authentication with strong passwords. A strong password must meet at least three of the following four criteria: <ul style="list-style-type: none">• Contains at least one uppercase letter• Contains at least one lowercase letter• Contains at least one number• Contains at least one non-alphanumeric character, for example, #, %, or ^ |
| <input type="checkbox"/> | For a new database, the user account must be a member of the <code>dbcreator</code> server role. The <code>sysadmin</code> role and the security administrator (SA) user account are always members of <code>dbcreator</code> . |
| <input type="checkbox"/> | For a new SQL account, the user account must be a member of the <code>securityadmin</code> server role. The <code>sysadmin</code> role and the security administrator user account are always members of <code>securityadmin</code> . |
| <input type="checkbox"/> | Set the recovery model of the database to Simple. SolarWinds does not support other methods. |
| <input type="checkbox"/> | Select SQL Server Authentication. SolarWinds Orion users use this method to access the SolarWinds Orion database. |
-  SolarWinds uses SQL Server Authentication to ensure the SolarWinds Orion server can always access the SolarWinds Orion database, even when hosted remotely on a separate server.

Install federated collectors in VMAN

This is an optional step for your VMAN installation. For customers with medium to large environments, SolarWinds recommends using federated collectors. For details, see the deployment information in [VMAN system requirements and deployments](#).

 SolarWinds recommends using federated collectors when monitoring 10,000 VMs or more.

The federated collector serves as a proxy and splits data collection tasks between remote servers. All collected configuration and performance data is communicated back to VMAN.

- A single SolarWinds Virtualization Manager data collector might not have enough computing resources to collect data from large virtual environments with thousands of VMs. If you experience slow performance due to collection, consider deploying a federated collector.
- It is more efficient to collect data from distant vCenters by using a federated collector in that location and having the collector periodically connect to Virtualization Manager with the collected data.
- If you use WANs, consider deploying a federated collector.

Prior to installing, check the [port requirements](#) for federated collectors.

	STEP	DESCRIPTION
<input type="checkbox"/>	1. Download the zip from the Customer Portal	Log in to the Customer Portal and download the Virtualization Manager installation file.
<input type="checkbox"/>	2. Extract the installation	<ol style="list-style-type: none"> 1. Extract the contents of the <code>Collector.zip</code> archive file. 2. In the VMware client, deploy the new federated collector appliance from the OVF template the same way you deploy a VMAN appliance.
<input type="checkbox"/>	3. Configure the collector	<ol style="list-style-type: none"> 1. Open the console for the federated collector, and start the virtual appliance. Configure the network settings the same way you configure a SolarWinds Virtualization Manager server. 2. Log in to the administration website of the collector (<code>https://ip_Address:5480</code>) with the user <code>admin</code> and the password <code>admin</code>. 3. Click SolarWinds Data Collector, and in the Collector Timezone field, select the time zone of the main SolarWinds Virtualization Manager. <div data-bbox="656 1864 1511 1927" style="border: 1px solid orange; padding: 5px; margin-top: 10px;">  Do not set this to the time zone of the collector. </div>

STEP	DESCRIPTION
	<ol style="list-style-type: none">4. Specify the host name of the collector.5. In the Collector Display Name field, enter a unique identifier.6. In the SolarWinds Virtualization Manager Server Address field, enter the host name or IP address of VMAN.7. Click Configure Now.

The federated collector is ready to accept data source collection assignments from SolarWinds Virtualization Manager.

Install the Orion Platform and VIM

The Virtual Infrastructure Monitor (VIM) is used to integrate VMAN monitoring, data, metrics, alerts, and more into the Orion Web Console and provides access to additional VMAN features. As part of your VMAN environment installation, you want to install VIM:

