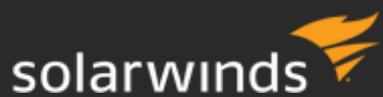


 INSTALLATION GUIDE

Virtualization Manager

Version 8.0



Last Updated: Thursday, October 5, 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)

© 2017 SolarWinds Worldwide, LLC. All rights reserved.

This document may not be reproduced by any means nor modified, decompiled, disassembled, published or distributed, in whole or in part, or translated to any electronic medium or other means without the prior written consent of SolarWinds. All right, title, and interest in and to the software and documentation are and shall remain the exclusive property of SolarWinds and its respective licensors.

SOLARWINDS DISCLAIMS ALL WARRANTIES, CONDITIONS OR OTHER TERMS, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, ON SOFTWARE AND DOCUMENTATION FURNISHED HEREUNDER INCLUDING WITHOUT LIMITATION THE WARRANTIES OF DESIGN, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND NONINFRINGEMENT. IN NO EVENT SHALL SOLARWINDS, ITS SUPPLIERS, NOR ITS LICENSORS BE LIABLE FOR ANY DAMAGES, WHETHER ARISING IN TORT, CONTRACT OR ANY OTHER LEGAL THEORY EVEN IF SOLARWINDS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

The SolarWinds and other SolarWinds marks, identified on the SolarWinds website, as updated from SolarWinds from time to time and incorporated herein, are registered with the U.S. Patent and Trademark Office and may be registered or pending registration in other countries. All other SolarWinds trademarks may be common law marks or registered or pending registration in the United States or in other countries. All other trademarks or registered trademarks contained and/or mentioned herein are used for identification purposes only and may be trademarks or registered trademarks of their respective companies.

Table of Contents

VMAN installation overview	5
Stand-alone installation	5
Installation in an existing Orion Platform	6
VMAN architecture	6
Evaluation installation	8
VMAN installation files	8
Terminology	9
VMAN installation pre-flight checklist	10
Prepare for the install	11
Installation gotchas	12
VMAN system requirements	13
VMAN system requirements and deployments	14
VMAN port requirements	16
Account permission requirements for VMAN	18
Configure VM permissions	18
Create a VMAN appliance account	18
Configure Orion Web Console account permissions	19
Multi-module system guidelines	22
Small deployment guidelines	22
Medium deployment guidelines	23
NTA-specific information	24
Large deployment guidelines	24
NTA-specific information	26
VMAN licensing information	27
Get your license key	28

Add a primary license to stand-alone Orion Platform	28
Add a secondary license key for the VMAN appliance online	28
Add a secondary license key for the VMAN appliance offline	29
Exclude hosts from monitoring	29
Prepare the Orion SQL database for VMAN stand-alone	30
Install Virtualization Manager	31
Install with High Availability in VMAN	40
Orion install with new HA	40
Orion install with existing HA	41
Install a VMAN evaluation	43
Uninstall Virtualization Manager	45

VMAN installation overview

Supported Version: VMAN 8.0 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
- Installation in an existing Orion Platform
- Evaluation installation

 For VMAN Appliance installations, please see the [VMAN 7.2 Installation Guide](#). This guide provides installation information for VMAN on Orion installs using the Orion Installer.

Stand-alone installation

For a stand-alone installation of Virtualization Manager, you will install VMAN on a dedicated server. This installation also requires a dedicated Orion server and connect to a dedicated Orion SQL database server to store monitored data, configurations, and more.

1. [VMAN installation pre-flight checklist](#)
2. Review requirements:
 - a. [VMAN system requirements and deployments](#)
 - b. [VMAN port requirements](#)
 - c. [Account permission requirements for VMAN](#)
 - d. [Multi-module system guidelines](#)
 - e. [VMAN licensing information](#)
3. [Prepare the Orion SQL database for VMAN stand-alone](#)
4. [Install Virtualization Manager](#)

With this installation, you need to activate the [primary license](#) on the Orion Web Console.

