

# HP Insight Control Server Migration 7.0 User Guide



## **Abstract**

HP Insight Control server migration provides an automated, accurate and affordable way to migrate existing servers to the latest ProLiant server technologies or the latest virtualization platforms. This guide explains processes and procedures that are not appropriate for the product's online help. The information in this guide is intended for users with network administrator-level access and knowledge.

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# Contents

I Overview and concepts.....	9
1 Server migration introduction.....	10
Overview.....	10
Installing and configuring server migration software.....	10
Installing or upgrading server migration software.....	10
Licensing server migration.....	10
Related products.....	10
2 Server migration concepts.....	12
Server migration components.....	12
Overview of migrating a server.....	12
Migration checklist.....	12
HP Insight Control server migration software tabs.....	13
II Pre-migration tasks.....	15
3 Preparing hardware for migration.....	16
Verifying hardware and operating system support.....	16
Verifying application station system requirements.....	16
4 Planning the migration.....	17
Planning a migration strategy.....	17
Preparing a schedule.....	17
Considerations for multi-boot systems.....	17
Migrating Large NTFS Partitions.....	17
Resizing file systems for migration.....	17
Resizing Windows file systems.....	17
Resizing Linux file systems.....	18
Manually disabling critical or hardware-dependent applications.....	18
5 Preparing software for migration.....	19
Verifying licenses for software to be migrated.....	19
Migration Security.....	19
Disabling firewalls.....	19
Disabling antivirus software.....	20
Generating static or dynamic certificates.....	20
Installing ProLiant Support Packs.....	20
III Migration.....	21
6 Preparing the source server and deploying the Source Agent.....	22
Verifying Windows source server requirements.....	22
Preparing a Microsoft Hyper-V source server.....	22
Verifying Linux source server requirements.....	22
Uninstalling guest tools.....	23
Choosing server migration Agents.....	23
Deploying server migration Agents.....	23
Deploying Agents.....	23
Manually running server migration Source Agents on source servers.....	24
Deploying a Windows server migration Source Agent locally on the source server.....	24
Deploying a server migration Source Agent on domain controllers.....	26
Deploying the Linux server migration Source Agent locally on the source server.....	26
Detecting, stopping, or restarting a remotely deployed server migration Source Agent.....	27

<b>7</b>	<b>Preparing the destination server and deploying the destination agent.....</b>	<b>28</b>
	Prerequisites.....	28
	Physical destination servers.....	28
	Virtual machine hosts.....	28
	Linux destination size requirement.....	28
	Booting the destination server.....	29
	Booting a physical destination server manually using the Insight Control server migration ProLiant Boot CD ISO for X2P migrations.....	29
	Booting a physical destination server automatically using the migration wizard.....	30
	iLO boot prerequisites.....	30
	Manually creating and booting a virtual destination server.....	30
	Prerequisites for manually creating and booting a destination virtual machine.....	30
	Prerequisites for booting a virtual machine in Microsoft Hyper-V.....	30
	Prerequisites for VMware ESX migration.....	31
	Manually creating and booting a virtual machine destination server for X2V.....	31
	Automatically creating and booting a virtual destination server.....	31
<b>8</b>	<b>Migrating the servers.....</b>	<b>33</b>
	Prerequisites.....	33
	Minimum source server prerequisites for all migrations.....	33
	Uploading drivers.....	33
	Preparing for a Windows server migration.....	34
	Windows source server prerequisites.....	34
	Source physical server prerequisites.....	34
	Source virtual machine prerequisites.....	34
	Destination physical server prerequisites.....	34
	Destination virtual machine host or virtual machine prerequisites.....	35
	Preparing for a Linux server migration.....	35
	Source physical server prerequisites.....	35
	Source virtual machine prerequisites.....	36
	Destination physical server prerequisites.....	36
	Destination virtual machine host or virtual machine prerequisites.....	36
	SAN migrations in Windows.....	36
	Starting the migration wizard.....	37
	Launching server migrations using the Deploy menu.....	37
	Launching server migrations using Quick Launch.....	39
<b>9</b>	<b>Post-migration tasks.....</b>	<b>41</b>
	Installing ProLiant Support Packs after migration.....	41
	X2P post-migration tasks (Windows).....	41
	X2V post-migration tasks (Windows).....	41
	Editing the Windows Boot.ini file after migration (Windows Server 2003).....	42
	X2P post-migration tasks (Linux).....	42
	X2V post-migration tasks (Linux).....	43
	Viewing migration logs.....	43
	Validating the migration.....	43
	Validating Linux migrations.....	43
	Validating Windows migrations.....	43
<b>IV</b>	<b>Troubleshooting and support.....</b>	<b>45</b>
<b>10</b>	<b>Troubleshooting.....</b>	<b>46</b>
	User interface.....	46
	Server migration wizard hangs.....	46
	Cause.....	46
	Suggested action.....	46
	Browser displays error loading server migration wizard from Systems Insight Manager.....	46

Cause.....	46
Suggest action.....	46
Launching server migration from Systems Insight Manager throws an exception.....	46
Cause.....	46
Suggested action.....	46
Source preparation.....	46
Corrective action is required before this server can be migrated.....	46
Cause.....	47
Suggested action.....	47
Source server identification fails.....	47
Suggested action.....	47
Migration Agent deployment fails.....	47
Suggestion action.....	48
Server migration Source Agent deployment fails remotely from a Windows Server 2003 Application Station.....	48
Suggested action.....	48
Linux Source Agent window does not appear on RHEL 64-bit.....	48
Suggested action.....	48
Remote deployment of Linux Source Agent using non-root credentials fails.....	48
Suggested action.....	49
Manual installation of Linux Source Agent using sudo user privileges fails.....	49
Suggested action.....	49
Incorrect LUN size detected in step 2 of the migration wizard.....	49
Cause.....	49
Suggested action.....	49
Migrating a source server fails with the Microsoft Hyper-V role enabled.....	49
Suggested action.....	49
Destination preparation.....	49
Destination server identification fails.....	49
Suggested action.....	49
IP address configuration fails on a manually booted virtual machine in Microsoft Hyper-V for a P2V or a V2V migration.....	50
Suggested action.....	50
Kernel panic occurs when booting a virtual machine to the Insight Control server migration Virtual Machine Boot CD ISO.....	50
Suggested action.....	50
Mouse does not work on a virtual machine booted with the Insight Control server migration Virtual Machine Boot CD ISO.....	50
Cause.....	50
Suggested action.....	50
Primary array controller does not have logical drives defined.....	50
Suggested action.....	50
Primary controller configured in the system does not have drives attached.....	51
Suggested action.....	51
Primary controller in system is not supported by this version of Insight Control server migration.....	51
Suggested action.....	51
The destination server displays a blank screen when booting to server migration Boot CD ISO.....	51
Suggest action.....	51
Some storage volumes on the destination server are not available for selection.....	52
Suggested action.....	52
Static IP address cannot be assigned on the destination server while booting using the Boot CD ISO.....	52
Cause.....	52

Suggested action.....	52
Supported storage controllers display Unknown on the Boot CD ISO.....	52
Cause.....	52
Suggested action.....	52
Auto booting destination physical server fails.....	52
Suggested action.....	52
Insight Control might not detect virtual machines on mapped network drives.....	53
Cause.....	53
Suggested action.....	53
Destination server does not boot when automatic boot option was chosen during X2P migrations.....	53
Suggested action.....	53
Insight Control server migration stops responding during auto-booting of Microsoft Hyper-V virtual machine.....	53
Suggested action.....	53
Application station fails to connect to the destination server when the server is auto-booted for an X2P migration.....	53
Cause.....	53
Suggested action.....	54
Warning message is not displayed for unsupported servers when started using the Insight Control server migration ProLiant Boot CD.....	54
Suggested action.....	54
Microsoft Windows 2008 OS migration results in a blue screen error on destination server configured with NC551m FCoE card.....	54
Suggested action.....	54
Migration process.....	54
Drivers cannot be installed or injected onto boot disk.....	54
Suggested action.....	54
Large volumes fail with server thread error.....	54
Suggested action.....	55
Migrating a Linux source server with very large storage fails when the migration is initiated....	55
Suggested action.....	55
Linux migration might fail when X Windows configuration is not properly formatted.....	55
Suggested action.....	55
Partitions created with third-party partitioning tools do not show proper file system type in the server migration wizard.....	56
Suggest action.....	56
Migration hangs if source server is shut down.....	56
Suggested action.....	56
NTFS resize error message.....	56
Cause.....	56
Suggested action.....	56
ReiserFS volumes are blocked for Linux migration.....	56
Cause.....	56
Suggested action.....	56
The File System on Source Disk \\.\PhysicalDrive0, Partition 0 Could Not Be Resized During the Migration.....	57
Cause.....	57
Suggested action.....	57
Migration fails during the disk cloning phase.....	57
Cause.....	57
Suggested action.....	57
Failed: Drivers Could Not Be Injected Into Boot Disk in the logs.....	57
Suggested action.....	58
Starting a new migration after a current migration is stopped.....	58

Suggested action.....	58
Unrecoverable sector-read errors on the source server hard drive are not supported and fail a Windows P2P or P2V migration.....	58
Cause.....	58
Suggested action.....	58
Source Agent fails to launch when source server reboots in migration agent mode.....	58
Suggested action.....	58
Error during data copy of Linux migration.....	58
Cause.....	59
Suggested action.....	59
SAN-connected destination server displays blue screen.....	59
Suggested action.....	59
Out of memory error occurs on the application station during migration.....	59
Suggested action.....	59
Destination server boots with an invalid IP address.....	59
Cause.....	59
Suggested action.....	59
Windows server migration Source Agent or PINT remote deployment fails with Agent is already deployed or not required error.....	59
Suggested action.....	60
Windows server migration Source Agent or PINT remote deployment is intermittent and deployment fails with General failure occurred error.....	60
Suggested action.....	60
Post-migration .....	60
Migration does not start after confirmation. The event log continuously displays Operation Migration waiting for connection to source.....	60
Suggested action.....	60
Destination server mouse and keyboard do not work after a Windows migration.....	60
Suggested action.....	60
USB Mouse or Keyboard Drivers Not Loaded After a X2P Windows Migration.....	61
Cause.....	61
Suggested action.....	61
Mouse does not work on the destination server's iLO after a Linux X2P migration.....	62
Suggested action.....	62
Mouse does not work on the destination ESX virtual machine after a V2V migration.....	62
Suggested action.....	62
Drive letters are not the same in the migrated virtual machine guest after migration.....	62
Suggested action.....	62
Drives do not appear on the migrated operating system.....	63
Suggested action.....	63
Mouse and keyboard do not work after migrating a Microsoft Hyper-V virtual machine to a ProLiant server.....	63
Suggested action.....	63
Static IP address cannot be assigned on the destination server after migration.....	63
Suggested action.....	63
Virtual machine hosts Integrated Components do not install on the destination virtual machine following migration.....	63
Suggested action.....	63
Exclamation point (!) appears on the NIC adapter in Device Manager on the migrated virtual machine.....	63
Suggested action.....	64
Network adapter in the destination ESX virtual machine is not initialized after a V2V migration.....	64
Suggested action.....	64
The destination virtual machine fail to boot after X2V migration.....	64

Cause.....	64
Suggested action.....	64
While editing the settings of guest VMs created by server migration, an invalid OS ID warning appears.....	64
Suggested Action.....	64
Server is unresponsive during PSP installation.....	64
Suggested action.....	65
Destination server still shows server migration UI but server migration Wizard shows migration completed.....	65
Suggested action.....	65
Operating system is not booting up on the destination server with SAN disks.....	65
Suggested action.....	65
Error displayed for missing file system while booting migrated Linux OS on the destination server.....	65
Suggested action.....	65
Logical drives of HP Smart Array B110i SATA RAID Controller are removed .....	65
Suggested action.....	65
<b>11 Support and other resources.....</b>	<b>66</b>
Information to collect before contacting HP.....	66
How to contact HP.....	66
Registering for software technical support and update service.....	66
How to use your software technical support and update service.....	66
Warranty information.....	67
HP authorized resellers.....	67
Documentation feedback.....	67
Related information.....	67
Documents.....	67
Websites.....	67
Related documentation.....	68
Typographic conventions.....	68
<b>A Applying old server migration standalone licenses.....</b>	<b>70</b>
<b>B Performing migrations in a Microsoft Cluster server environment.....</b>	<b>71</b>
Pre-migration consideration steps for clusters.....	71
Performing the migration.....	72
Post migration considerations and steps.....	72
<b>Glossary.....</b>	<b>74</b>
<b>Index.....</b>	<b>75</b>



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# Part I Overview and concepts

This part focuses on conceptual information needed to understand the product. It does not include information on how to use server migration.

# 1 Server migration introduction

## Overview

HP Insight Control server migration provides an automated, accurate and affordable way to migrate existing servers running Microsoft Windows or Linux and their content to the latest ProLiant server technologies or the latest virtualization platforms from VMware and Microsoft.

Insight Control server migration supports the following types of Microsoft Windows and Linux migrations:

- Physical-to-ProLiant (P2P) migration—Migrates a physical machine to a ProLiant server.
- Physical-to-virtual (P2V) migration—Migrates a physical machine to a virtual machine guest in a virtual machine host.
- Virtual-to-ProLiant (V2P) migration—Migrates a virtual machine guest in a virtual machine host to a ProLiant server.
- Virtual-to-virtual (V2V) migration—Migrates a virtual machine guest between virtualization layers.

## Installing and configuring server migration software

### Installing or upgrading server migration software

HP Insight Control server migration software is delivered on the HP Insight Management distribution media and is installed through the Insight Management Integrated Installer. The server on which you install Insight Management is designated to be the Central Management Server (CMS).

See the *HP Insight Management Installation and Configuration Guide* for installation and upgrade instructions and supported upgrade paths.

See the *HP Insight Management Getting Started Guide* for a description of all software that is delivered on the Insight Management distribution media.

### Licensing server migration

The standard procedure for licensing Insight Control server migration is to purchase and apply Insight Control licenses. So if your destination server is licensed by Insight Control 6.0 or above, you can perform unlimited migrations to the Insight Control licensed server.

For general licensing information, refer to the *HP Insight Management Getting Started Guide*, available at the following website:

<http://www.hp.com/go/insightmanagement>

## Related products

Table 1: “Related products” (page 10) lists HP products that are available for extending deployment or customizing the migrated server.

**Table 1 Related products**

Product	Description
PINT and PISA	Used to solve networking issues (specifically, NIC configuration issues) when moving operating system images between HP BladeSystem c-Class blades using VMware ESX and Microsoft Hyper-V (for PINT only) virtual machines, and HP Virtual Connect on HP BladeSystem c-Class blades.
HP OpenView Change and Configuration Management solutions	Automates the management of software such as operating systems, applications, patches, content, and configuration

**Table 1 Related products** *(continued)*

Product	Description
	settings, so that each computing device is maintained in the right configuration.
Insight Control server deployment	<p>A server deployment solution that facilitates the installation, configuration, and deployment of large server volumes through a GUI-based or a web based console, using scripting or imaging technology.</p> <p>Server configuration time is reduced, making it possible to quickly scale server deployments to large volumes</p>
HP SmartStart CD	<p>Provides step-by-step ProLiant server deployment assistance. From configuring arrays and installing operating systems, to updating optimized ProLiant server support software, SmartStart ensures a stable and reliable configuration. Included in the ProLiant Essentials Foundation Pack, the SmartStart CD works with all ProLiant DL and ML 300, 500, and 700 series, and all ProLiant BL servers.</p>
HP SmartStart Scripting Toolkit	<p>A server deployment product that delivers unattended automated installation for high-volume ProLiant server installations.</p> <p>Available in Windows and Linux editions, the toolkit supports ProLiant DL and ML 300, 500, and 700 series, and all ProLiant BL servers.</p> <p>The toolkit includes a modular set of utilities and important documentation that describes how to apply these tools to automate server deployment.</p>

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## 2 Server migration concepts

### Server migration components

The Insight Control server migration environment consists of the following required components:

- Application station—The computer from which the migration is set up and performed. This can be either a physical machine or a Windows guest on a supported hypervisor.

In earlier versions of Insight Management, the standalone installation of Insight Control server migration software was enabled. The server on which the server migration software was installed was then designated the application station. The installation of standalone server migration software is no longer supported, and so the same server that hosts the installation of Insight Management software and the Systems Insight Manager now must host the Insight Control server migration software. The terms “application station” and CMS now both refer to the same server, which hosts both Insight Management and the server migration software.

- Source server—The physical source server or the virtual machine to be migrated.
- Destination server—The ProLiant server or the virtual machine to which the source server is migrated.

### Overview of migrating a server

Use the checklist found in this section as a general guide to the tasks performed during a server migration. For an explanation of the tabs in the server migration wizard, see [“HP Insight Control server migration software tabs” \(page 13\)](#)

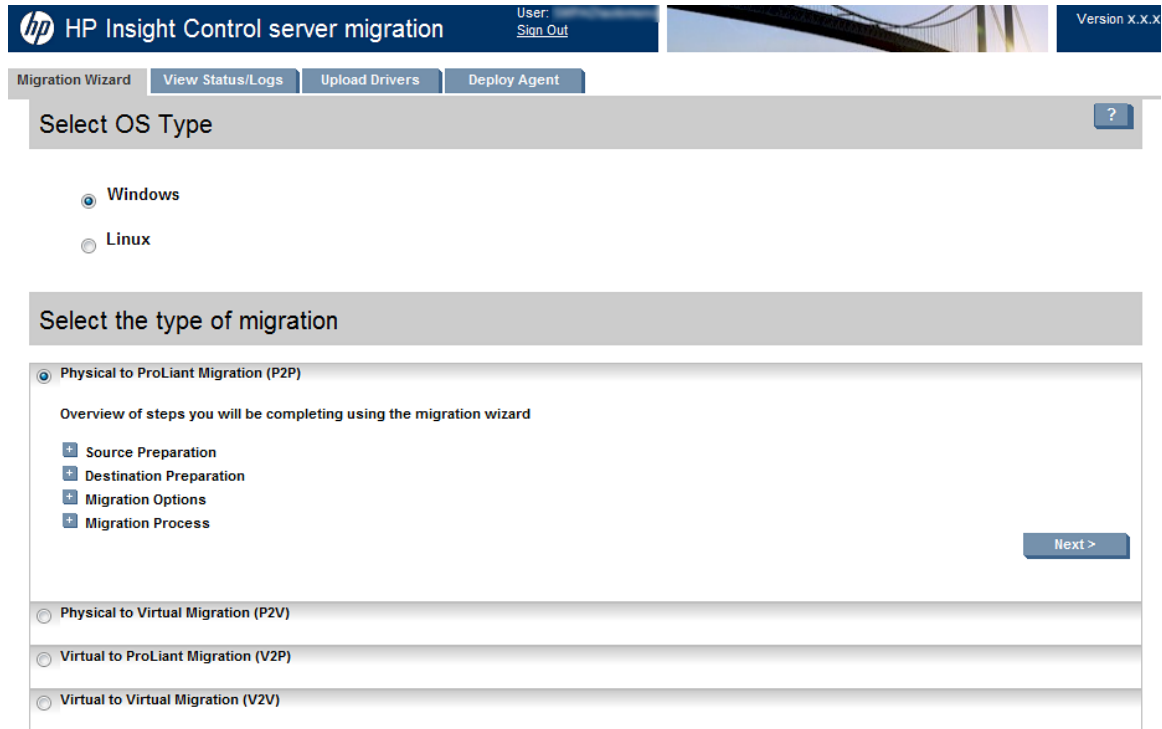
### Migration checklist

The specific tasks required to complete a migration are listed in the server migration online help. However, every migration can be condensed into the following general migration tasks:

1. Plan the migration.
2. Prepare the hardware and software for migration.
3. Prepare the source server or virtual machine for migration by installing the server migration Source Agent on the source server or virtual machine.
  - a. Deploy the server migration Source Agent to the source server.
  - b. Select the source disks to migrate.
4. Prepare the destination server or virtual machine for migration:
  - a. Boot the destination server with the Boot CD. For Gen8 servers, auto-boot option is only supported.
  - b. Create the destination disks.
5. Migrate the servers:
  - a. Test the network connectivity between the source and destination servers.
  - b. Map the source disks to the destination disks
  - c. Choose destination server reboot, driver package, and network options
  - d. Review choices and execute the migration
6. Monitor the migration progress and view the logs when the migration is complete.
7. Log in to the new server and configure the drivers, communication settings, and boot options.