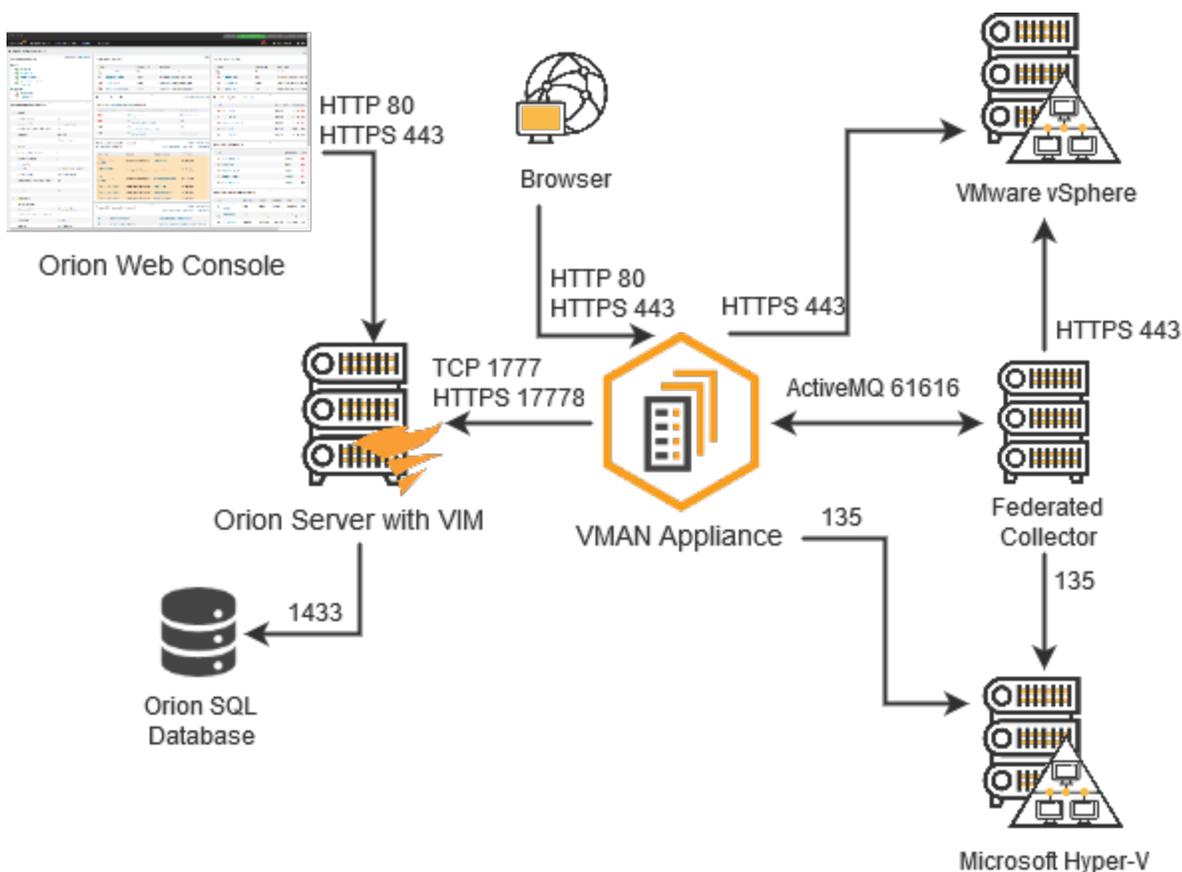
- As a [stand-alone](#) Orion Web Console to provide additional VMAN and Orion features.
- As an update of VMAN features into an [existing Orion Platform installation](#).

VIM is included as part of your NPM, SAM, NCM, or other Orion Platform products installation.

When installing VIM, the VMAN installation zip includes a file **VMAN-Orion-Install-2nd.exe**. This installation provides a full version of the Orion Platform and Orion Web Console. After installing, you can integrate the VMAN appliance.

 Before you begin, make sure your computer meets the [Orion Platform recommended requirements for VMAN](#).

Install the stand-alone VIM environment



	STEP	DESCRIPTION
☐	1. Download the installation file	<p>If you need the installation file VMAN-Orion-Install-2nd.exe, login to the Customer Portal and download the full version of the VMAN installation. The zip contains this file.</p>
☐	2. Save and run the file on the Orion Platform server	<ol style="list-style-type: none"> 1. Log in as an administrator to the SolarWinds server where you want to install the SolarWinds Virtual Infrastructure Monitor. 2. Save VMAN-Orion-Install-2nd.exe to the Orion Platform server. 3. Run the file VMAN-Orion-Install-2nd.exe. 4. If you are prompted to install required components, click Install, and complete the component installation. <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <p> Downloading and installing Microsoft .NET Framework may take more than 20 minutes. If a reboot is required, click Install after restarting the computer to resume the installation.</p> </div> <ol style="list-style-type: none"> 5. Review the Welcome text and whether you want to send data about the application usage, and click Next. 6. Select a language, and click Next. 7. If another SolarWinds Orion product is already installed, enter YES to indicate that you are aware of the recommendation to back up your existing Orion product database before installing VIM, and click Next. 8. Accept the license agreement, and click Next. 9. Select the installation folder, and click Next. 10. Click Next on the Start Copying Files window. 11. Click Finish to close the installation wizard. 12. The SolarWinds Configuration Wizard is launched automatically.
☐	3. Complete the Configuration Wizard	<ol style="list-style-type: none"> 1. Click Next on the Welcome window to continue the basic configuration. 2. If prompted to stop services, click Yes. 3. On the Database Settings dialog box, select an SQL Server and authentication method, and click Next. <div style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <p> Use SQL Server Authentication to ensure the SolarWinds Orion server can always access SQL Server, even when hosted remotely on a separate server.</p> </div> <ol style="list-style-type: none"> 4. On the Database Settings dialog box, select the prepared SQL database from Use an existing database, and click Next.