Installation in an existing Orion Platform

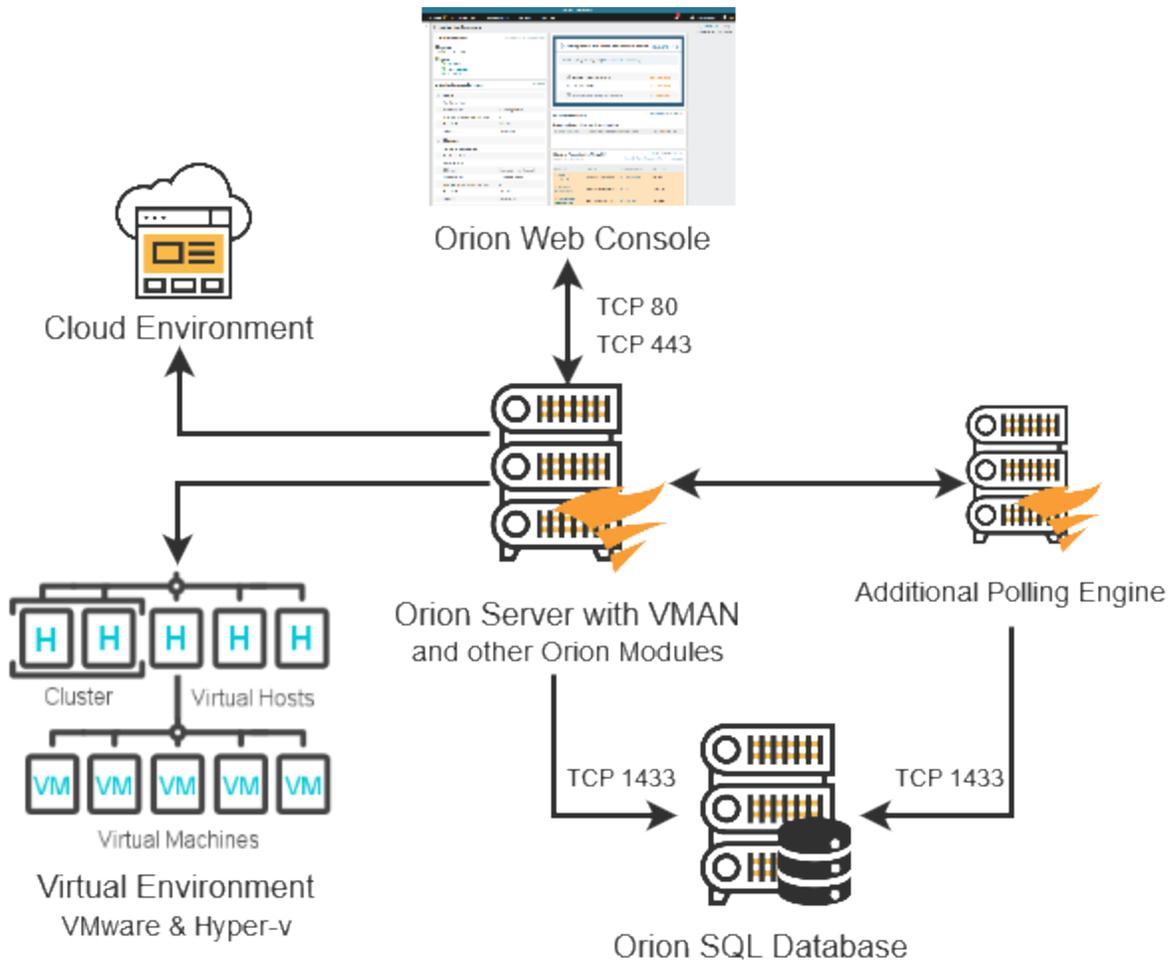
Virtualization Manager supports installation into an existing Orion Platform. For this installation, you install VMAN onto the existing Orion server and use the existing Orion SQL Database. The installation uses the [Orion Installer](#). If your environment uses [SolarWinds High Availability](#), follow the additional instructions as part of the installation.

1. [VMAN installation pre-flight checklist](#)
2. Review requirements:
 - a. [VMAN system requirements and deployments](#)
 - b. [VMAN port requirements](#)
 - c. [Account permission requirements for VMAN](#)
 - d. [Multi-module system guidelines](#)
 - e. [VMAN licensing information](#)
3. [Install Virtualization Manager](#)

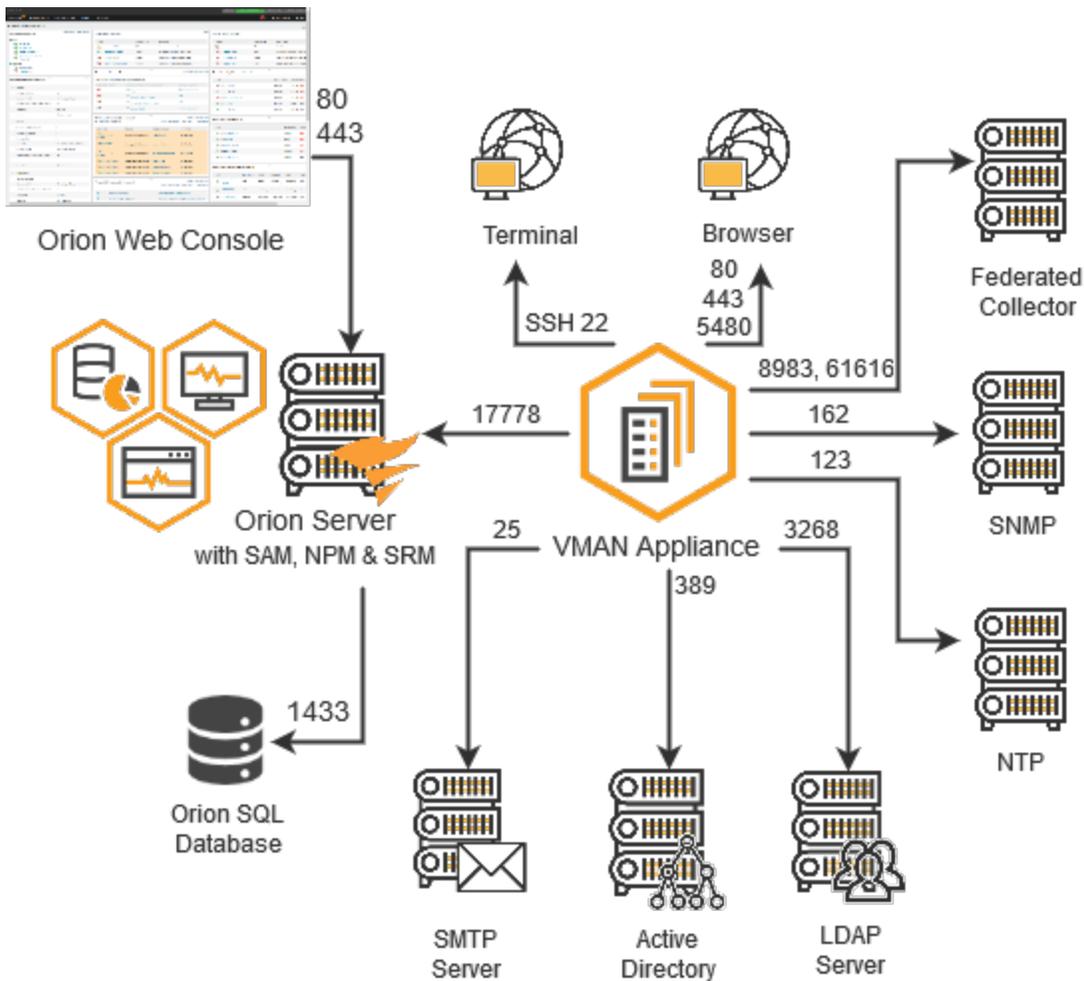
With this installation, you only need to activate the [primary license](#) on the Orion Web Console.