# HP Insight Control server migration software tabs

Figure 1 Migration screen



The Insight Control server migration software page has the following tabs:

- **Migration Wizard**

This tab enables you to perform the Insight Control server migration. In summary, the migration wizard allows the user to perform the following tasks:

- Identify the source server
- Select the volumes to migrate
- Identify the destination server
- Test the network connections
- Specify destination disks and resizing partitions
- Select additional migration options, as necessary
- Confirm and perform the migration
- Review migration progress

For more information about the migration wizard, see [“Starting the migration wizard”](#) (page 37).

- **View Status/Logs**

This tab enables you to view the details and results of attempted migrations and to delete migration results. For more information about viewing logs, see [“Viewing migration logs”](#) (page 43).

- **Upload Drivers**

This tab displays the status of the iSCSI Initiator installed on the server and provides the option to upload PSP executable files. This tab also displays the installation status of DevCon and

provides the option to upload the DevCon binary. For more information about this tab, see [“Uploading drivers” \(page 33\)](#).

- **Deploy Agent**

This tab enables you to deploy the Insight Control server migration Source Agent and PINT Agents.

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## Part II Pre-migration tasks

This part of the guide assists you in collecting information to prepare for a migration, and covers steps 1 and 2 of the [“Migration checklist”](#) (page 12)

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## 3 Preparing hardware for migration

### Verifying hardware and operating system support

Before starting an X2P (P2P or V2P) migration, verify the following:

- The source server operating system is supported on the destination server. To verify OS support on ProLiant destination servers, see the following website:  
<http://www.hp.com/go/ossupport>
- For the supported hardware and software configurations of server migration, see *HP Insight Management Support Matrix* available at:  
<http://www.hp.com/go/insightmanagement/docs>

Remove unsupported storage and NIC controllers from the destination server before performing a migration. Unsupported storage and NIC controllers can be added back on the destination server, with proper manual configuration, after performing a migration.

### Verifying application station system requirements

The application station has the following prerequisites:

- A supported Windows operating system running on physical hardware or as a Windows guest on a supported hypervisor. For a list of supported operating systems, and CMS hardware and software requirements and caveats see the *HP Insight Management Support Matrix* at the following website:  
<http://www.hp.com/go/insightmanagement/docs>
- Microsoft iSCSI Initiator, which you can download and install from <http://www.microsoft.com> if not already available with the operating system on your application station.
- Insight Control server migration installed on an NTFS partition
- Availability of ports 51124 and 51125 (or ports specified during Insight Control installation for agent communications and iLO booting)
- Availability of port 51127
- User account credentials with administrative rights
- Free disk space of at least 300 MB per iLO Boot, while booting a destination server for P2P and V2P
- The initial installation of Insight Control server migration can take 1GB of storage space, and each automatically booted destination server will need at least 300MB of storage space on the application station for non-Gen8 servers.



---

# 4 Planning the migration

## Planning a migration strategy

One challenge when migrating operating systems, applications, and data is modifying the migrated operating system to boot on the destination server and to function properly on the hardware. Insight Control server migration makes the required operating system changes for you.

To best prepare for a migration, consider developing a migration strategy before running a migration. Migration strategies vary depending on machine hardware, network landscape, and applications. To develop a migration strategy, review the following before beginning your migration.

## Preparing a schedule

Schedule preparation is essential when planning a migration strategy.

Be sure to include adequate time for copying data, as the source server will be offline until the migration is complete. Large volumes take time to migrate. Under optimal conditions, 1 GB of data requires two to three minutes to migrate. Using two minutes as a best-case scenario, migrating 500 GB of data might take more than 17 hours.

When a migration starts, the source server reboots to a minimal configuration so that no updates occur on the source server during migration. Only those services required for the migration are enabled.

Applications that normally execute on the server are not available during migration. After the migration is complete, the source server is restored to its pre-migration state.

Schedule the migration to occur at a time when the source server can be offline.

## Considerations for multi-boot systems

While Insight Control server migration supports migrating multi-boot systems, consider the following:

- A supported operating system must be set as the default operating system for the boot disk.
- The migration wizard enables the migration of all partitions with supported file systems. Unsupported operating systems on those partitions are also enabled for migration, but Insight Control server migration does not support them.
- If unsupported operating systems are migrated, they might be detected, but proper drivers might not be installed, which can leave the unsupported operating system on the destination server unable to be booted.

## Migrating Large NTFS Partitions

Insight Control server migration cannot migrate NTFS partitions greater than 1023 GB in size.

## Resizing file systems for migration

During the migration progress, the partitions being migrated can be resized. There are some file system caveats to be aware of that may affect the migration of your data.

## Resizing Windows file systems

Insight Control server migration supports resizing and migration of NTFS volumes. However, some conditions may prevent server migration from resizing NTFS partitions:

- Large NTFS partitions or NTFS partitions with too many clusters, resulting in large volume cluster bitmaps that cannot be resized. In some cases, the volume might be recognized as

RAW (partitions in which no file systems exist). Although server migration can perform migrations on these volumes, it cannot resize the volumes.

- Volumes with bad clusters. The migration of volumes with bad clusters is not supported by server migration and requires that you manually migrate volumes with bad clusters to the destination server after a migration.

If an NTFS volume is detected but cannot be resized, you must run a disk check (for example CHKDSK.exe) to verify the volume has no bad clusters before beginning the migration process.

## Resizing Linux file systems

Insight Control server migration supports file systems in LVMs, and supports resizing and migration of the following Linux journaling file systems:

- ext2
- ext3
- ext4
- ReiserFS
- LVMs

However, Insight Control server migration does not support Linux file systems with bad blocks. Ensure that the Linux source file system does not have bad blocks by running file system-specific disk maintenance tools to examine the disk and mark bad blocks, like the file system consistency check (fsck).

## Manually disabling critical or hardware-dependent applications

Some hardware applications are bound to the source server and might need re-configuration to function as expected following a server migration.

For added safety, manually disable critical and hardware-dependent applications before migrating a source server. You can then manually re-enable these applications after the migration is complete.

Manually disabling applications prevents them from starting on the destination server before they are reconfigured for the destination server.

Examples of applications that must be disabled during migration include:

- Applications that rely on unique hardware serial numbers, BIOS or chassis IDs, NICs, MAC addresses, or devices that authenticate a piece of software
- Applications that store data on a volume different from that of the operating system. Insight Control server migration retains drive letters (for example, F:) during migration, but hardware differences between the source and destination servers can force the drive letters to change
- Applications that depend on physical disk identifiers instead of drive letters. Depending on the destination server disk enumeration order and selections made in the migration wizard, the contents of a physical disk might have a different sequential identifier on the destination server. In these cases, the application must be reconfigured to use the new physical disk identifiers.

---

# 5 Preparing software for migration

## Verifying licenses for software to be migrated

Before performing a migration, review all hardware, operating system, and application licenses on the source server and acquire all valid licenses necessary for the destination server. Some hardware, software, and operating systems license agreements might require you to purchase a new license for the destination server.

- 
- ❗ **IMPORTANT:** Servers with Windows Original Equipment Manufacturer (OEM) licenses are not supported for migration. For licensing questions, contact HP support. See [“Support and other resources”](#) (page 66).
- 

## Migration Security

### Disabling firewalls

The source server Microsoft Windows firewall or Linux firewall and SELinux are disabled automatically by server migration when a migration begins. The firewall and SELinux (if applicable) are re-enabled after the migration is completed.

Before performing the migration, you need to manually disable, reconfigure, or uninstall other firewall products. If you reconfigure a firewall product, you will be required to uninstall the product before migration and reinstall it after migration.

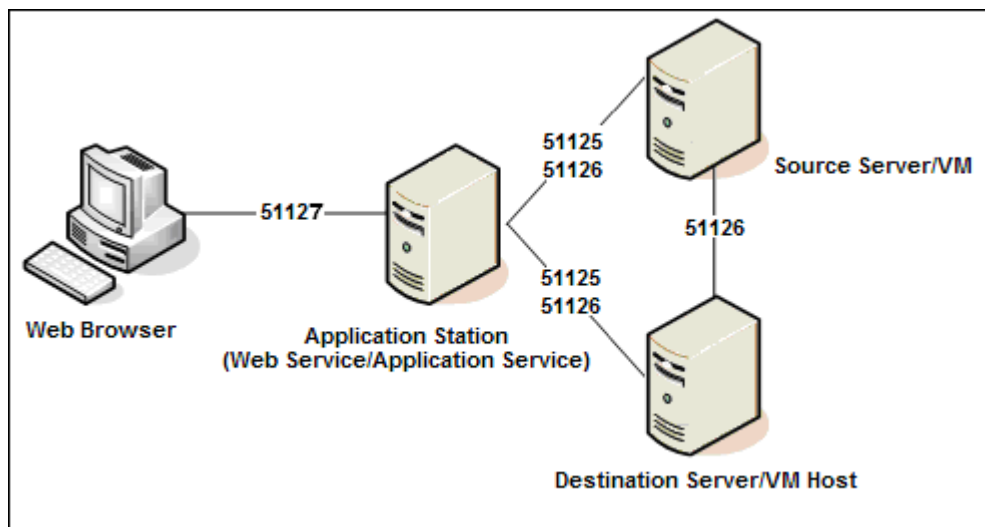
If the firewall is not disabled or configured properly on the source server, application station, and virtual machine hosts before performing a migration, then the source server, application station, and virtual machine hosts might not be able to communicate. Symptoms of this issue can include the following:

- The application station cannot detect the source server migration Agent for migrations
- The source server hangs after booting into exclusive mode during migrations

The following TCP ports are used for Insight Control server migration:

- Port 51124—For communication between the Insight Control server migration Web Service and the Insight Control application service using Secure Sockets Layer (SSL)
- Port 51125—For communication between the Insight Control server migration Web Service and integrated Lights Out (iLO) for auto destination boot
- Ports 51125 and 51126—For communication between the Insight Control server migration Application Service and the migration agent on the source server
- Ports 51125 and 51126—For communication between the Insight Control server migration Application Service and the migration agent on the destination server
- Port 51126—For communication between the migration agents on the source server and destination server
- Port 51127—For use on the application station for Insight Control server migration Web Service
- SSH Port 22—For Linux migrations

**Figure 2 TCP ports in use during migration**



**NOTE:** Insight Control uses the following encryption types:

- SSL RSA with RC4 128 MD5
- SSL RSA with RC4 128 SHA
- TLS RSA with AES 128 CBC SHA cipher suites

## Disabling antivirus software

For optimal performance during migration, verify that real-time scanning is temporarily disabled and that no antivirus scans are running or are scheduled to run while the migration is performed on the application station, source server, or virtual machine hosts.

## Generating static or dynamic certificates

Static certificates are used when you run the server migration Source Agent manually on the source server. However, dynamic certificates are generated and used when you use Insight Control server migration to automatically deploy agents to the source and destination servers. HP recommends that the agents be deployed automatically using Insight Control server migration.

## Installing ProLiant Support Packs

ProLiant Support Packs (PSPs) contain sets of drivers to get a new ProLiant destination server up and running quickly after a migration. Windows PSP executables can automatically be installed at the end of an Windows X2P migration.

1. For Windows X2P migrations, upload the PSP you plan to use on the **Upload Drivers** tab of the server migration user interface. Also, Windows PSPs can be installed manually after migration.
2. For Linux X2P migrations, you must manually apply the Linux PSP to the destination server after the migration is complete.

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## Part III Migration

This part of the guide contains information related to steps 3 through 5 of the [“Migration checklist”](#) (page 12), and methods for manually completing some the steps of the migration wizard. Remember, this guide does not describe each of the steps in specific detail — you can find specific information in the online help.

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# 6 Preparing the source server and deploying the Source Agent

## Verifying Windows source server requirements

The physical or virtual Windows source server requires the following:

- User account credentials with administrative rights
- A supported Windows operating system. For a list of operating systems, see the *HP Insight Management Support Matrix* available at: <http://www.hp.com/go/insightmanagement/docs>.
- Available disk space of at least 180 MB
- The availability of ports 51125 and 51126
- Screen resolution of at least 800 x 600
- All detachable media removed
- If the source server is an application station, disable the **HP Insight Control server migration Application Service** and **HP Insight Control server migration Web Service**.

## Preparing a Microsoft Hyper-V source server

If you are planning to migrate a source server with the Microsoft Hyper-V role enabled, perform one of the following on the source server:

- Turn off the hypervisor using `bcdedit /set hypervisorlaunchtype off` at a command line.  
After the migration, you can re-enable the hypervisor at a command line by using `bcdedit /set hypervisorlaunchtype auto`.
- Remove the Microsoft Hyper-V role from the source server by using the server configuration tools.

## Verifying Linux source server requirements

The physical Linux source server requires the following:

- User account credentials with administrative rights
- SELinux must be running in passive mode
- A supported Linux operating system. For a list of operating systems, see the *HP Insight Management Support Matrix* at: <http://www.hp.com/go/insightmanagement/docs>
- Available disk space of at least 10 MB on `/boot` and 150 MB under the directory where the Linux server migration Source Agent has to be installed.

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**NOTE:** When Linux Source Agent is launched remotely from the CMS, the default location on the source server for agent installation is `/root`.

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- The availability of ports 51125 and 51126
- Verify that you have removed all unused boot entries from `/boot/grub/menu.lst` and the corresponding `initrd` from the `/boot`.
- Disable any scripts that might clean up the migration agent files on reboot or shutdown. For instance, if the agent has been deployed manually to `/root`, ensure that there are no scripts which will cleanup `/root` on reboot/shutdown.

- To enable the display of the Linux source server agent in 64-bit RHEL, you must install the X.Org X11 libXtst runtime library `libXtst-1.0.99.2-3.el6.i686.rpm`.
- The 32-bit version of `glibc` is required to run the Linux server migration Source Agent. The library is present by default on 32-bit Linux installations, but you may need to install it manually on 64-bit Linux systems. The 32-bit version of `glibc` is available on your Linux OS installation CD/DVD.
- To perform SAN Linux migration, destination server specific Fiber Channel HBA firmware files must be installed on the source server. These firmware files are available on the installation media of the Linux OS. For example, if you plan to migrate to a destination server with SAN storage using a QLogic HBA, you need to install `qllogic-firmware-<version>.noarch.rpm` on SLES OS or `ql2xxx-firmware-<version>.noarch.rpm` on RHEL OS. For information on the firmware files required and the installation instructions, see the respective HBA documentation.

## Uninstalling guest tools

Before starting a migration, you must uninstall guest tools if you are migrating a source virtual machine. Guest tools are not applicable on the destination server and might cause issues with the normal functioning of the network adapters, keyboard, and mouse. After the migration is completed, you can reinstall the guest tools on the source virtual machine.

## Choosing server migration Agents

Deploy and run migration Agents on the source server and the destination server before starting a server migration.

**Table 2 Server and migration Agent types**

Server	Migration Agent
Physical Windows source server or source virtual machine	Windows server migration Source Agent
Physical Linux source server or source virtual machine	Linux server migration Source Agent
Physical destination server	Insight Control server migration ProLiant Boot CD ISO file <sup>1</sup>
virtual machine destination	Insight Control server migration Virtual Machine Boot CD ISO file

The Source Agent does not run as a service on the source server, and you must apply the agent for each migration. The agent will no longer be running on the source after migration.

## Deploying server migration Agents

### Deploying Agents

If you have administrative rights to connect to the source server, you can deploy a migration Agent.

**NOTE:** Shut down any running hypervisor or virtual machines on the source server before deploying the migration Agent. Failure to do so can result in improper IP address assignment and can disrupt the migration.

Use one of the following methods (for additional information on these procedures, see the server migration online help):

- HP Systems Insight Manager
  - Choose **Deploy**→**Deploy Drivers, Firmware and Agents**→**Install server migration Agent**.
  - Using the QuickLaunch feature, select a source server, hover your mouse over the Quick Launch link, and then select **Install server migration agent**.
- Server migration wizard
  - From the **Deploy Agent** page of the migration wizard or from the migration wizard during migration setup for source servers.
  - From the Identify Source Server step of the migration wizard.

---

**NOTE:** When the deployment is performed through Systems Insight Manager and server migration wizard, the agent launched from the CMS will no longer be valid after 7 days, and will need to be stopped and re-deployed on source before the migration can occur.

