



IPSWITCH
FILE TRANSFER

WS_FTP Server Installation and Configuration Guide



WS_FTP Server

CHAPTER 1 Introduction

What is WS_FTP Server?	1
WS_FTP Server product family.....	2
For more assistance	4
New in WS_FTP Server 7.6.3.....	5

CHAPTER 2 Installing and Configuring WS_FTP Server

System requirements for WS_FTP Server.....	7
WS_FTP Server.....	7
Ipswitch Notification Server	9
WS_FTP Server Manager.....	10
Installing WS_FTP Server on Windows Server 2008 or 2012	10
Installing WS_FTP Server.....	11
Using the Express install option.....	12
Using the Custom install option	14
Activating WS_FTP Server for new or upgraded licenses.....	16
Installing remote services.....	17
Configuring WS_FTP Server to use remote services.....	18
Configuring Microsoft SQL Server to Start on Reboot	20
Uninstalling WS_FTP Server.....	21

CHAPTER 3 Accessing WS_FTP Server

Accessing the WS_FTP Server Manager	23
Navigating the WS_FTP Server Manager	24

CHAPTER 4 Installing and Configuring the WS_FTP Server Web Transfer Client

System Requirements for WS_FTP Server Web Transfer Client	25
Installing the WS_FTP Server Web Transfer Client.....	28
Configuring the WS_FTP Server Web Transfer Client.....	31
Configuring Support for Single Sign On	33
Uninstalling the WS_FTP Server Web Transfer Client.....	34
WS_FTP Server Web Transfer Client Notes.....	34

CHAPTER 5 Installing and Configuring the Ad Hoc Transfer Module

System Requirements for Ad Hoc Transfer Module	37
Installing the Ad Hoc Transfer Module	40
Configuring the Ad Hoc Transfer Module.....	43
Uninstalling the Ad Hoc Transfer Module.....	45
Ad Hoc Transfer Module Notes.....	45
Installing on a Single Computer.....	47

CHAPTER 6 Configuring a Failover Solution Using Microsoft Cluster Services

Overview.....	51
Architecture.....	52
Requirements	53
Step 1: Configure the MSCS Failover Solution	54
Step 2: Install WS_FTP on Both Nodes	55
Step 3: Edit Ipswitch Registry Settings on Both Nodes	56
Step 4: Configure Ipswitch Services in Microsoft Cluster Services.....	58
Step 5: Test the Failover Cluster	64

CHAPTER 7 Configuring a Failover Solution Using Microsoft Network Load Balancing

Overview.....	67
Architecture.....	68
Requirements	69
Step 1: Configure the NLB Failover Solution.....	70
Configuring a Two-Node Cluster in Windows Server 2008.....	70
Ensuring Both Nodes Can Access External Resources	77
Step 2: Install WS_FTP on Both Nodes	78
Step 3: Edit Ipswitch Registry Settings on Both Nodes	79
Step 4: Install WS_FTP Server Modules	81
Installing and Configuring the Web Transfer Module.....	81
Installing and Configuring the Ad Hoc Transfer Module	82
Configuring the Ad Hoc Transfer Outlook Plugin.....	83
Step 5: Configure Ipswitch Services to Restart on Failure.....	84
Step 6: Configuring IIS for Log Viewing.....	85
Step 7: Test the Failover Cluster (NLB)	86

APPENDIX A Upgrades

Upgrading Licenses	89
Upgrading from previous WS_FTP Server versions.....	90
Upgrading your WS_FTP Server Installation OS from Windows 2003 to 2008.....	91
Upgrading Ad Hoc Transfer Plug-in for Outlook.....	93

APPENDIX B "Silent" Install

"Silent" install for WS_FTP Server	97
More on Serial Numbers	100
Setup.log	101
The SUPPRESSREBOOT option.....	102
"Silent" install for the WS_FTP Server Web Transfer Client.....	103
"Silent" install for the Ad Hoc Transfer Module.....	105
"Silent" install for the Ad Hoc Transfer Plug-in for Outlook.....	107

APPENDIX C Remotely Deploying the Ad Hoc Transfer Plug-in for Outlook

Remote Deployment via Active Directory Group Policy	111
---	-----

APPENDIX D Configuring Windows Share Permissions for Failover Clusters

Configuring Sharing and Security Permissions.....	115
Setting Sharing and Security Permissions in Windows Server	116

APPENDIX E Migrating WS_FTP Server to a Failover Cluster

Overview	121
Migrating Data from the Standalone Server	122
Installing WS_FTP on Both Nodes.....	123
Copying Ipswitch Registry Settings to Both Nodes.....	124

APPENDIX F Replacing a Failed Node in a Failover Cluster

Replacing a Failed Node.....	127
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Index

Introduction

In This Chapter

What is WS_FTP Server?	1
WS_FTP Server product family	2
For more assistance	4
New in WS_FTP Server 7.6.3	5

What is WS_FTP Server?

Ipswitch WS_FTP™ Server is a highly secure, fully featured and easy-to-administer file transfer server for Microsoft Windows® systems. WS_FTP Server lets you create a host that makes files and folders on your server available to other people. Users can connect (via the Internet or a local area network) to your host, list folders and files, and (depending on permissions) download and upload data. Administrators can control access to data and files with granular permissions by folder, user, and group. Administrators can also create multiple hosts that function as completely distinct sites.

WS_FTP Server is proven and reliable. It is used by administrators globally to support millions of end users and enable the transfer of billions of files.

WS_FTP Server complies with the current Internet standards for FTP and SSL protocols. Users can connect to the server and transfer files by using an FTP client that complies with these protocols, such as Ipswitch WS_FTP LE or Ipswitch WS_FTP Professional.

WS_FTP Server with SSH also includes support for SFTP transfers over a secure SSH2 connection.

WS_FTP Server product family

The WS_FTP Server product family provides a broad range of file transfer functionality, from fast file transfer via the FTP protocol, to secure transfer over SSH, to a complete file transfer (server/client) solutions.

WS_FTP Server: Our base product offers fast transfer via the FTP protocol with the ability to encrypt transfers via SSL, and includes FIPS 140-2 validated encryption of files to support standards required by the United States and Canadian governments.

WS_FTP Server can operate standalone or is easily integrated with existing user databases (Active Directory, Windows NT, ODBC). The WS_FTP Server Manager provides web-based administration from the local machine and also allows remote management of the server. The Server Manager can use our integrated web server or Microsoft IIS.

When used with our WS_FTP Professional client, WS_FTP Server can retry a failed transfer, perform file integrity checks, verify a user's identity, and speed transfers by using compression and multi-part transfers.

WS_FTP Server is designed with a tiered architecture that allows components and data to be maintained on one computer or distributed among several, allowing the configuration to scale to handle larger capacity.

WS_FTP Server can be deployed in an active-passive failover configuration to ensure file transfer service is always available. The failover configurations use shared resources for the user database, configuration data, and the file system for user directories and log data.

WS_FTP Server with SSH: This product offers all of the features of WS_FTP Server plus the ability to send and receive files over SSH, which automatically delivers encrypted communications during and throughout file transport.

WS_FTP Server Corporate: This product extends the secure transfer capabilities of WS_FTP Server with SSH to include:

Support for SCP2 to provide a secure version of the remote copy capability used in UNIX applications

LDAP support for authentication to leverage existing corporate databases.

Integrates the WS_FTP Server Web Transfer Module to provide a complete file transfer solution (server and client).

- **WS_FTP Server Web Transfer Module**

The WS_FTP Server Web Transfer Module, an add-on to WS_FTP Server products, enables users to transfer files between their computers and company servers over HTTP/S using a Web browser. As a result, employees and external business partners can connect to company networks simply and securely to share files, data, and other critical business information.

- **WS_FTP Server Ad Hoc Transfer Module**

The WS_FTP Server Ad Hoc Transfer Module, an add-on to WS_FTP Server products, lets users send files from their computers to one or more individuals by sending an Ad Hoc Transfer message via email. Recipients of an Ad Hoc Transfer "package" can connect to a download page, hosted on the WS_FTP Server, and download the files that have been "sent" to them. This module lets your users send a secure transfer to colleagues and clients, without the need to set up temporary accounts.

Users can send a package by using the Ad Hoc Transfer web interface or Microsoft Outlook.

For more assistance

For more assistance with WS_FTP Server, consult the following resources:

- **Installation and Configuration Guide** (<http://www.ipswitch.com/ftpserver76installguide>). This guide includes information on configuring the modules, failover clusters, custom installations, unattended "silent" installations, and uninstalling the product.
- **User Guide** (<http://www.ipswitch.com/ftpserver76ug>). This guide describes how to use the application out-of-the-box. It is also useful if you want to read about the application before installing. To view the User Guide offline, select **Start > Programs > Ipswitch WS_FTP Server > WS_FTP Server User Guide**.
- **Application Help**. Contains dialog assistance, general configuration information, and how-to's that explain the use of each feature. The application help can be accessed from any page in the WS_FTP Server Manager by clicking **Help**.
- **Ipswitch Knowledge Base** (<http://www.ipswitchft.com/support>). Search the Ipswitch Knowledge Base of technical support and customer service information.
- **WS_FTP Server Forum** (<http://forums.ipswitch.com/>). Provides a resource for you to interact with other WS_FTP Server users to share helpful information about the application.

New in WS_FTP Server 7.6.3

- Version 7.6.3 includes the option to delete old files and/or empty sub-folders after a specified number of days. You can configure cleanup settings at the folder level or at the host level. By default, folders will inherit the host-level default values unless they are overridden at the folder level. Host-level settings also apply to virtual folders and their descendants, but only if the virtual folder points to a location outside of the host's top folder, to avoid having multiple cleanup profiles affect a single folder. To control this setting, see the *WS_FTP Server User Guide* > Managing Folders and Files > Cleaning up old files and empty subfolders.
- This release also includes the option to expire user accounts a specified number of days after user account creation or last logon. To control this setting, see the *WS_FTP Server User Guide* > Managing User Accounts > Creating user accounts. At the host level you can also delete expired user accounts after they have been expired a specified number of days. These settings only take effect when the host's authentication database type is WSFTP. To control this setting, see the *WS_FTP Server Manager User Guide* > Managing User Accounts > Setting user options for hosts > Configuring user settings.
- A new service, "Ipswitch Scheduler," is installed and runs at 1:00 am every night. This service cleans up old files and sub-folders, as well as expired users. The cleanup process will never delete virtual folders themselves, only physical folders.
- When using a command line to create a user, administrators can now use the `-o homefolder` argument to set a user's home folder.
- File transfers in WTM and Ad Hoc now display a progress bar indicating percentage of transfer completed. This feature is not available in IE9.

Installing and Configuring WS_FTP Server

In This Chapter

System requirements for WS_FTP Server7
 Installing WS_FTP Server 11
 Installing remote services..... 17
 Configuring Microsoft SQL Server to Start on Reboot 20
 Uninstalling WS_FTP Server..... 21

System requirements for WS_FTP Server

WS_FTP Server

Supported Operating Systems

For a standalone WS_FTP Server installation:

Operating System	Edition	Service Packs	Supported Versions
Windows Server 2012	<ul style="list-style-type: none"> ▪ Standard ▪ Datacenter 		<ul style="list-style-type: none"> ▪ 64-bit: English
Windows Server 2008	<ul style="list-style-type: none"> ▪ Standard ▪ Enterprise 	SP2 or later	<ul style="list-style-type: none"> ▪ 32-bit: English and German ▪ 64-bit: English
Windows Server 2008 R2	<ul style="list-style-type: none"> ▪ Standard ▪ Enterprise 		<ul style="list-style-type: none"> ▪ 64-bit: English

For a WS_FTP Server failover cluster using Microsoft Clustering Services:

Operating System	Edition	Service Packs	Supported Versions
Windows Server 2012	<ul style="list-style-type: none"> ▪ Standard ▪ Datacenter 		<ul style="list-style-type: none"> ▪ 64-bit: English
Windows Server 2008	Enterprise	SP2 or later	<ul style="list-style-type: none"> ▪ 32-bit: English
Windows Server 2008 R2	Enterprise		<ul style="list-style-type: none"> ▪ 64-bit: English

WS_FTP Server Installation and Configuration Guide

For a WS_FTP Server failover cluster using Microsoft Network Load Balancing:

Operating System	Edition	Service Packs	Supported Versions
Windows Server 2012	<ul style="list-style-type: none">StandardDatacenter		<ul style="list-style-type: none">64-bit: English
Windows Server 2008	<ul style="list-style-type: none">StandardEnterprise	SP2 or later	<ul style="list-style-type: none">32-bit: English
Windows Server 2008 R2	<ul style="list-style-type: none">StandardEnterprise		<ul style="list-style-type: none">64-bit: English

System Requirements

- Microsoft .NET Framework 2.0



If you plan to install the WS_FTP Server Web Transfer Client, make sure that Microsoft .NET Framework 3.0 is installed.