VMAN architecture

VMAN 8.0 and later architecture has VMAN entirely located on the Orion server.



For existing customers continuing to use the VMAN appliance, your architecture uses the on-going layout. Be aware, all VMAN specific features are now available through the Orion Web Console. For details on this installation, see the [VMAN 7.2 Installation Guide](#).



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 installation, evaluation, and SQL Express

Terminology

Virtual Infrastructure Monitor (VIM)

For VMAN installations using the Appliance. 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 when installed with VMAN provides additional VMAN features, 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. For VMAN 8.0 and later, the product installs directly onto the Orion server, providing all features through the Orion Web Console.

VMAN installation pre-flight checklist

Before installing, review the pre-installation checklist below and additional prep and gotcha information. This checklist helps you:

- Verify that system requirements are met, all required software is installed, and required roles and features are enabled.
- Gather the information required to complete the installation.

<input type="checkbox"/> Review release notes	Review Virtualization Manager release notes and available documentation in the Success Center .
<input type="checkbox"/> Review system requirements	Make sure your environment has all of the required hardware, software, and database requirements for your VMAN appliance and Orion Platform installations. If you are installing into an existing Orion Platform, you may need to review the multi-module system requirements and VMAN appliance requirements.
<input type="checkbox"/> Review account permissions requirements	Review the required account permissions needed for the VM deployment for your appliance, VMware or Hyper-V. You need to configure the permissions prior to deployment.
<input type="checkbox"/> Prepare product license	Review your current product licenses and determine if you need to make any changes. You can download any updated license keys through the Customer Portal . If you need to modify your licenses, contact your SolarWinds account manager or SolarWinds .
<input type="checkbox"/> Gather credentials	Make sure you have all account credentials, SQL database credentials, your SolarWinds account, and local admin server credentials. Use the Local Administrator Account for installation. <div style="border: 1px solid #ccc; padding: 5px; background-color: #f0f8ff;"> <p> The Local Administrator Account is not the same as a domain account with local admin rights. A domain account is subject to your domain group policies.</p> </div> To download SolarWinds products and licenses, you need a SolarWinds Customer Portal account. To create your SolarWinds account, see Access the Customer Portal .
<input type="checkbox"/> Schedule the installation	Set up the maintenance window, preferably during off-peak hours. Depending on the number of products, size of databases, and size of environment, you may

		<p>need hours to complete your installation.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p>i Installations in an existing Orion Platform environment require polling engines and SolarWinds services to be offline for a length of time, causing you to lose a portion of polling data.</p> </div>
<input type="checkbox"/>	<p>Notify your company</p>	<p>Send a message to your company about the installation schedule and maintenance window. If you need additional help with the installation process, contact and allocate staff to be available.</p>

Prepare for the install

As part of your preflight, prepare the VMAN server or upgrade the existing Orion environment:

<input type="checkbox"/>	<p>1. Prepare the environment</p>	<ul style="list-style-type: none"> • For stand-alone installations, prepare an Orion server. • For installations into an existing Orion Platform, you will install VMAN directly onto the Orion server. <p>If adding SolarWinds High Availability (HA) into your environment, review the HA requirements and VIP address information. Prepare two matching servers for installation.</p>
<input type="checkbox"/>	<p>2. Run all Windows updates</p>	<p>Before installation, check for and run all Microsoft Windows Updates on all servers. As you install, if a Windows update runs, your system may reboot as needed by Windows. The installation cannot complete if your system is waiting to reboot.</p>
<input type="checkbox"/>	<p>3. Backup existing database</p>	<p>If you are installing with an existing database, back up the database. If you need help, 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 Orion SQL 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"/>	<p>4. Open ports according to requirements</p>	<p>For your server ports and firewall, open ports according to the system requirements. Orion uses these ports to send and receive data.</p>