---

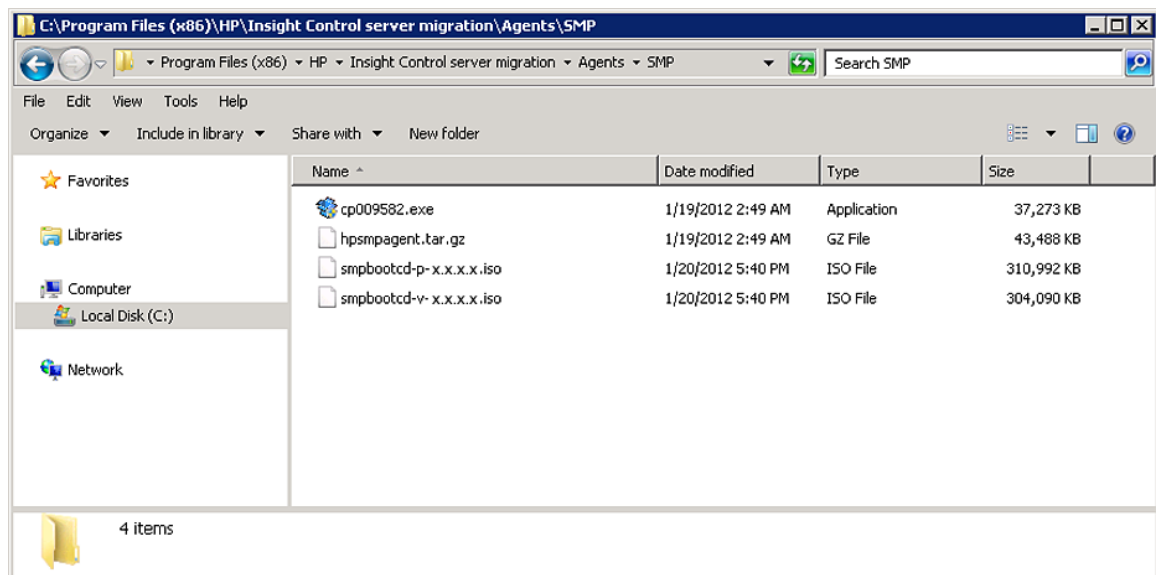
- Manually running server migration Source Agent on the source server

## Manually running server migration Source Agents on source servers

### Deploying a Windows server migration Source Agent locally on the source server

1. Access the server migration Source Agent in the following folder on the application station:  
<Insight Control server migration Installation Folder>\Agents\SMP\cp009582.exe

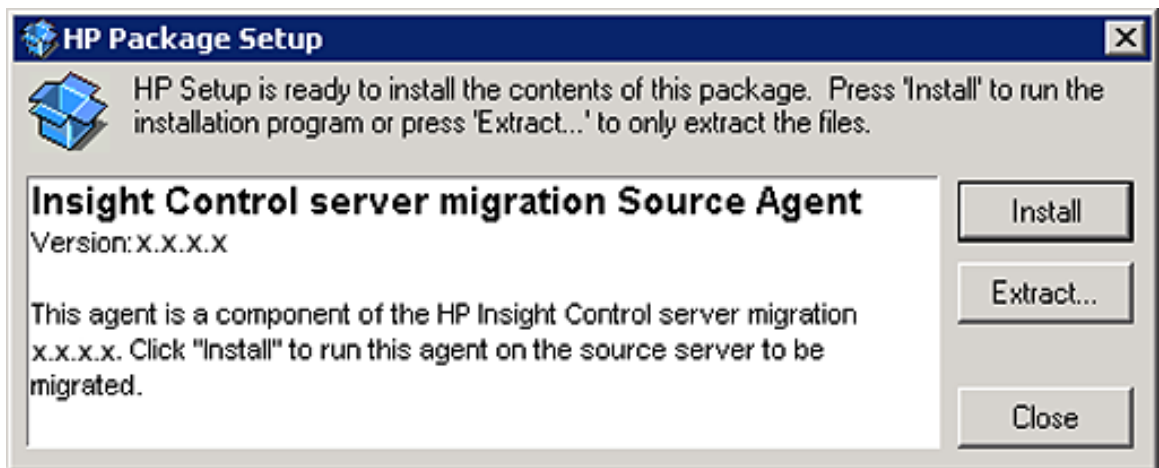
**Figure 3 Navigate to server migration Source Agent**



2. Copy the `cp009582.exe` file to the source server, and then run the file. If a security warning window appears, click **Run**.
3. To launch the server migration Source Agent, click **Install**.

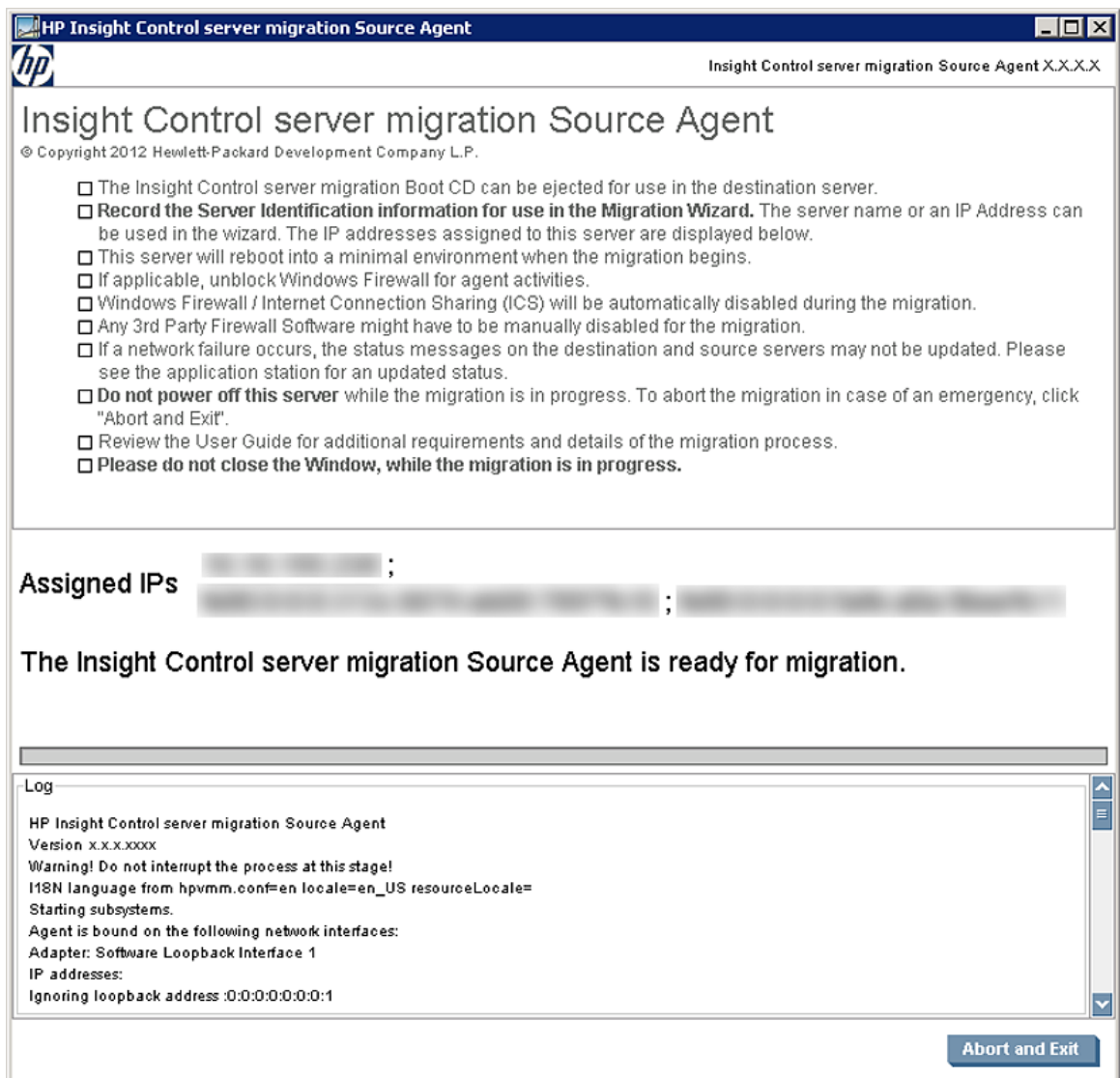


Figure 4 Server migration agent install dialog



When the server migration Source Agent is ready for migration, the following screen appears on the source server.

Figure 5 Windows Source Agent screen



- Record the IP addresses listed for the source server entry when using Insight Control server migration.

After the application station is connected to the migration Agent on these servers, the agent is locked to the application station.

**CAUTION:** The agent deployment automatically opens the necessary ports in the firewall. These ports will remain open unless manually closed later using your firewall software.

- To unlock the connection between the application station and the source server, or to stop the server migration Source Agent, access the agent console on the source server, and then click **Abort and Exit**.

## Deploying a server migration Source Agent on domain controllers

Insight Control server migration supports migration of domain controllers.

To deploy source migration agent on a source server domain controller:

- Reboot the server.
- During reboot, press **F8** to boot to DSRM.
- Launch the migration agent in DSRM mode.

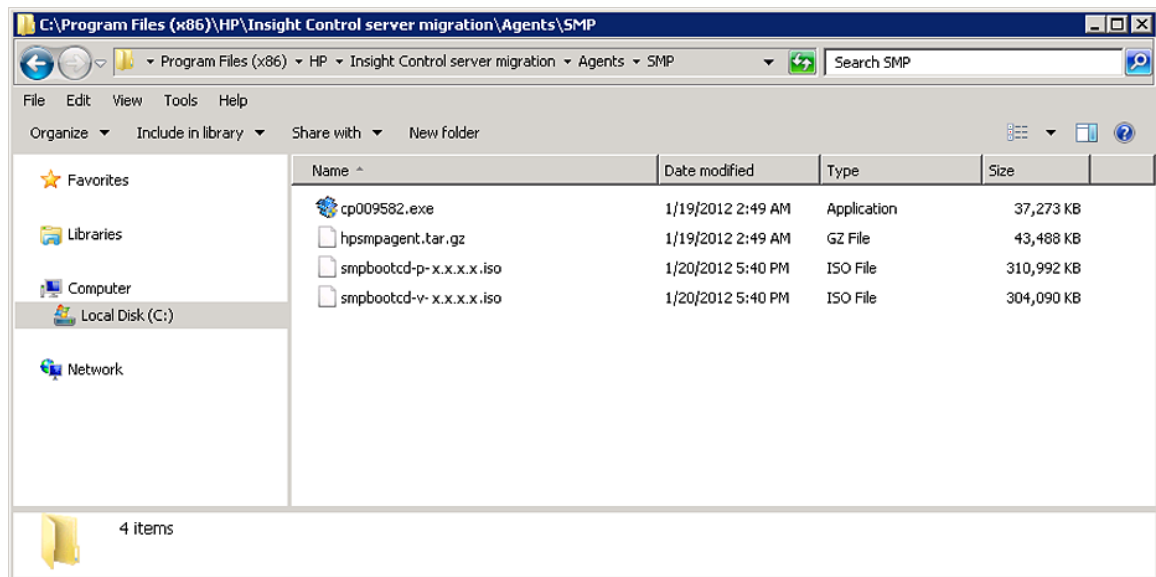
The migration runs in Directory Services Restore Mode instead of booting into migration agent mode. As a result, CHKDSK does not run before the migration of domain controllers.

## Deploying the Linux server migration Source Agent locally on the source server

- Access the server migration Source Agent in the following folder on the application station:

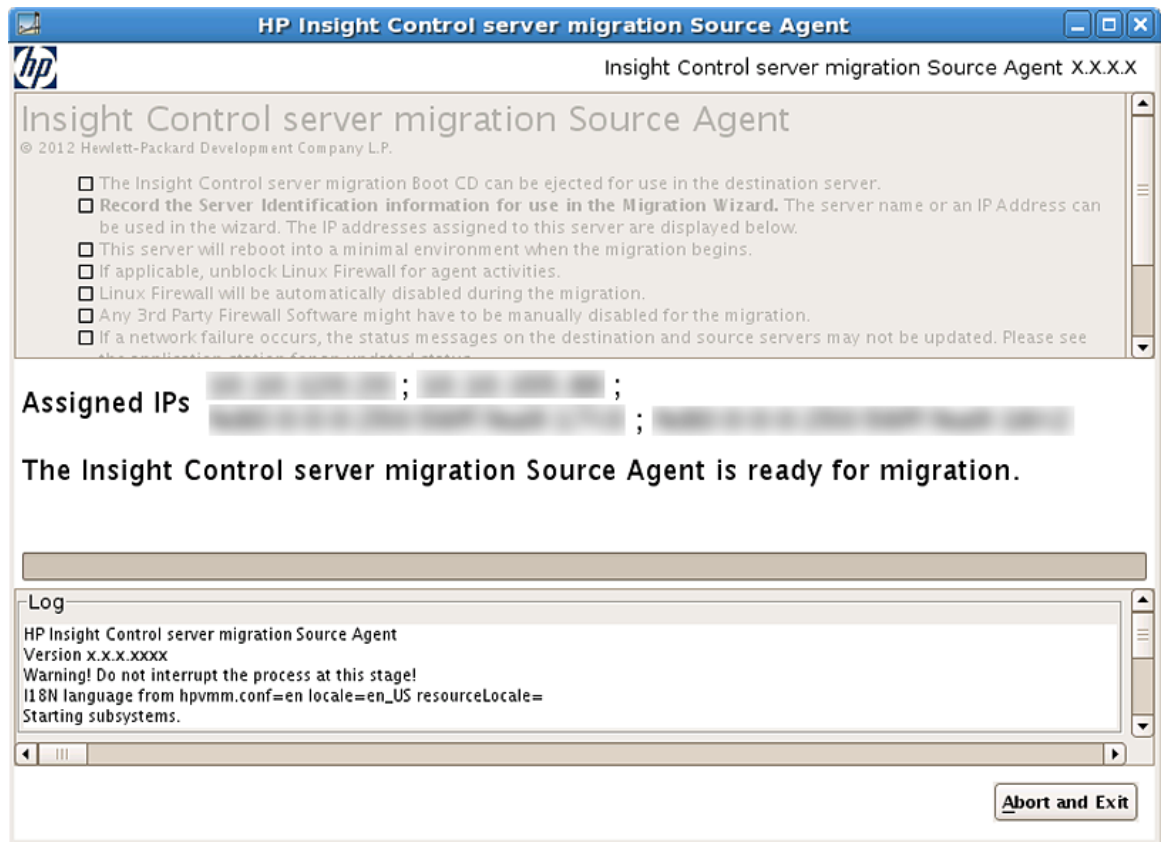
```
<Insight Control server migration Installation  
Folder>\Agents\SMP\hpsmpagent.tar.gz
```

**Figure 6** Navigate to server migration Source Agent



- Copy the file in this folder to the source server, and then extract the file.
- To launch the server migration Source Agent, go to the bin folder of the extracted directory, and then execute the script `startHPSMPCnt.sh`. When the server migration Source Agent is ready for migration, the following screen appears on the source server.

Figure 7 Linux Source Agent screen



**NOTE:** The server migration Source Agent uses a 32-bit Java Runtime Environment. In 64-bit RHEL, the Linux source migration agent window does not appear, although the agent is running.

4. Record the IP addresses listed for the source server.

**CAUTION:** The agent deployment automatically stops the firewall and disables SELinux.

5. After the application station is connected to the migration agent on these servers, the agent is locked to the application station.

To unlock the connection between the application station and the source server, or to stop the server migration Source Agent, access the Agent console on the source server, and then click **Abort and Exit**.

**NOTE:** After completing a migration, the server migration Source Agent no longer runs on the source server.

## Detecting, stopping, or restarting a remotely deployed server migration Source Agent

Because no indications appear on the source server when you launch an agent remotely from the server migration wizard, do one of the following to detect or stop a server migration Source Agent:

- On a Windows source server, run the `stopHPSMPAgent.cmd` tool. This tool is installed on the desktop when the agent is installed on the source server.
- On a Linux source server, run the `stopSMPagent.sh` tool. This tool is installed under the `/bin` folder of the extracted directory when the agent is installed on the source server.

To restart locally deployed Windows or Linux Source Agents, click **Abort and Exit** on the agent console, and then redeploy the agent.

---

# 7 Preparing the destination server and deploying the destination agent

## Prerequisites

### Physical destination servers

A supported ProLiant destination server must be used for X2P migrations, and the destination server disks must be configured to support migration of source servers.

For a list of supported ProLiant servers for X2P, see the list of supported servers in the *HP Insight Management Support Matrix* at the following website:

<http://www.hp.com/go/insightmanagement/docs>

When performing a X2P migration, prepare your destination server disk sizes and configuration to accommodate the partitions to be migrated. You can change the logical disk numbers on the destination server. For example, data on `\PhysicalDrive5` on the source server during a Windows migration might be reordered to `\PhysicalDrive2` on the destination server. During a Linux migration, data on `/dev/sda` on the source server might be reordered to `/dev/sdc` on the destination server.

Partitions on one disk on the source can only be migrated to a single disk on the destination. Insight Control server migration cannot migrate different partitions from the same disk on the source server to different disks on the destination server. For example, if you have Partition P1 and Partition P2 on Disk S1 on the source server, and disks D1 and D2 on the destination server, you cannot migrate Source Partition P1 to Destination Disk D1 and Source Partition P2 to Destination Disk D2.

- 
- ❗ **IMPORTANT:** X2P migrations can be launched only for ProLiant servers that have been properly discovered and licensed in Systems Insight Manager. For more about discovery, see the *HP Systems Insight Manager User Guide* at the following website:

<http://www.hp.com/go/insightsoftware/docs>

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### Virtual machine hosts

The destination virtual machine hosts require the following:

- User account credentials with administrative rights
- Available memory of at least 1024 MB
- Available disk space of at least 750 MB
- The latest operating system updates installed

When performing an X2V migration, be sure your destination virtual machine host has adequate memory, processor resources, and disk space to migrate the source server partitions. For example, if disk 1 on your source server has 10 GB of data to migrate, verify that the disk you migrate to on the destination server has at least 10 GB of available disk space.

### Linux destination size requirement

For migrating the `/boot` partition during Linux Migration, Insight Control server migration needs extra space for creating a new file for each of the valid `initrd` entries in `/boot/grub/menu.lst`.

For each of the valid `initrd` entries in `/boot/grub/menu.lst`, a valid entry is created with corresponding file name followed by `-smpue`.

Linux server migration can fail with the following error if **Destination Size**, chosen when specifying destination disks in the migration wizard, does not have enough space to create the <initrd name>-smpue files:

Server migration could not modify initrd on the destination server. This could happen when there is not enough free space available on boot partition. Increase free space on boot partition by deleting unused files or make sure that boot partition has 10MB or more of free space and retry migration process.

To resolve this issue, choose a **Destination Size**, when specifying destination disks in the migration wizard, that is large enough to create the /boot/<initrd name>-smpue files on the corresponding disk partition on the destination server.

## Booting the destination server

Boot the destination server using the applicable Insight Control server migration Boot CD ISO. To boot a destination physical server, you must be able to reboot the server and load through iLO. For virtual machines, you must have access to the virtual machine host management console. For information on choosing server migration agents, see “Choosing server migration Agents” (page 23).

There are Boot CD ISO files available to boot destination servers manually. However HP recommends that you allow the server migration wizard to boot the destination server. You can do this by selecting the **Auto Boot - Let server migration Boot the destination server** option in Step 3 of the wizard. See “Booting a physical destination server automatically using the migration wizard” (page 30) or check the Insight Control server migration online help for more information.

- Insight Control server migration ProLiant Boot CD ISO file™

You can use this ISO to manually boot a physical destination server for X2P migrations. This ISO is available after you install Insight Control server migration. To access the ISO, see the directory <server migration installation directory>\Agents\SMP\smpbootcd-p-[version #].iso.

- Insight Control server migration Virtual Machine Boot CD ISO file™

You can use this ISO to manually boot the destination virtual machine guest for X2V migrations. This ISO is available after you install Insight Control server migration. To access the ISO, see the directory <server migration installation directory>\Agents\SMP\smpbootcd-v-[version #].iso.

The Insight Control server migration ProLiant or Virtual Machine Boot CD ISO can only boot supported destination servers. For a list of supported servers, see the *HP Insight Management Support Matrix* the following website:

<http://www.hp.com/go/insightmanagement/docs>

To manually or automatically boot the destination server or virtual machine to the proper Insight Control server migration Boot CD ISO, see the following procedures. After the destination system is booted, you must configure it to launch the destination agent.

## Booting a physical destination server manually using the Insight Control server migration ProLiant Boot CD ISO for X2P migrations

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**NOTE:** For Gen8 servers, manual boot option is not supported.

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1. Boot the server remotely using the iLO virtual media feature.
2. After the destination server or virtual machine is booted to the proper Boot CD ISO file, use the Boot CD ISO application to configure the destination server and launch the destination Agent. From the Boot CD ISO application, click **Help** for instructions.