- ASP.NET (via IIS) and .NET 3.0 or 3.5 for Web Transfer Module, Ad Hoc Transfer module, and WS_FTP Server Corporate
- Broadband connection to the Internet (recommended)
- During installation, you can select Microsoft Internet Information Services (IIS) as your web server (instead of WS_FTP's Web Server). If you choose this option, you need to have Microsoft Internet Information Services (IIS) 7.0 or later installed on your computer.
- The default database for configuration data is PostgreSQL 8.3.20 (local only).
- During installation, you can select Microsoft SQL Server as your database for configuration data. If you choose this option, you must use one of the following versions:
 - Microsoft SQL Server 2012 Express, Standard, or Enterprise versions (local or remote)
 - Microsoft SQL Server 2008 or 2008 R2 Express, Standard, or Enterprise versions (local or remote)

Recommended Hardware

The minimum recommended hardware is the same as recommended for Windows Server 2008. (For more information, see the Windows Server information on Microsoft's web site.) If you are using a later version operating system, you should meet the hardware requirements for that system.

Component	Requirement
Processor	<ul style="list-style-type: none">Minimum: 1 GHz (x86 processor) or 1.4 GHz (x64 processor)Recommended: 2 GHz or faster
Memory	<ul style="list-style-type: none">Minimum: 512 MB RAMRecommended: 2 GB RAM or greaterMaximum (32-bit systems): 4 GB (Standard) or 64 GB (Enterprise and Datacenter)Maximum (64-bit systems): 32 GB (Standard) or 1 TB (Enterprise and Datacenter) or 2 TB (Itanium-Based Systems)
Available disk space	<ul style="list-style-type: none">Minimum: 10 GBRecommended: 40 GB or greater

Virtualization Requirements

- VMware ESXi 4.0 (32-bit and 64-bit guest operating systems) and ESX 5.0
- Microsoft Hyper-V 1.0 on Windows 2012; Windows 2008 64-bit (32-bit and 64-bit guest operating systems)

Ipswitch Notification Server

All requirements for WS_FTP Server (above), plus:

- Broadband or dial-up connection to the Internet (required for email notifications sent from outside of the local area network)
- Modem and phone line required for pager and SMS notifications (optional)



Ipswitch Notification Server is a part of WS_FTP Server and is typically installed on the same machine.

WS_FTP Server Manager

The WS_FTP Server Manager provides web-based administration from the local machine and also allows remote management of the server.

Server Requirements:

- WS_FTP's Web Server (included in installation package) or Microsoft Internet Information Services (IIS) 7.0 or later.

Client Requirements:

- Microsoft Internet Explorer 8 or later; Mozilla Firefox 16 or later, Google Chrome 21 or later, Apple Safari 5 or later (Mac-only)
- Enabled Javascript support in the Web browser
- Enabled Cookie support in the Web browser



WS_FTP Server Manager is a part of WS_FTP Server and is installed on the same machine.

Installing WS_FTP Server on Windows Server 2008 or 2012

The WS_FTP Server installer automatically activates certain components in your Windows Server installation. This is necessary because after installation, Windows Server does not turn on non-core operating system components. However, before installing WS_FTP Server, you should be sure that these changes conform to your organization's security policies.

When you install WS_FTP Server, the install activates the following 2008 Server roles:

- ISAPI Extensions
- Windows Authentication
- ASP

Note: If you are installing the WS_FTP Server Web Transfer Client, there are additional components activated. See "System requirements for WS_FTP Server Web Transfer Client" below.

Installing WS_FTP Server



Important: If upgrading from a previous version of WS_FTP Server, before running the installation program, see the section on upgrades.

During the installation, a host using the internal WS_FTP Server user database is created. You can create hosts using Microsoft Active Directory, Microsoft Windows, or other external user database types after the install is completed.



Enabled Cookie support in the Web browser



Important: Installing WS_FTP Server via Terminal Services is not recommended. You can use Terminal Services to install subsequent WS_FTP Server updates and installations.



Note: A command window may display and pause at various points during install. These pauses may last a minute or longer and are an expected part of the product installation.

To install WS_FTP Server:

- 1 If you are using Microsoft IIS as your web server, before you begin the WS_FTP Server installation, confirm that Microsoft IIS is running and that you can access the Web site on which you will install the WS_FTP Server Manager web application.
- 2 If you received an installation CD, insert it into a drive. If the Welcome screen does not appear, select **Start > Run**, and enter the drive path followed by launch.exe.

Example: D:\launch.exe

- OR -

If you downloaded the software from our Web site, double-click the executable (.exe) file to begin the installation.

- 3 On the installation Welcome screen, click **Read** to read the release notes or **View** to download and view an electronic copy of the Getting Started Guide. Click **Next** to continue. The License Agreement dialog appears.
- 4 Read the license agreement carefully. If you agree to its terms, select **I accept the terms of the license agreement** and click **Next**. The Setup Type dialog appears.

- 5 The Setup Type dialog lets you select from two installation methods, **Express** and **Custom**.
 - **Express** installs the WS_FTP web server and installs the following components to default locations: WS_FTP Server or WS_FTP Server with SSH, Ipswitch Notification Server, Ipswitch Logging Server, and PostgreSQL. The option to install WS_FTP Server with a Microsoft IIS web server, or with a SQL Server database, will not be available with express install.
 - **Custom** installation allows you to select the specific components you want to install and also specify locations for each component install. Custom install also allows you the option of using a Microsoft IIS web server and/or MS SQL Server database.

Select the installation method you want to use, then click **Next**.

Using the Express install option



Important: The express installation option does not include the option of installing WS_FTP Server with Microsoft IIS as the web server for WS_FTP Server Server Manager, or Microsoft SQL Server as your database. If you wish to run WS_FTP Server with IIS or SQL Server, click the back button and choose the Custom install option.

- 1 If you are installing on Windows 2008 or later, you will first see the Enable Ports dialogue. Selecting **Yes** will configure the Windows firewall to allow incoming connections from the FTP and SSH services. (If you select **No**, you will still be able to configure the firewall manually later.)
- 2 Enter the port that your WS_FTP Web Server will use for WS_FTP Server Server Manager. (The install will verify that the port is not in use.) Click **Next**.
- 3 Verify or enter the fully qualified host name for this server. The installation program provides the host name of the server, but you may need to add domain information. This host name is used to create the first host.
- 4 When you click **Next**, one of the following screens opens:
 - **Specify a PostgreSQL Server and Administrator Account.** This screen opens if PostgreSQL database server was previously installed on your computer. Go to step 4.
 - **Create User Accounts.** Continue to step 5.
- 5 In the **Administrator Password** box, enter a System Administrator Password for access to the system administrator (sa) account for the PostgreSQL database that hosts WS_FTP Server data. Click **Next**. The Enter Host Name screen opens.

- 6 The Create User Accounts screen opens. Set the appropriate options.
 - **Create the WS_FTP Server system administrator account on this host.** Select the host on which you want to create a system administrator account. If you are installing for the first time, only one host is available.
 - **Username.** Enter a username. This username is used to create:
 - a WS_FTP Server user to serve as the system administrator. This user belongs to the specified host, but is granted full system administrator permissions for all hosts on the server.
 - a non-privileged Windows user account named `IPS_` plus the name you provide. For example, if you enter `admin`, the Windows user is named `IPS_admin`. This account is used by the configuration data store (PostgreSQL) and serves as the run-as user for the `WSFTPSVR` virtual folder.
 - **Password** and **Confirm Password.** Enter and confirm a password. This password is assigned to both the WS_FTP Server system administrator user and the Windows user account.



Important: Your domain password policy may require that you use complex password rules. If so, make sure that you use a password that conforms to the domain requirements. The account will not be created without conforming to the domain password requirements.

- 7 Click **Next**. The Ready to Install the Program screen opens.
- 8 The install program is now ready to install the components you selected. Click **Install**. The install program installs and configures the components you selected. This may take a few minutes.
- 9 If you do not have an active product license, the License Activation dialog will appear. See "Activating WS_FTP Server for New or Upgraded Licenses" below for details.
- 10 Click **Finish** to complete the installation.

Using the Custom install option

- 1 If you are installing on Windows 2008, you will first see the Enable Ports dialogue. Selecting **Yes** will configure the Windows firewall to allow incoming connections from the FTP and SSH services. (If you select **No**, you will still be able to configure the firewall manually later.)
- 2 The Select Features screen opens. Select the checkboxes next to the components you want to install. Click **Next**.
- 3 Choose the database you wish to use for WS_FTP Server: PostgreSQL or Microsoft SQL Server (you will be asked for configuration values later in the install).
- 4 For each component that you selected, confirm the **Destination Folder** where the install program will install the component. To choose a new folder, select **Browse** and choose another folder. After you have made your selection, click **Next**. Repeat this step for each component (including the database components). When the destination folder for each component has been selected, the Select Web Host screen appears.
- 5 Select the web server that you will use with WS_FTP Server. (If you select Microsoft IIS, be sure that IIS is running on the PC that you are installing to.) Click **Next**.
- 6 If you chose the PostgreSQL database, enter the port that your WS_FTP Web Server will use. (The install will verify that the port is not in use.) Click **Next**.
- 7 Next, enter the fully qualified host name for this server. The installation program provides the host name of the server, but you may need to add domain information. This host name is used to create the first host.
- 8 When you click **Next**, one of the following screens appears:
 - **Specify a PostgreSQL Server and Administrator Account.** This screen opens if PostgreSQL database server was previously installed on your computer. Go to step 8.
 - **Create User Accounts.** Continue to step 9.
- 9 In the **Administrator Password** box, enter a System Administrator Password for access to the system administrator account for the PostgreSQL database that hosts WS_FTP Server data. Click **Next**. The Enter Host Name screen opens.

- 10** The Create User Accounts screen opens. Set the appropriate options.
- **Create the WS_FTP Server system administrator account on this host.** Select the host on which you want to create a system administrator account (if you are using WS_FTP Server). If you are installing for the first time, only one host is available.
 - **Username.** Enter a username. This username is used to create:
 - a WS_FTP Server user (if applicable) to serve as the system administrator. This user belongs to the specified host, but is granted full system administrator permissions for all hosts on the server.
 - a non-privileged Windows user account named `IPS_` plus the name you provide. For example, if you enter `admin`, the Windows user is named `IPS_admin`. This account is used by the configuration data store (PostgreSQL) and serves as the run-as user for the `WSFTPSVR` Microsoft IIS virtual folder (if you use Microsoft IIS).
 - **Password and Confirm Password.** Enter and confirm a password. This password is assigned to both the WS_FTP Server system administrator user (if applicable) and the Windows user account. Click **Next**.



Important: Your domain password policy may require that you use complex password rules. If so, make sure that you use a password that conforms to the domain requirements. The account will not be created without conforming to the domain password requirements.



Important: The Windows user account must comply with the security policies on your Windows server. Once the install completes, verify that the account is not set to expire at the next logon and that you are aware of any expiration policies that apply to the account.

- 11** If you chose Microsoft SQL Server for your database (in step 2), next you will be asked to enter the Server's name or IP address with the instance name (formatted as Server/Instance), a Port number (the install autofills SQL Server's default value of 1433), the Master Database Username, and Password. Click **Next**.
- 12** If you chose Microsoft IIS as your web server, the Web Configuration screen opens. In the **Use this Web site** dropdown, select the preferred Internet Information Services (IIS) Web site. Click **Next**.
- 13** The Ready to Install the Program screen opens, which will install the components you selected. Click **Install**. This may take a few minutes.
- 14** If you do not have an active product license, the License Activation dialog will appear. See "Activating WS_FTP Server for New or Upgraded Licenses" below for details.
- 15** Click **Finish** to complete the installation.

Activating WS_FTP Server for new or upgraded licenses

There are four ways you can make a WS_FTP Server installation active:

- If you installed WS_FTP Server using an installation application downloaded from a link in a purchase confirmation email, then the program will be fully functional immediately after installation. No further action will need to be taken.
 - If you downloaded the installation application from another source, when you run the installation, it will automatically ask you for your license serial number and attempt to activate.
 - If the WS_FTP Server license is not activated during installation, or if you are upgrading from a previous WS_FTP Server version, you can manually activate WS_FTP Server (see below).
 - If for some reason you cannot activate your license via Internet connection, you can opt for an offline activation. To force offline activation, on the Activation screen, clear the check mark for **Use active Internet connection**. You will then need to go to www.myipswitch.com, click **Offline Activation**, and follow the instructions displayed.
 - You can manually activate the license on an existing installation. Before you start the manual activation process, make sure that you have your product serial number, MyIpswitch account name, and password available for use during activation. To manually activate the license on an existing installation:
 - Click **Start > Programs > Ipswitch WS_FTP Server > Activate or Refresh WS_FTP Server License**.
- or -
- If you run the WS_FTP Server installation, near the end, it will display a License dialog. Enter your serial number and click **Activate** to start the license activation process.