<input type="checkbox"/> 5. Check for antivirus software	<p>Determine if any antivirus software is installed on the server or servers where you plan to install. To ensure the installation goes smoothly, exclude the SolarWinds directory. For example, on Windows Server 2012 R2, exclude C:\ProgramData\SolarWinds\. For a full list of antivirus exclusions, see Files and directories to exclude from antivirus scanning.</p> <div data-bbox="431 386 1515 489" style="border: 1px solid #ccc; padding: 5px;"><p> Do not exclude executable files. SolarWinds assumes that C:\ is the default volume.</p></div>
<input type="checkbox"/> 6. Configure account permissions	<p>Access VMware or Hyper-V management to configure the account and permissions for access by the VMAN appliance. For details and instructions, see Account permission requirements for VMAN.</p>

Installation gotchas

Consider the following gotchas for installing VMAN:

- Always check for hotfixes for the [Orion Platform](#) and VMAN for stand-alone and integrated installations. These hotfixes are available through the Customer Portal for download and install. Review the hotfix readme file in the download for instructions.

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](#)
- [Multi-module system guidelines](#)
- [VMAN licensing information](#)

VMAN system requirements and deployments

The following requirements are for installing VMAN on the Orion server. Additional requirements include [port requirements](#) and [account permissions](#). For VMAN installations with the appliance, please see the [VMAN 7.2 Installation Guide](#).

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

SOFTWARE/ HARDWARE	REQUIREMENT	
Operating System	Production	Evaluation Only
	Windows Server 2012, 2012 R2 Windows Server 2016	Windows 7 SP1 Windows 8 (except Standard edition) 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	20 GB minimum	
	SolarWinds recommends higher disk allowance for database growth. If you have more than 3000 virtual machines, SolarWinds recommends adding 1 APE with the same specifications as the Main Polling Engine for every 3000 VMs.	
.NET Framework	.NET 4.6.2	
SQL Server	SQL Server 2012	
	SQL Server 2012 SP1, SP2, SP3	
	SQL Server 2014	
	SQL Server 2014 SP1	

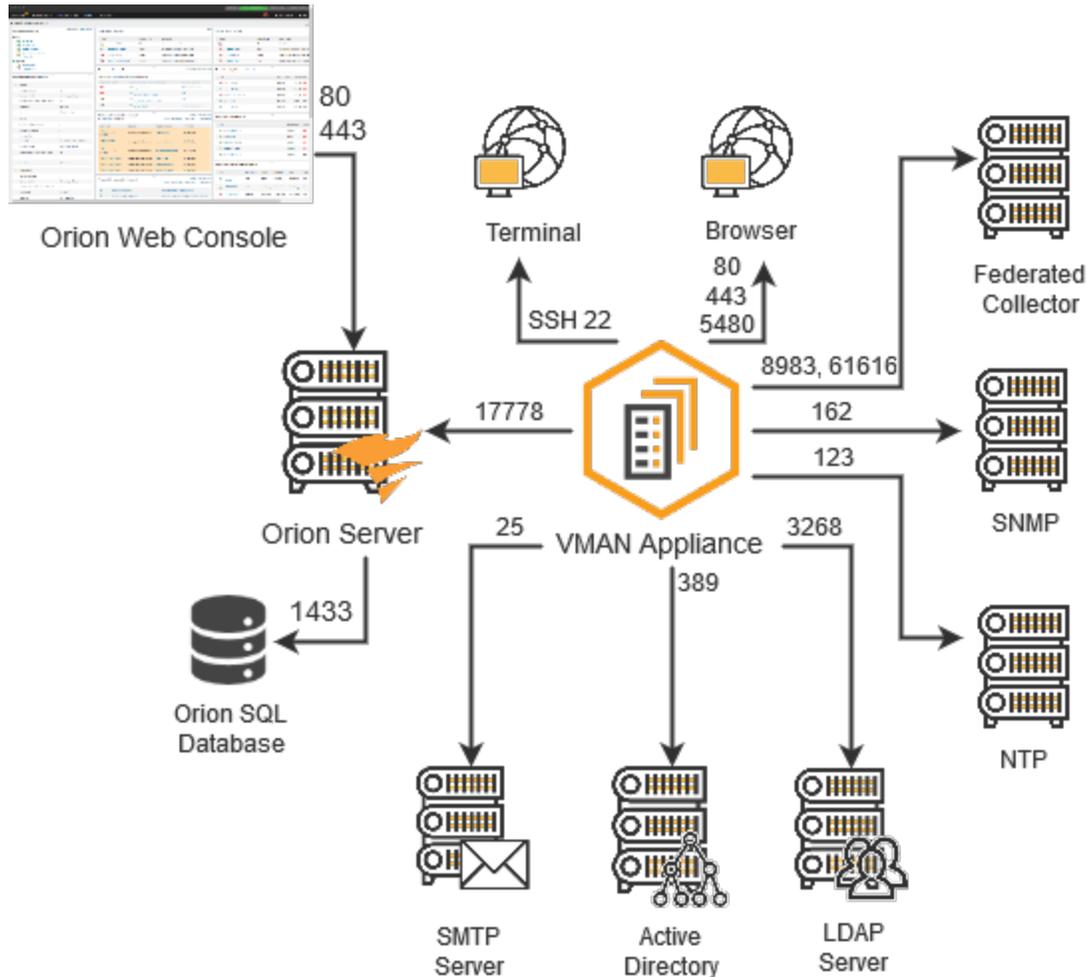
SOFTWARE/ HARDWARE	REQUIREMENT
	SQL Server 2016 SQL Server 2017
Browser	Microsoft Internet Explorer version 11 or later with Active scripting Microsoft Edge Firefox 45.0 or later (Toolset Integration is not supported on Firefox) Chrome 49.0 or later

