

SOLARWINDS TECHNICAL REFERENCE

Preparing an Orion Failover Engine Installation

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This technical reference provides an overview of software, hardware and network requirements for each of the following supported installation configurations:

- Physical-to-physical (P2P)
- Physical-to-virtual (P2V)
- Virtual-to-virtual (V2V)

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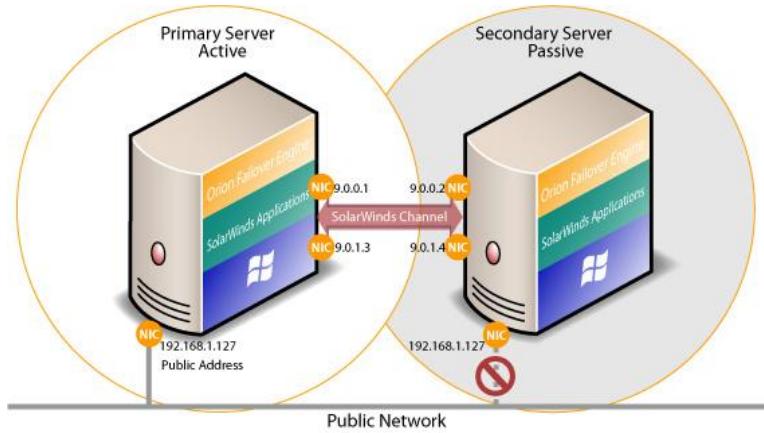
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Introduction to the Orion Failover Engine

The Orion Failover Engine is a Windows-based service specifically designed to provide high availability protection for SolarWinds Orion NPM installations without requiring any specialized hardware. For more detailed information about the Orion Failover Engine, see the *SolarWinds Orion Failover Engine Administrator Guide*.

As indicated in the following graphic, the server for which the Orion Failover Engine provides failover protection is designated as the *primary* server. The server to which the Orion Failover Engine switches operation in the event of a primary server failure is designated as the *secondary* server.



Orion Failover Engine can be deployed in a LAN for high availability or across a WAN to provide disaster recovery. This document provides an overview of deployment options and prerequisites for successfully implementing Orion Failover Engine. The following deployment scenario table provides a visual reference to configuration options supported by Orion Failover Engine.

Network	Clone Technique		Component		
	LAN	WAN	Pre Clone	Install Clone	Failover Engine
V2V	X	X	X		X
P2V	X	X	X	X	X
P2P	X	X		X	X

During the installation process, Orion Failover Engine performs a variety of checks to ensure your Orion server meets the minimum requirements for a successful installation. A critical stop or warning message appears if the server fails a check. You must resolve critical stops before you can proceed with setup. For more information, see "Setup Error Messages" in the *SolarWinds Orion Failover Engine Administrator Guide*.

General Requirements

The following requirements are in addition to the hardware and software requirements outlined in the section "Network Architecture Options and Requirements" on page 2.

- Microsoft Windows Automatic Updates must not be configured to apply updates automatically. Updates may be downloaded automatically, but they can not be applied manually due to the possibility that an automatically updated server may reboot unexpectedly.
- An account with local administrator rights is required to complete Orion Failover Engine installation.
- All applications to be protected on the primary server must be fully installed and configured on the primary server prior to installing the Orion Failover Engine.

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- Both the primary and secondary servers must have identical system date, time, and time zone settings. Once configured correctly, the time zone should not be changed.
- If installing in a Windows 2008 server environment, User Account Control (UAC) must be disabled during the installation process.
- Because Orion Failover Engine only protects the SolarWinds Orion Server, no other critical business applications should be installed on the protected server.
- The Orion Failover Engine is unable to protect any server configured in any of the following roles:
 - Domain controller
 - Global catalog
 - DNS.
- The principal network adapter must be the first adapter listed in the network connections bind order.

To confirm in Windows Server 2003:

1. Click **Start > Run**.
2. Enter `ncpa.cpl`, and then click **OK**.
3. Click **Advanced > Advanced Settings**, and then use the arrows to order bindings as needed.

To confirm in Windows Server 2008:

1. Click **Start > Control Panel > Network and Sharing Center**.
2. Click **Manage network Connections**.
3. Click **Advanced > Advanced Settings**, and then use the arrows to order bindings as needed.

Network Architecture Options and Requirements

The network architecture you select is largely determined by the intended purpose of your Orion failover Engine installation, as follows:

- If you are using the Orion Failover Engine as a High Availability (HA) solution, a LAN configuration is required. For more information, see “LAN Requirements” on page 2.
- If you are using the Orion Failover Engine for Disaster Recovery (DR), a WAN configuration is required. For more information, see “WAN Requirements” on page 4.