## Booting a physical destination server automatically using the migration wizard

1. Identify the source server and select volumes to migrate in steps 1 and 2 in the server migration wizard.
2. In step 3 of the P2P or V2P migration wizard, select **Auto Boot - Let server migration boot the destination server**.
3. Enter the iLO IP address and iLO credentials.
4. Enter the static IP address, subnet mask, and default gateway (if needed). If there is a gateway in the network, enter it here to ensure connectivity. Optionally, you can also select the Duplex Settings.
5. Click **Next**.
6. To view the boot progress, click **Launch iLO**, and then log in to the iLO Remote Console.

### iLO boot prerequisites

The following requirements must be met to use the boot from iLO feature:

- The iLO user credentials provided must have **Virtual Power and Reset** and **Virtual Media** access applied.
- The browser must be configured to support HTTP 1.1. To add this support:
  1. On your web browser, open **Internet Options**, and then select the **Advanced** tab.
  2. As appropriate, select **Use HTTP 1.1** and **Use HTTP 1.1 through proxy connections**.
- An iLO Advanced license must be applied to the destination server iLO.
- At least 300MB of free space must exist on the application station for each iLO boot. This free space should exist on the partition on which Insight Control server migration is installed. This space is recovered once the migration is complete or the boot job times out.

After the destination server is booted to the proper Boot CD ISO, use the Boot CD application to configure the destination server and launch the destination agent. From the Boot CD application, click **Help** for instructions.

If the migration is not started within two hours of the server being powered up through iLO, the server migration will time-out and power down the destination server.

## Manually creating and booting a virtual destination server

### Prerequisites for manually creating and booting a destination virtual machine

This section lists the prerequisites for manually creating a virtual machine for different migrations.

To manually create and boot a destination virtual machine, you must create the virtual machine with the prerequisites specified, and then attach the Insight Control server migration Virtual Machine Boot CD ISO to the virtual machine.

The following sections list the special steps required to prepare virtual machines for boot to the Insight Control server migration Virtual Machine Boot CD ISO.

#### Prerequisites for booting a virtual machine in Microsoft Hyper-V

Ensure that the following parameters are met:

- The virtual machine does not have more than three disks attached.
- The virtual machine has at least 1024 MB of memory.
- The network adapter is a legacy network adapter.
- Connect the network adapter to a virtual network switch that is connected to an external network.
- Attach the virtual disks that you create to an IDE controller.

- Connect the boot virtual disk to the 0th channel of the first IDE controller.
- The Insight Control server migration Virtual Machine Boot CD ISO is attached to the destination virtual machine.

### Prerequisites for VMware ESX migration

Ensure that the following parameters are met:

- The virtual machine has at least 1024 MB of memory.
- Create the virtual machine by selecting the correct operating system being migrated.
- Create the virtual machine with at least one Flexible Network Adapter.
- Connect the network adapter to a virtual network switch that is connected to an external network.
- The Insight Control server migration virtual machine Boot CD ISO is attached to a Virtual CD-ROM device.
- Discover and configure VMware vCenter Server settings through Systems Insight Manager. For more information, see *HP Insight Management Installation and Configuration Guide*.

### Manually creating and booting a virtual machine destination server for X2V

1. Access the virtual machine host management console provided by VMware ESX or Microsoft Hyper-V.
2. Create a new virtual machine with sufficient disk space for migration.
3. Boot the virtual machine to the Insight Control server migration Virtual machine Boot CD ISO file. The Virtual Machine Boot CD ISO file can be found at `<server migration installation directory>\Agents\SMP\smpbootcd-v-[version #].iso`.
4. After the destination server or virtual machine is booted to the proper Boot CD ISO file, use the Boot CD ISO application to configure the destination server and launch the destination agent. From the Boot CD ISO application, click **Help** for instructions.

### Automatically creating and booting a virtual destination server

To automatically create and boot a destination virtual machine using the migration wizard:

1. Run the migration wizard and complete steps 1 and 2 (choose the source server and select the volumes to migrate). In step 3 of the P2V and V2V migration wizard, identify the VM Host and then select the appropriate virtualization layer.
2. Select **Auto Boot — Automatically have VM created through server migration wizard**.
3. Enter the login credentials for the virtual machine host (for Microsoft Hyper-V host only).
4. Configure the destination server networking by entering the static IP address, subnet mask and default gateway (Optional). If there is a gateway in the network this must be entered here to ensure connectivity. When finished, click **Next**. Optionally, you can also select the Duplex Settings.
5. Insight Control server migration checks that the virtual machine host is licensed and then moves to the next step, where you must enter the virtual machine configuration name and map the source disks to the destination disks. When finished, click **Next**.

The Insight Control server migration application then connects to the virtual machine host, creates the virtual machine, and then boots up the virtual machine using the Insight Control server migration Virtual Machine Boot CD ISO.

After the Boot CD Agent is launched on the provided IP address, the application station connects to the agent on the Boot CD, and the next page of the wizard appears.

---

**NOTE:** If the application is unable to connect to the destination virtual machine, return to step 3 of the migration wizard, and then, while leaving the migration wizard running, manually create a virtual machine in the VM Host Management console outside of the migration wizard. Return to the migration wizard and select **Manual Boot — Manually create VM through VM Host's Infrastructure Client**, specify the IP address of the destination virtual machine, and then continue with the migration.

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**NOTE:** If the VM boot is cancelled or not completed, server migration does not delete the virtual machine. Use the VM Host Management console to delete the virtual machine manually.

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# 8 Migrating the servers

## Prerequisites

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- △ **CAUTION:** If the Insight Control application station shuts down or fails during any migration, then the migration fails. The application station must be available during the complete migration cycle for a successful migration.
- 

### Minimum source server prerequisites for all migrations

These prerequisites are the same for all migration types: P2P, P2V, V2P, or V2V. In the subsequent sections, only the prerequisites specifically different for that particular type of migration are described.

Before starting any migration, verify that these minimum prerequisites are complete on the source server:

- A valid network connection exists between the source and destination server.
- The source server contains an active boot partition to be migrated.
- Any pending reboots and software installations on the source server are finished.
- Any antivirus software auto-scans on the source server are temporarily disabled. Re-enable the antivirus software after the migration.
- To verify that the disks are not corrupted, run `CHKDSK` (Windows) or File System Consistency Check (Linux).
- All hard drives on the source (physical) server are correctly initialized (disk signature written).
- All partitions on the source server have a valid file system and are in a healthy state.
- All applications and background services on the source server are disabled.

After the migrated server has synchronized with the new hardware and is assigned a unique network identity, appropriate applications can be manually re-enabled and configured for the new environment.

### Uploading drivers

Use the **Upload Drivers** tab to upload binary files for the following:

- **iSCSI Initiator**  
For Windows migrations, the Microsoft iSCSI Initiator software is required for proper connection between the CMS and destination for mounting/injecting drivers.
- **PSP (Windows only)**  
You can upload one or more ProLiant Support Packs here. These will be available when selecting additional migration options in the migration wizard. When selected during migration, the PSP is copied to the destination server and executed on first boot after migration.  
For more information on loading PSP executables, see the server migration online help.
- **DevCon Binary**  
When the DevCon binary is uploaded here prior to migration, it will be available when selecting additional migration options in the migration wizard. When selected during migration, DevCon is automatically installed at the end of Windows migrations. HP recommends that you use DevCon only if you face issues with mouse and keyboard devices on the destination server after a migration. For more information about DevCon or to download the executable, see <http://www.microsoft.com/kb/311272> (or search for "DevCon" on the microsoft.com

website.) Do not extract the binary that you download from the Microsoft website before uploading it here.

## Preparing for a Windows server migration

The following sections list prerequisites for a Windows server migration.

If you use a firewall, see [“Disabling firewalls”](#) (page 19) .

Comply with all minimum prerequisites as listed in [“Minimum source server prerequisites for all migrations”](#) (page 33).

### Windows source server prerequisites

For Windows migrations, verify that the following source server prerequisites are complete:

- If Windows Server 2003 is installed, then verify that the disks are initialized as MBR disks. Insight Control server migration does not support GPT-based disks.
- During migration, the migration agent initiates an operating system reboot on the source physical server. Verify that the operating system is on the first boot order. Insight Control server migration supports migration of source servers that have operating systems installed on the primary drive (Hard Disk 0) and the primary drive loaded first in the boot order.
- Record the drive letter or mount point to disk-partition mapping for dynamic disk partitions before performing the migration. Any simple (non-extended) dynamic disk partitions are converted to basic disk partitions. The mapped drive letters might have to be manually reassigned after migration.
- Before migrating a source server with **BitLocker Drive Encryption** enabled and drives encrypted using **BitLocker**, decrypt the drives on the source server and disable **BitLocker**.
- When a migration is started from a Windows Server 2003 application station to a Windows Server 2008 source server, migrations will be blocked in step 1 of the migration wizard. If the Source Agent was launched from the Windows 2003 application station, the Source Agent will be locked to that specific application station and must be stopped. In order to stop the agent on the Windows 2008 source server, manually run `stopHPSMPAgent.cmd` tool on the source desktop. The application station must be running Windows Server 2008 (x64) or later to run Windows Server 2008 server migrations.

### Source physical server prerequisites

If migrating from a physical source server, verify that the following prerequisites are complete:

- Comply with all minimum prerequisites as listed in [“Minimum source server prerequisites for all migrations”](#) (page 33).
- During migration, the migration Agent initiates an operating system reboot on the source server. Verify that the operating system is on the first boot order. If not, then manually change the boot order:
  - For Windows Server 2003, edit the `[system drive]\boot.ini` file or use the `bootcfg.exe` tool.
  - For Windows Server 2008 or later, use the `bcdedit.exe` tool.

### Source virtual machine prerequisites

If migrating from a source virtual machine, verify that it complies with all minimum prerequisites as listed in [“Minimum source server prerequisites for all migrations”](#) (page 33).

### Destination physical server prerequisites

If migrating to a destination physical server, verify that the following prerequisites are complete:

- The primary storage controller is configured with drives attached.
- The destination server is booted to the Insight Control server migration ProLiant Boot CD ISO and is running the migration agent.
- Select **Auto Boot** option in step 3 of the migration wizard.

### Destination virtual machine host or virtual machine prerequisites

If migrating to a destination virtual machine, verify that the following prerequisites are complete:

- Select one of the following:
  - Let Insight Control server migration create the virtual machine automatically, which will automatically create and boot the destination virtual machine using the server migration Virtual Machine Boot CD ISO.
  - Create the virtual machine manually, and then boot the virtual machine manually using the server migration Virtual Machine Boot CD ISO.
- Verify that the destination virtual machine host has sufficient system resources, including processor, memory, and disk space to host the migrated virtual machine guest.
- Temporarily disable any antivirus software auto-scans on the destination virtual machine host to prevent interrupting the migration process. Re-enable the antivirus software after the migration.

### Preparing for a Linux server migration

The following sections list prerequisites for a Linux server migration.

- If a firewall is running on the source server and Source Agent deployment is required, see “Disabling firewalls” (page 19).
- Ensure that the SSH port is open when a firewall is in use or the server migration Source Agent may not be deployed successfully.
- Verify compliance with all minimum prerequisites. See “Minimum source server prerequisites for all migrations” (page 33).
- The 32-bit version of `glibc` is required to run the Linux server migration Source Agent. The library is present by default on 32-bit Linux installations, but you may need to install it manually on 64-bit Linux systems. The 32-bit version of `glibc` is available on your Linux OS installation CD/DVD.
- If X-Windows is configured on the source server, the 32-bit version of `libXtst` runtime library must be installed.

### Source physical server prerequisites

If migrating from a source physical server, verify that the following prerequisites are complete:

- Comply with all minimum prerequisites as listed in “Minimum source server prerequisites for all migrations” (page 33).
- `PermitRootLogin` and `PasswordAuthentication` are set to **Yes** in the `/etc/ssh/sshd_config` file and the `sshd` service is running.
- The GRUB Boot Loader is required as the primary boot loader on the source server.

## Source virtual machine prerequisites

If migrating from a source virtual machine, verify that the following prerequisites are complete:

- Comply with all minimum prerequisites as listed in “[Minimum source server prerequisites for all migrations](#)” (page 33).
- `PermitRootLogin` and `PasswordAuthentication` are set to **Yes** in the `/etc/ssh/sshd_config` file and the `sshd` service is running.
- The GRUB Boot Loader is the primary boot loader on the source server.
- Guest tools are uninstalled.

## Destination physical server prerequisites

If migrating to a destination physical server, verify that the following prerequisites are complete:

- The primary storage controller must be configured with drives attached.
- The destination server must be booted to Insight Control server migration ProLiant Boot CD ISO and running migration agent.
- Select **Auto Boot** option in step 3 of the migration wizard.

## Destination virtual machine host or virtual machine prerequisites

If migrating to a destination virtual machine, verify that the following prerequisites are complete:

- Select one of the following:
  - Let Insight Control server migration create the virtual machine automatically, and then boot it using the Insight Control server migration Virtual Machine Boot CD ISO for virtual machines.
  - Create the virtual machine manually, and then boot the virtual machine manually using the Insight Control server migration Virtual Machine Boot CD ISO.
- Verify that the destination virtual machine host has sufficient system resources, including processor, memory, and disk space to host the migrated virtual machine guest.
- Temporarily disable any antivirus software auto-scans on the destination virtual machine host to prevent interrupting the migration process. Re-enable the antivirus software after the migration.

## SAN migrations in Windows

Insight Control server migration supports Windows or Linux migrations to destination physical servers with Fibre Channel SAN connectivity. To verify that your Fibre Channel HBA is supported, see the *HP Insight Management Support Matrix* at the follow website:

<http://www.hp.com/go/insightmanagement/docs>

The prerequisites for a migration to a server with Fibre Channel SAN connectivity are the same as the prerequisites for migration to a destination physical server, described in “[Preparing for a Windows server migration](#)” (page 34), “[Preparing for a Linux server migration](#)” (page 35) and, “[Destination physical server prerequisites](#)” (page 34) with the following additional preparatory steps:

1. Manually set up the SAN environment by doing the following on the destination server:
  - Create logical units on the storage
  - Configure SAN switches
  - Configure Host Bust Adapter (HBA)
2. After setting up the SAN environment, boot the destination server using the Boot CD ISO.
3. Run the migration wizard.

4. Follow the relevant migration steps in “Preparing for a Windows server migration” (page 34).
5. In step 5 (*Specify destination disks*) of the migration wizard, verify that you have selected the boot LUN that you configured in the HBA BIOS of the destination server when you migrate the boot partition on the source server.

---

**NOTE:** To migrate Windows 2003 to a SAN-connected destination server, you must first install Service Pack 2, and the updated Storport storage driver (see <http://support.microsoft.com/kb/932755>) on the source server.

You can perform a migration to a destination server with some source disks migrated to local disks on the destination and some source disks migrated to SAN disks presented to the destination.

A local disk cannot be migrated to a SAN disk on the same server. That is, a DAS-to-SAN migration cannot be run on the same server. For example, you cannot migrate a SAS disk on a server to a SAN disk on the same server. The migration must be a Server A to Server B migration, where A and B are distinct servers.

---

Before running an X2P migration to a SAN LUN, HP recommends that you disable any ports that are not used for migrating to the destination HBA before initiating the migration. Otherwise, if the operating system is migrated to a SAN LUN connected to a fibre channel HBA in the destination server, the server migration may not migrate to the primary LUN. Failing to disable unused ports may produce the error message `Error loading operating system` when the destination server is booted.

## Starting the migration wizard

After source and destination server agents are launched, you can start the migration from Systems Insight Manager in two ways:

- Through the **Deploy** menu
- Using the **Quick Launch** feature

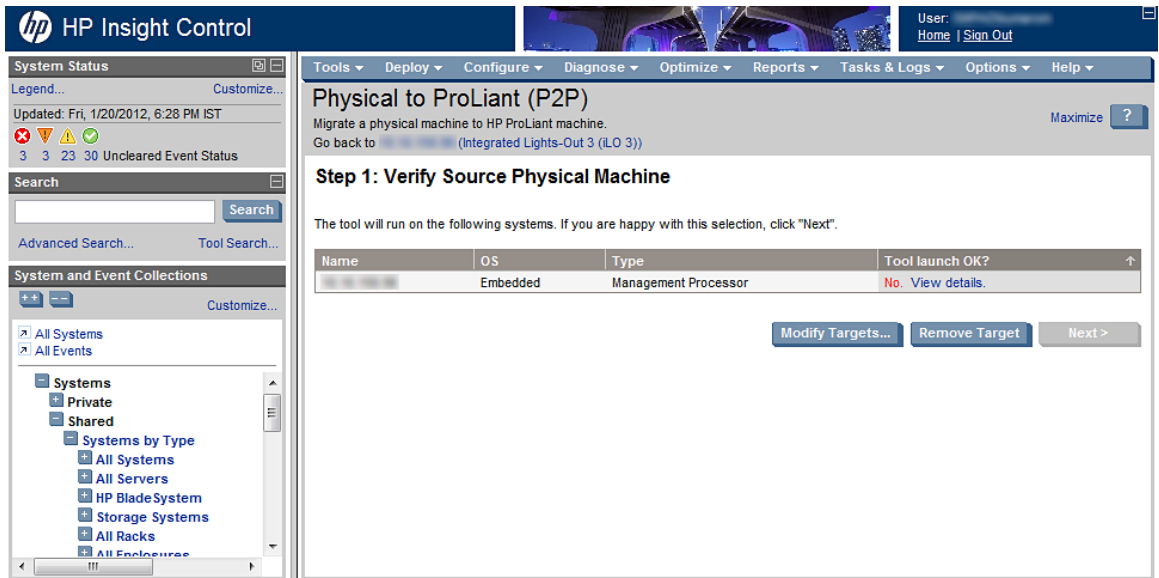
## Launching server migrations using the **Deploy** menu

To launch Insight Control server migration from the Deploy menu, perform the following tasks:

1. In Systems Insight Manager, select the source server or source virtual machine. Ensure the source server is discovered properly and that the OS type and IP address are correctly identified.
2. From the main wizard, select Deploy→server migration Tools, and then select the appropriate migration option.

3. Systems Insight Manager verifies the source server or source virtual machine.
  - If the selected server or virtual machine fails to satisfy the criteria to launch Insight Control server migration migration, then the Systems Insight Manager task wizard appears, the **Next** button is disabled, and the migration cannot proceed.

**Figure 8 Verify Source Physical server**



- If the selected server or virtual machine meets the criteria, then the Insight Control server migration application opens in a new browser with the IP address of the selected host added in step 1 of the migration wizard.