Follow the on-screen instructions, entering your product serial number, MyIpswitch account name, and password. When the activation is complete, a confirmation page indicates the license has been activated. If the activation does not complete successfully, you may be behind a proxy or firewall that is blocking the activation request. In this case, click the Offline button, then follow the onscreen instructions.

For more help and information about licensing, go to the MyIpswitch (www.myipswitch.com) licensing portal.

Installing remote services

If you enable remote connections to the database on the server where WS_FTP Server is installed, you can install Ipswitch Notification Server or Ipswitch Log Server on another computer.

- 1 If you are using Microsoft IIS as your web server, before you begin the WS_FTP Server installation, confirm that Microsoft IIS is running and that you can access the Web site on which you will install the WS_FTP Server Manager web application.
- 2 If you received an installation CD, insert it into a drive. If the Welcome screen does not appear, select **Start > Run**, and enter the drive path followed by launch.exe.

Example: D:\launch.exe

- OR -

If you downloaded the software from our Web site, double-click the executable (.exe) file to begin the installation.

- 3 On the installation Welcome screen, click **Read** to read the release notes or **View** to download and view an electronic copy of the Getting Started Guide. Click **Next** to continue. The License Agreement dialog appears.
- 4 Read the license agreement carefully. If you agree to its terms, select **I accept the terms of the license agreement** and click **Next**. The Setup Type dialog appears.
- 5 Select **Custom** and click Next. The Select Features screen opens.
- 6 Select the checkbox next to the service or services that you want to install on this server. For a standalone installation of Ipswitch Notification Server or Ipswitch Log Server, make sure the checkbox next to WS_FTP Server is cleared. Click **Next**.
- 7 For each component that you selected to install, confirm the **Destination Folder** where the install program will install the component. To choose a new folder, select **Browse** and choose another folder. After you have made your selection, click **Next**.
- 8 Repeat step 6 for each component. When the destination folder for each component has been selected, the database Logon screen opens.
- 9 Enter the IP address of the server where WS_FTP Server is installed. If you are using the database installed with WS_FTP Server, leave the port number as 5432; otherwise, enter the port on which the database server listens.
- 10 Enter the username and password for the database administrative user. If you are using the database installed with WS_FTP Server, enter the administrator username and password that you entered during the installation of WS_FTP Server on the other server. For default installations, you must prepend the username with `IPS_` (for example, if you entered `admin` as the administrator username, enter `IPS_admin` here).



Note: The username for PostgreSQL is case sensitive.

11 Click **Next**.

- If you are installing Ipswitch Log Server, the Enter Web Administration User name screen opens. Continue to step 12.
- Otherwise, the Web Configuration screen opens. Continue to step 13.

12 Enter a username and password. This username and password is used to create:

- a user to serve as the Web administrator for the Ipswitch Log Server administration application.
- (only applies to Microsoft IIS installations) a non-privileged Windows user account named `IPS_` plus the name you provide. This account is used to specify permissions for log files and serves as the run-as user for the `WSFTPLogServer` virtual folder on the web server.

Click **Next**. If using Microsoft IIS as your web server, the Web Configuration screen opens. Otherwise, proceed to step 14.

13 (Step only applies to Microsoft IIS users.) In the **Use this Web site** list, select the preferred Internet Information Services (IIS) Web site. Click **Next**. The Ready to Install the Program screen opens.

14 The install program is now ready to install the components you selected. Click **Install**. The install program installs and configures the components you selected. This may take a few minutes.

Configuring WS_FTP Server to use remote services

If you choose to install Ipswitch Log Server and/or Ipswitch Notification Server on a remote server, you must configure WS_FTP Server to use those services.

To configure WS_FTP Server to use a remote notification server:

- Open the WS_FTP Server Manager on the computer where WS_FTP Server is installed.
- From the top menu, select **Server > Server Settings > Notification Server**. The Notification Server Settings page opens.



Note: You must be logged in as a system administrator for the Notification Server Settings link to appear.

- In **Notification server IP address**, enter the IP address or host name of the remote notification server. Click **Save**.



Important: After changing **Notification server IP address**, you must restart the WS_FTP Server and SSH Server services.



Note: If you installed a remote log server as well, you must update the **Log Settings** section with the IP address of the remote log server.

To configure WS_FTP Server to use a remote log server:

- Open the WS_FTP Server Manager on the computer where WS_FTP Server is installed.
- From the top menu, select Server > Server Settings > Log Settings. The Log Settings page opens.
- Under **Enable WS_FTP Logging** in **Log server host or IP address**, enter the IP address or host name of the remote log server.
- Under **Remote Log Server Settings**, enter the username and password you entered for the log server user during the log server installation.



If you installed WS_FTP server using the Express option, the username and password will be the same as those used for the WS_FTP Server Manager account.

- In **Web admin login location**, enter the Web address for the login page of the remote log server. In most cases, this address will be `http://<IPAddress>/WSFTPLogServer/ftplogserver/login.asp`, with `<IPAddress>` replaced with the IP address listed in **Log server host or IP address**.

To verify the login location, go to the computer where the log server is installed, and:

- if using the Ipswitch web server, look in the folder:

32-bit: `C:\Program Files\Ipswitch\WWWROOT\WSFTPSVR\FTPLogServer`

64-bit: `C:\Program Files (x86)\Ipswitch\WWWROOT\WSFTPSVR\FTPLogServer`

- if using IIS, look in the folder: `C:\inetpub\wwwroot`

Configuring Microsoft SQL Server to Start on Reboot

If Microsoft SQL Server is installed on the same system as WS_FTP Server, when you reboot that system, you may have to manually start the Microsoft SQL Server service. To avoid this, you can auto restart the service by making it a dependency of the WS_FTP Server services.

There are two commands you can run to add Microsoft SQL Server dependencies manually, which will then cause the WS_FTP Server services to properly wait for SQL Server to start up (if SQL Server is local).

Open the command program (cmd.exe), and use the **sc** (NT service controller) command as follows:

```
sc config "Ipswitch WS_FTP Server" depend= MSSQLSERVER
```

```
sc config "Ipswitch SSH Server" depend= MSSQLSERVER
```

Where MSSQLSERVER may need to be replaced if the Microsoft SQL Server service is named differently (e.g. MSSQL\$SQLEXPRESS in the case of Microsoft SQL Server Express edition).

Uninstalling WS_FTP Server

- 1 In the Control Panel, select Add/Remove Programs.
- 2 Select Ipswitch WS_FTP Server, then click **Change/Remove** and follow the onscreen prompts to uninstall.

The User Configuration Data Exists screen presents options for removing the configuration database:

- Remove the WS_FTP Server configuration data from the data store
- Remove the Ipswitch Notification Server configuration from the data store
- Also, remove the PostgreSQL database server. (Note: You may have other databases on that server.)

If you want to maintain the configuration data in the database, for example when you plan to upgrade or migrate to another database, make sure that these options are not selected.

Accessing WS_FTP Server

In This Chapter

Accessing the WS_FTP Server Manager 23
Navigating the WS_FTP Server Manager 24

Accessing the WS_FTP Server Manager

Ipswitch WS_FTP Server Manager is the web-based program used to manage the server and any hosts created on it. When you install the server, the server manager is also installed.

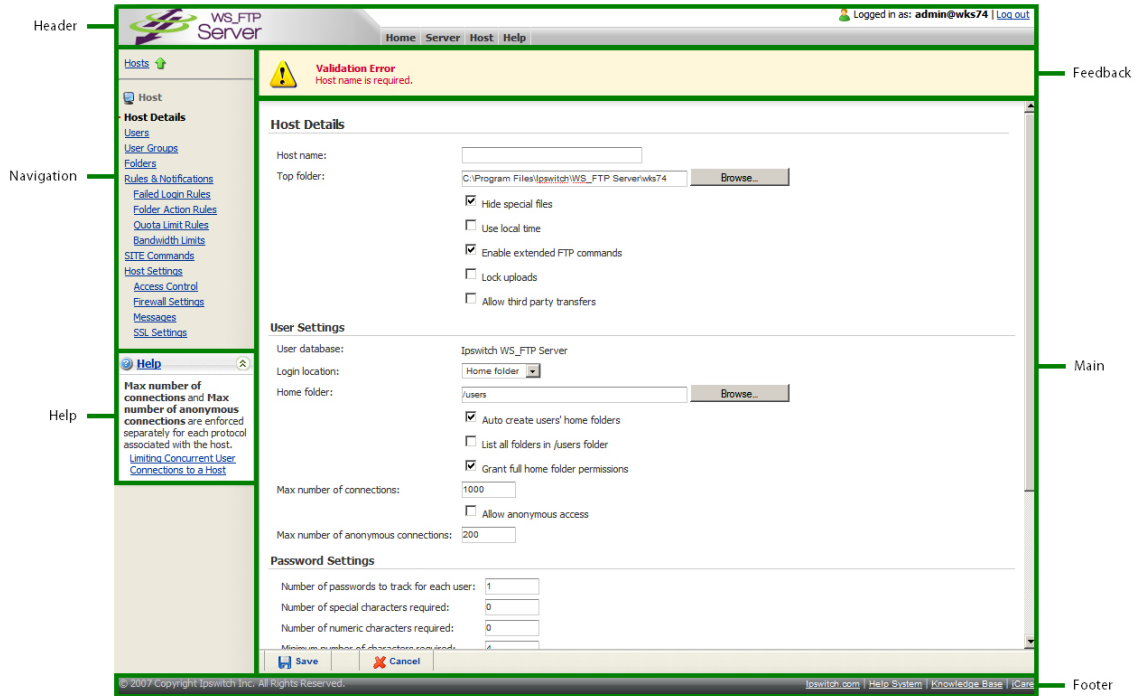
To access WS_FTP Server Manager:

- 1 Using one of the methods below, open the WS_FTP Server Manager.
 - Double click the WS_FTP Server Manager icon on the desktop.
 - From the Start menu, select **Programs > Ipswitch WS_FTP Server > WS_FTP Server Manager**.
 - On a computer that has Internet or network access to the server, open a web browser and enter `http://yourhostname.domainname.com/WSFTPSVR/`, replacing `yourhostname.domainname.com` with the host name you specified during installation.

The Ipswitch Web Admin login page appears.
- 2 In **Username**, enter the username of a system or host administrator. If you want to use a system or host administrator on a host other than the default host, enter the username, host separator and host name, such as `username@hostname`.
- 3 In **Password**, enter the password for the user you entered.
- 4 Click **Log In**.

Navigating the WS_FTP Server Manager

The WS_FTP Server Manager has a Web-based user interface.



The interface consists of five main regions that each perform a specific function.

- **Header.** The header contains the top menu, an indication of which user is logged in, and a link to log out.
- **Navigation.** The navigation area contains a link to the previous page, a contextual menu of links to pages that are relevant to the current page, and the help box.
- **Help.** Click to get help information about using the WS_FTP Server application.
- **Feedback.** This portion of the page displays informational messages about the processes you are completing. This area may display errors, helpful tips, evaluation status, and other information.
- **Main.** The main area contains the information and data for the selected page. If the page allows you to modify or create data, a **Save** (or **OK**) and **Cancel** button are anchored to the bottom left corner of the main area.
- **Footer.** In addition to copyright information, the footer displays links to the Ipswitch Web site, the help system and documentation for the product, the knowledge base, and the iCare campaign.



Note: Some pages are designed to act as dialogs, requiring that content be saved or the action cancelled. On these pages, the top menu in the header and the contextual menu in the navigation area are not displayed.

Installing and Configuring the WS_FTP Server Web Transfer Client

In This Chapter

System Requirements for WS_FTP Server Web Transfer Client	25
Installing the WS_FTP Server Web Transfer Client	28
Configuring the WS_FTP Server Web Transfer Client.....	31
Configuring Support for Single Sign On	33
Uninstalling the WS_FTP Server Web Transfer Client.....	34
WS_FTP Server Web Transfer Client Notes.....	34

System Requirements for WS_FTP Server Web Transfer Client

Requirements for WS_FTP Server Web Transfer Client

Before installing WS_FTP Server Web Transfer Client, you need the following:

- WS_FTP Server, WS_FTP Server with SSH, or WS_FTP Server Corporate, v7.6.3 or later
- Microsoft® .NET 3.0 Framework
- ASP.NET (via IIS)
- Microsoft Internet Information Services (IIS) 7.0 or later.