LAN Requirements

When deployed in a LAN environment, the Orion Failover Engine requires that both servers use the same principal, public IP address. Each server also requires a separate SolarWinds Channel IP address on a separate dedicated subnet.

LAN High Availability Requirements	Primary Server	Secondary Server
Network Interface Cards	<p>2 dedicated network interface cards, defined as follows: Note: A third NIC is recommended for redundancy on the SolarWinds Channel between the primary and secondary servers.</p> <ul style="list-style-type: none">• 1 static IP (non-DHCP) as the public address, shared between the active and passive servers. Verify that the principal network adapter is listed first in the network connections bind order.• 1 IP on each server, defining the SolarWinds Channel, both of which are outside the subnet of the shared public IP. <p>SolarWinds Channel NICs are standard 100BaseT Ethernet cards with throughput of 100 Mbits per second across standard Cat-5 crossover cabling. In a WAN deployment, configure the SolarWinds Channel to</p>	Same as primary server

LAN High Availability Requirements	Primary Server	Secondary Server
	use static routes over switches and routers to maintain continuous communications, independent of corporate or public traffic	
NetBIOS	<ul style="list-style-type: none"> • Enabled on the static, principal connection to the public network. • Disabled during installation, but otherwise enabled on the SolarWinds Channel between the primary and secondary servers 	Same as primary server

Primary Server

Three NICs (1 x Public; 2 x Channel) are recommended for redundancy in the event that any single channel fails. A minimum of two NICs (one for the Channel, and one for the principal connection) are required in this configuration. Additionally, Split-brain avoidance should be configured.

The principal, public network connection is configured with the following:

- Static IP address
- Correct network mask
- Correct Gateway and preferred and secondary DNS server addresses
- NetBIOS enabled

Channel network connections are configured with the following:

- Static IP address in a different subnet than the principal, public network with a different IP address than the secondary server channel NIC
- Correct network mask
- No Gateway IP address or DNS server address
- NetBIOS enabled (disabled during the installation process)

Secondary Server

Networking components on the secondary server must be configured as follows:

Same number of NICs as the primary server

Principal, public network connection configured with temporary network settings

Channel network connection(s) configured with the following:

- Static IP address in a different subnet than the public network with a different IP address than the primary server channel NIC.
- Correct network mask
- No Gateway or DNS IP address
- NetBIOS enabled (disabled during the installation process)
- File and print sharing enabled

WAN Requirements

Server Architecture Options and Requirements

The network and server architectures you select affect both hardware requirements and the technique used to clone the primary server, as follows:

- If you are using the Orion Failover Engine to protect a physical server, you can failover to either a physical (P2P) or virtual (P2V) server.
- If you are using the Orion Failover Engine to protect a virtual server, you can only failover to a virtual server (V2V).

The following server architecture options are supported in both LAN and WAN environments:

- Physical to Physical (P2P)
- Physical to Virtual (P2V)
- Virtual to Virtual (V2V)

Physical to Physical (P2P)

P2P architecture is used in environments where both the primary and secondary servers are physical servers. Using P2P limits installation options as it requires using the Install Clone technique. This architecture requires attention to detail when preparing for installation as both hardware and software must meet specific prerequisites.

Servers in a P2P configuration must meet the following hardware requirements:

P2P Hardware Requirements	Primary Server	Secondary Server
CPU	The minimum CPU requirement may vary depending on the Orion modules installed. For more information, see the SolarWinds Orion Network Performance Monitor Administrator Guide and the Administrator Guides for each installed module.	Similar if not the same as the primary server
Memory	1 GB (2 GB is recommended) Note: During the setup process, the ipMonitor verifies that a minimum of 1GB RAM is available. To ensure proper operation, 2GB is recommended in addition to any other memory requirements for the operating system or SolarWinds Orion modules.	Same as the primary server
Hard Disk Space	The minimum hard disk space requirement may vary depending on the Orion modules installed. For more information, see the SolarWinds Orion Network Performance Monitor Administrator Guide and the Administrator Guides for each installed module. Note: Drive letters must match the secondary server.	Same if not greater than the primary server. Note: Drive letters must match the primary server.
Network Interface Cards	2 dedicated network interface cards, defined as follows: Note: A third NIC is recommended for redundancy on the SolarWinds Channel between the primary and secondary servers. <ul style="list-style-type: none"> • 1 static IP (non-DHCP) as the public address, shared between the active and passive servers. Verify that the principal network adapter is listed first in the network connections bind order. • 1 IP on each server, defining the SolarWinds Channel, both of which are outside the subnet of the shared public IP. SolarWinds Channel NICs are standard 100BaseT Ethernet cards with throughput of 100 Mbps per second across standard Cat-5 crossover cabling. In a WAN deployment, configure the SolarWinds Channel to use static routes over switches and routers to maintain continuous communications, independent of corporate or public traffic	Same as primary server

P2P Hardware Requirements	Primary Server	Secondary Server
ACPI (Advanced Configuration and Power Interface)	The standard Orion Failover Engine implementation process assumes identical ACPI compliance on both machines.	ACPI compliance must match the primary server.