**Figure 9 Identify the source server**



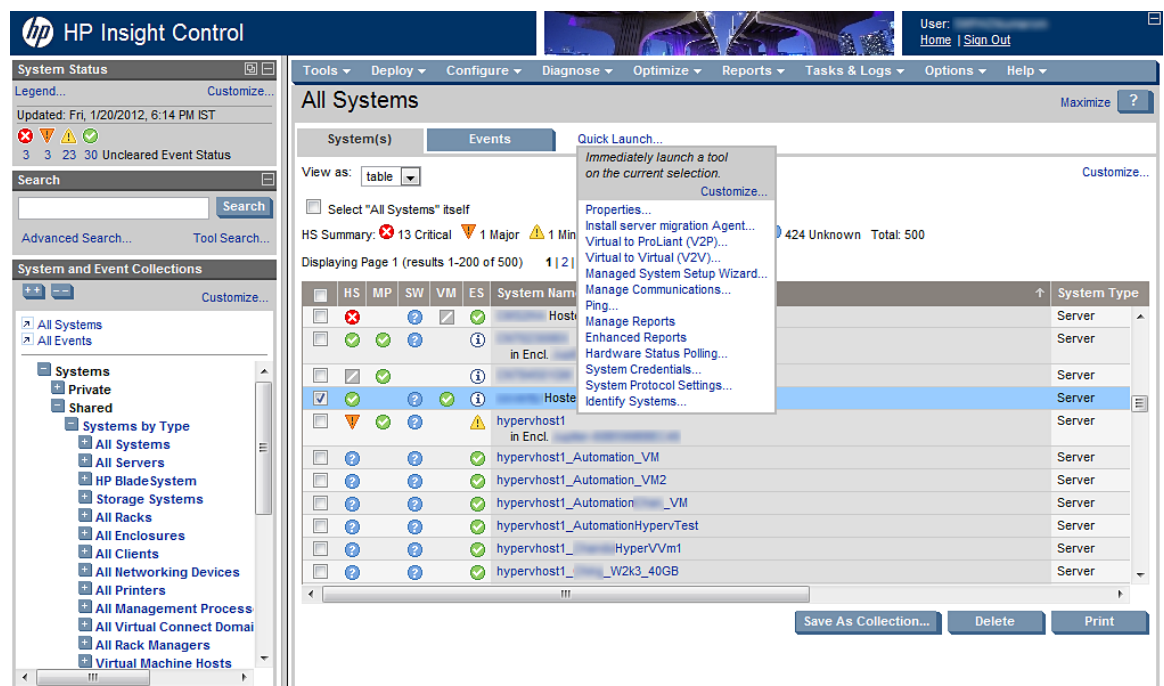
4. Click **Show Host** to view the server IP address, name, and OS details. If you manually deployed the Source Agent, click **Next** now, otherwise check **Deploy Insight Control server migration Source Agent** and then click **Next**.
5. Refer to the server migration online help for information about completing the rest of the steps in the server migration wizard.

## Launching server migrations using Quick Launch

To launch an Insight Control server migration from Systems Insight Manager using the Quick Launch option, perform the following tasks:

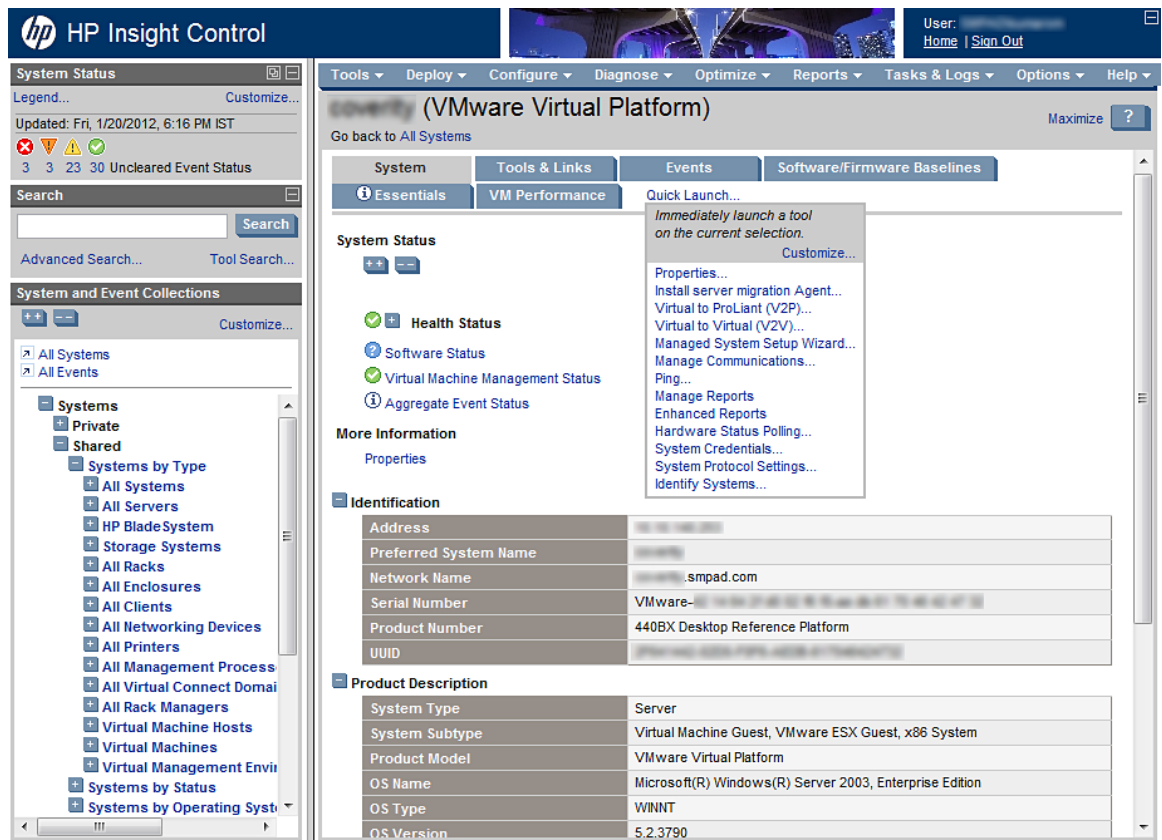
1. In Systems Insight Manager, select the source server or source virtual machine.
2. You can access the **Quick Launch** button using one of the following methods:
  - From the **All Systems** page in the Systems Insight Manager console, click **Quick Launch**. Quick Launch displays the available operations with the selected source virtual machine or source server.

**Figure 10 Quick Launch**



- From **All Systems** page in the Systems Insight Manager console, select a source server, and then scroll over **Quick Launch**. Quick Launch displays the available operations with the selected source virtual machine or source server.

Figure 11 Available operations



3. Systems Insight Manager verifies the source physical server or source virtual machine.
  - If the selected server or virtual machine fails to satisfy the criteria to launch Insight Control server migration, then the **Quick Launch** list does not display the unsupported migration options.
  - If the selected server or virtual machine meets the criteria and you choose one of the options displayed, then the Insight Control server migration application opens to the first step of the migration wizard in a new browser with the IP address of the selected source entered for you.
4. Refer to the server migration online help for information about completing the rest of the steps in the server migration wizard.

ⓘ **IMPORTANT:** Migrations can be launched only for source servers with supported operating systems and discoverable IP addresses that have been properly discovered in Systems Insight Manager. For more about discovery, see the *HP Systems Insight Manager User Guide* at the following website:

<http://www.hp.com/go/insightmanagement/docs>



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## 9 Post-migration tasks

### Installing ProLiant Support Packs after migration

If you performed a Windows X2P migration, and you did not upload the Windows PSP executable from the Upload Drivers tab prior to migration, then you must manually install the HP ProLiant Support Pack (PSP) after a migration on the destination server.

You can configure Insight Control server migration to automatically install a PSP after the Windows migration is completed on Step 6 of the migration wizard, **Additional Migration Options**. To use this feature, you must upload the Windows PSP executable from the **Upload Drivers** tab in the migration wizard prior to starting a migration.

For more information about required post-migration configurations, see [“X2V post-migration tasks \(Windows\)” \(page 41\)](#).

### X2P post-migration tasks (Windows)

---

**NOTE:** For migration of domain controller source, post migration steps will be disabled.

---

After you complete a P2P migration, perform the following steps on the destination server:

1. Log in with administrative rights.
2. At each of the **Welcome to the Found New Hardware** wizard screens, click **Cancel**.
3. When prompted to reboot the system at the **System Settings Change Window**, click **No**.
4. Install the latest PSP (if this option was not selected during the P2P installation).
5. View the **Windows event log** on the destination server and disable any services or drivers that might have failed.
6. If necessary, verify the network connections. If NIC teaming is required on the destination server, then NIC teaming must be re-established on the destination server after the migration and installation of the PSP.
7. If the source and destination servers must be on the network at the same time:
  - a. Change the host name of either server or consider reconfiguring the applications.
  - b. If the IP addresses are static, reassign them.
8. (Optional) Reassign drive letters to former dynamic disk partitions.
9. (Optional) Convert basic disks to dynamic disks. During migration, all dynamic disks are migrated to the destination server as basic disks. Therefore, if dynamic disks are preferred on the destination server, then basic disks can be manually converted back to dynamic disks.
10. Edit the boot.ini. For more information about editing the boot.ini, see [“Editing the Windows Boot.ini file after migration \(Windows Server 2003\)” \(page 42\)](#)
11. If the Windows license is not a volume license, then reactivate it.
12. The mouse and keyboard might not be immediately active after the migration. Wait until all required drivers are automatically installed by the guest operating system, and then reboot when prompted.

### X2V post-migration tasks (Windows)

After you complete a P2V migration, perform the following steps on the destination server:

1. If you manually booted the virtual machine using the server migration Virtual Machine Boot CD ISO, disconnect the ISO and then manually reboot or shut down the virtual machine.
2. Add necessary network configurations to the migrated virtual machine guest. To do so, access the destination virtual machine host remote console to configure the network connections for the migrated virtual machine guest.

3. (Optional) Add a CD-ROM component to the destination virtual machine. The CD-ROM might be required to install additional Integrated Components.

After the virtual machine reboots, you must perform the following steps on the destination virtual machine guest for hypervisors.

1. Modify the system host name.
2. Install the proper Guest tools.
3. Check the network connections and re-establish network connectivity. If an IP address conflict occurs when setting the static IP address, see the following website for more information:  
<http://support.microsoft.com/kb/269155/>
4. View the Windows event log on the destination server and disable any services or drivers that might have failed.
5. If applicable, then reassign drive letters of dynamic disk partitions using the disk manager to correspond with the original state. The virtual machine guest automatically detects new hardware and installs the required drivers.
6. The mouse and keyboard might not be immediately active on the migrated virtual machine guest. Wait until all required drivers are automatically installed by the guest operating system, and reboot the migrated virtual machine guest when prompted.
7. Edit the boot.ini. See “Editing the Windows Boot.ini file after migration (Windows Server 2003)” (page 42)

## Editing the Windows Boot.ini file after migration (Windows Server 2003)

Edit the boot.ini file to activate a graphical boot process:

1. Remove the /bootlog and /sos options from the boot.ini file. These options are automatically inserted during the migration process so that the boot process is logged in detail for onscreen analysis. The active boot entry displayed during boot is highlighted and the original boot.ini entry appears as HP Insight Control Preserved: [name], where [name] is the operating system.
2. To retain the original boot parameters, copy all valid flags from the original entry and other appropriate boot flags as applicable, such as adding the /3GB flag (if the destination virtual machine is configured with sufficient RAM).
3. Delete the original (preserved) entry:

### Example 1 Editing the Boot.ini

```
[boot loader]
default=multi(0)disk(0)rdisk(0)partition(1)\WINDOWS
timeout=30
[operating systems]
multi(0)disk(0)rdisk(0)partition(1)\WINDOWS="Windows Server 2003, Enterprise" /sos 1 /bootlog 1
/noexecute=optout /fastdetect
multi(0)disk(0)rdisk(0)partition(1)\WINDOWS="HP Insight Control Preserved: Windows Server 2003, Enterprise" /userva=3030 2 /3gb 2 /noexecute=optout 2 /fastdetect 2 3
```

- 1 Delete this parameter
- 2 Copy parameter as needed to new OS entry
- 3 Delete this line

## X2P post-migration tasks (Linux)

After you complete an X2P migration, perform the following steps on the destination server:

1. Log in with administrative rights.
2. Install the latest Linux Support Pack (LSP).
3. If necessary, verify the network connections. If NIC teaming is required on the destination server, then NIC teaming must be re-established on the destination server after the migration and installation of the LSP.

4. If the source and destination servers must be on the network at the same time:
  - a. Change the host name of either server or consider reconfiguring the applications.
  - b. If the IP addresses are static, reassign them.
5. If the license is not a volume license, then reactivate it.
6. The mouse and keyboard might not be immediately active after the migration. Wait until all required drivers are automatically installed by the guest operating system.

## X2V post-migration tasks (Linux)

After you complete an X2V migration, perform the following steps on the destination server:

1. If you manually booted the virtual machine using the Insight Control server migration Virtual Machine Boot CD ISO, you must disconnect the Insight Control server migration Virtual Machine Boot CD ISO and then manually reboot or shut down the virtual machine.
2. Perform a network configuration for the migrated virtual machine guest. To do so, access the destination virtual machine host remote console to configure the network connections for the migrated virtual machine guest.
3. (Optional) Add a CD-ROM component to the destination virtual machine. The CD-ROM might be required to install additional Integrated Components.

After the virtual machine reboots, you must perform the following steps on the destination virtual machine guest for hypervisors.

1. Modify the system host name.
2. Install the proper Guest tools.
3. If necessary, verify the network connections.
4. The mouse and keyboard might not be immediately active on the migrated virtual machine guest. Wait until all required drivers are automatically installed by the guest operating system, and reboot the migrated virtual machine guest when prompted.

## Viewing migration logs

From the **View Status/Logs** tab, you can:

- View currently running migrations
- View a log of the migration results
- Create support logs

For more information, click the help icon on the server migration **View Status/Logs** page.

---

**NOTE:** When a job is complete, its link no longer appears in the **View Status/Logs** page, but the job-specific log files are still available in the HP Insight Control server migration installation `path\logs` directory.

---

## Validating the migration

### Validating Linux migrations

To verify that the Linux migration was successful, you can do the following:

1. Compare the md5 checksum of the files on the migrated file-system with the checksum on the source. The md5 checksum should match for all files except for the `initrd` and log files.
2. Ensure that the operating system on the destination server boots normally without critical errors.

### Validating Windows migrations

To verify that the Windows migrations was successful, you can do the following:

1. Ensure that the operating system on the destination server boots normally without critical errors.

2. Compare the source and the destination server to ensure that the partitions selected on the source server are present on the destination server.
3. Compare random samples of files and directories between the source and the destination servers to ensure that the data has been migrated successfully.

---

## Part IV Troubleshooting and support

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# 10 Troubleshooting

Register to receive customer advisories via email. See the *HP Insight Management Installation and Upgrade Release Notes* at the following website:

<http://www.hp.com/go/insightmanagement/docs>

## User interface

### Server migration wizard hangs

Wizard hangs if the **Ctrl** key is pressed while selecting tabs in Insight Control server migration.

#### Cause

Tabs in HP Insight Control server migration cannot be treated like hyperlinks. If you press the Ctrl key while clicking the server migration tabs in your browser, Please wait while loading the page appears and a new blank page opens up.

#### Suggested action

To avoid this issue, click the tab without pressing the Ctrl key.

### Browser displays error loading server migration wizard from Systems Insight Manager

Your browser may display the error message `unable to connect` when Insight Control server migration is launched from Systems Insight Manager.

#### Cause

The HP Insight Control server migration Web Service is not running properly.

#### Suggest action

To resolve this error message, open Windows Services and restart the HP Insight Control server migration Web Service, and then retry to launch server migration from Systems Insight Manager.

### Launching server migration from Systems Insight Manager throws an exception

When launching server migration through Systems Insight Manager, an exception may be thrown.

#### Cause

The source server is not discovered properly in Systems Insight Manager.

#### Suggested action

Ensure that the source server is discovered properly in Systems Insight Manager with the OS type and IP address correctly identified. You can manually edit the source server node in Systems Insight Manager to set correct values for these attributes. You can also try launching a server migration by using a different, but properly discovered source server and then changing the IP address to your source server in the first step of the server migration wizard.

## Source preparation

### Corrective action is required before this server can be migrated

The following message appears when an affected system is detected while launching the source server agent:

```
ATTENTION:Corrective action is required before this server can be migrated.
```

## Cause

Some versions of Windows Server 2003 that are pre-installed by HP cannot be migrated successfully unless corrective action is performed before attempting the migration. Affected systems are detected by the server migration Source Agent during initialization. If the system is affected, instructions for performing the corrective action are provided. If you attempt the migration without first performing the corrective action, your destination server becomes non-bootable.

---

**NOTE:** The server migration Source Agent will not detect whether the corrective action has already been performed. Subsequent attempts to execute this agent will indicate that corrective action is still required. However, the corrective action needs to be applied only once.

---

## Suggested action

### Resolution

1. Cancel the migration agent execution.
2. In the command prompt window, change to the root directory of the Windows disk.
3. Run the following command: `SFC /SCANNOW`. This command might take several minutes. For more information about this command, see the following website:

<http://support.microsoft.com/kb/310747/en-us>

## Source server identification fails

The source server identification fails during the first step of the migration wizard.

## Suggested action

1. Verify the identifier entered. If the name is entered for a source server that is in a domain, be sure that the Fully Qualified Domain Name (FQDN) is entered.
2. Verify that the migration agent has been installed on the identified source server. For more information about running the migration agent, see the Insight Control server migration online help.
3. Verify that the source server can be reached from the application station. Communication on network ports 51125 and 51126 must be enabled by any firewall between the application station and the source server.
4. Verify that the agent status messages do not indicate that the source server is locked to another server.

## Migration Agent deployment fails

The migration Agent might fail deployment for several reasons, including:

- Incorrect password
- Reserved ports
- Insufficient disk space
- Network issues
- Special characters in the source password like colon (:), quotes ("), or backslash (\)
- The source server is inside a VPN and the CMS is outside the VPN
- Missing 32-bit libraries on 64-bit Linux source server

## Suggestion action

Try the following:

- Verify that you have provided valid credentials with administrative rights for the source server for the migration agent deployment.
- If the source server has Insight Control server migration installed, ensure that you have disabled the server migration application and web services from the Windows services console.
- The ports reserved for the migration agent (51124 through 51126) might be used by other processes. Ensure that these ports are free on the source server. A reboot might resolve port locks by other processes. If the issue persists, then other processes using the ports must be identified and disabled.
- There must be sufficient disk space for agent to be copied and installed properly.
- The networks on both the source and the server migration application station must be working properly.
- Ensure that the source server password does not contain special characters like colon (:), quotes ("), or backslash (\).
- Ensure the source server and CMS are both either inside the same VPN or are both outside the VPN.
- Ensure that the 32-bit glibc is installed on 64-bit Linux source servers prior to Source Agent deployment.
- In the source server, clear the *Don't allow exceptions* checkbox under the **General** tab of the **Windows Firewall** section.
- In the source server, check the *File and Printer Sharing* checkbox under the **Exceptions** tab of the **Windows Firewall** section.

## Server migration Source Agent deployment fails remotely from a Windows Server 2003 Application Station

Insight Control server migration uses a file share on the source server to deploy the agent from the application station.

### Suggested action

For the file share to operate, verify that the following conditions have been met:

- The Server or Workstation service must be started on the source server.
- The Server or Workstation service must be started on the application station.
- A "Client for Microsoft Networks" client must be present in the network interface properties on the source server and the CMS.

## Linux Source Agent window does not appear on RHEL 64-bit

On 64-bit RHEL, the Linux Source Agent window does not appear after deployment, although it is not impeding the migration.

### Suggested action

The server migration Source Agent uses a 32-bit Java Runtime Environment. In 64-bit RHEL, the Linux source migration agent window does not appear, although the agent is running. To enable the display of the agent, you must install the X.Org X11 libXtst runtime library `libXtst-1.0.99.2-3.el6.i686.rpm`.