The pre-installation checklist in the section, "Installing WS_FTP Server Web Transfer Client," describes how to configure the requirements.

Requirements for the WS_FTP Server Web Transfer Client end user

The end user can use any computer with an operating system that can support the following:

- Microsoft Internet Explorer 8 or later; Mozilla Firefox 16 or later, Google Chrome 21 or later, Apple Safari 5 or later (Mac-only)
- Enabled Javascript support in the Web browser
- Enabled Cookie support in the Web browser
- Broadband connection to the Internet (recommended)

Requirements for the WS_FTP Server Web Transfer Client on Windows Server 2008 or 2012

The WS_FTP installer automatically activates certain components in your Windows Server installation (in addition to the ones activated by a normal Server install). Before installing WS_FTP Server, you should be sure that these changes conform to your organization's security policies.

The following list shows features activated by the WS_FTP Server Web Transfer Client install under the IIS7 role. Features shown as indented indicate a nested relationship with the non-indented feature above it.

Common HTTP Features

- Static Content
- Default Document
- Directory Browsing
- HTTP Errors

Application Development

- ASP.NET
- .Net Extensibility
- ISAPI Extensions
- ISAPI Filter

Health and Diagnostics

- HTTP Logging
- Request Monitor

Security

- Request Filtering

Performance

- Static Content Compression

Management Tools

- IIS Management Console

The following list shows the Windows Server stand-alone features activated during WS_FTP Server install:

.Net Framework 3.0 Features

- .Net Framework 3.0
- XPS-Viewer
- WCF Activation (HTTP Activation, Non-HTTP Activation)

Remote Server Administration Tools

- Role Administration Tools (Web Server (IIS) Tools)

Windows Process Activation Service

- Process Model
- .Net Environment
- Configuration APIs

Additionally, the Web Transfer Module install process does the following:

- Runs servicemodelreg to install the WCF service model.
- Places the Web Transfer Module and the underlying web service in classic mode application pools.

Also, if HTTPS is not enabled on the site hosting the Web Transfer Module, the install will:

- Create a self-signed certification for the machine hostname
- Grant permissions to EVERYONE to read the folder where the certifications live
- Create an HTTPS binding on the website hosting the Web Transfer Module (if applicable)
- Attach the certificate to the HTTPS binding

Installing the WS_FTP Server Web Transfer Client

If you choose to install WS_FTP Server Web Transfer Client, it should be installed on the same computer as WS_FTP Server. This section provides a pre-installation checklist and install procedure for installing WS_FTP Server Web Transfer Client.

Pre-installation checklist for installing WS_FTP Server Web Transfer Client

WS_FTP Server Web Transfer Client installs an IIS web application to communicate with the WS_FTP Server database and FTP file system. Before you run the WS_FTP Server Web Transfer Client installation, you need to install the prerequisite software and configure the WS_FTP Server computer.

- WS_FTP Server, WS_FTP Server with SSH, or WS_FTP Server Corporate, v7.6.3
For the installation requirements and procedure, see the section "Installing and Configuring WS_FTP Server, or refer to the WS_FTP Server Release Notes.
- Make sure Microsoft .NET Framework 3.0 is installed.
You can download and install .NET Framework 3.0 from the *Microsoft Download Center* (<http://www.microsoft.com/downloads/details.aspx?FamilyID=10cc340b-f857-4a14-83f5-25634c3bf043&displaylang=en>).
- Make sure Microsoft Internet Information Services (IIS) 7.0 or later is installed.
You need the Windows OS disk to install IIS. Go to **Control Panel > Add or Remove Programs**, then select **Add/Remove Windows Components**. Select **Internet Information Services**, then follow the on-screen instructions.
- You must be logged on as the 'Administrator' user (it is not sufficient to simply be part of the 'Administrators' group).
- The Web Transfer Module needs access to the file system on your FTP host or hosts so it can upload and download files. During the Web Transfer Module installation, you will need to specify a Windows user account with permissions to the top folder of each WS_FTP Server host (for each host for which you will enable WS_FTP Server Web Transfer Client). We recommend you create a Windows user account for use by the Web Transfer Module.
Note that this Windows user account is used differently depending on the WS_FTP Server host settings and the user database configured for that host:
- If the host uses a Microsoft Windows or Microsoft Active Directory user database, configured to use Windows file permissions, the user account permissions take precedence, and this Windows account is not used.

- If the host has a host-level impersonation account, which is required if the host Top folder uses a UNC path, the host-level impersonation account takes precedence, and this Windows account is not used.
- If the host uses the WS_FTP Server or ODBC user database, and the host-level impersonation is not specified, this Windows account is used.

To install WS_FTP Server Web Transfer Client:

- 1 If you received an installation CD, insert it into a drive. If the Welcome screen does not appear, select **Start > Run**, and enter the drive path followed by launch.exe.

Example: D:\launch.exe

- OR -

If you downloaded the software from our Web site, double-click the executable (.exe) file to begin the installation.

- 2 On the Pre-installation Checklist screen, read the checklist items. Make sure you have set up the required configuration. Select "I have completed the Pre-installation checklist," then click **Next**.
- 3 On the installation Welcome screen, click **Next** to continue. The License Agreement dialog appears.
- 4 Read the license agreement. If you agree with its terms, select "I accept the terms of the license agreement," and click **Next**.

Next, the Impersonation Account for Web Transfer Module screen opens.

- 5 Enter a Windows account that has full access to the top folder of the WS_FTP Server host.

The Web Transfer Module needs a Windows account to use for access to the FTP file system.

On the WS_FTP Server computer, you should have created a Windows account that has full access to the top directory of the WS_FTP Server host, as described in the pre-installation steps. Use that account username and password here.

Domain or Server. Enter either the valid Windows domain name of the WS_FTP Server computer, or the Windows computer name.

User name. Enter the applicable user name for the Windows account.

Password. Enter the password for the account.

This account username and password will also appear in the WS_FTP Server Manager, under **Home > Modules > Web Access Settings**. If necessary, you can modify this account after completing the installation.

WS_FTP Server Installation and Configuration Guide

- 6 Choose the appropriate IIS web site for your application. Choose the default web site, unless you have created a dedicated web site for this server, then click **Next**.

The installation program also configures the Web Transfer web application to accept SSL connections on port 443. A self-signed certificate is installed. This allows your users to use HTTPS for secure transfers.

Next, the Destination Folder dialog opens.

- 7 Click **Next** to install to the specified folder.

If you want to install to a different folder, click **Change**, then browse to the destination folder, or create a new folder, then click **OK**. You will be returned to the Destination Folder dialog. Click **Next**.

- 8 Click **Install**. The Install Wizard completes the installation. The Setup Wizard Completed dialog opens.

- 9 Read the notes related to post-installation steps, then click **Finish**.

You need to enable web access for users that will use the Web Transfer Client, and provide them the web address to log on, as described in the section, "Configuring WS_FTP Server Web Transfer Client."

- ✔ If you purchased the WS_FTP Server Web Transfer Client as an add-on module to Ipswitch WS_FTP Server, you need to refresh your Ipswitch WS_FTP Server license. To refresh, from the Start menu, select **Program Files > Ipswitch WS_FTP Server > Activate or Refresh WS_FTP Server License**. If you purchased a WS_FTP Server Corporate license, you do not to refresh your license.

Configuring the WS_FTP Server Web Transfer Client

WS_FTP Server Web Transfer Client does not require installation on a user's computer. Your WS_FTP Server users can access the files in their accounts using the web browser of their choice, and the address (URL) that you provide them.

However, you must administer the following changes in Ipswitch WS_FTP Server Manager:

- 1 From your existing set of WS_FTP Server users, add users to the Web Access list.
 - 1 Log in to the WS_FTP Server Manager, and select **Home > Modules**. The Modules page opens.
 - 2 Select **Web Transfer Access**.

The Web Access page shows all eligible users, which is all users on all of your WS_FTP Server hosts.

- 3 Add any users to whom you want to provide web access.
- 2 Roll out Web Transfer Access to your users by providing them the address (URL) that users will use to log on to the Web Transfer Client.

The address is: `http://<local_machine>/thinclient/`

where <local_machine> is the domain name of the computer on which you installed the Web Transfer Client. If you specified a custom port (other than the default port 80) during installation, you need to enter it in the address.

For example, if the local computer domain name is `host1.wsftp.com`, then the address your users need to log on to the Web Transfer Client is:

`http://host1.wsftp.com/thinclient/`

You should test this address from a remote machine before sending it out to users.



You can also launch the Web Transfer Client from the WS_FTP Server program group (**Programs > Ipswitch WS_FTP Server > WS_FTP Server Web Transfer Client**.)



If you add a user to the default host (specified in **Server > Server Settings > System Details**), the user will log onto the Web Transfer Client using their WS_FTP server user name and password. If you add a user to a host that is not the default host, the user must log onto the Web Transfer Client using the host name, host separator, and username and password; for example: `user2@host2.domain.com`

Secure Transfer via HTTPS

For secure transfer, the Web Transfer Client is installed with SSL capability, which runs on port 443. The installation creates an SSL certificate which is used when the user connects via HTTPS. You can enable secure transfer by changing the address used to log on to the Web Transfer Client to use HTTPS, for example: `https://host1.wsftp.com/thinclient/login.aspx`

If you specified a custom port (other than the default port 443) during installation, you need to enter it in the address.

Increase IIS 7.0 MaxAllowedContentLength

If your server is running IIS 7.0, users may not be able to upload file larger than 30 megabytes, receiving the following error:

```
HTTP Error 404.13 - CONTENT_LENGTH_TOO_LARGE
```

To correct this problem:

- 1 Open the following file with notepad:
`%windir%\system32\inetsrv\config\applicationhost.config` .
- 2 In this file, locate the `<requestFiltering>` node.
- 3 Add a value that matches the size of the Content-Length header that the client sends as part of the request. By default, the value of the `maxAllowedContentLength` property is 30000000 (The value is in bytes, so the above value is about 30 MB.). Increase this number so that it will match the largest file size that you expect users to upload.

For example, modify the following:

```
<requestLimits maxAllowedContentLength ="30000000" />
```

to increase the value to 1073741824, which equals 1 GB:

```
<requestLimits maxAllowedContentLength ="1000000000" />
```

- 4 Save the ApplicationHost.config file.

Configuring Support for Single Sign On

In a situation where someone wants to set up a "single sign on" to integrate WS_FTP Server Web Transfer Client into an existing portal environment, you can submit a form which "silently prefills" a username and password.

To attempt a Single Sign On, submit a form targeting "Login.aspx" and have it include the following elements:

- **SSOUsername** - The username for the Single Sign On attempt.
- **SSOPassword** - The password for the Single Sign On attempt.

As long as the **SSOUsername** element exists in the form and it is not an empty string, the Web Transfer Client will attempt a Single Sign On.

The following is a very simple example form to enable the WS_FTP Server Web Transfer Client's Single Sign On feature. The form presents a **UserID** and **Password** textbox to the end user. When the user enters the appropriate credentials and clicks the **Launch WS_FTP** button, the WS_FTP Server Web Transfer Client attempts a Single Sign On:

```
<form name="formLogin" method="POST" action="http://MyHost/ThinClient/Login.aspx"
id="formLogin" >

  <br />

  UserID: <input type="text" name="SSOUsername" value=""><br />

  Password: <input type="password" name="SSOPassword" value=""><br />

  <br />

  <input type="submit" name="btnLogin" value=" Launch WS_FTP " id="btnLogin" ><br

/>

</form>
```

Uninstalling the WS_FTP Server Web Transfer Client

- 1 In the Control Panel, select Add/Remove Programs.
- 2 Select Ipswitch WS_FTP Server Web Transfer Client, then click **Change/Remove** and follow the onscreen prompts to uninstall.

WS_FTP Server Web Transfer Client Notes

- When using the Firefox browser on an Apple Mac computer, note that the browser does not implement the proper Tab order on the Login page (login.aspx).
- Both WS_FTP Server Web Transfer Client and Internet Information Services (IIS) have limits on the size of file that can be uploaded. When a user tries to upload a file that is larger than the Web Transfer Client's maximum upload size, the Web Transfer Client displays an error message at the top of the main page (Transfer.aspx).

If the upload exceeds the IIS maximum upload size, the browser displays a page error and does not return to the Web Transfer Client page.

Though we cannot change the browser behavior, both of these upload values can be set in the `web.config`. The default path is:

- **32-bit:** `C:\Program Files\Ipswitch\WebClients\ThinClient`
- **64-bit:** `C:\Program Files (x86)\Ipswitch\WebClients\ThinClient`



When you save changes to the `Web.config` file, all active WS_FTP Server Web Transfer Client sessions will be reset, which means that any user logged on via the Web Transfer Client will be returned to the Logon page, and will have to log on again.