VMAN port requirements

i Information below consider environments with the VMAN appliance (VMAN 7.2 and earlier) and environments without it (VMAN 8.0).

Review the following port requirements for the Orion server, the VMAN appliance, Federated Collectors, virtual environments, and additional systems. These ports are required for data collection and management actions. For a master list of all port requirements for all Orion Platform products, see [this guide](#). For port requirements for VMAN deployments with the appliance, see the [VMAN 7.2 Installation Guide](#).

The following port requirements support both existing customers using the appliance and new customers using VMAN in the Orion Platform.



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

Account permission requirements for VMAN

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	<p>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.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <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	<p>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.</p> <p>The VMware user account needs the following permissions:</p> <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	<p>The Hyper-V account used for data collection must have the Enable Account and Remote Enable permissions.</p> <p>For more information about enabling account privileges in WMI, see Configuring Distributed Component Object Model and User Account Control.</p>

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 ▼

7. 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.

8. 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.

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

Small deployment guidelines

Modules	<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
Orion Application Server Specifications	<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

¹More or less space may be needed depending on your data retention policies, number of elements measured, and polling frequency.

Medium deployment guidelines

<p>Modules</p>	<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
<p>Orion Application Server Specifications</p>	<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 • 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>
<p>SQL Database Server Specifications</p>	<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.

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
----------------	--

	<ul style="list-style-type: none"> • 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
<p>Orion Application Server Specifications</p>	<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>
<p>SQL Database Server Specifications</p>	<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

	<ul style="list-style-type: none"> • 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>

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.

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 8.0:

- Primary license to be installed on the Orion Web Console for a stand-alone VMAN installation.
- Secondary license to be installed on the VMAN appliance (VMAN 7.2 and earlier).

 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

LICENSE TIER	SOCKETS
VMS1920	1920
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 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.

Add a secondary 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 secondary 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.

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.

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 Virtualization Manager

After you have reviewed the [checklist](#), prepared an Orion server and set up your [Orion SQL database server](#), you are ready to install VMAN. If you are installing into an existing Orion Platform, you just need this installer and the Orion SQL database credentials.

What should I know prior to installing VMAN?

- Installing VMAN 8.0 and later, you are no longer required to install an appliance. When you install VMAN, it comes with the full Orion Platform and a VMAN Orion poller to perform all monitoring of your virtual and cloud environments. We **highly recommend not using the appliance** for the best performance and feature set. For existing customers wishing to keep the appliance, see the [VMAN 7.2 Installation Guide](#).
- For stand-alone installations, you need a dedicated Orion server and a dedicated Orion SQL database server.
- For installations into an existing Orion Platform environment, you will install on the Orion server and select the existing Orion SQL database during the Configuration wizard. You will need the location and credentials for the Orion SQL database.

The installation file for VMAN 8.0 and later uses the new [Orion Installer](#). When run, the installer:

- Provides an easy-to-follow install path. The installer will check for product updates, and updates the installation steps to complete complex upgrades and installations with ease.
- Runs preflight checks to ensure your environment specifications match the system requirements for selected product installs. If changes are needed, the installer provides guidance for required versions.
- Detects any installed Orion Platform products and versions for determining instal and upgrade paths.
- Guides you through each product install and upgrade by providing upgrade paths custom-made for your current environment.
- Automatically runs the Configuration Wizard as needed after product installs to complete database and configuration tasks.
- Advises on additional installations for SolarWinds High Availability servers, Additional Polling Engines, and Additional Web Servers.

STEP	DESCRIPTION
<input type="checkbox"/> 1. Download the installation file	Login to the Customer Portal and download the full version of the VMAN installation available through the Latest Downloads section.