## Remote deployment of Linux Source Agent using non-root credentials fails

Remote deployment of Linux Source Agent using non-root credentials fails with the error:



Failed to deploy server migration Source Agent. Error while installing the server migration Source Agent on the given Server : `exec tar -zxf hpsmpagent.tar.gz -C /tmp` on the remote host failed. The ports 51124, 51125 and 51126 required by the agent might be in use. : `exec tar -zxf hpsmpagent.tar.gz -C /tmp` on the remote host failed. The ports 51124, 51125 and 51126 required by the agent might be in use.

### Suggested action

To resolve this issue, the Linux Source Agent must be deployed using root privileges.

### Manual installation of Linux Source Agent using sudo user privileges fails

Manual installation of Linux Source Agent using sudo user privileges fails.

#### Suggested action

Launch the server migration Linux Source Agent with proper root user privileges.

### Incorrect LUN size detected in step 2 of the migration wizard

If the size of the source Logical Unit Number (LUN) detected during step 2 of the migration wizard is incorrect, then you may be attempting to initialize the LUN with GUID partition tables (GPT).

#### Cause

LUNs initialized with GPTs are not supported, even if they contain partitions with file-systems supported by server migration. Those partitions appear as RAW partitions in the migration wizard, and data might be incomplete after the migration.

#### Suggested action

You must deselect LUNs initialized with GPTs in step 2 of the migration wizard, and manually copy data on GPT disks after the migration.

### Migrating a source server fails with the Microsoft Hyper-V role enabled

If you are trying to migrate a source server with the Microsoft Hyper-V role enabled, you must ensure certain preconditions are met.

#### Suggested action

Perform any one of the following on the source server:

- Turn off the hypervisor using the following command:

```
bcdedit /set hypervisorlaunchtype off
```

After the migration, you can re-enable the hypervisor using the following command:

```
bcdedit /set hypervisorlaunchtype auto
```

- Remove the Microsoft Hyper-V role from the source server.

## Destination preparation

### Destination server identification fails

The destination server identification fails in step 3 of the Wizard.

#### Suggested action

1. Verify that the network adapter on the destination server is configured with a valid IP address, subnet, and gateway.

2. Verify that the destination server is booted from the Insight Control server migration Boot CD ISO and ready for migration.
3. Verify that the destination server can be reached from the application station and source server. Communication on network ports 51125 and 51126 must be enabled by any firewall between the CMS, the source server, and the destination server.
4. Verify that another Insight Control application is not already communicating with the destination server.

## IP address configuration fails on a manually booted virtual machine in Microsoft Hyper-V for a P2V or a V2V migration

You have manually created the virtual machine on Microsoft Hyper-V for a P2V or a V2V migration and booted the virtual machine manually with the Insight Control server migration Virtual Machine Boot CD ISO, however, you are unable to configure an IP address on the virtual machine.

### Suggested action

Perform the following:

- Ensure that the virtual machine that you have manually created has a legacy network adapter.
- Ensure that the legacy network adapter on the virtual machine is connected to the correct virtual network switch on the host.
- Ensure that the Virtual network switch configuration on the Microsoft Hyper-V host is correct and the virtual switch is connected to a physical network adapter with external network connectivity.

## Kernel panic occurs when booting a virtual machine to the Insight Control server migration Virtual Machine Boot CD ISO

Insight Control server migration requires that the destination virtual machine has at least 1024 MB of RAM to boot to the Insight Control server migration Virtual Machine Boot CD ISO.

### Suggested action

To resolve this issue:

1. Power down the virtual machine.
2. Ensure that the virtual machine has at least 1024 MB of RAM.
3. Reboot to the Insight Control server migration Virtual Machine Boot CD ISO.

## Mouse does not work on a virtual machine booted with the Insight Control server migration Virtual Machine Boot CD ISO

### Cause

This issue occurs because virtual machine tools required for the mouse on certain virtualization layers are not available on the Insight Control server migration Virtual Machine Boot CD ISO.

### Suggested action

Use the **Tab** and **Enter/Return** keys on the keyboard to navigate the user interface on the Insight Control server migration Virtual Machine Boot CD ISO.

## Primary array controller does not have logical drives defined

### Suggested action

Confirm that your array controller has at least one logical drive defined.

You can confirm this by accessing the Configure Destination Server screen and then clicking Launch Array Configuration Utility or by rebooting to Option ROM Configuration for many controllers (ORCA).

## Primary controller configured in the system does not have drives attached

### Suggested action

Confirm that your hardware setup is correct and that the correct controller is set to primary in ROM-Based Setup Utility (RBSU).

## Primary controller in system is not supported by this version of Insight Control server migration

When the destination server is manually booted using the boot CD ISO, the error message The primary controller in your system is not supported by this version of Insight Control server migration Boot CD might appear on the destination server console.

When the auto-boot option is chosen in step 3 of the migration wizard, the auto-boot of the destination server fails, the destination server is powered off, and the error The Storage controller is not supported with this version of Insight Control server migration might be displayed.

### Suggested action

1. Verify the primary controller is supported for Insight Control server migration. For a complete list of supported controllers, see the *HP Insight Management Support Matrix* at the following website:  
<http://www.hp.com/go/insightmanagement/docs>
2. Verify the latest firmware is installed on the storage controller.
3. If the Insight Control server migration Boot CD ISO cannot detect the storage controller, you may need to reconfigure the storage controller environment variable.
  - a. Reboot the destination server to Rom-Based Setup Utility (RBSU) by pressing the **F9** key during POST.
  - b. Select the **Boot Controller Order** option and verify the proper boot order for the storage controllers.
  - c. Press **Esc** to exit RBSU, and then press **F10** to confirm the exit and to save your changes.
  - d. Reboot the destination server using the Insight Control server migration Boot CD ISO. When the destination server boots, the Insight Control server migration Boot CD ISO will detect the storage controller.

## The destination server displays a blank screen when booting to server migration Boot CD ISO

The destination server might display a blank screen when booting to the server migration Boot CD ISO if the server has more than 64 GB of RAM.

### Suggest action

Perform the following:

1. At the boot menu, press **Esc** to enter text mode.
2. At the text mode boot prompt, type `soS mem=4G`.
3. Press **Enter**.

## Some storage volumes on the destination server are not available for selection

Some storage volumes configured on the destination server might not be available for selection in Step 5 (Specify Destination Disks and Resize NTFS Partitions) of the migration wizard.

### Suggested action

If expected volumes do not appear, perform one of the following:

- Verify that the storage controller is supported by Insight Control server migration. Volumes configured on an unsupported storage controller cannot be selected for migration. For more information about supported controllers, see *HP Insight Management Support Matrix* available at: <http://www.hp.com/go/insightmanagement/docs>.
- Run the Array Configuration Utility (if your storage controller is supported), and verify the status of the volumes on the Smart Array controller to be sure that the volumes are not in a failed state. Also, verify that all volumes on the controller are numbered sequentially beginning with logical drive 1, as required by the Insight Control server migration. If volumes are not numbered sequentially, clear the configuration and re-create the necessary volumes.

## Static IP address cannot be assigned on the destination server while booting using the Boot CD ISO

Assigning a static IP address on the destination server might result in an error similar to the following:  
The IP address xxx.xxx.xxx.xxx you have entered for this network adapter is already assigned to another adapter.

### Cause

This might occur if the IP address is assigned to another network adapter on the destination server.

### Suggested action

To resolve this issue, assign a different IP address to the network adaptor or reboot the server.

## Supported storage controllers display Unknown on the Boot CD ISO

### Cause

If the supported storage controllers for P2P or V2P migrations are blocked by the Insight Control server migration Boot CD ISO, the controller might appear as Unknown.

### Suggested action

To correct this issue, reset NVRAM on the destination server:

1. Reboot destination server.
2. To enter ROM-Based Setup Utility (RBSU) during reboot, press **F9**.
3. Open **Advanced Options**, and then select **Restore Settings/Erase Boot Disk** or **Clear NVRAM**.
4. Reboot the system using the Insight Control server migration Boot CD ISO. The proper storage controller name is detected.

## Auto booting destination physical server fails

The destination server does not boot and no error message appears on the application station.

### Suggested action

Reset the iLO network settings of the destination server and retry the automatic booting of the destination server.

## Insight Control might not detect virtual machines on mapped network drives

### Cause

Insight Control cannot locate virtual machines stored on mapped network drives if the service does not have access to the network shares.

### Suggested action

Manually migrate these disks after a successful migration.

## Destination server does not boot when automatic boot option was chosen during X2P migrations

During X2P migrations, if the automatic booting option was chosen during the **Identify Destination Server** step of the migration wizard and if the destination server does not boot, then either of the following scenarios might occur:

- Automatic booting fails with the error `Could not get timely response from remote management. Please try again or use manual boot option.` in the migration wizard.
- Automatic booting continues for over 40 minutes without any error messages displayed in the migration wizard.

### Suggested action

Reset the iLO network settings on the destination server, and then retry the automatic booting or manually boot the destination server. For more information on iLO, see the iLO user guide.

## Insight Control server migration stops responding during auto-booting of Microsoft Hyper-V virtual machine

Insight Control server migration might stop responding during auto-booting of a Microsoft Hyper-V virtual machine for an X2V migration.

### Suggested action

To resolve this, ensure the following:

- File-sharing is enabled on the application station and the Microsoft Hyper-V host.
- The Server or Workstation service is started on the application station and the Microsoft Hyper-V host.
- A "Client for Microsoft Networks" client is added to the network interface properties on the application station and on the Microsoft Hyper-V host.

## Application station fails to connect to the destination server when the server is auto-booted for an X2P migration

The application station can fail to connect to the destination server when the server is auto-booted for a P2P or V2P migration, even though the destination server boots up and the agent starts up.

### Cause

This might happen if the destination server has multiple NICs connected to different networks and the IP address gets configured to a NIC which is not on the same network as the application station and the source server. Ensure that the duplex settings on the destination server match the duplex settings on the network switch in your environment. You can also use the auto-negotiate option at either end to ensure proper communication between the destination server and the network switch.

The application station might also fail to connect if you have a gateway in your network and the gateway value is not specified in the migration wizard when identifying the destination server.

## Suggested action

To resolve this issue, manually boot the destination server, and then manually assign the IP address to the NIC that is on the same network as the application station.

To resolve the gateway issue, ensure that you enter the gateway IP address in the migration wizard when identifying the destination server.

## Warning message is not displayed for unsupported servers when started using the Insight Control server migration ProLiant Boot CD

HP Insight Control server migration does not support HP ProLiant Server versions G1 to G4. When the unsupported server is started using the Insight Control server migration ProLiant Boot CD, the migration wizard does not display the message that the server is not supported.

## Suggested action

Before starting the migration, verify if the server is supported. For a list of supported servers, see *HP Insight Management Support Matrix* available at: <http://www.hp.com/go/insightmanagement/docs>.

## Microsoft Windows 2008 OS migration results in a blue screen error on destination server configured with NC551 m FCoE card

After a successful X2P migration with primary controller configured as NC551 m FCoE Card, the migration results in a blue screen error.

## Suggested action

Before you migrate, you must disable the AMD virtualization or Intel Hyper-Threading in the BIOS of the destination server.

## Migration process

### Drivers cannot be installed or injected onto boot disk

This error is reported if Insight Control fails to install or inject device drivers. In most cases, additional information is reported on the destination server.

## Suggested action

Possible causes and solutions for this error include:

- The boot partition was not migrated to the boot volume on the destination server. Verify that the boot partition is selected for migration and placed on the boot volume of the destination server.
- The network connection failed during driver installation.
- The destination server failed or was powered down during driver installation.
- The storage controller where the boot partition was placed is not supported. For a complete list of supported controllers, see the *HP Insight Management Support Matrix* at: <http://www.hp.com/go/insightmanagement/docs>
- The iSCSI initiator failed to mount the disk. To resolve this issue, reinstall the iSCSI initiator on the application station.

### Large volumes fail with server thread error

Migrating extremely large volumes (larger than 1 TB) can result in a failed migration with the following message:

Server Migration failed. Error occurred in server thread; nested exception is: java.lang.OutOfMemoryError

### Suggested action

Server migration does not support the migration of volumes larger than 1023 GB. Reduce the size of any partition exceeding this size limit before attempting migration.

## Migrating a Linux source server with very large storage fails when the migration is initiated

Migrating Linux source servers with very large storage may fail with the following error found in the <server migration installation directory>/log/hpsmpsvc.log file:

```
java.lang.OutOfMemoryError: Java heap space
```

### Suggested action

Increase the heap size on the source server, by performing the following:

1. Change the current working directory on the source server to the smpagent folder (for example, /tmp/smpagent if the agent was automatically deployed.)
2. Increase the initial memory by changing the following parameters in /bin/hpvmmmsmp.conf:  
# Initial Java Heap Size (in MB)  
wrapper.java.initmemory=512
3. Start the server migration Source Agent by doing one of the following at the command line:
  - Type ./startHPSMPCnt.sh and then press **Enter**.
  - Navigate to the smpagent/bin directory and then run the startHPSMPCnt.sh script.

## Linux migration might fail when X Windows configuration is not properly formatted

Linux migrations might fail when the X Windows configuration file xorg.conf is not properly formatted. The configuration file must have at least one **ServerLayout** section. The presence of log items like the examples shown below in the hpsmpsvc.log file indicates that the xorg.conf file does not have any **ServerLayout** sections:

```
2011/03/14 14:19:34 | - The job failed
2011/03/14 14:19:34 | com.hp.mx.smp.vmtools.grid.VmmRuntimeException:
java.lang.IndexOutOfBoundsException: Index: 0, Size: 0
2011/03/14 14:19:34 | at
com.hp.mx.smp.vmtools.grid.transport.LinuxMigrationJob.heteroInjectDrivers
(LinuxMigrationJob.java:1015)
2011/03/14 14:19:34 | at
com.hp.mx.smp.vmtools.grid.transport.LinuxMigrationJob.heterogenousCopy
(LinuxMigrationJob.java:258)
```

### Suggested action

If the migration fails and the X Windows configuration file on the source server does not have at least one **ServerLayout** section, then do the following:

1. Rename /etc/X11/xorg.conf to /etc/X11/xorg.bak on the source server.
2. If required, boot the server in single user mode.
3. Re-run the migration.
4. After migration is complete, rename /etc/X11/xorg.bak back to /etc/X11/xorg.conf on the source server.

## Partitions created with third-party partitioning tools do not show proper file system type in the server migration wizard

Partitions created with third-party partitioning tools such as Gnome might not show the proper file system type in the server migration wizard. This does not affect migration.

### Suggest action

Proceed with the migration.

## Migration hangs if source server is shut down

In some network, firewall, or router configuration scenarios, Insight Control might fail to recognize that the source server is no longer available during a migration and remain in migration mode.

### Suggested action

Perform the following procedure:

1. Close the server migration wizard.
2. Open the Windows Services Manager, and then restart the Insight Control application service and the Insight Control server migration Web Service.
3. Retry the migration.

## NTFS resize error message

The following message might appear during the migration of certain NTFS volumes:

```
The file system on source disk x, partition y could not be resized during migration. The NTFS volume information could not be read. Retry the migration without resizing this volume. Defragmenting the NTFS volume or performing a "chkdsk /f" prior to the migration may resolve this condition.
```

### Cause

This message appears when Insight Control cannot process the NTFS meta information for this volume, and the volume cannot be resized during migration.

### Suggested action

To resolve this issue, do not resize the volume. Instead, perform a disk defragmentation or run `CHKKDSK /F` to resolve the issue. However, performing a successful defragmentation and disk check does not guarantee the ability to resize. In this case, the volume can only be migrated without resizing.

## ReiserFS volumes are blocked for Linux migration

A ReiserFS may be blocked during migration.

### Cause

Any Linux partitions that are not yet written to the disk will be detected by server migration as RAW in Step 2 of the migration wizard.

### Suggested action

Reboot the source server to force the partitions to be written. Alternatively, perform the following steps:



1. Execute the following command on the source server and note the output:  
`cat /proc/sys/vm/drop_caches`
2. Execute the following commands on the source server:  
`echo 3 > /proc/sys/vm/drop_caches`  
`echo <output of command in Step 1> > /proc/sys/vm/drop_caches`

## The File System on Source Disk \\.\PhysicalDrive0, Partition 0 Could Not Be Resized During the Migration

Migration might fail with the error The file system on source disk \\.\PhysicalDrive0, partition 0 could not be resized during the migration in the logs.

### Cause

One reason for the error could be because the migration wizard changes the **Minimum Destination Size** and **Destination Size** fields to display 1 MB more than the **Source Size** field, even though a disk resize was not chosen within the migration wizard. This occurs during the Specify destination disks and Resize NTFS partitions step of the migration wizard process.

### Suggested action

To overcome this issue, perform the following steps:

1. During the Specify destination disks and Resize NTFS partitions step of the migration wizard process, in the **Assign Disks and Resize NTFS Volumes** table, modify the disk size in the **Destination Size** field to match the value shown in the **Source Size** field.

---

**NOTE:** After modifying the **Destination Size** field to match the **Source Size** field, the **Minimum Destination Size** field will display 1 MB more than the **Minimum Destination** field.

---

2. Complete the rest of the steps to finish the migration process. The migration will successfully complete.

## Migration fails during the disk cloning phase

The following message might appear on the application station log (`hpsmpsvc.log`) if the destination server disk has a Windows Logical Partition configured on it:  
`com.hp.mx.smp.vmdisk.api.APIException: Not enough space for partition!`

### Cause

An existing disk already containing some Windows partitions is being used as the destination for migration.

### Suggested action

To resolve the issue, format the destination disk before using it as a destination disk.

1. Reboot the destination server and press F9 to enter the BIOS settings of the destination server.
2. In the **Advanced Options** section, select **Erase Boot Disk**.
3. Rerun the migration process.

## Failed: Drivers Could Not Be Injected Into Boot Disk in the logs

Migration fails with the message Failed: Drivers could not be injected into boot disk... and the iSCSI mounting error The target has already been logged in via an iSCSI session appears in the log files.

## Suggested action

Restart the application station and retry the migration.

## Starting a new migration after a current migration is stopped

If a migration is stopped by means other than a cancellation or failure, the application station, source server, and destination server might not recognize that the migration has stopped.

## Suggested action

To start a new migration:

1. Restart the migration agent on the source and destination servers.
2. On the application station, close the migration wizard.
3. Restart the Insight Control application service and the Insight Control server migration Web Service.
4. Reopen the migration wizard.

## Unrecoverable sector-read errors on the source server hard drive are not supported and fail a Windows P2P or P2V migration

The following error message might appear if a volume with unrecoverable sector-read errors is migrated: `Server MigrationFailed. ReadFile failed.`

## Cause

Hard drives automatically take corrective action when they have difficulty reading a sector. These sectors are marked as “bad sectors” and relocated to one of the sparse sectors in a reserved area of the hard disk. In these cases, no read error is produced, and the drive continues to function properly. The data is lost and a read error is propagated to the operating system only if the surface error rate is too high and additional sparse sectors are not available, or when the sector is completely unreadable from the beginning.

If file system tools are used to detect these failing sectors (for example, `CHKDSK /p /r`), the clusters are marked as “bad.” However the data cannot usually be recovered. In such cases, the system is not consistent, and proper migration is not possible.

## Suggested action

Insight Control does not support the migration of volumes with unrecoverable bad sectors.