Servers in a P2P configuration must also meet the following software requirements:

Note: Before installing the Orion Failover Engine, primary and secondary servers must be in the same workgroup with different machine names. All date, time, and timezone settings must also be consistent.

P2P Software Requirements	Primary Server	Secondary Server
Supported Operating Systems	Windows Server 2003 x86 Standard or Enterprise, SP1 and SP2 Windows Server 2003 x64 Enterprise SP2 Windows Server 2008 x86 or x64, SP1 and SP2, including R2 Note: SolarWinds recommends all Microsoft security updates.	Same as the primary server Note: The operating system must be installed to the same driver letter and directory
Supported SolarWinds Orion Modules	SolarWinds Orion NPM MP v10.0 SP1 and higher SolarWinds Orion IPAM v1.7.1 and higher SolarWinds Orion APM v3.5 and higher SolarWinds Orion APM MP v4.0.1 and higher SolarWinds Orion IPSLA Manager v3.5 and higher SolarWinds Orion NTA v3.6 and higher SolarWinds Orion NCM v6.0 and higher Note: NCM v7.0 is supported, but it must be updated to NCM v7.0.1 if additional polling engines or additional web sites are in use. SolarWinds Orion SEUM v1.0 and higher SolarWinds Orion UDT v1.0 and higher SolarWinds Orion EOC v1.2 and higher Note: Individual Orion modules may impose additional requirements on the primary server that supercede the requirements provided here. For more information, see the SolarWinds Orion Network Performance Monitor Administrator Guide and the Administrator Guides for your installed modules.	Same as the primary server

Physical to Virtual (P2V)

The P2V architecture is used when the environment requires a mix of physical and virtual machines. Servers in a P2V configuration must meet the following hardware and software requirements

Note: The secondary virtual machine must have priority in resource management settings to ensure that other virtual machines do not impact its performance.

P2P Hardware Requirements	Primary Server	Secondary Server
CPU	The minimum CPU requirement may vary depending on the Orion modules installed. For more information, see the SolarWinds Orion Network Performance Monitor Administrator Guide and the Administrator Guides for each installed module.	Similar if not the same as the primary server
Memory	1 GB (2 GB is recommended) Note: During the setup process, the ipMonitor verifies that a minimum of 1GB RAM is available. To ensure proper operation, 2GB is recommended in addition to any other memory requirements for the operating system or SolarWinds Orion modules.	Same as the primary server
Hard Disk Space	The minimum hard disk space requirement may vary depending on the Orion modules installed. For more information, see the SolarWinds Orion Network Performance Monitor Administrator Guide and the Administrator Guides for each installed module. Note: Drive letters must match the secondary server.	Same if not greater than the primary server. Note: Drive letters must match the primary server.
Network Interface Cards	2 dedicated network interface cards, defined as follows: Note: A third NIC is recommended for redundancy on the SolarWinds	Same as primary server, but each

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P2P Hardware Requirements	Primary Server	Secondary Server
	Channel between the primary and secondary servers. <ul style="list-style-type: none"> • 1 static IP (non-DHCP) as the public address, shared between the active and passive servers. Verify that the principal network adapter is listed first in the network connections bind order. • 1 IP on each server, defining the SolarWinds Channel, both of which are outside the subnet of the shared public IP. SolarWinds Channel NICs are standard 100BaseT Ethernet cards with throughput of 100 Mbits per second across standard Cat-5 crossover cabling. In a WAN deployment, configure the SolarWinds Channel to use static routes over switches and routers to maintain continuous communications, independent of corporate or public traffic	dedicated virtual NIC must have its own virtual switch
ACPI (Advanced Configuration and Power Interface)	The standard Orion Failover Engine implementation process assumes identical ACPI compliance on both machines.	ACPI compliance must match the primary server.

Servers in a P2V configuration must also meet the following software requirements:

Note: Before installing the Orion Failover Engine, primary and secondary servers must be in the same workgroup with different machine names. All date, time, and timezone settings must also be consistent.