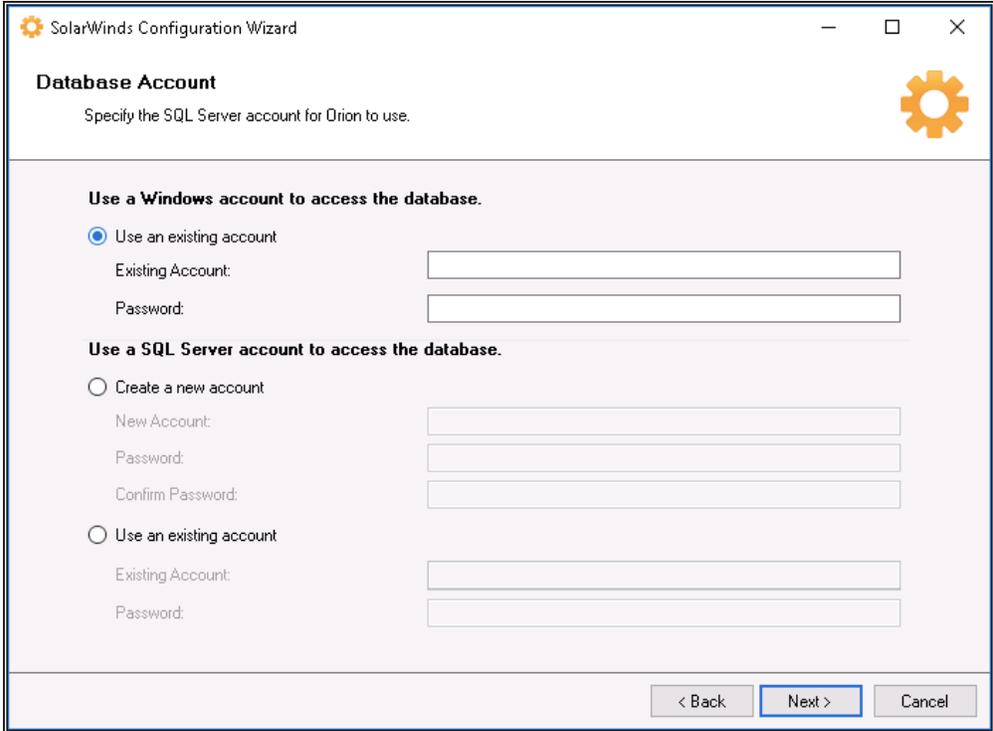
STEP	DESCRIPTION
<input type="checkbox"/> 2. Save and run the file on the Orion server	<ol style="list-style-type: none">1. Log in as an administrator to the Orion server.2. Save and run the VMAN Orion Installer. This is the Orion Installer.3. A Welcome screen displays with VMAN listed and any other new products you may also be installing. If existing products are detected, a list of upgrades display. The installer walks you through upgrading and installing in one process.4. Select VMAN and another other product(s) you want to install and/or upgrade. You can upgrade and install products at the same time. Want to learn more about a product? Click the release notes link.5. Optionally, select the option to Send usage metrics to help SolarWinds improve products. We only receive data collected for the installation and upgrade.6. Click Next.
<input type="checkbox"/> 3. Select the install method	<ol style="list-style-type: none">1. Select the type of installation:<ul style="list-style-type: none">• Express Install: Evaluations/Beta - Install Orion Platform products as quickly as possible using Microsoft SQL Express, global settings, and English as your preferred product language.• Advanced Install: Install Orion Platform products with an existing or prepped Microsoft SQL Server.2. Set the Destination Folder. You can leave this setting as default or select a new location.<div data-bbox="427 1167 1511 1312" style="border: 1px solid orange; padding: 5px;"> Products cannot install on a mapped drive, read-only drive, compressed drive, or compressed HDD. A warning displays if you attempt installing on those drive types.</div>3. Click Next.

STEP	DESCRIPTION
<p><input type="checkbox"/> 4. Review the System Check</p>	<p>A series of system checks run per product to verify if your server meets recommended and required system requirements. These checks include:</p> <ul style="list-style-type: none"> • Hardware and resources such as RAM, harddrive space, number of CPUs and more • Software such as installed Operating System version, .NET, IIS, and other required drivers and tools • Ports for data access and tasks • Product specific checks for configurations and additional requirements <p>If your environment does not meet specifications, the installer provides:</p> <ul style="list-style-type: none"> • Warning message: does not block an installation. Details advise recommended actions and best practices to update your environment for better performance. • Critical issue: blocks an installation until resolved. Details provide required updates for your environment to support the products. After addressing the issues, run the installer again.

STEP	DESCRIPTION
	 For more information, Click for more details. Click Save Install Report to save a list of issues to resolve. You can also click Copy the issue to clipboard to paste the details in a text file.
<input type="checkbox"/> 5. Review and accept the EULA agreement	The EULA displays to review and accept. To continue, click the accept option and click Next.
<input type="checkbox"/> 6. Did you backup your database?	If you have backed up your database, click Yes and continue. If not, you should backup now. This is your last chance to backup data before installations and database changes begin. New products and versions can modify your database tables. 
<input type="checkbox"/> 7. Watch installation progress by product and version	Products begin installing with messages for the progress. Any issues display in the installer, halting the installation to allow you to review and respond. The installer may run multiple product installations prior to running the Configuration Wizard. If the installs require the Configuration Wizard, it opens and walks you through those steps. You can always run the SolarWinds Orion Installer again to check for updates.