STEP	DESCRIPTION
	<ol style="list-style-type: none"> 5. On the Database Account dialog box, create a new account or use an existing account that the polling engine and Web Console use to access the database, and click Next. 6. On the Website Settings dialog box: <ol style="list-style-type: none"> a. Select All Unassigned unless your environment requires a specific IP address for the Orion Web Console. b. Specify the Port and the Website Root Directory where the system will install the web console files. <div data-bbox="613 619 1511 722" style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p>i If you specify any port other than 80, include that port in the URL used to access the Web Console.</p> </div> c. To use this function, click Yes - Enable automatic login using Windows Authentication. 7. If prompted to create a new directory or website, click Yes. 8. Review the list of services to install, and click Next. 9. Click Yes if prompted to disable the SNMP Trap Service and enable the SolarWinds Trap Service. 10. On the Completing the Orion Configuration Wizard dialog box, click Next. 11. When completed, click Finish to launch the Orion Web Console.
<input type="checkbox"/>	<p>4. Log in to the Web Console</p> <p>Log in to the SolarWinds Web Console as an administrator. Until you change your account, you can log in with the username, Admin without a password.</p>
<input type="checkbox"/>	<p>5. Integrate the VMAN appliance</p> <ol style="list-style-type: none"> 1. In the Orion Web Console, click Settings > All Settings. 2. Locate and click Virtualization Settings. 3. Click Setup Virtualization Manager Integration. 4. Enter the host name or IP address of the Virtualization Manager server. <div data-bbox="532 1549 1511 1692" style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p>i To access the network settings for the Virtualization Manager appliance server, use a browser to navigate to <code>https://ip_address:5480</code>.</p> </div> 5. Enter the port number on which Virtualization Manager serves web requests. The default port is 443.

	STEP	DESCRIPTION
		6. Enter the VM credentials. <ul style="list-style-type: none"> • For VMware, we recommend using the VCenter credentials with your VMs managed in VCenter. • For Hyper-V, enter the Hyper-V account credentials. 7. Click Integrate.
☐	6. Complete integration	The Orion Web Console verifies access and integrates VMAN and monitored VMs. Click My Dashboard > Virtualization to access VMAN data and options.
☐	7. Activate the VMAN secondary license	1. In the Orion Web Console, click Settings > All Settings, and click License Manager. 2. In the License Manager, click Add/Upgrade License. <div data-bbox="532 768 880 831" style="border: 1px solid black; padding: 2px; margin: 10px 0; text-align: center;">  </div> 3. Enter the Activation Key and Registration Information for the VMAN secondary license, and click Activate.

You are done! You can start monitoring your virtual environments.

Integrate with an existing Orion Platform

With the VMAN appliance deployed to a VM, you can install Virtual Infrastructure Monitor (VIM) to the existing Orion Platform and integrate the VMAN appliance.

The existing Orion Platform in your environment may not have all of the latest additions for VIM. Installing the latest VIM updates the platform with additional features and issue resolutions for virtual environments. You will use the file **VMAN-Orion-Install-2nd.exe**.