- Web Transfer Client maximum upload size is set in the `<appSettings>` section:
`<add key="MaxUploadSize" value="50"/>`
The value is in MB, so the maximum upload size for the Web Transfer Client is 50 MB.

- IIS maximum upload size is set in the <httpRuntime> section:

```
<httpRuntime maxRequestLength="2097151"/>
```

The value is in KB, so the maximum upload size is 2 GB.

The IIS limit can also be set in other locations, namely machine.config, and IIS metabase, though we recommend using the web.config settings.

- Be aware that browser security settings can influence the download count shown in logs. For example, if the Internet Explorer security setting 'Automatic prompting for file downloads' is not enabled, when Web Transfer Client user selects to download a file, Internet Explorer will pop up the following message and it will add 1 to the download count:

'To help protect your security, IE blocked this site from downloading files to your computer. Click here for options.'

Installing and Configuring the Ad Hoc Transfer Module

In This Chapter

System Requirements for Ad Hoc Transfer Module.....	37
Installing the Ad Hoc Transfer Module	40
Configuring the Ad Hoc Transfer Module.....	43
Uninstalling the Ad Hoc Transfer Module	45
Ad Hoc Transfer Module Notes.....	45
Installing on a Single Computer.....	47

System Requirements for Ad Hoc Transfer Module

Requirements for Ad Hoc Transfer Module

Before installing Ad Hoc Transfer Module, you need the following:

- WS_FTP Server, WS_FTP Server with SSH, or WS_FTP Server Corporate, v7.6.3
- Microsoft® .NET 3.0 Framework
- ASP.NET (via IIS)
- Microsoft Internet Information Services (IIS) 7.0 or later.

The pre-installation checklist in the section, "Installing Ad Hoc Transfer Module," describes how to configure the requirements.

Requirements for the Ad Hoc Transfer Module web interface (browser) end user

The end user can use any computer with an operating system that can support the following:

- Microsoft Internet Explorer 8 or later; Mozilla Firefox 16 or later, Google Chrome 21 or later, Apple Safari 5 or later (Mac-only)
- Enabled Javascript support in the Web browser
- Enabled Cookie support in the Web browser
- Broadband connection to the Internet (recommended)

Requirements for the Ad Hoc Transfer Plug-in for Outlook end user

For installation requirements, see *Installing the Ad Hoc Transfer Plug-in for Outlook* (on page 47).

Requirements for the Ad Hoc Transfer Module on Windows Server 2008 or 2012

The WS_FTP installer automatically activates certain components in your Windows Server installation (in addition to the ones activated by a normal Server install. Before installing WS_FTP Server, you should be sure that these changes conform to your organization's security policies.

The following list shows features activated by the Ad Hoc Transfer Module install under the IIS7 role. Features shown as indented indicate a nested relationship with the non-indented feature above it.

Common HTTP Features

- Static Content
- Default Document
- Directory Browsing
- HTTP Errors

Application Development

- ASP.NET
- .Net Extensibility
- ISAPI Extensions
- ISAPI Filter

Health and Diagnostics

- HTTP Logging
- Request Monitor

Security

- Request Filtering

Performance

- Static Content Compression

Management Tools

- IIS Management Console

The following list shows the Windows Server stand-alone features activated during WS_FTP Server install:

.Net Framework 3.0 Features

- .Net Framework 3.0
- XPS-Viewer
- WCF Activation (HTTP Activation, Non-HTTP Activation)

Remote Server Administration Tools

- Role Administration Tools (Web Server (IIS) Tools)

Windows Process Activation Service

- Process Model
- .Net Environment
- Configuration APIs

Additionally, the Web Transfer Module install process does the following:

- Runs servicemodelreg to install the WCF service model.
- Places the Web Transfer Module and the underlying web service in classic mode application pools.

Also, if HTTPS is not enabled on the site hosting the Web Transfer Module, the install will:

- Create a self-signed certification for the machine hostname
- Grant permissions to EVERYONE to read the folder where the certifications live
- Create an HTTPS binding on the website hosting the Web Transfer Module (if applicable)
- Attache the certificate to the HTTPS binding

Installing the Ad Hoc Transfer Module

If you choose to install Ad Hoc Transfer Module, it should be installed on the same computer as WS_FTP Server. This section provides a pre-installation checklist and install procedure for installing Ad Hoc Transfer Module.

Pre-installation checklist for installing Ad Hoc Transfer Module

Ad Hoc Transfer Module installs an IIS web application to communicate with the WS_FTP Server database and Ad Hoc file system. Before you run the Ad Hoc Transfer Module installation, you need to install the prerequisite software and configure the WS_FTP Server computer.

- WS_FTP Server, WS_FTP Server with SSH, or WS_FTP Server Corporate, v7.6.3
For the installation requirements and procedure, see WS_FTP Server Release Notes.
- Make sure Microsoft .NET Framework 3.0 is installed.
You can download and install .NET Framework 3.0 from the *Microsoft Download Center* (<http://www.microsoft.com/downloads/details.aspx?FamilyID=10cc340b-f857-4a14-83f5-25634c3bf043&displaylang=en>).
- Make sure Microsoft Internet Information Services (IIS) 7.0 or later is installed.
You need the Windows OS disk to install IIS. Go to **Control Panel > Add or Remove Programs**, then select **Add/Remove Windows Components**. Select **Internet Information Services**, then follow the on-screen instructions.
- You must be logged on as the 'Administrator' user (it is not sufficient to simply be part of the 'Administrators' group).
- The Ad Hoc Transfer Module needs access to the Package Storage root folder on your FTP host or hosts so it can store package files and make them available for download. During the Ad Hoc Transfer Module installation, you will need to specify a Windows user account with permissions to the Package Storage folder of each
- For the Ad Hoc Transfer Module to be available to recipients outside your internal network, it will need to be installed in the DMZ and configured with the appropriate DNS settings.

To install Ad Hoc Transfer Module:

- 1 If you received an installation CD, insert it into a drive. If the Welcome screen does not appear, select **Start > Run**, and enter the drive path followed by launch.exe.

Example: D:\launch.exe

- OR -

If you downloaded the software from our Web site, double-click the executable (.exe) file to begin the installation.

- 2 On the Pre-installation Checklist screen, read the checklist items. Make sure you have set up the required configuration. Select "I have completed the Pre-installation checklist," then click **Next**.
- 3 On the installation Welcome screen, click **Next** to continue. The License Agreement dialog appears.

Read the license agreement. If you agree with its terms, select "I accept the terms of the license agreement," and click **Next**. WS_FTP Server host (for each host for which you will enable Ad Hoc Transfer Module). We recommend you create a Windows user account for use by the Ad Hoc Transfer Module.

Next, the Destination Folder dialog opens.

- 4 Click **Next** to install to the specified folder. If you want to install to a different folder, click **Change**, then browse to the destination folder, or create a new folder, then click **OK**. You will be returned to the Destination Folder dialog. Click **Next**.
- 5 Specify the folder where Ad Hoc Transfer packages (user uploaded files) will be stored. The default folder is "\pswitch Ad Hoc Transfer Packages" on the drive where Windows is installed (usually C:).

Next, the Impersonation Account for Web Transfer Module screen opens.

- 6 Enter a Windows account that has full access to the Package Storage folder of the WS_FTP Server host.

The Ad Hoc Transfer Module needs a Windows account to use for access to the Package Storage folder.

On the WS_FTP Server computer, you should have created a Windows account that has full access to the Package Storage folder of the WS_FTP Server host, as described in the pre-installation steps. Use that account username and password here.

Domain or Server. Enter either the valid Windows domain name of the WS_FTP Server computer, or the Windows computer name.

User name. Enter the applicable user name for the Windows account.

Password. Enter the password for the account.

This account username and password will also appear in the WS_FTP Server Manager, under **Home > Modules > Ad Hoc Transfer Access Settings**. If necessary, you can modify this account after completing the installation.

- 7 Enter the settings for the mail server that will be used to send Ad Hoc Transfer packages and notifications.
 - **Mail Server.** The address of the mail server to which Ad Hoc Transfer Module will connect to send emails to package recipients, and to send notifications.
 - **Port.** Optionally, specify the port that the mail server uses. The default is port 25.
 - **User name.** Optionally, specify a user to connect to your mail server. This is typically not needed.
 - **Password.** Optionally, specify the password for the mail user. This is typically not needed.

- 8 Choose the appropriate IIS web site for your application. Choose the default web site, unless you have created a dedicated web site for this server, then click **Next**.

The installation program also configures the Ad Hoc Transfer web application to accept SSL connections on port 443. A self-signed certificate is installed. This allows your users to use HTTPS for secure transfers.

- 9 Click **Install**. The Install Wizard completes the installation. The Setup Wizard Completed dialog opens.

- 10 Read the notes related to post-installation steps, then click **Finish**.

You need to enable web access for users that will use the Ad Hoc Transfer Client, and provide them the web address to log on, as described in the section, "Configuring Ad Hoc Transfer Module."

- ✔ You need to refresh your Ipswitch WS_FTP Server license. To refresh, from the Start menu, select **Program Files > Ipswitch WS_FTP Server > Activate or Refresh WS_FTP Server License**.

Configuring the Ad Hoc Transfer Module

There are two ways that an end user can send files via Ad Hoc Transfer:

- Using a browser to connect to the Ad Hoc Transfer web address
- Using Microsoft Outlook, which requires that the end user install a plug-in for Outlook

For browser access, Ad Hoc Transfer Module does not require installation on a user's computer. Your WS_FTP Server users can access the files in their accounts using any browser, and the address (URL) that you provide them.

Before a user can access the Ad Hoc Transfer Module, whether they use a browser or Outlook, you must make the following changes:

- 1 In Ipswitch WS_FTP Server Manager, from your existing set of WS_FTP Server users, add users to the Ad Hoc Transfer Access list.

- 1 Log in to the WS_FTP Server Manager, and select **Home > Modules**. The Modules page opens.

- 2 Select **Ad Hoc Transfer Access**.

The Ad Hoc Transfer Access page shows all eligible users. These users can be from any of your WS_FTP Server hosts.

- 3 Add any users to whom you want to provide Ad Hoc Transfer access.

- 2 In Ipswitch WS_FTP Server Manager, check **Ad Hoc Transfer Settings**.

- 3 In Ipswitch WS_FTP Server Manager, check **Ad Hoc Transfer Transaction Settings**.

- 4 For browser users, provide them the address (URL) to log on to Ad Hoc Transfer.

By default, the address is: `http://<local_machine>:80/AHT`

where `<local_machine>` is the domain name of the computer on which you installed the Web Transfer Client. If you specified a custom port (other than the default port 80) during install, you need to include the port in the address.

For example, if the local computer domain name is `host1.wsftp.com`, then the address your users need to log on to Ad Hoc Transfer is:

`http://host1.wsftp.com:80/AHT`

You should test this address before sending it out to users.



You can also launch the Ad Hoc Transfer Module from the WS_FTP Server program group (**Programs > Ipswitch WS_FTP Server > WS_FTP Server Ad Hoc Transfer Client**.)



If you add a user to the default host (specified in **Server > Server Settings > System Details**), the user will log onto the Add Hoc Transfer Client using their WS_FTP server user name and password. If you add a user to a host that is not the default host, the user must log onto the Ad Hoc Transfer Client using the host name, host separator, and username and password; for example: user2@host2.domain.com

- 5 For Outlook users, you need to provide them with the installation file or run the silent install on each end user computer. You can download the installation file from your MyIpswitch account.

For installation instructions, see "Installing the Ad Hoc Transfer Plug-in for Outlook" and also "Silent Install for the Ad Hoc Transfer Plug-in for Outlook" in this guide.
- 6 Make sure that package recipients can connect to the host where the Ad Hoc Transfer Module is installed, so that they can connect to the Download Files page. Recipients must be able to connect, possibly from outside your network, to the URL defined in the following web.config files.
 - For the Ad Hoc Transfer web interface, open the file:
 - 32-bit:** C:\Program Files\Ipswitch\Ad Hoc Transfer\AHT\web.config
 - 64-bit:** C:\Program Files (x86)\Ipswitch\Ad Hoc Transfer\AHT\web.config... and check the entry 'AHTDownloadURL_Machinename'.
 - For the Outlook plugin, open the file:
 - 32-bit:** C:\Program Files\Ipswitch\Ad Hoc Transfer\XFWebService\web.config
 - 64-bit:** C:\Program Files (x86)\Ipswitch\Ad Hoc Transfer\XFWebService\web.config... and then check the entry 'AHTDownloadURL_Machinename'.