## Source Agent fails to launch when source server reboots in migration agent mode

## Suggested action

1. To return to the original configuration, reboot the source server to Profile 1 Hardware Profile.
2. Remove server migration Source Agent Mode manually.
  - a. Right-click **My Computer**, and then select **Properties**.
  - b. Click the **Hardware** tab, and then select **Hardware profiles**.
  - c. Select **server migration Source Agent Mode**, and then click **Delete**.
3. Before starting a new migration, verify that all antivirus and firewall software is properly reconfigured or disabled.

## Error during data copy of Linux migration

An Error during data copy `offset=offset srcPos=source sector dstPos=destination sector amount=number of sectors` message appears in the source or destination log followed by a I/O Exception.

## Cause

There could be bad blocks on the source or destination disk.

## Suggested action

Insight Control does not support migrations of disks with bad blocks. If the bad block is on the destination disk, change the destination disk.

## SAN-connected destination server displays blue screen

### Suggested action

To migrate Windows Server 2003 to a SAN-connected destination server, install the following on the source server:

- Service Pack 1
- Service Pack 2
- Updated Storport storage driver (see <http://support.microsoft.com/kb/932755>)

## Out of memory error occurs on the application station during migration

The Insight Control application station requires a minimum of 1024 MB of free memory for Insight Control migrations.

### Suggested action

If an Out of memory error occurs on the application station during migration, you must free memory or add memory to the application station and then restart the migration.

## Destination server boots with an invalid IP address

After a P2P migration, the destination server may boot with an invalid IP address (for example, 169.x.x.x), instead of using the IP address that was configured through the migration wizard.

## Cause

This issue occurs if the destination IP address configuration fails or Dynamic Host Configuration Protocol (DHCP) is not enabled in the network. Whenever a NIC is added to the server, then by default the NIC is assigned an IP address using the DHCP configuration. If there is no DHCP server configured on the network, then the server will boot with an invalid IP address.

### Suggested action

After the P2P migration is complete, manually configure the IP address on the destination server. Refer to the specific operating system documentation help files for specific instructions on performing this task.

## Windows server migration Source Agent or PINT remote deployment fails with Agent is already deployed or not required error

When you remotely deploy the Windows server migration Source Agent or PINT from the Insight Control server migration application station or from Systems Insight Manager, the server migration Source Agent deployment fails with the error *Agent is already deployed or not required*. In addition, no logs are generated for the agent deployment under the *<server migration installation folder>\log\AgentLogs\hp\log\source IP\ folder*.

## Suggested action

Perform one of the following:

- Remove the `System_drive\WINDOWS\Temp\hp_sum\RepositoryManager` directory on the Insight Control server migration application station and retry the deployment.
- Manually install the server migration Source Agent or PINT on the source server.

## Windows server migration Source Agent or PINT remote deployment is intermittent and deployment fails with General failure occurred error

When you remotely deploy the Windows server migration Source Agent or PINT from the Insight Control server migration application station or from Systems Insight Manager, server migration Source Agent deployment fails with the error `General failure occurred`. In addition, the `<server migration installation folder>\log\AgentLogs\hp\log\<source IP>\timestamp_smp_log.txt` file displays the following exception:

```
Received Target Exception: UnknownException : SoapSession::SoapSession : unknown exception!  
No install was run, due to connection error
```

## Suggested action

To resolve this issue, manually install the server migration Source Agent or PINT on the source server.

## Post-migration

### Migration does not start after confirmation. The event log continuously displays Operation Migration waiting for connection to source

When the migration starts, the source server reboots and runs the migration agent in exclusive mode during migration.

Rebooting the source machine might take a few minutes. If this process takes a long time, verify that the source machine is rebooted with the migration agent running in exclusive mode. The source machine might be waiting for user input during the reboot. Another possibility is that the boot order is incorrect.

If the migration agent is deployed on an operating system that is not first in the boot order, the migration agent might fail to boot to the Insight Control mode.

## Suggested action

Change the boot order by editing `boot.ini`, and verify that the operating system on which Insight Control is deployed is first in the boot order.

### Destination server mouse and keyboard do not work after a Windows migration

The mouse and keyboard might not be operational immediately on a destination server after a migration.

## Suggested action

To detect and activate the mouse and keyboard, reboot the destination server so that PnP correctly detects and activates the mouse and keyboard.

If the mouse and keyboard still do not work, ensure that DevCon is installed and ready on the Upload Drivers tab and then re-run the migration. Select **Use DevCon** in Step 6 of the P2P or V2P migration wizard.

---

**NOTE:** After successfully using DevCon during a migration, Windows Device Manager may show yellow exclamation points (!) next to duplicate keyboard and mouse entries. Right click on the device with the yellow exclamation point and update the driver. The device should be rediscovered and changed from an unknown device to be an HID device. Devices which cannot be rediscovered using this method are duplicates and can be uninstalled using the right-click menu. To attempt to solve the mouse and keyboard issues without restarting the migration, see [“USB Mouse or Keyboard Drivers Not Loaded After a X2P Windows Migration” \(page 61\)](#)

---

## USB Mouse or Keyboard Drivers Not Loaded After a X2P Windows Migration

After a successful Windows migration, the mouse and keyboard drivers may not be loaded. As a result, the mouse and keyboard do not work on the destination server.

### Cause

Insight Control does not inject any drivers for the USB keyboard or mouse on the target server. Since these are plug and play devices, Windows automatically detects the devices and loads the drivers. In some scenarios, the USB keyboard and mouse drivers may fail to load. Example scenarios include a tampered source, a Microsoft Hyper-V VM source, or a migrated source that used PS/2 drivers.

### Suggested action

- Reboot the destination server a second time after the migration. During the reboot, verify Legacy USB is set to Enabled in the BIOS on the destination server. The Plug and Play drivers should load automatically through the Hardware Setup Wizard.
- If the second reboot did not solve the issue, log into the destination server using Windows Remote Desktop to update the mouse and keyboard drivers.

---

**NOTE:** This solution will only be successful if Remote Desktop is enabled on the destination server and an IP address was configured with the migration wizard.

---

To configure an IP address on the destination server within the server migration wizard, perform the following:

1. Upload the latest ProLiant Support Pack supported by the source server to the Insight Control server migration Upload Drivers tab.
2. Select the option to reboot the destination server in Step 6 of the migration wizard.
3. Select to install the PSP following migration. Enter any static IP addresses required. If a static IP address is not provided, DHCP will be assumed default.

Once logged into Remote Desktop of destination server, check to see if the proper mouse and keyboard drivers are installed on the destination server. To do this, do one of the following:

- Verify if the mouse and keyboard appear as Unknown in the Device Manager and have no drivers listed
- Verify if the server has the following files:
  - Hidusb.sys
  - Hidkbd.sys
  - Mouhid.sys

Reinstall the mouse and keyboard drivers with one of the following methods:

- Reinstall the PSP
- Update the drivers in the Device Manager
- If all of the following criteria are met:
  - the source server has a PS/2 mouse and keyboard
  - the destination server has a USB mouse and keyboard
  - the destination mouse and keyboard do not work

then use the following procedure:

1. Attach a USB mouse and keyboard (using a USB or PS/2 dongle) to the source server.
2. On the source server, resolve any devices that display a yellow bang (!) in the Device Manager (if any). Verify the mouse and keyboard function on the source server.
3. Attach a USB mouse and keyboard (using a USB PS/2 dongle) to the destination server.
4. Perform a P2P migration without using the PSP.
5. Install the latest Microsoft Service Pack on the destination server.
6. Install the latest PSP on the destination server.
7. Remove the (dongle-attached) USB mice and keyboards from the source and the destination servers.

## Mouse does not work on the destination server's iLO after a Linux X2P migration

The mouse does not work on the destination server's iLO after a Linux X2P migration.

### Suggested action

To resolve this issue, deselect High performance mouse mode on the remote console of destination server iLO.

## Mouse does not work on the destination ESX virtual machine after a V2V migration

The mouse might stop working on the destination ESX virtual machine after a V2V migration.

### Suggested action

To resolve this issue, use the following procedure:

1. Log in to the destination server using the keyboard.
2. Press the **Windows Key+Pause/Break** to open System Properties.
3. Use the arrow keys or Tab key and the Enter key to open Device Manager.
4. In Device Manager, use the arrow keys or Tab key to move to **VMware Pointing device**, and then press the **Application** key. Choose **uninstall**. The **VMware Pointing Device** entry disappears from the list of devices.
5. Use the arrow keys to move to any selection of the Device Manager list, press the **Application** key and then choose **Scan for hardware changes**. A PS/2 compatible mouse appears in the Device Manager.

## Drive letters are not the same in the migrated virtual machine guest after migration

The drive letters on the migrated virtual machine guest are not the same after migration.

### Suggested action

Depending on the operating system, perform the following task:

1. Open Windows **Disk Management**.
2. Correct the incorrect letter assignment in the migrated virtual machine guest using the disk administrator or manager.

## Drives do not appear on the migrated operating system

After a successful migration, some migrated volumes do not appear in Windows Explorer.

### Suggested action

Depending on the operating system, perform the following task to assign a driver letter to the volume so it is visible in Windows Explorer:

1. For Windows Server 2003 systems—Select **Control Panel**→**Administrative Tools**→**Computer Management**→**Disk Management**, and then verify that the disk manager has initialized all disks.
2. Assign the driver letter in the migrated virtual machine guest using the appropriate disk administrator or manager.

## Mouse and keyboard do not work after migrating a Microsoft Hyper-V virtual machine to a ProLiant server

### Suggested action

If the mouse and keyboard do not work after migrating a Microsoft Hyper-V virtual machine to a ProLiant server, reboot the destination server.

If rebooting does not solve the issue, try the following:

- Uninstall Microsoft Hyper-V Integration Tools on the source virtual machine before performing a migration.
- Rerun the migration, but select **Automatic PSP installation** in the migration wizard so that the PSP is installed automatically on the destination server after a migration.
- Rerun the migration, but select **Use DevCon** in the migration wizard so that DevCon is installed automatically on the ProLiant server at the end of the migration.

## Static IP address cannot be assigned on the destination server after migration

Assigning a static IP address on the destination server might result in an error similar to the following:

The IP address xxx.xxx.xxx.xxx you have entered for this network adapter is already assigned to another adapter.

This scenario can occur if the IP address is assigned to a network adapter on the source server.

### Suggested action

For more information, see the following website:

<http://support.microsoft.com/kb/269155/en-us>

## Virtual machine hosts Integrated Components do not install on the destination virtual machine following migration

### Suggested action

To resolve this issue:

1. Power down the destination virtual machine.
2. Add a CD-ROM drive to the virtual machine.
3. Power up the virtual machine, and then restart the installation of the Integrated Components.

## Exclamation point (!) appears on the NIC adapter in Device Manager on the migrated virtual machine

After performing a migration, the NIC Adapter might not appear on the destination virtual machine. This might happen during V2V migrations between VMware Server and VMware ESX servers. This

might also appear when a virtual machine is migrated from one Microsoft Hyper-V host to another Hyper-V host.

You might be unable to assign the IP address to this device, which does not reappear on the **Network Connections Page**.

### Suggested action

Manually uninstall the Network adapter in the Device Manager and trigger a Scan for Hardware Changes. This detects the NIC adapter and configures the drivers for it.

## Network adapter in the destination ESX virtual machine is not initialized after a V2V migration

The network adapter in the destination ESX virtual machine might not be initialized after a V2V migration.

### Suggested action

1. Log in to the destination server using the keyboard.
2. Navigate to the Device Manager. To do so, right-click **My Computer**, then select **Manage**.
3. Right-click **VMware Accelerated AMD PCNet Adapter** and select **Uninstall**. The VMware Accelerated AMD PCNet Adapter entry disappears from the list of devices.
4. Select **Scan for hardware changes**. A valid virtual network adapter appears in the Device Manager.
5. Reboot the virtual machine.

## The destination virtual machine fail to boot after X2V migration

The destination virtual machine may fail to boot and display the error Attempting to load a 64-bit application, however the CPU is not compatible with 64-bit mode.

### Cause

For a 64-bit OS to load on a virtual machine, Intel-VT must be enabled on the destination virtual machine host.

### Suggested action

Enable the Intel-VT option in the system BIOS of the destination virtual machine host and then reboot the virtual machine.

## While editing the settings of guest VMs created by server migration, an invalid OS ID warning appears

After performing an X2V migration to an ESX Host using the Automatic Boot feature of the server migration wizard and then changing the settings of the migrated VM, the following warning message may display:

The guest OS ID *<guest name>* is not valid.

### Suggested Action

Follow the suggestion provided in the warning message to resolve the issue.

Once the issue is resolved, any disk can be added (which may involve upgrading the virtual machine's virtual hardware.)

## Server is unresponsive during PSP installation

The server becomes unresponsive during PSP installation.



### Suggested action

Reboot the server and then reinstall PSP manually.

## Destination server still shows server migration UI but server migration Wizard shows migration completed

After the migration, server migration loses connectivity to Hyper-V host, which causes server migration to fail to eject the boot CD and reboot the VM. If server migration is unable to connect Hyper-V host, then reboot using the destination agent. In this case, server migration will be unable to eject the boot CD and as a result, after the reboot, the VM will boot back into the boot CD. This issue is specific to Microsoft Hyper-V VM.

### Suggested action

You must manually eject the virtual boot CD from the VM and reboot the VM.

## Operating system is not booting up on the destination server with SAN disks

After you perform a successful P2P migration of SLES 11 SP1 32-bit operating system on SAN disks with Brocade or QLogic Fibre Channel HBA as the primary boot controller, operating system does not boot up on the destination server.

### Suggested action

Before you migrate any Linux distribution to destination server with SAN storage, ensure that the RPM package containing firmware files (such as `brocade-firmware-<version>.noarch.rpm` and `qlogic-firmware-<version>.noarch.rpm` on SLES OS, and `ql2xxx-firmware-<version>.noarch.rpm` on RHEL OS) for the target SAN FC HBA are installed on the source server from the OS installation media.

## Error displayed for missing file system while booting migrated Linux OS on the destination server

When you migrate a file system to the destination server multiple times, the multiple file systems containing the same UUID are created.

### Suggested action

Ensure that multi-path is configured on the source server. If multi-path is not configured, ensure that the file systems that are being migrated do not have the same UUID.

## Logical drives of HP Smart Array B110i SATA RAID Controller are removed

After a successful X2P migration of Windows Server 2008 OS, the logical drives of HP Smart Array B110i SATA RAID Controller are removed.

### Suggested action

When the logical drives are removed, you must re-create the exact logical drives using ACU or ORCA on the destination server after migration.

---

# 11 Support and other resources

## Information to collect before contacting HP

Be sure to have the following information available before you contact HP:

- Software product name
- Hardware product model number
- Operating system type and version
- Applicable error message
- Third-party hardware or software
- Technical support registration number (if applicable)

## How to contact HP

Use the following methods to contact HP technical support:

- See the Contact HP worldwide website:  
<http://www.hp.com/go/assistance>
- Use the Contact hp link on the HP Support Center website:  
<http://www.hp.com/go/hpsc>
- In the United States, call +1 800 334 5144 to contact HP by telephone. This service is available 24 hours a day, 7 days a week. For continuous quality improvement, conversations might be recorded or monitored.

## Registering for software technical support and update service

Insight Management includes one year of 24 x 7 HP Software Technical Support and Update Service. This service provides access to HP technical resources for assistance in resolving software implementation or operations problems.

The service also provides access to software updates and reference manuals in electronic form as they are made available from HP. Customers who purchase an electronic license are eligible for electronic updates.

With this service, Insight Management customers benefit from expedited problem resolution as well as proactive notification and delivery of software updates. For more information about this service, see the following website:

<http://www.hp.com/services/insight>

Registration for this service takes place following online redemption of the license certificate.

## How to use your software technical support and update service

As HP releases updates to software, the latest versions of the software and documentation are made available to you. The Software Updates and Licensing portal gives you access to software, documentation and license updates for products on your HP software support agreement.

You can access this portal from the HP Support Center:

<http://www.hp.com/go/hpsc>

After creating your profile and linking your support agreements to your profile, see the Software Updates and Licensing portal at <http://www.hp.com/go/hpssoftwareupdatesupport> to obtain software, documentation, and license updates.

## Warranty information

HP will replace defective delivery media for a period of 90 days from the date of purchase. This warranty applies to all Insight Management products.

## HP authorized resellers

For the name of the nearest HP authorized reseller, see the following sources:

- In the United States, see the HP U.S. service locator website:  
[http://www.hp.com/service\\_locator](http://www.hp.com/service_locator)
- In other locations, see the Contact HP worldwide website:  
<http://www.hp.com/go/assistance>

## Documentation feedback

HP welcomes your feedback. To make comments and suggestions about product documentation, send a message to:

[docsfeedback@hp.com](mailto:docsfeedback@hp.com)

Include the document title and part number in your message. All submissions become the property of HP.

## Related information

### Documents

- **HP Systems Insight Manager**  
The Systems Insight Manager information library is available at the Systems Insight Manager product website:  
<http://www.hp.com/go/foundationmgmt/docs>
- **HP Insight Control**  
Documentation for Insight Control, including documentation for Insight Control virtual machine management and Insight Control power management, is available from the HP Insight Control website:  
<http://www.hp.com/go/insightcontrol/docs>

### Websites

#### HP ProLiant Support Pack

To find and download the HP ProLiant Support Pack (PSP) that is appropriate for your ProLiant server and Linux OS, follow these steps:

1. Open a browser to the following web address:  
<http://www.hp.com>
2. Select the **Support & Drivers** tab.
3. Select the **Download drivers and software (and firmware)** option.
4. Enter your server model (for example, BL460c G5) in the **For product** text box, and select **Go>>** to search for that server.

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**NOTE:** If more than one server model matches the value you entered in the **For product** text box, select the appropriate server model from the search results.

---

5. Select the appropriate Linux OS and version from the list of available operating systems.

6. Scroll down the page until you see the table labeled **Software - Support Pack**.
7. Select the PSP link in the **Description** column.
8. To download the PSP, select the **Download>>** button associated with the \*.tar.gz (gzipped) file.

To view or download the associated *HP ProLiant Support Pack User Guide*, select the **Release Notes** tab.

## Related documentation

Related documentation

- *HP Insight Control Getting Started Guide*
- *HP Insight Control Release Notes*
- *HP Insight Control Server Deployment User Guide*
- *HP Insight Control Virtual Machine Management User Guide*
- *HP Insight Control Power Management User Guide*
- *HP Insight Control Performance Management User Guide*
- *Portable Images Network Tool (PINT) README* (Linux and Windows)
- *HP Insight Control server migration Online Help*
- For a list of supported platforms for Insight Control, see the *HP Insight Management Support Matrix* at:

<http://www.hp.com/go/insightmanagement/docs>

## Typographic conventions

This document uses the following typographical conventions:

<i>Book title</i>	The title of a book. On the web, this can be a hyperlink to the book itself.
Command	A command name or command phrase, for example <code>ls -a</code> .
Computer output	Information displayed by the computer.
<b>Ctrl+x</b> or <b>Ctrl-x</b>	A key sequence that indicates you must hold down the keyboard key labeled <b>Ctrl</b> while you press the letter <i>x</i> .
ENVIRONMENT VARIABLE	The name of an environment variable, for example, <code>PATH</code> .
<b>Key</b>	The name of a keyboard key. <b>Return</b> and <b>Enter</b> both refer to the same key.
<b>Term</b>	A term or phrase that is defined in the body text of the document, not in a glossary.
<b>User input</b>	Indicates commands and text that you type exactly as shown.
<i>Replaceable</i>	The name of a placeholder that you replace with an actual value.
[ ]	In command syntax statements, these characters enclose optional content.
{ }	In command syntax statements, these characters enclose required content.
	The character that separates items in a linear list of choices.
...	Indicates that the preceding element can be repeated one or more times.
WARNING	An alert that calls attention to important information that, if not understood or followed, results in personal injury.