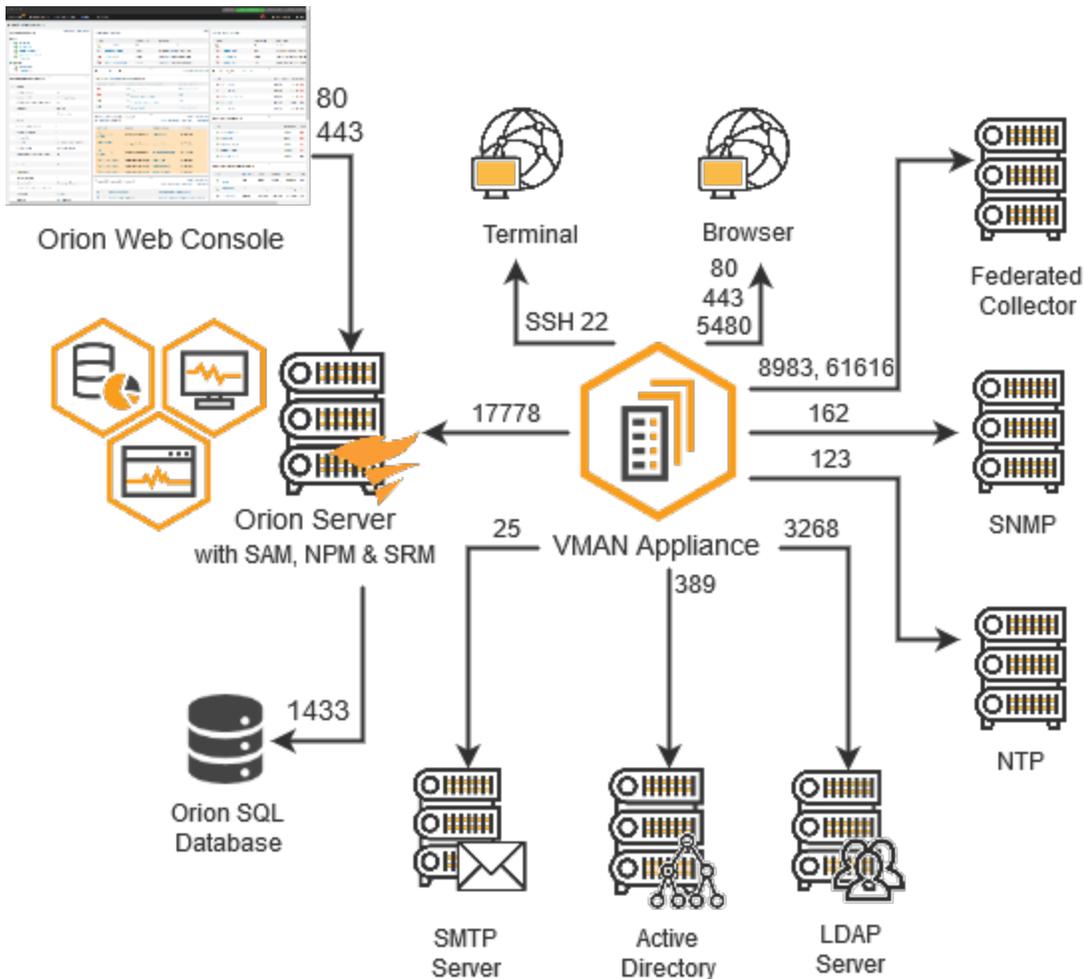
Before you begin:

- Make sure that Virtualization Manager is [deployed and set up](#).
- Verify that you have a licensed and supported version of NPM, SAM, NCM, or other Orion Platform product installed on the server where you want to install VIM and integrate VMAN.

 VIM 7.1 includes Orion Platform 2016.2. If you install SAM 6.4, you also receive VIM 7.1 and do not need to install VIM 7.1.

 You do not need a separate license for VMAN in an existing Orion Platform with NPM, SAM, NCM, or VNQM. And actions like managing a node consume VMAN license sockets differently than other Orion Platform products.

i Only one VMAN installation can be integrated with one Orion Platform environment. To integrate VMAN with a different or new Orion Platform environment, you will need to remove the current integration first.



	STEP	DESCRIPTION
☐	1. Download the installation file	If you need the installation file VMAN-Orion-Install-2nd.exe , login to the Customer Portal and download the full version of the VMAN installation. The zip contains this file.
☐	2. Save and run the file on the Orion Platform server	<ol style="list-style-type: none"> 1. Log in as an administrator to the existing Orion server where products like NPM, SAM, and other products are installed. 2. Save VMAN-Orion-Install-2nd.exe to the Orion Platform server. 3. Run the file VMAN-Orion-Install-2nd.exe.

	STEP	DESCRIPTION
		<p>4. If you are prompted to install required components, click Install, and complete the component installation.</p> <div data-bbox="532 348 1511 495" style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p> Downloading and installing Microsoft .NET Framework may take more than 20 minutes. If a reboot is required, click Install after restarting the computer to resume the installation.</p> </div> <p>5. Review the Welcome text and whether you want to send data about the application usage, and click Next.</p> <p>6. Select a language, and click Next.</p> <p>7. If another SolarWinds Orion product is already installed, enter YES to indicate that you are aware of the recommendation to back up your existing Orion product database before installing VIM, and click Next.</p> <p>8. Accept the license agreement, and click Next.</p> <p>9. Select the installation folder, and click Next.</p> <p>10. Click Next on the Start Copying Files window.</p> <p>11. Click Finish to close the installation wizard.</p> <p>12. The SolarWinds Configuration Wizard is launched automatically.</p>
<input type="checkbox"/>	<p>3. Complete the Configuration Wizard</p>	<p>1. Click Next on the Welcome window to continue the basic configuration.</p> <p>2. If prompted to stop services, click Yes.</p> <p>3. On the Database Settings dialog box, select an SQL Server and authentication method, and click Next.</p> <div data-bbox="532 1251 1511 1398" style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p> Use SQL Server Authentication to ensure the SolarWinds Orion server can always access SQL Server, even when hosted remotely on a separate server.</p> </div> <p>4. On the Database Settings dialog box, select the existing Orion SQL database from Use an existing database, and click Next.</p> <p>5. On the Database Account dialog box, create a new account or use an existing Orion SQL account that the polling engine and Web Console use to access the database, and click Next.</p>