Secure Transfer via HTTPS

For secure transfer, the Ad Hoc Transfer Module is installed with SSL capability, which runs on port 443. The installation creates an SSL certificate which is used when the user connects via HTTPS. You can enable secure transfer by changing the address used to log on to the Ad Hoc Transfer Module to use HTTPS, for example: `https://host1.wsftp.com:443/AHT`

If you specified a custom port (other than the default port 443) during install, you need to include the port in the address.

Uninstalling the Ad Hoc Transfer Module

- 1 In the Control Panel, select Add/Remove Programs.
- 2 Select Ipswitch WS_FTP Server Ad Hoc Transfer Module.

Ad Hoc Transfer Module Notes

We have issued a maintenance release of Ad Hoc Transfer Module and the Ad Hoc Transfer Plug-in for Outlook that provides the following enhancements and bug fixes:

- **Improved file transfer performance** for the Ad Hoc Transfer Plug-in for Outlook. In previous versions, the plug-in was limited to file attachments of no more than 2 GB. This version removes the 2 GB restriction and provides faster transfer of large files. Note that the 2 GB limit still applies for the Ad Hoc Transfer web interface.
- Ad Hoc Transfer Plug-in for Outlook now supports Microsoft Outlook 2013 and Microsoft Exchange 2013.

To upgrade to this release, you need to install:

- Version 7.6.1 or later of Ad Hoc Transfer Module
 - Version 2.2.1 of Ad Hoc Transfer Plug-in for Outlook
- Your WS_FTP Server version (v 7.6.3) does not need to be updated.
- Internet Explorer Security Settings can affect Download counts for Ad Hoc Transfer

When setting the values for maximum or default downloads per file, be aware that browser security settings can influence the download count. For example, if the Internet Explorer security setting **Automatic prompting for file downloads** is not enabled, when the recipient clicks on the web link to access files, and selects to download a file, Internet Explorer will pop up the following message and it will add 1 to the download count:

'To help protect your security, IE blocked this site from downloading files to your computer. Click here for options.'

For this reason, we recommend that you are generous when setting these values, and that you do not set these values to 1.

The same is true if you have multiple end users downloading a file. If the Internet Explorer security setting **Automatic prompting for file downloads** is not enabled, the download limit should be set to double the number of users who are intended to download the file.

Also, note that download counts shown in the package detail page and in log files will be affected.

- When using Outlook to send an Ad Hoc Transfer, when you have started composing an email in Outlook and you click on the X to close the new message screen, Outlook asks you if want to save your changes. At this point, you can click Cancel and it will bring you back into the message you were writing. The **Send Secure** button may no longer appear on the screen, or it may be inactive. To work around this problem, close the new message screen, and start again.
- In Windows Explorer, you can right click a file, select **Send to > Mail Recipient**, which opens the Outlook compose screen with the file attached. Ad Hoc Transfer does not support this functionality, so you will not see the **Send Secure** button.

Installing on a Single Computer

You can download the installation file from your Mylpswitch account. Run the installer program on the computer of each user for whom you want to provide the client application.



On Windows Vista, Windows 7, and Windows 8 the installer must be run as Administrator.



You can use the "silent" (unattended) install process to automate the installations. See "*Silent*" install for the Ad Hoc Transfer Plug-in for Outlook (on page 107) for more information.

System Requirements

- Microsoft Outlook 2013, 2010, 2007 (Outlook plug-in only)
- Supported Operating Systems:
 - Windows 8 (32-bit and 64-bit)
 - Windows 7 (32-bit and 64-bit)
 - Windows Vista SP1 or later (32-bit only)
- Microsoft .NET Framework 3.5



Windows 8 may not have .NET 3.5 installed, in which case the installer prompts you to enable it as a Windows feature. To enable the framework, refer to this Microsoft *knowledge base article* (<http://support.microsoft.com/kb/2785188>).

- Microsoft Visual Studio 2010 Tools for Office Runtime (VSTOR 2010) Redistributable (all OS) (Outlook plug-in only)
- Microsoft Visual Studio 2010 Tools for the Microsoft Office System (version 4.0 Runtime) Language Packs (non-English OS) (Outlook plug-in only)



If you are running the installer live (not doing a silent install), the installer automatically installs the Microsoft Visual Studio redistributable programs; you do not need to download anything from Microsoft. If running a silent install, you need to download and install these redistributable programs before running the install. See the Requirements in the Silent Install section.



On the last screen of the installer, you can select to **View Install Log**.

- English and German language support

Recipients can download files using a web browser supported by the parent Ad Hoc Transfer server.

To install the client on an end user computer:

- 1 Close the Microsoft Outlook application.
- 2 Run the Ipswitch Client Installer installation file.
- 3 On the installation Welcome screen, click **Next** to continue. The License Agreement dialog appears.



Instead of the Welcome screen, Windows 8 users who do not have Microsoft .NET Framework 3.5 installed see a message that Windows is missing an installation requirement. You must enable the Microsoft .NET Framework 3.5 as a Windows feature as described System Requirements, then continue the installation.

- 4 Read the license agreement. If you agree with its terms, select **I accept the terms in the license agreement** and click **Next**. The Setup Type screen opens.
- 5 Choose the Setup type that best meets your needs:
 - If you are installing both the Ad Hoc Transfer Plug-in for Outlook and MOVEit Sync, click **Next**. The Custom Setup screen opens.
 - If you are installing only one of the clients, select **Custom**, then click **Next**. Go to step 7.
- 6 Select the client (feature) you want to install, then click **Next**.



If you have a currently installed version of the client, the installer will remove the old version and install the new version of the client.

The Destination folder screen opens.

- 7 Specify a new path or click **Next** to use the default path:
 - **32-bit:** `\Program Files\Ipswitch\Client`
 - **64-bit:** `\Program Files (x86)\Ipswitch\Client`

The Connection information screen opens.

- 8 Enter the server and account information:
 - **Server.** The IP address or fully qualified server name where Ipswitch WS_FTP Server and Ad Hoc Transfer Module are installed, for example: `host1.domain.com`
 - **This server requires an encrypted connection (SSL).** By default, this option is selected, which means the server will require a secure SSL connection (HTTPS). Clear the selection if you want to use an unsecure connection (HTTP).
 - **Port.** The port used to connect to the MOVEit server. For secure SSL connections, the default port is 443. For unsecure connections, the default port is 80. To set a custom SSL or HTTP port, select **Use Custom Port**, then click **Custom Port** and enter the new port number.
 - **User name.** The user's WS_FTP Server user name.
 - **Password.** The user's WS_FTP Server password.
- 9 Click **Next**. The **Ready to Install the Program** screen opens.

10 Click **Install** to complete the installation.

Optionally, select **View Install Log** to display the log.

11 On the last screen, click **Finish** to close the installer.



If you install the the client without entering valid connection information, you can enter the correct connection information once the installation is finished. Click the **Cannot connect to server** error notification to view the configuration dialog.

When you have successfully installed the plug-in:

- 1** Compose a new message in Microsoft Outlook, then click the **WS_FTP Send** tab on the ribbon and select **Send through WS_FTP**, which invokes the Ad Hoc Transfer plug-in.
- 2** Attach files to the mail message.
- 3** Send them to recipients via Ad Hoc Transfer.

The process is the same as sending an email message with attachments, except that attached files will now be uploaded to the file transfer server. Recipients will receive a message with a link to connect to the file transfer server and download the files you've sent. For more information, see the Ad Hoc Transfer Plug-in for Outlook help system.

Viewing the install log

The install log is located at:

`\Users\[Username]\AppData\Roaming\OUTLOOK_PLUGIN.log`

Configuring a Failover Solution Using Microsoft Cluster Services

In This Chapter

Overview.....	51
Step 1: Configure the MSCS Failover Solution	54
Step 2: Install WS_FTP on Both Nodes	55
Step 3: Edit Ipswitch Registry Settings on Both Nodes	56
Step 4: Configure Ipswitch Services in Microsoft Cluster Services....	58
Step 5: Test the Failover Cluster	64

Overview

This guide describes how to implement a failover solution for WS_FTP Server using Microsoft Cluster Services (MSCS) software. This solution is designed to provide continuous service to your file transfer users in the event of a service or node failure.



Microsoft Cluster Services can only provide failover with basic WS_FTP Server or WS_FTP Server with SSH. It cannot be used with WS_FTP Server Corporate, the Web Transfer Module, or the Ad Hoc Transfer module.

This failover solution provides one "active" and one "passive" node, each running identical configurations of WS_FTP Server. If a server (FTP or SSH) is unavailable on the primary node, or the primary node itself is unavailable, processing switches over to the secondary node. This two-node configuration uses shared resources for the user database, configuration data, and the file system for user directories and log data.



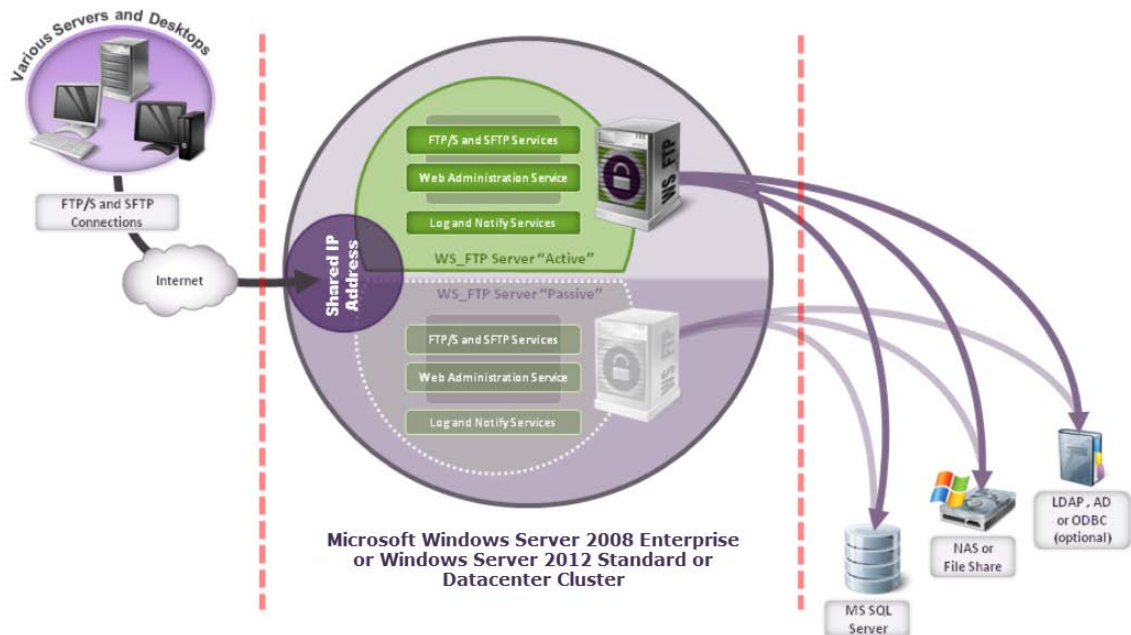
Carefully follow all directions in this document for configuring a failover cluster. Failure to do so may result in a nonfunctional or malfunctioning high availability environment. Ipswitch cannot support alternate MSCS configurations.

WS_FTP Server Installation and Configuration Guide

If you are upgrading from a non-failover WS_FTP Server installation to a failover solution, we recommend that you configure your failover environment with fresh WS_FTP Server installations, then migrate your user and configuration data and file system over to the failover configuration.

Architecture

The following diagram shows the failover configuration using Microsoft Clustering Services. The two WS_FTP Server installations are members of the cluster. MSCS monitors the state of the FTP and SSH servers, as well as the availability of the node. The user and configuration databases and the file system are on systems that are outside of the cluster.



Each node has the following configuration:

- Two network adapters, each with a dedicated IP address
- Windows Server 2008 Enterprise or Windows Server 2012 Standard or Datacenter (includes MSCS)
- WS_FTP Server with Ipswitch Web server, Log server, and Notification server

The following are configured on one or more systems outside of the cluster:

- Microsoft SQL Server 2008 or 2012 (to store WS_FTP Server configuration data)
- A supported user database for authentication (for example, Microsoft Active Directory)
- File system for users' home folders and storing log data for the FTP and/or SSH site

You will configure a shared IP address to be used for the cluster containing Node 1 and Node 2.