STEP	DESCRIPTION
	<div data-bbox="344 241 1474 1008"> <p>SolarWinds Setup Wizard</p> <p>☑ Welcome — ☑ Install Method — ☑ Install Report — ☑ EULA — ● Installation — ○ Complete</p> <p>Installation</p> <p>Installing Network Performance Monitor 12.1.0.1234</p> <p>HELPFUL RESOURCES TO GET YOU STARTED WITH YOUR SOLARWINDS PRODUCT:</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>A comprehensive introduction your SolarWinds product, including best practices, real-world examples, tips, and more. Documentation, videos, training, knowledge base articles... it's all here.</p> <p>LEARN</p> </div> <div style="text-align: center;"> <p>When we asked SolarWinds IT pros what advice they would give to themselves if they could go back in time, they all said, "Join thwack earlier!" Post questions, get real-time answers - learn from other SolarWinds users, Head Geeks, and community managers. Everyone is friendly and genuinely wants to help out their fellow IT pros. It's basically SolarWinds' special sauce!</p> <p>JOIN</p> </div> <div style="text-align: center;"> <p>Get your activation keys, additional downloads, submit support tickets, renew your license maintenance, and more.</p> <p>VISIT</p> </div> </div> <p>< BACK NEXT > CANCEL</p> </div> <p>If a reboot is required as part of the installation, a message displays.</p> <div data-bbox="344 1102 824 1365"> <p>Reboot required</p> <p>The Orion Installation requires your machine to reboot before configuring your products. Save your work and/or the install report and reboot to continue the installation.</p> <p>RESTART RESTART LATER</p> </div>
<p>☐ 8. Complete the Configuration wizard</p>	<p>When the installation completes, the Configuration wizard opens. Depending on your product, the wizard may include additional options and screens.</p> <ol style="list-style-type: none"> 1. In the Welcome dialog box, click Next. 2. If prompted to stop services, click Yes.

STEP	DESCRIPTION
	<p>3. If you performed an Advanced installation with an existing SQL database, select one of the following for authentication:</p> <ul style="list-style-type: none">• Authenticate as currently logged in user: pass through authentication to the SQL server using the account currently logged in for installing the Orion product.• Switch user: provide credentials automatically detected as either SQL or Windows credentials, allowing Windows Authentication for the initial setup even if the Orion server is not joined to a domain or the current account does not have permissions to the SQL server. <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> <p> If you intend to use Windows authentication for the Orion Platform, remember to exempt that user account from any password change policies. An expired password will cause the Orion Platform to cease data collection and interrupt Orion Web Console access.</p> <div data-bbox="425 974 1425 1617"><p>Database Settings</p><p>Select the SQL Server</p><p>SQL Server: <input type="text" value="(local)\SOLARWINDS_ORION"/></p><p><input type="radio"/> Use Windows Authentication</p><p><input checked="" type="radio"/> Use SQL Server Authentication</p><p>Login: <input type="text" value="SolarWindsOrionDatabaseUser"/></p><p>Password: <input type="password" value="*****"/></p><p><input type="button" value="Use original database login and password"/></p><p>What type of authentication should I use?</p><p><input type="button" value=" < Back"/> <input type="button" value=" Next > "/> <input type="button" value=" Cancel"/></p></div> <p>4. In the Database Settings dialog box, select a database from Use an existing database, and click Next.</p>

STEP	DESCRIPTION
	<p>5. In the Database Account dialog box, create an account or use an existing account that the polling engine and Orion Web Console use to access the database. The account can be a Windows or SQL account.</p> 

STEP	DESCRIPTION
	<p>6. In the Website Settings dialog box, complete selections for your installation:</p> <div data-bbox="430 294 1510 436" style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;"> <p>i If you select Skip website binding, the Configuration Wizard does not make changes within the website configuration in your IIS. This option blocks IP address, port, and SSL certificate options.</p> </div> <ol style="list-style-type: none"> a. Select All Unassigned unless your environment requires a specific IP address for the Orion Web Console. The Port is 443 by default. b. Specify the Port and the Website Root Directory where the system installs the Web Console files. <div data-bbox="506 619 1510 720" style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <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 configure SSL, click Enable HTTPS and select your SSL certificate. If a certificate is not available, select the option to Generate Self-Signed Certificate. The Configuration Wizard automatically generates a self-signed certificate issued to the hostname or FQDN and adds it to the trusted certificate store. <div data-bbox="506 934 1599 1560" style="border: 1px solid #ccc; padding: 10px; margin-top: 10px;"> <p>Website Settings </p> <p>Enter the IP address, port, and location of the Orion Web Console.</p> <p>IP Address: <input type="text" value="(All Unassigned)"/></p> <p>Port: <input type="text" value="443"/></p> <p>Website Root Directory: <input type="text" value="C:\inetpub\SolarWinds"/> <input type="button" value="Browse ..."/></p> <p><input type="checkbox"/> Skip website binding What's this?</p> <p><input checked="" type="checkbox"/> Enable HTTPS <input type="text" value="Generate Self-Signed Certificate..."/> What's this?</p> <p><input type="checkbox"/> Clear the ASP.Net temporary files</p> <hr/> <p>Website login</p> <p>Do you want to enable automatic login using Windows Authentication for the Orion Web Console? Note: Manual login using Windows Authentication is available in both cases.</p> <p><input type="checkbox"/> Enable automatic login using Windows Authentication</p> <p style="text-align: right;"> <input back"="" type="button" value("<=""/> <input type="button" value="Next >"/> <input type="button" value="Cancel"/> </p> </div> <ol style="list-style-type: none"> 7. If prompted to create a 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. In the Completing the Orion Configuration Wizard dialog box, click Next. 11. If prompted to activate your installation, enter the License Key for your product noted from the SolarWinds Customer Portal.