STEP	DESCRIPTION
	<ol style="list-style-type: none"> 6. On the Website Settings dialog box: <ol style="list-style-type: none"> a. Select All Unassigned unless your environment requires a specific IP address for the Orion Web Console. b. Specify the Port and the Website Root Directory where the system will install the web console files. <div data-bbox="613 489 1511 590" style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p> If you specify any port other than 80, include that port in the URL used to access the Web Console.</p> </div> c. To use this function, click Yes - Enable automatic login using Windows Authentication. 7. If prompted to create a new directory or website, click Yes. 8. Review the list of services to install, and click Next. 9. Click Yes if prompted to disable the SNMP Trap Service and enable the SolarWinds Trap Service. 10. On the Completing the Orion Configuration Wizard dialog box, click Next. 11. When completed, click Finish to launch the Orion Web Console.
<input type="checkbox"/>	<p>4. Log in to the Web Console</p> <p>Log in to the SolarWinds Web Console using an existing Orion account with administrator access.</p>
<input type="checkbox"/>	<p>5. Integrate the VMAN appliance</p> <ol style="list-style-type: none"> 1. In the Orion Web Console, click Settings > All Settings. 2. Locate and click Virtualization Settings. 3. Click Setup Virtualization Manager Integration. 4. Enter the host name or IP address of the Virtualization Manager server. <div data-bbox="532 1415 1511 1560" style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p> To access the network settings for the Virtualization Manager appliance server, use a browser to navigate to <code>https://ip_address:5480</code>.</p> </div> 5. Enter the port number on which Virtualization Manager serves web requests. The default port is 443. 6. Enter the VM credentials. <ul style="list-style-type: none"> • For VMware, we recommend using the VCenter credentials with your VMs managed in VCenter. • For Hyper-V, enter the Hyper-V account credentials. 7. Click Integrate.

	STEP	DESCRIPTION
<input type="checkbox"/>	4. Complete integration	The Orion Web Console verifies access and integrates VMAN and monitored VMs. Click My Dashboard > Virtualization to access VMAN data and options.

You are done! You can start monitoring your virtual environments.

VMAN licensing information

SolarWinds Virtualization Manager is licensed according to the number of CPU sockets per monitored host. When you monitor a virtual host, VMAN collects metrics and data for all children VMs. If you try to monitor more sockets or virtual machines than your license allows, you will not be able to add more data sources or apply VMAN upgrades.

VMAN includes two licenses for VMAN 6.2 through 7.1:

- Primary license to be installed on the VMAN appliance.
- Secondary license to be installed on the Orion Web Console for a stand-alone VMAN installation.

 If you are integrating VMAN into an existing Orion Platform such as NPM, SAM, or NCM, you do not need to install the secondary license.

Virtualization Manager is licensed according to the number of processor sockets on your physical hardware. Physical hardware is ESX hosts for VMware or Windows Servers for Hyper-V.

VMAN is available in the following license sizes:

LICENSE TIER	SOCKETS
VMS8	8
VMS16	16
VMS32	32
VMS64	64
VMS112	112
VMS192	192
VMS320	320
VMS480	480
VMS640	640
VMS800	800
VMS1120	1120
VMS1440	1440
VMS1680	1680
VMS1920	1920

LICENSE TIER	SOCKETS
VMS2400	2400
VMS3040	3040
VMS3840	3840
VMS4800	4800

Get your license key

You can obtain the primary and secondary license keys through the Customer Portal.

1. Log in to the [SolarWinds Customer Portal](#).
2. Select License Management > License Management.
3. Locate an unregistered Virtualization Manager activation key. Make note of the license key.

Add a primary license key for the VMAN appliance online

You will add the primary license key on the VMAN appliance using the VMAN console. These instructions walk through adding the license online.

1. Log in to the VMAN console.
2. Click the Setup tab and select License Information.
3. Click Activate License.
4. Enter the primary license key.
5. In the Computer Name field, enter `localhost`.
6. Enter the other required information, and click Send Activation Request.