Requirements

To implement a two-node failover configuration for WS_FTP Server, you need the following:

- A single license with multiple activations for WS_FTP Server V7.6 or WS_FTP Server with SSH V7.6 (they must be the same edition, you cannot mix an FTP only edition with an SSH edition)
- Windows Server OS for each WS_FTP Server installation, also called a node.
Supported operating systems for MSCS failover clustering are:

Operating System	Edition	Service Packs	Supported Versions
Windows Server 2012	<ul style="list-style-type: none"> ▪ Standard ▪ Datacenter 		<ul style="list-style-type: none"> ▪ 64-bit: English
Windows Server 2008	Enterprise	SP2 or later	<ul style="list-style-type: none"> ▪ 32-bit: English
Windows Server 2008 R2	Enterprise		<ul style="list-style-type: none"> ▪ 64-bit: English



Your MSCS cluster must consist of two Windows Server 2008 Enterprise nodes or two Windows Server 2012 Standard or Datacenter nodes. Both nodes must have similar hardware and require identical .NET frameworks and service packs. The cluster will fail a validation test if your environments aren't properly configured during setup.

- Each node requires two network adapters with dedicated IP addresses
- Microsoft Cluster Services for each node (included with Windows Server 2008 Enterprise and Windows Server 2012 Standard and Datacenter)

The shared resources should be installed on systems that are separate from the two WS_FTP Server installations:

- User database for authentication (shared by both nodes) can be: WS_FTP Server database, Active Directory, or other LDAP or ODBC database
- Microsoft SQL Server 2008 Standard or Enterprise or Microsoft SQL Server 2012 Standard or Enterprise, for WS_FTP Server configuration data (shared by both nodes)
- A NAS or file system for the file transfer file system and log data shared by both nodes



You must configure all shared resources completely before installing WS_FTP Server or the failover solution may not function properly.

Step 1: Configure the MSCS Failover Solution

Configure a two-node cluster in Microsoft Clustering Services

On the two systems that will run WS_FTP Server (Node 1 and Node 2), set up Windows Server 2008 Enterprise or Windows Server 2012 Standard or Datacenter with the clustering feature and configure a cluster using the cluster IP address.

Go to the *Failover Cluster Step-by-Step Guide* (http://technet.microsoft.com/en-us/library/cc731844%28WS.10%29.aspx#BKMK_Step2) in Microsoft's TechNet library and follow Steps 2 - 4 of the "Steps for installing a two-node file server cluster" section. Stop when you reach the section entitled "Steps for configuring a two-node file server cluster."

<http://blogs.msdn.com/b/clustering/archive/2012/05/01/10299698.aspx>

Ensure both nodes can access external resources

- 1 Verify that both nodes can access the Microsoft SQL Server database (which is used for WS_FTP Server configuration data).
- 2 If you're using an external user database (for example, Active Directory or another supported user database), verify that both nodes can access the user database location.
- 3 Verify that both nodes can access the NAS via the UNC path.



If you are using a Windows Share as the NAS for the file transfer file system and logging directory, you must configure certain sharing and security permissions, otherwise logging will fail. See *Configuring Windows Share Permissions* (on page 115) to configure folder permissions.



If your nodes are having trouble accessing a resource, review your cluster configuration to verify that you have selected the appropriate settings for your environment.

If you are migrating from a standalone WS_FTP Server installation to a failover cluster, go to *Migrating WS_FTP Server to a Failover Cluster* (on page 121) to continue configuring the failover solution.

Step 2: Install WS_FTP on Both Nodes

You must install and configure WS_FTP Server on both nodes.

1 Install WS_FTP Server. Install WS_FTP Server first on Node 1 and then on Node 2. Use the custom install option, and use:

- Ipswitch web server
- SQL Server database

For step-by-step instructions, see *Installing and Configuring WS_FTP Server* (on page 7).

2 Configure WS_FTP Server. On Node 1, on the Host Details page in the WS_FTP Server Manager:

- Set the top folder to the UNC path for the shared file system (NAS).
- In Impersonation Settings, specify a Windows user account that the server uses to request access to folders used by this host.

The screenshot shows the 'Host Details' configuration page in the WS_FTP Server Manager. The page title is 'Host Details' and the URL is 'wsftpserver.ipswitch.com'. The 'Host name' field contains 'wsftphaserver.ipswitch.com'. The 'Top folder' field contains '\\FTPNAS\topfolder' and has a 'Browse...' button next to it. Below the 'Top folder' field are five checkboxes: 'Hide special files' (checked), 'Use local time' (unchecked), 'Enable extended FTP commands' (checked), 'Lock uploads' (checked), and 'Allow third party transfers' (unchecked). Below the 'Host Details' section is the 'Impersonation Settings' section, which has three fields: 'Domain' with 'IPSWITCH', 'User name' with 'ftpuser', and 'Password' with a masked password of eight dots.



The WS_FTP Server installation creates a default host that uses the WS_FTP Server user database. To use another supported user database, you must create a new host and then configure the top folder and impersonation settings.

Step 3: Edit Ipswitch Registry Settings on Both Nodes

After installing WS_FTP Server, you must copy Ipswitch registry entries from Node 1 to Node 2. Ipswitch provides a script that backs up the registry on Node 1, writes the logging directory UNC path to the registry, and exports the registry entries to import to Node 2.

To Copy Registry Entries from Node 1 to Node 2:

- 1 On both nodes, open the WS_FTP Server Manager and stop Ipswitch Services.
- 2 On Node 1, open the Command Prompt in the WS_FTP Server Utilities directory:
 - **32-bit:** C:\Program Files\Ipswitch\WS_FTP Server\Utilities
 - **64-bit:** C:\Program Files (x86)\Ipswitch\WS_FTP Server\Utilities
- 3 To run the registry copy script, type this command and press **Enter**:


```
cscript wssregcopy.vbs "\\<hostname>\<sharename>"
```



\\<hostname>\<logdirectory> is the UNC path of the log directory.

```
Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>cd c:\Program Files (x86)\Ipswitch\WS_FTP Server\Utilities
c:\Program Files (x86)\Ipswitch\WS_FTP Server\Utilities>cscript wssregcopy.vbs "\\192.168.197.16\xpate1"
Microsoft (R) Windows Script Host Version 5.8
Copyright (C) Microsoft Corporation. All rights reserved.

Step 1 of 3: Successfully backed up registry to: c:\WS_FTP_Server_RegBackup_20101221.reg
Step 2 of 3: Successfully wrote UNC to the registry
Step 3 of 3: Wrote c:\WS_FTP_Server_Failover_Settings_20101221.reg

Please see Failover instructions for the next steps.

c:\Program Files (x86)\Ipswitch\WS_FTP Server\Utilities>
```



Be sure to save WS_FTP_Server_RegBackup_<date>.reg in a safe place. (<date> is the current date in the format YYYYMMDD.) This is the Ipswitch registry backup for Node 1.

- 4 Copy WS_FTP_Server_Failover_Settings_<date>.reg from Node 1 to Node 2. (<date> is the current date in the format YYYYMMDD.)



Be sure to save a copy of WS_FTP_Server_Failover_Settings_<date>.reg in a safe place.


WS_FTP Server Installation and Configuration Guide

- 5 On Node 2, backup the Ipswitch registry entries.
 - 1 Open the Windows registry and navigate to the Ipswitch registry key:
 - **32-bit:** HKEY_LOCAL_MACHINE\SOFTWARE\Ipswitch\
 - **64-bit:** HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Ipswitch
 - 2 Right-click the Ipswitch key and select **Export**.
 - 3 Save the .reg file. This is the Ipswitch registry backup for Node 2.



Be sure to save the .reg file in a safe place. This is the Ipswitch registry backup for Node 2.

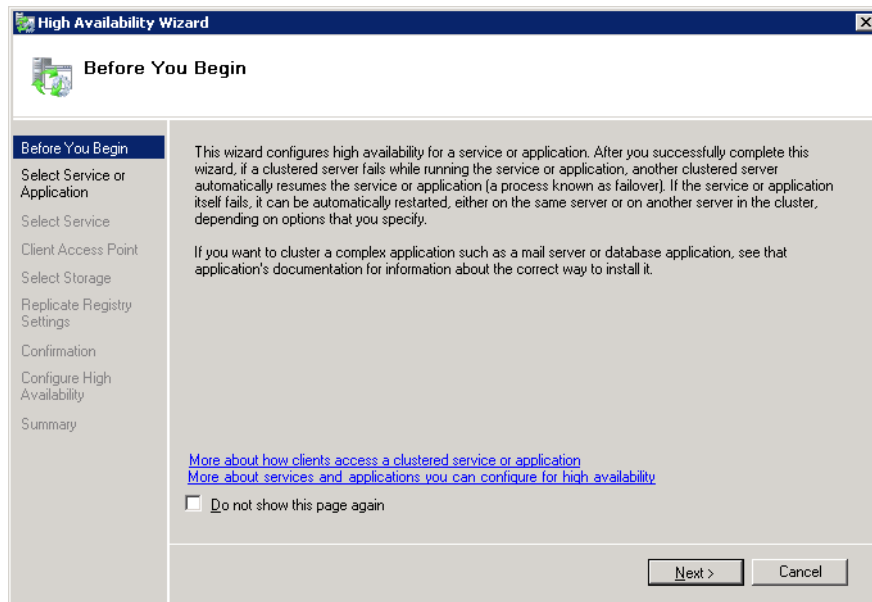
- 6 On Node 2, right-click the WS_FTP_Server_Failover_Settings_<date>.reg file that you copied from Node 1 and select **Merge**. A dialogue window opens asking you to confirm the action.
- 7 Click **Yes** to copy the registry entries. A dialogue window opens informing you that the action was successful.
- 8 Click **OK** to close the dialogue.
- 9 On both Node 1 and Node 2, open the WS_FTP Server Manager, and restart the Ipswitch Services.

 Be sure that you clearly name and save the registry backups for each node. If something happens to your failover deployment, you can always roll back the registries on each node to a fresh installation of WS_FTP Server. You will also need them to replace any nodes that fail.

Step 4: Configure Ipswitch Services in Microsoft Cluster Services

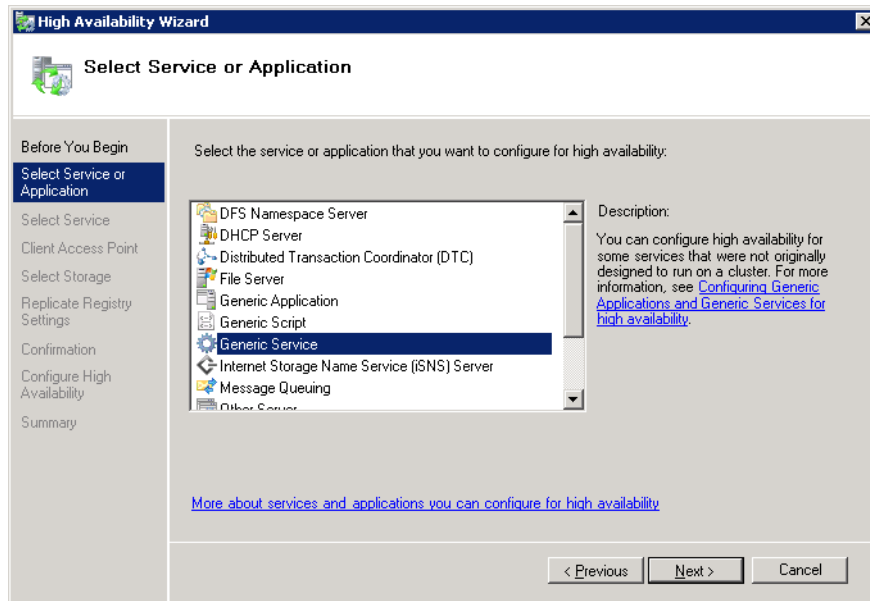
Configure Ipswitch Services as Generic Services in MSCS

- 1 To open MSCS, select **Administrative Tools > Failover Cluster Management**. The Failover Cluster Management main screen opens. In the left pane, under Nodes, you should see the two nodes you set up.
- 2 Open the High Availability Wizard:
 - **Windows Server 2008:** In the left pane, right-click **Services and Applications**, and select **Configure a Service or Application**.
 - **Windows Server 2012:** In the left pane, right-click **Roles** and select **Configure Role**.The High Availability Wizard opens.