CAUTION

An alert that calls attention to important information that, if not understood or followed, results in data loss, data corruption, or damage to hardware or software.

IMPORTANT

An alert that calls attention to essential information.

NOTE

An alert that contains additional or supplementary information.

TIP

An alert that provides helpful information.

---

## A Applying old server migration standalone licenses

Starting with Insight Control 6.0, HP Insight Control server migration is no longer available as a standalone and is available exclusively through Insight Control. The addition of server migration functionality into HP Insight Control is a function of the Insight Control software, not of the license key or the part number. There are no new part numbers needed for the addition of server migration functionality. So if your destination server is licensed by Insight Control 6.0 or above, you can perform unlimited migrations to the Insight Control licensed server.

The standard procedure for licensing Insight Control server migration is to purchase Insight Control licenses and apply them through the **Deploy→License Manager** menu item from the CMS management console.

Older licenses for versions of HP Insight Control server migration earlier than 6.0 are not supported.

## B Performing migrations in a Microsoft Cluster server environment

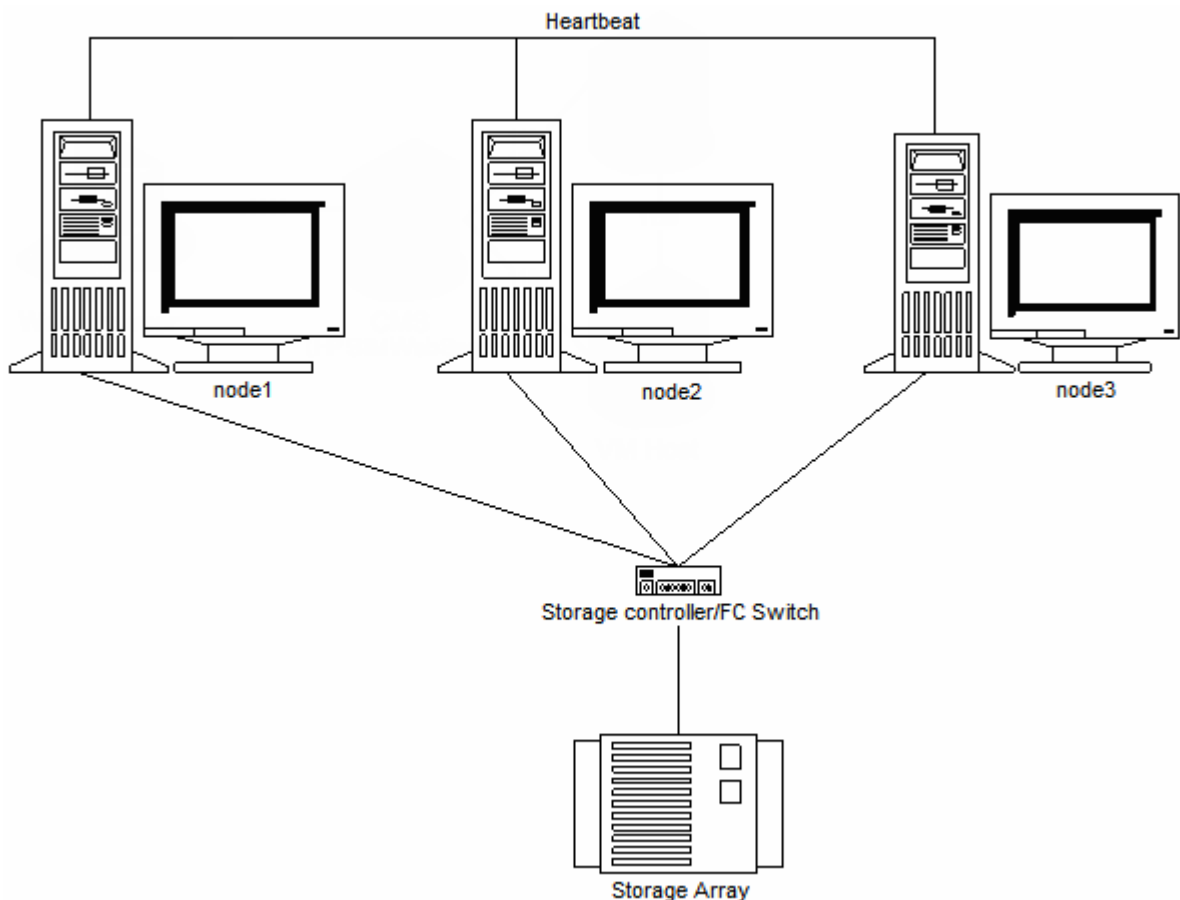
Migrations in a Microsoft Cluster server environment often require you to move an operating system, appropriate applications, and data to new server hardware. In a cluster, various applications such as Microsoft Exchange, Microsoft SQL Server, or a file share can be installed. Cluster migration includes moving these additional resources.

This appendix discusses a scenario where a file share with both nodes and the cluster resources must be migrated. Basic components in a Microsoft Cluster server environment include:

- Shared disk, where the quorum and log reside
- Cluster IP address
- Cluster network name
- Application resources (such as Microsoft Exchange, SQL Server, or file share)

Microsoft Windows Server 2008 x64-based failover clusters support up to 16 nodes in a single cluster. Microsoft Windows 2003 Server Enterprise Edition and Windows Server 2003 Data Center Edition support up to eight nodes in a cluster. These nodes are connected to a Fibre Channel switch that is connected to a storage array where the quorum and resources are stored. If multi-pathing is used, multiple Fibre Channel switches connect the nodes to the server so that if one path fails, the other path takes over the connection from the nodes to SAN array.

**Figure 12 The basic hardware design of a three-node duster.**



### Pre-migration consideration steps for clusters

1. Note the IP address and network names of the nodes to which the clusters are attached.

2. Review the event logs and cluster logs to verify that there are no critical issues that might affect the migration. If an Exchange or SQL Server is installed on the cluster, the pre-migration steps are similar to those of a standalone Exchange or SQL Server. The only deviation from this procedure is that you would not need to set services to Manual. (By default, all the Exchange and SQL Server services are set to Manual.)
3. (Optional) If a file share is present on the cluster, remove sharing access on the file share. Re-enable sharing access after the migration is finished.
4. Take all the cluster resource groups offline.
5. Verify that the target server has enough disk space both for capacity and performance for the applications to be migrated.
6. Verify that the application station, source server, and destination server are on the same network subnet.
7. Shut down all nodes except the one to be migrated.
8. Stop the cluster service on that node.
9. Start the P2P migration - see [“Performing the migration” \(page 72\)](#).

## Performing the migration

Perform the migration steps in the migration wizard as in a typical migration. As an example, if your migration involved two nodes, you must perform P2P migration for two servers.

You must ensure that the Host Bus Adaptors (HBAs) are properly migrated to the new servers and verify that any established Fibre Channel zones are updated as necessary. Fibre Channel zones can be based either on the unique World Wide Name (WWN) of the HBA (software-based zoning), on the switch port (hardware-based zoning), or both. In the software-based zoning case, you must either transfer the same physical HBAs from the source machine to the destination machine, or update the Fibre Channel zones with the new World Wide Names of the destination HBAs.

## Post migration considerations and steps

After the migration completes:

1. Power down the source server nodes.
2. Boot the destination server nodes.
3. Update the entire destination server using the ProLiant Support Pack. For more information, see <http://www.hp.com/servers/psp>.
4. All source configuration settings will also be transferred to the destination server hence it is same as the source (like static IPs, node name, domain membership).
5. Present the Quorum disk & shared disks to the destination sever.
6. If required edit the network configuration. By default, the migration process configures the network cards to use Dynamic Host Configuration Protocol (DHCP). To implement static IP addressing, apply the static network settings and ensure that the target nodes have the same the IP address as the previous nodes.
7. Update the boot.ini file with the desired switches as necessary. A copy of the source server boot.ini entries are within the file and the SMP – P2P application entry can be removed. Set all memory switches, such as /3gb and /PAE, for use on the desired target server.
8. Verify that the Exchange or SQL databases and log volumes use the same letters as were used on the source server.
9. Start the cluster service on the migrated node.
10. Start the cluster resources groups.
11. Now power on all the other nodes in the cluster and verify that the nodes can connect to the cluster.
12. Cluster will run the same as before with our new destination server replacing the old source server.
13. These steps can be repeated for each node to successfully migrate the full cluster.
14. Perform the Exchange or SQL post-migration steps on the cluster, as described later in this white paper.



15. Review the event logs and cluster logs to see if there are any issues occurring with the newly migrated cluster.

---

# Glossary

<b>ESX</b>	VMware ESX, a virtualization product produced by VMware, Inc.
<b>EVA</b>	Enterprise Virtual Array
<b>MSA</b>	Modular Smart Array
<b>TCP</b>	Transmission Control Protocol
<b>X2P</b>	P2P or V2P migrations
<b>X2V</b>	P2V or V2V migrations

# Index

## A

- antivirus software, 20
- application station
  - description, 12
  - fails to connect to the destination server for X2P, 53
- auto booting destination server fails, 52

## B

- blue screen error
  - X2P migration, 54
- boot disk cannot be installed or injected with drivers, 54
- boot disk cannot be installed or injected with drivers in log file, 57
- booting the destination server, 29
  - manually creating and booting a virtual machine, 30
  - migration wizard for a virtual destination, 31
  - prerequisites for Microsoft Hyper-V, 30
  - prerequisites for virtual machine host, 22
  - prerequisites for VMware ESX, 31
  - using BOOT CD ISO for X2P, 29
  - using the migration wizard, 30
  - virtual machine destination server for P2V, 31
  - virtual machine destination server for V2V, 31

## C

- certificates
  - dynamic, 20
  - static, 20
- controllers appears as unknown, 52
- corrective action is required before this server can be migrated, 46
- critical or hardware-dependent application preparation, 18

## D

- Deploy Agent
  - overview, 13
- deploying
  - Linux server migration Source Agent, 26
  - server migration Source Agent on domain controller, 26
  - Source Agents, 23
  - Windows server migration Source Agent, 24
- destination preparation
  - troubleshooting, 49
- destination server
  - auto booting fails, 52
  - booting, 29
  - description, 12
  - does not boot when `auto boot` was chosen during X2P migration, 53
  - identification fails, 49
  - invalid IP address, 59
  - IP address configuration fails in Microsoft Hyper-V, 50
  - Linux, 28

- mouse does not work, 62
- mouse or keyboard does not work, 60, 63
- prerequisites, 28
- SAN-connected server displays blue screen, 59
- static IP address cannot be assigned, 52, 63
- storage volumes not available for selection, 52
- USB mouse or keyboard does not work, 61
- virtual machine hosts, 28
- destination server boots with invalid IP address, 59
- destination server does not boot, 53
- detecting a migration agent, 27
- disk cloning
  - troubleshooting, 57
- documentation
  - HP Insight Control, 67
  - licenses, 70
  - PSP User Guide, 67
  - related documentation, 68
  - SIM, 67
- drivers
  - cannot be installed or injected into boot disk, 54
  - cannot be installed or injected into boot disk in log file, 57
  - letters appear differently, 62
- drives
  - do not appear on migrated operating system, 63

## E

- editing the Windows Boot.ini file, 42
- error during data copy of Linux migration, 58
- errors
  - credentials, 46
  - NTFS, 56
  - out of memory, 59
  - troubleshooting, 46

## F

- FAQs, 46
- file system could not be resized, 57
- file systems
  - with the same UUID, 65
- firewalls, 19

## H

- HP Insight Control
  - documentation, 67

## I

- incorrect LUN size detected in step 2 of the migration wizard, 49
- Insight Control does not detect virtual machines on mapped network drives, 53
- Integrated Components
  - do not install on destination virtual machine after migration, 63
- IP address cannot be assigned on destination server, 52

## K

- kernel panic when booting to the Insight Control CD ISO, 50
- keyboard
  - does not work when booting to the Insight Control CD ISO, 50
  - troubleshooting, 60, 61, 63

## L

- launching
  - migration wizard, 37
  - migrations through Quick Launch, 39
  - migrations through Systems Insight Manager, 37
- licenses
  - overview, 10, 13
  - standalone documentation, 70
  - verifying, 19

## Linux

- data copy error, 58
- deploying Source Agent, 26
- destination physical server prerequisites, 36
- destination size requirement, 28
- destination virtual machine prerequisites, 36
- mouse does not work, 62
- P2V post-migration tasks, 43
- preparing for a server migration, 35
- resizing file systems, 18
- Source Agent using non-root credentials fails, 48
- source physical server prerequisites, 35
- source server requirements, 22
- source virtual machine prerequisites, 36
- X2P post-migration tasks, 42
- logical drives
  - removed or deleted, 65

## M

- manually creating a virtual destination server
  - virtual machine, 30
- menus missing, 46
- Microsoft Cluster
  - migration overview, 71
  - post-migration, 72
  - pre-migration, 71
  - performing the migration, 72
- migration
  - different drive letters after migration, 62
  - fails with the Microsoft Hyper-V role enabled, 49
  - hangs if source server is shut down, 56
  - hangs or incomplete, 65
  - Microsoft Cluster server environment, 71
  - starting a new one after current one is stopped, 58
  - stops responding during auto-booting of Microsoft Hyper-V, 53
  - troubleshooting, 54
- migration agent
  - deployment fails, 47
- migration checklist, 12
- migration does not start after confirmation, 60
- migration wizard, 13

- hangs, 46
- launching, 37
- using to boot a virtual destination server, 31
- mouse
  - does not work, 62
  - does not work when booting to the Insight Control CD ISO, 50
  - troubleshooting, 60, 61, 62, 63

## N

- Nagios
  - documentation, 67
- network adapter
  - in destination ESX virtual machine is not initialized, 64
- NTFS partitions
  - error message, 56
  - resizing, 17

## O

- out of memory error, 59
- overview
  - Deploy Agent, 13
  - license, 13
  - migration wizard, 13
  - server migration, 12
  - status / logs, 13
  - types of migration, 10
  - upload drivers, 13

## P

- P2P, 10
  - post-migration tasks, 41
  - source server prerequisites, 33
- P2V, 10
  - booting a virtual destination server, 31
  - post-migration tasks, 41
  - source server prerequisites, 33
  - using the migration wizard, 31
- physical destination servers prerequisites, 28
- Physical-to-ProLiant migration see P2P
- Physical-to-virtual migration see P2V
- planning
  - migration strategy, 17
  - preparing a schedule, 17
- ports
  - used, 19
- post-migration
  - troubleshooting, 60
- post-migration tasks
  - editing the Windows Boot.ini file, 42
  - installing ProLiant Support Packs for Windows, 41
  - Linux, 42
  - Linux P2V, 43
  - validating the migration, 43
  - Windows P2P, 41
  - Windows P2V, 41
- pre-migration tasks
  - installing ProLiant Support Packs for Windows, 20
- preparing

- application station requirements, 16
  - application station system requirements, 16
  - choosing server migration Agents, 23
  - critical or hardware-dependent applications , 18
  - Linux server migration, 35
  - migration checklist, 12
  - source server operating system support, 16
  - uninstalling guest tools, 23
  - Windows server migration, 34
  - primary controller
    - does not have drives attached, 51
    - does not have logical drives defined, 50
    - not supported, 51
  - ProLiant Support Pack see PSP
  - PSP
    - documentation, 67
    - downloading, 67
    - installing Windows after migration, 41
    - installing Windows before migration, 20
- ## Q
- Quick Launch
    - launching server migrations, 39
- ## R
- related products
    - HP OpenView, 10
    - HP SmartStart CD, 10
    - HP SmartStart Scripting Toolkit, 10
    - Insight Control server deployment, 10
    - PINT and PISA, 10
  - requirements
    - Linux source server, 22
    - Windows source server, 22
  - resizing Linux file systems, 18
  - restarting a migration agent, 27
- ## S
- SAN migration, 36
  - schedule preparation, 17
  - server
    - unresponsive during PSP installation, 64
  - server thread error, 54
  - SIM
    - documentation, 67
  - Source Agent
    - detecting, stopping, or restarting, 27
  - Source Agent deployment
    - fails from a Windows Server 2003 Application Station, 48
  - Source Agents
    - choosing, 23
    - deploying, 23
  - source preparation
    - troubleshooting, 46
  - source server
    - deploying Windows Source Agent, 24
    - description, 12
    - dual-boot, 17
    - fails with the Microsoft Hyper-V role enabled, 49
    - identification fails, 47
    - Linux requirements, 22
    - migration hangs, 56
    - NTFS partitions, 17
    - prerequisites, 33
    - Source Agent fails to launch when rebooting in mode, 58
    - unrecoverable sector-read errors on hard drive not supported and fail a P2P migration, 58
    - unrecoverable sector-read errors on hard drive not supported and fail a P2V migration, 58
    - Windows requirements, 22
  - source server operating system support, 16
  - status / logs
    - overview, 13
    - viewing migration logs, 43
  - stopping a migration agent, 27
  - storage controllers display as unknown, 52
  - support
    - how to contact HP, 66
    - warranty information, 66
  - system requirements
    - application station, 16
  - Systems Insight Manager
    - launching server migrations, 37
- ## T
- troubleshooting, 46
    - destination preparation, 49
    - migration process, 54
    - post-migration, 60
    - source preparation, 46
    - user interface, 46
  - types of migration, 10
  - typographic conventions, 66, 68
- ## U
- uninstalling guest tools, 23
  - unsupported servers
    - warning message is not displayed, 54
  - upgrading server migration software, 10
  - user interface
    - troubleshooting, 46
- ## V
- V2P, 10
    - source server prerequisites, 33
  - V2V, 10
    - booting a virtual destination server, 31
    - source server prerequisites, 33
    - using the migration wizard, 31
  - validating the migration, 43
  - verifying licenses, 19
  - virtual machine
    - kernel panic when booting, 50
    - mouse does not work, 50
  - Virtual-to-ProLiant migration see V2P
  - Virtual-to-virtual migration see V2V

## W

### websites

- HP documentation, [67](#)
- ProLiant Support Pack, [67](#)

### Windows

- destination physical server prerequisites, [34](#)
  - destination virtual machine prerequisites, [35](#)
  - installing PSP after migration, [41](#)
  - installing PSP before migration, [20](#)
  - P2P post-migration tasks, [41](#)
  - P2V post-migration tasks, [41](#)
  - preparing for a server migration, [34](#)
  - SAN migration, [36](#)
  - source physical server prerequisites, [34](#)
  - source virtual machine prerequisites, [34](#)
  - unrecoverable sector-read errors, [58](#)
  - USB mouse or keyboard do not work, [61](#)
- Windows server migration PINT fails with Agent is already deployed or not required error, [59](#)
- Windows server migration PINT fails with General failure occurred error, [60](#)

## Y

- yellow bang (!) appears on NIC adapter, [63](#)