Add a primary license key for the VMAN appliance offline

You will add the primary license key on the VMAN appliance using the VMAN console. These instructions walk through adding the license offline.

1. Log in to the VMAN console.
2. Click the Setup tab and select License Information.
3. Click Unique Machine ID, copy the machine ID, and save it on a flash device.
4. From a computer with Internet access, log in to the [SolarWinds Customer Portal](#).
5. Click License Management > License Management, and locate an unregistered Virtualization Manager activation key.
6. Click Manually Register License, and enter the required information.

7. In the Computer Name field, enter `localhost`.
8. In the Unique Machine ID field, paste the machine ID copied from VMAN.
9. Click Generate License File, and download the license file.
10. Transfer the license file to a computer with access to VMAN.
11. Click Upload License File, select the license file, and click Open.

Add secondary license to stand-alone Orion Platform

The stand-alone deployment for VMAN includes installing a dedicated Orion Platform with an Orion Web Console. You receive this Orion Platform as the Virtual Infrastructure Monitor (VIM). You only need to add the secondary VMAN license in a stand-alone deployment, not in an existing Orion Platform.

1. Access the Orion Web Console of the stand-alone Orion Platform.
2. Click Settings > All Settings, and click License Manager.
3. In the License Manager, click Add/Upgrade License.



4. Enter the Activation Key and Registration Information for the VMAN secondary license, and click Activate.

Exclude hosts from monitoring

If there are not enough SolarWinds Virtualization Manager licenses to cover every powered on virtual machine managed by a vCenter server, change the access permissions of the vCenter user account to limit what it can access.

Restricting the virtual machines accessible by the user account reduces the number of virtual machines or sockets SolarWinds Virtualization Manager can collect data from. This way you can control which virtual machines are being monitored.

You can control access permissions in the VMware client by assigning the No Access role to the vCenter account for the hosts and virtual machines you want to restrict.

Install with High Availability in VMAN

If your Orion Platform environment includes High Availability, you will need to use these instructions for installing the Virtual Infrastructure Monitor onto the HA protected servers. These instructions detail how to install an Orion product with a new High Availability (HA) pool or with existing HA pools. Consider these instructions as you install your product.

You do not need to take extra steps for the VMAN appliance in HA.

Orion install with new HA

These instructions define how to install your product with a new SolarWinds HA pool. Both primary and secondary servers in the pool must match and have the exact same Orion products and versions installed.

 If you have enabled SolarWinds High Availability, you must disable HA before you can install. All SolarWinds product versions must match on the primary and secondary servers before you can re-enable your HA pools.

For more information on SolarWinds HA, see [High Availability in SolarWinds products](#).

Before you begin, you need the following:

- A [VIP address](#)
- The secondary HA server
- An available HA pool license

<input type="checkbox"/>	1. Prepare the secondary server	<ol style="list-style-type: none"> 1. Reserve an available IP address to use as the Virtual IP (VIP) address on the same subnet as the primary and secondary servers. 2. Build a standby server on the same subnet as the server you want to protect. 3. Open port 5671 (TCP) on the primary (incoming) and secondary (outgoing) servers. 4. Open ports 4369 and 25672 (TCP) on the main Orion server and its secondary server. These ports are not required when protecting additional polling engines.
<input type="checkbox"/>	2. Install on the primary server	<p>Follow the install instructions for the product. Install on the primary server.</p> <p>Do not run the product installer on the secondary server. The HA process creates the secondary server installer.</p>
<input type="checkbox"/>	3. Activate the HA license	<p>Have your HA license from the Customer Portal to activate prior to creating a pool. The License Manager through the Orion Web Console provides a 30-day evaluation license to test HA features.</p>

		<ol style="list-style-type: none">1. Click Settings > All Settings > License Manager.2. Select the HA license.3. Click Activate.4. Enter your license information. If you do not have a license key, enable the HA evaluation license.
<input type="checkbox"/>	4. Download and install secondary server	<p>HA provides a downloadable installer from the primary server with a list of all products and versions. This installer ensures both servers match.</p> <ol style="list-style-type: none">1. In the Orion Web Console, click Settings > All Settings > High Availability Deployment Summary.2. Click Setup a new HA server.3. In the dialog box, click Get started setting up a server.4. In the Setup a High Availability Server dialog box, click Download installer now.5. Move the downloaded installer to your secondary server and run it. Select which type of backup server you want to install under High Availability. Enter your SQL credentials for your Orion SQL database when prompted.
<input type="checkbox"/>	5. Create the HA pool	<p>You can now add the backup server to a pool with your main server or additional polling engine.</p> <ol style="list-style-type: none">1. In the Orion Web Console, click Settings > All Settings > High Availability Deployment Summary.2. Click Setup High Availability pool next to your standby server.3. Enter the pool name and the virtual IP (VIP) address. The VIP must be unassigned and on the same subnet as the primary and secondary servers.4. Click Create Pool to complete the pool setup.