P2P Software Requirements	Primary Server	Secondary Server
Supported Operating Systems	Windows Server 2003 x86 Standard or Enterprise, SP1 and SP2 Windows Server 2003 x64 Enterprise SP2 Windows Server 2008 x86 or x64, SP1 and SP2, including R2 Note: SolarWinds recommends all Microsoft security updates.	Same as the primary server Note: The operating system must be installed to the same driver letter and directory
Supported SolarWinds Orion Modules	Orion Core Services 2010.0, Orion NPM v10.0, Orion APM v3.0, Orion IPAM v1.6, Orion IPSLA Manager v3.5, Orion NTA v3.6, Orion NCM v6.0, Orion EOC v1.2 Notes: <ul style="list-style-type: none"> • NCM v7.0 is supported, but it must be updated to NCM v7.0.1 if additional polling engines or additional web sites are in use. • Individual Orion modules may impose additional requirements on the primary server that supercede the requirements provided here. For more information, see the Administrator Guides for your installed modules. 	Same as the primary server

Virtual to Virtual (V2V)

The V2V architecture is supported if SolarWinds Orion is already installed on a virtual primary server. Servers in a V2V configuration must meet the following hardware and software requirements

Note: The primary and secondary virtual machines must have appropriate priority in resource management settings to ensure that other virtual machines do not impact performance. Each virtual machine in the V2V pair must also be on its own separate host to guard against failure at the host level.

P2P Hardware Requirements	Primary Server	Secondary Server
CPU	The minimum CPU requirement may vary depending on the Orion modules installed. For more information, see the SolarWinds Orion Network Performance Monitor Administrator Guide and the Administrator Guides for each installed module.	Similar if not the same as the primary server
Memory	1 GB (2 GB is recommended) Note: During the setup process, the ipMonitor verifies that a minimum of 1GB RAM is available. To ensure proper operation, 2GB is recommended in addition to any other memory requirements for the operating system or SolarWinds Orion modules.	Same as the primary server
Hard Disk Space	The minimum hard disk space requirement may vary depending on the Orion modules installed. For more information, see the SolarWinds Orion Network Performance Monitor Administrator Guide	Same if not greater than the primary server. Note: Drive letters must

P2P Hardware Requirements	Primary Server	Secondary Server
	and the Administrator Guides for each installed module. Note: Drive letters must match the secondary server.	match the primary server.
Network Interface Cards	3 dedicated virtual network interface cards, each with its own virtual switch, defined as follows: <ul style="list-style-type: none"> • 1 static IP (non-DHCP) as the public address, shared between the active and passive servers. Verify that the principal network adapter is listed first in the network connections bind order. • 2 IPs on each server, defining the SolarWinds Channel, all four of which are outside the subnet of the shared public IP. Note: SolarWinds Channel NICs are standard 100BaseT Ethernet cards with throughput of 100 Mbits per second across standard Cat-5 crossover cabling. In a WAN deployment, configure the SolarWinds Channel to use static routes over switches and routers to maintain continuous communications, independent of corporate or public traffic	Same as primary server, but each dedicated virtual NIC must have its own virtual switch
ACPI (Advanced Configuration and Power Interface)	The standard Orion Failover Engine implementation process assumes identical ACPI compliance on both machines.	ACPI compliance must match the primary server.

Servers in a V2V configuration must also meet the following software requirements:

Note: Before installing the Orion Failover Engine, primary and secondary servers must be in the same workgroup with different machine names. All date, time, and timezone settings must also be consistent.

P2P Software Requirements	Primary Server	Secondary Server
Supported Operating Systems	Windows Server 2003 x86 Standard or Enterprise, SP1 and SP2 Windows Server 2003 x64 Enterprise SP2 Windows Server 2008 x86 or x64, SP1 and SP2, including R2 Note: SolarWinds recommends all Microsoft security updates.	Same as the primary server Note: The operating system must be installed to the same driver letter and directory
Supported SolarWinds Orion Modules	Orion Core Services 2010.0, Orion NPM v10.0, Orion APM v3.0, Orion IPAM v1.6, Orion IPSLA Manager v3.5, Orion NTA v3.6, Orion NCM v6.0, Orion EOC v1.2 Notes: <ul style="list-style-type: none"> • NCM v7.0 is supported, but it must be updated to NCM v7.0.1 if additional polling engines or additional web sites are in use. • Individual Orion modules may impose additional requirements on the primary server that supercede the requirements provided here. For more information, see the Administrator Guides for your installed modules. 	Same as the primary server