STEP	DESCRIPTION
	<p>12. When completed, click Finish to launch the Orion Web Console. Click Start > All Programs > SolarWinds > Orion Web Console</p> <p>or</p> <p>Open a web browser on your Orion server and enter http://ipAddress or http://hostname, where ipAddress is the IP address of your server and hostname is the host name of your server.</p> <p>13. Log in with user name admin and leave the password field blank. For security purposes, SolarWinds recommends that you change the password to your admin account.</p>
<p>□ 9. Log in to the Web Console and activate license</p>	<p>If you have additional products, the Orion Installer walks you through those installations. If you have additional servers including SolarWinds High Availability, Additional Polling Engines, or Additional Web Server, see the Orion Installer guide for details.</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> <p>Click Start > All Programs > SolarWinds > Orion Web Console or open a web browser on your Orion server and enter http://ipAddress or http://hostname, where ipAddress is the IP address of your server and hostname is the host name of your Orion Web Console.</p> <p>Once logged in, activate your primary license. Get the license key for your product from the Customer Portal:</p> <ol style="list-style-type: none"> 1. In the Customer Portal, select License Management. 2. Select the product. 3. Copy the license key. <p>Add and activate the license key in the Orion Web Console:</p> <ol style="list-style-type: none"> 1. Open the Orion Web Console in a web browser. 2. Click Settings > All Settings > License Manager. 3. Click Add/Upgrade License. 4. Enter the Activation Key and Registration Information, and click Activate. <p>To activate an offline license, see Activate licenses offline.</p>

You are done! You can start monitoring your virtual and cloud environments. After installing, continue to the [VMAN Getting Started Guide](#) and [VMAN Administrator Guide](#) to learn more.

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>

□	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.
□	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.
□	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; background-color: #e0f2f1; 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	Follow the installation instructions on the primary server.
<input type="checkbox"/>	3. Install on the secondary server	Follow the install instructions on the secondary server.
<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. <p>The Orion Web Console verifies all SolarWinds product versions match across the HA pair before enabling. If you receive errors, check your product versions.</p>

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 2012	Windows 7 64-bit SP1
Windows Server 2012 R2	Windows 8 (except for Standard Edition)
Windows Server 2016	Windows 8.1 (except for Standard Edition)
	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 for VMAN from www.solarwinds.com . |
|--------------------------|---------------------------------|---|

<input type="checkbox"/>	2. Install using the stand-alone instructions	Follow the installation instructions for VMAN. 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.
<input type="checkbox"/>	3. Open the Orion Web Console	If the login page does not open automatically, launch the Orion Web Console in your SolarWinds Orion program folder. Log in with the user name <code>admin</code> and leave the password field blank. For security purposes, SolarWinds recommends that you change the password to your admin account.

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 Server Management Studio Express 2008 • SQL Server Management Studio Express 2012 • SQL Server Management Studio Express 2014 <p>Downloading and installing the Advanced Edition provides all tools, including SSMS. For details on SQL Server Management Studio, see this information hosted by Microsoft.</p>
<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.

		<p>4. Disable the VMAN integration.</p>
<input type="checkbox"/>	<p>3. Remove any federated collectors</p>	<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. 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;"> <p> The deletion of the VM and federated collectors is irreversible. Deleting the master appliance also deletes the database.</p> </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. You may also need to uninstall the SolarWinds Job Engine and SolarWinds Orion Information Service.
<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"/> 7. Remove specific Registry keys	<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> <div data-bbox="516 317 1513 426" style="border: 1px solid orange; background-color: #fff9c4; padding: 5px;"><p> Important: These steps affect your Registry settings. For assistance, contact Support.</p></div> <ol style="list-style-type: none">1. Open the command line interface on the server.2. Type <code>regedit</code>, and click OK.3. Expand <code>HKEY_LOCAL_MACHINE > Software</code>.4. Delete both the <code>SolarWinds</code> and the <code>SolarWinds.net</code> folders.5. If you are uninstalling from a 64-bit computer, expand <code>HKEY_LOCAL_MACHINE > Software > Wow6432Node</code>, and delete both the <code>SolarWinds</code> and the <code>SolarWinds.net</code> folders.
<input type="checkbox"/> 8. Restart and reinstall	<p>Restart the server. You can reinstall new products following this guide.</p>