Orion install with existing HA

These instructions define how to install your product into an existing server pair in a SolarWinds High Availability (HA) pool. Both primary and secondary servers in the pool must match and have the exact same Orion products and versions installed.

 If you have enabled SolarWinds High Availability, you must disable HA before you can install. All SolarWinds product versions must match on the primary and secondary servers before you can re-enable your HA pools.

These instructions assume you have an HA pool already created and enabled. For more information on SolarWinds HA, see [High Availability in SolarWinds products](#).

<input type="checkbox"/> 1. Disable the HA pool	<p>The HA pool must be disabled to begin installation. If you install prior to disabling, the pool is automatically disabled.</p> <ol style="list-style-type: none"> 1. In the Orion Web Console, click Settings > All Settings > High Availability Deployment Summary. 2. Select the pool you want to disable. 3. Toggle High Availability to Off. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p> Do not modify the VIP or IP settings for the servers.</p> </div>
<input type="checkbox"/> 2. Install on the primary server	<p>Follow the installation instructions on the primary server.</p>
<input type="checkbox"/> 3. Install on the secondary server	<p>Follow the install instructions on the secondary server.</p>
<input type="checkbox"/> 4. Enable the HA pool	<p>After the servers are installed, enable the HA pool using the following instructions. You may need to recreate the HA pool. For details, see Set up an HA pool for NPM.</p> <ol style="list-style-type: none"> 1. In the Orion Web Console, click Settings > All Settings > High Availability Deployment Summary. 2. Select the pool you want to enable. 3. Toggle High Availability to On. The Orion Web Console verifies all SolarWinds product versions match across the HA pair before enabling. If you receive errors, check your product versions.

Install a VMAN evaluation

The evaluation version of VMAN is a full version of the product, functional for 30 days. After the evaluation period, you can easily convert your evaluation license to a production license by obtaining and applying a license key.

i To update your license, contact [SolarWinds sales](#) to purchase a full license of the product. For Orion products, access the License Manager to update the license with the purchased key. For details, see [Activate licenses](#).

For evaluation installations only, you can install the Orion server and the Microsoft® SQL Server® database on the same machine. The installer automatically installs SQL Server 2014. You can use that database, or configure the server to use another MS SQL database.

- i**
- Do not use MS SQL Server Express in a production deployment.
 - Before you install SQL Express 2014 on the same computer as the Orion server, ensure .NET 3.5 is installed.

To use a separate Microsoft SQL Server database, or if you are installing this product into the production deployment of an existing Orion Platform, see Plan for a production deployment.

For evaluation installations only, installation on a desktop operating system is possible, but not supported. This product is intended for use in a production environment that meets system requirements.

EVALUATION AND PRODUCTION ENVIRONMENTS	EVALUATION ENVIRONMENTS <i>ONLY</i>
Windows Server 2008 R2 SP1	Windows 7 64-bit SP1
Windows Server 2012	Windows 8 (except for Standard Edition)
Windows Server 2012 R2	Windows 8.1 (except for Standard Edition)
Windows Server 2016	Windows 8.1 Update 1 (except for Standard Edition)
	Windows 8.1 Pro, and Windows 8.1 Enterprise (Pro or Enterprise version recommended)
	Windows 10

To install an evaluation copy of your product:

<input type="checkbox"/>	1. Download the evaluation file	Download the evaluation file XXXX for PRODUCT from www.solarwinds.com .
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<input type="checkbox"/>	2. Install using the stand-alone instructions	<p>Follow the standalone installation instructions including the installation and Configuration wizard.</p> <p>To use the Microsoft SQL Server Express database that installs with the product, click Express Install. To use your own Microsoft SQL Server database, click Advanced Install.</p>
<input type="checkbox"/>	3. Open the Orion Web Console	<p>If the login page does not open automatically, launch the Orion Web Console in your SolarWinds Orion program folder.</p> <p>Log in with the user name <code>admin</code> and leave the password field blank.</p> <p>For security purposes, SolarWinds recommends that you change the password to your admin account.</p>

After the evaluation period, you can easily convert your evaluation license to a production license by obtaining and applying a license key.

Uninstall Virtualization Manager

You may need to uninstall VMAN to reinstall for resolving issues or to move to a new server during a migration.

Prior to uninstalling, SolarWinds recommends the following preparation:

<input type="checkbox"/> Backup the existing database	<p>To preserve your data, back up your database(s). If you need help with backups, check your vendor's site for documentation and instructions.</p> <p>If you have your database on a VM, create a snapshot or copy of your VM.</p> <p>If you need software to perform backups and maintenance for Microsoft SQL databases, you can install SQL Management Studio Express for your specific version of Microsoft SQL on your database server.</p> <p>Use one of the following links to download the installation:</p> <ul style="list-style-type: none"> • SQL Management Studio Express 2008 • SQL Management Studio Express 2012 • SQL Management Studio Express 2014
<input type="checkbox"/> Create a snapshot and backup folders	<p>For your VMs, create snapshots to save data and configurations.</p> <p>For the Orion server, create copies and backups of your product folders. You may have customizations in these folders specific to your installations.</p>

To remove Virtualization Manager appliance and a stand-alone Orion Web Console (VIM), complete the following steps:

<input type="checkbox"/> 1. Remove VMAN product licenses	<p>Follow the steps for your specific product to remove the SolarWinds product licenses.</p>
<input type="checkbox"/> 2. Remove integration between VMAN and the Orion Web Console	<p>If you have Virtualization Manager integrated with the Orion Web Console, complete the following:</p> <ol style="list-style-type: none"> 1. In the Orion Web Console, click Settings > All Settings. 2. Click Virtualization Settings. 3. Click Setup Virtualization Manager integration. 4. Disable the VMAN integration.
<input type="checkbox"/> 3. Remove any federated collectors	<ol style="list-style-type: none"> 1. Open the VMAN console. 2. Select the Setup tab, and click Data Sources on the left menu. 3. Select a data source, and click Edit.

		<ol style="list-style-type: none"> 4. Select a different collector for the data source from the Collector list than the one you want to delete. 5. Click Save. 6. Repeat these steps for all federated collectors. 7. Power off the federated collectors. 8. Delete the federated collector VMs.
<input type="checkbox"/>	<p>4. Delete the appliance</p>	<div style="border: 1px solid orange; padding: 5px; background-color: #fff9c4;">  The deletion of the VM and federated collectors is irreversible. Deleting the master appliance also deletes the database. </div> <p>With the integration removed, delete the appliance.</p> <ol style="list-style-type: none"> 1. Power off the appliance. 2. Delete the master appliance in the Hyper-V or VMware client.
<input type="checkbox"/>	<p>5. Uninstall SolarWinds products</p>	<p>If your version of VMAN is a stand-alone product, not including other SolarWinds products, delete the Orion server products.</p> <p>If VMAN is installed with other Orion products, skip this step.</p> <ol style="list-style-type: none"> 1. Open Programs and Features in the Windows Control Panel. 2. Select the product(s) to remove one at a time and click Uninstall. <p>You may also need to uninstall the SolarWinds Job Engine and SolarWinds Orion Information Service.</p>
<input type="checkbox"/>	<p>6. Delete or rename SolarWinds folders</p>	<p>If your version of VMAN is a stand-alone product, not including other SolarWinds products, complete these steps.</p> <p>If VMAN is installed with other Orion products, skip this step.</p> <p>Delete files from the following locations to fully clear all files. If you installed to a different domain, look on that location instead of C:\.</p> <ul style="list-style-type: none"> • C:\Program Files (x86)\SolarWinds • C:\Program Files (x86)\Common Files\SolarWinds • C:\inetpub\SolarWinds • C:\ProgramData\Solarwinds • C:\ProgramData\SolarWindsAgentInstall
<input type="checkbox"/>	<p>7. Remove specific Registry keys</p>	<p>If your version of VMAN is a stand-alone product, not including other SolarWinds products, complete these steps.</p> <p>If VMAN is installed with other Orion products, skip this step.</p>

 Important: These steps affect your Registry settings. For assistance, [contact Support](#).

1. Open the command line interface on the server.
2. Type `regedit`, and click OK.
3. Expand `HKEY_LOCAL_MACHINE > Software`.
4. Delete both the `SolarWinds` and the `SolarWinds.net` folders.
5. If you are uninstalling from a 64-bit computer, expand `HKEY_LOCAL_MACHINE > Software > Wow6432Node`, and delete both the `SolarWinds` and the `SolarWinds.net` folders.

- | | | |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | 8. Restart and reinstall | Restart the server. You can reinstall new products following this guide. |
|--------------------------|--------------------------|--|