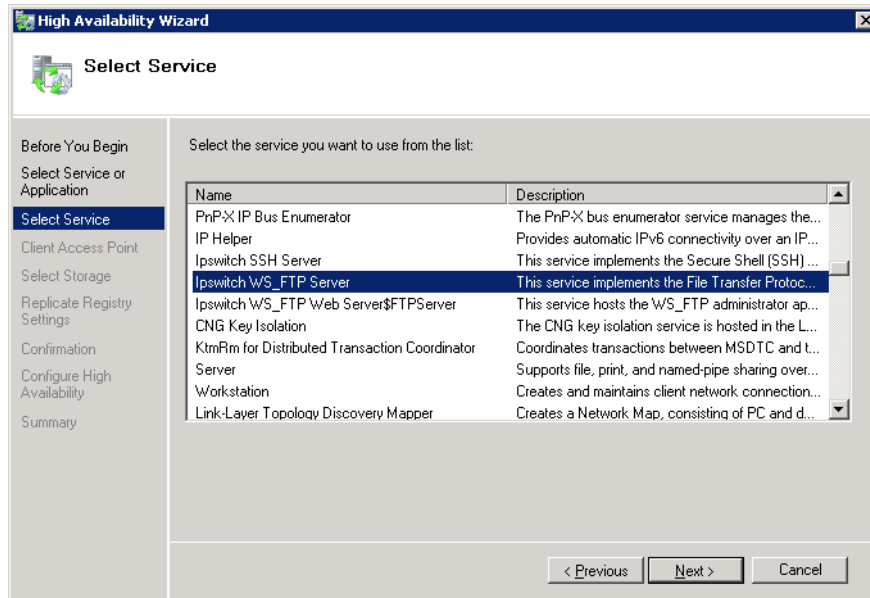


- 3 On the Before You Begin page, click **Next**.

On Windows Server 2008, the Selected Service or Application page opens (shown in the image below). On Windows Server 2012, the Select Role page opens.



- 4 Select **Generic Service**, then click **Next**. The Select Service page opens.



- 5 Select **Ipswitch WS_FTP Server**, then click **Next**. The Client Access Point page opens.

	Networks	Address
<input checked="" type="checkbox"/>	192.168.196.0/24	192.168.196.46
<input checked="" type="checkbox"/>	192.168.197.0/24	192.168.197.46

- 6 In the **Name** field, enter the name that clients will use when accessing this service (for example "WFFTPSvc"), and enter the service's IP addresses.

If the clustered service has two IP addresses, they must be on separate subnets: one private address for MSCS use (the cluster IP address) and one public address for the service (the Client Access Point IP address).

If the cluster is not allowed to use one of the networks for cluster communication, the Client Access Point page displays one network and only allows you to set one IP address. Enter the same IP address for both cluster communication and the Client Access Point.



Clients will use the public IP address to connect to your FTP/SSH servers.

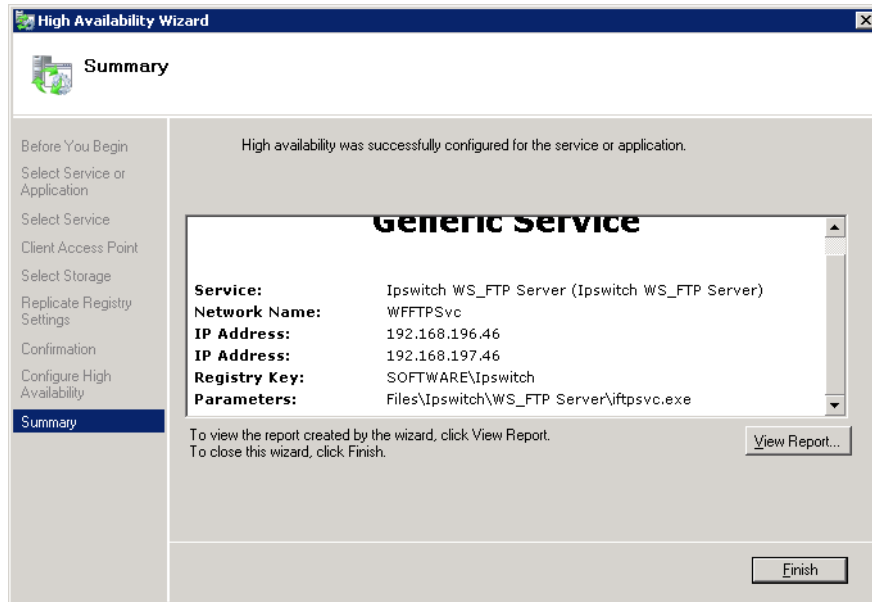


The Client Access Point IP addresses must be different from the IP addresses you used when configuring the cluster.

- 7 Click **Next** to proceed through the Select Storage page, then click **Next** again to proceed through the Replicate Registry Settings page. (You do not need to set options on these pages.)

WS_FTP Server Installation and Configuration Guide

- On the Confirmation page, review your settings and click **Next** to continue. The Summary page opens.

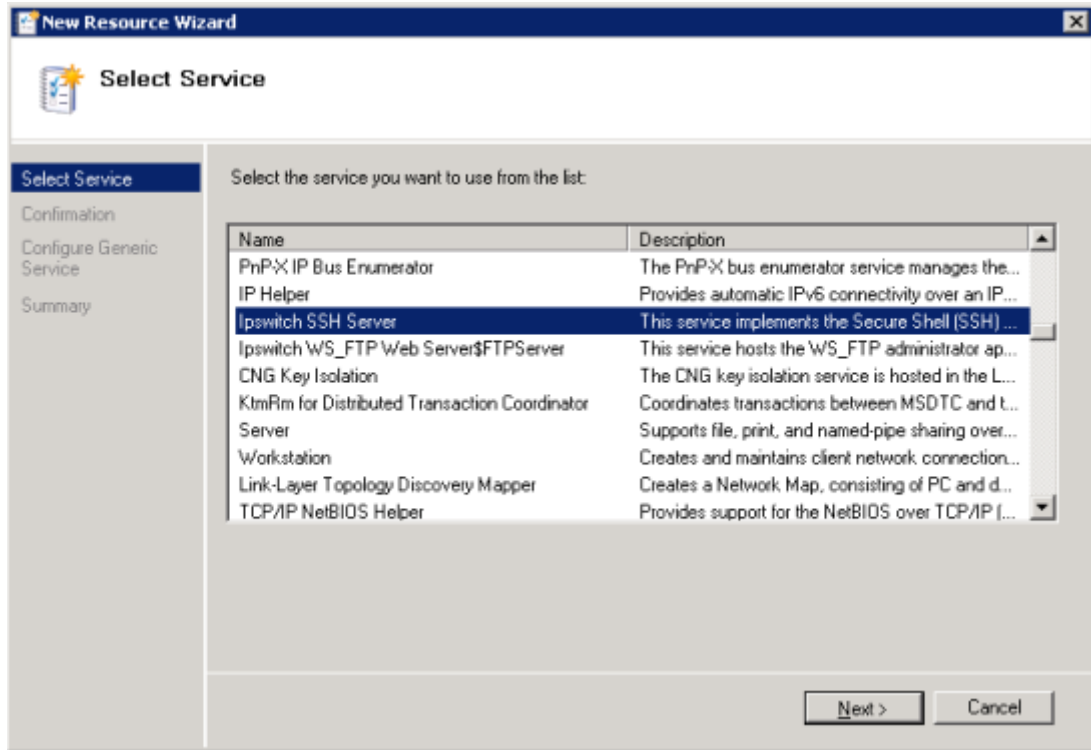


- On the Summary page, click **Finish**. The High Availability Wizard closes.

Add Additional Ipswitch Services to the Cluster

You must add each additional Ipswitch service to the Generic Service you just created.

- 1 Right-click the newly created entry (Ex. WFFTPsvc), and then select **Add a Resource**.
- 2 Select **4 - Generic Service**. The New Resource Wizard opens.

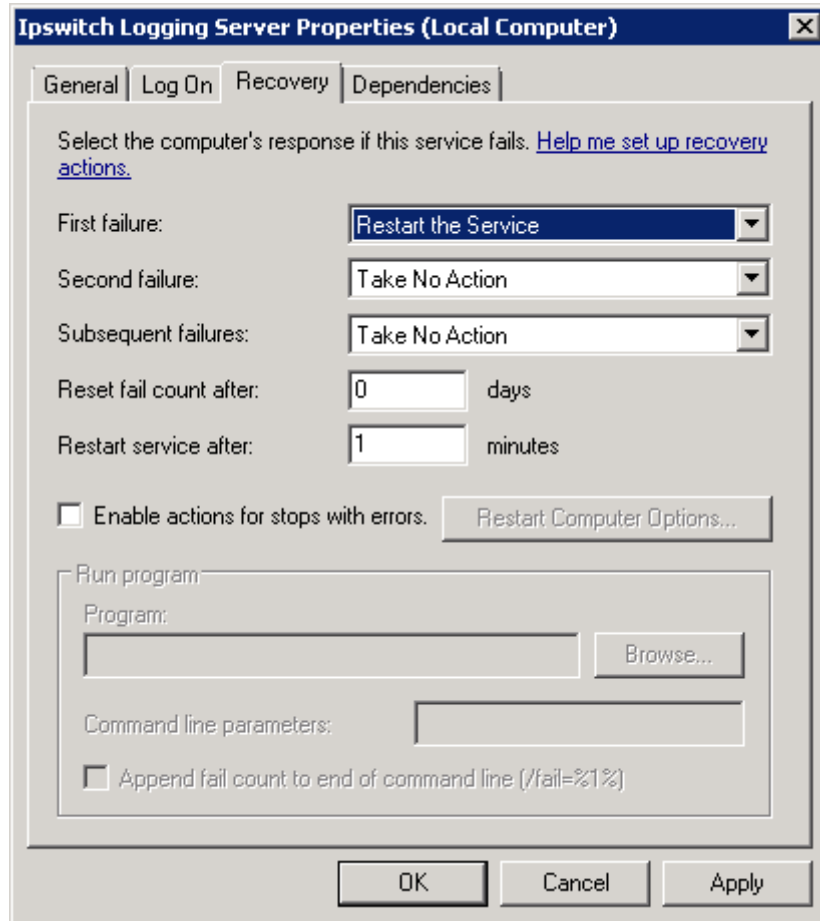


- 3 Select **Ipswitch SSH Server**, then click **Next**. The Confirmation screen opens.
- 4 Click **Next** to confirm the selection, then click **Finish** to close the New Resource Wizard.
- 5 Repeat Steps 1-4 to add **Ipswitch WS_FTP Web Server\$FTPServer** service to the Generic Resource.

Configure Ipswitch Services to Restart on Failure

On both nodes, you must configure FTP, SSH, FTP Web, Logging, and Notification services to restart once on failure before failing over all other services to the passive node. This prevents non-critical services from failing over FTP or SSH server services, which would halt any current transfers.

- 1 To open Services, go to **Administrative Tools > Services**.
- 2 Right-click the **Ipswitch Logging Server** service and select **Properties**.
- 3 On the Recovery tab, for First Failure, select **Restart the Service**, then click **OK**.



Repeat Steps 2-3 for **Ipswitch WS_FTP Web Server**, **FTP Server**, **Ipswitch Notification Server**, **Ipswitch WS_FTP Server**, and **Ipswitch SSH Server**.

Step 5: Test the Failover Cluster

You should ensure your failover environment is functioning properly after configuration. You can test the cluster by simulating a failover from the Cluster Administrator. The process to test the cluster is:

- 1 Transfer a file on Node 1 to ensure that you can connect to the server via the cluster and to ensure that logging is functioning properly.
- 2 Move services from Node 1 to Node 2 via the MSCS management console to simulate a service-level failover.
- 3 Transfer a file on Node 2 to ensure that you can connect to the server via the cluster and to ensure that logging is functioning properly.

To transfer a file on Node 1:

- 1 Ensure Node 1 is active. To ensure Node 1 is active, in the left pane of the Cluster Administrator window under the cluster, click **Services and Applications** > **<generic service>**, where **<generic service>** is the name of the Generic Service you created in Step 4 of the cluster configuration. Verify that the Status of each Server and Service is **Online** and that the Current Owner is **Node 1**.



In Windows Server 2012, verify that Node 1 is active under **Nodes**.

- 2 Connect to the cluster with a file transfer client via the Client Access Point (CAP) IP address, then transfer a file (for example, `node1active.log`) to ensure the active node is functioning properly.



If you cannot connect to the cluster, ensure that you can ping the cluster, CAP, and both node IP addresses from your client, that you properly configured IP addresses associated with the cluster, and that both nodes have the proper firewall exceptions.

- 3 Check the log file to ensure that logging is functioning properly.

12/22/2010 14:11:07	FTP	192.168.197.184:21	xp2008cluster1.ftp.development.com	58507047	156.21.3.118:64432	admin	XALJT		Success
12/22/2010 14:11:24	FTP	192.168.197.184:21	xp2008cluster1.ftp.development.com	58507047	156.21.3.118:64432	admin	STOR	node1active.log	Success
(C:\Program Files (x86)\Ipswitch\WS_FTP Server\xp2008cluster1.ftp.development.com\users\admin\node1active.log, 4 bytes, 0 ms)									
12/22/2010 14:11:39	FTP	192.168.197.184:21	xp2008cluster1.ftp.development.com	58507047	156.21.3.118:64432	admin	QUIT		Success



The file in the screenshot was sent from Node 1.

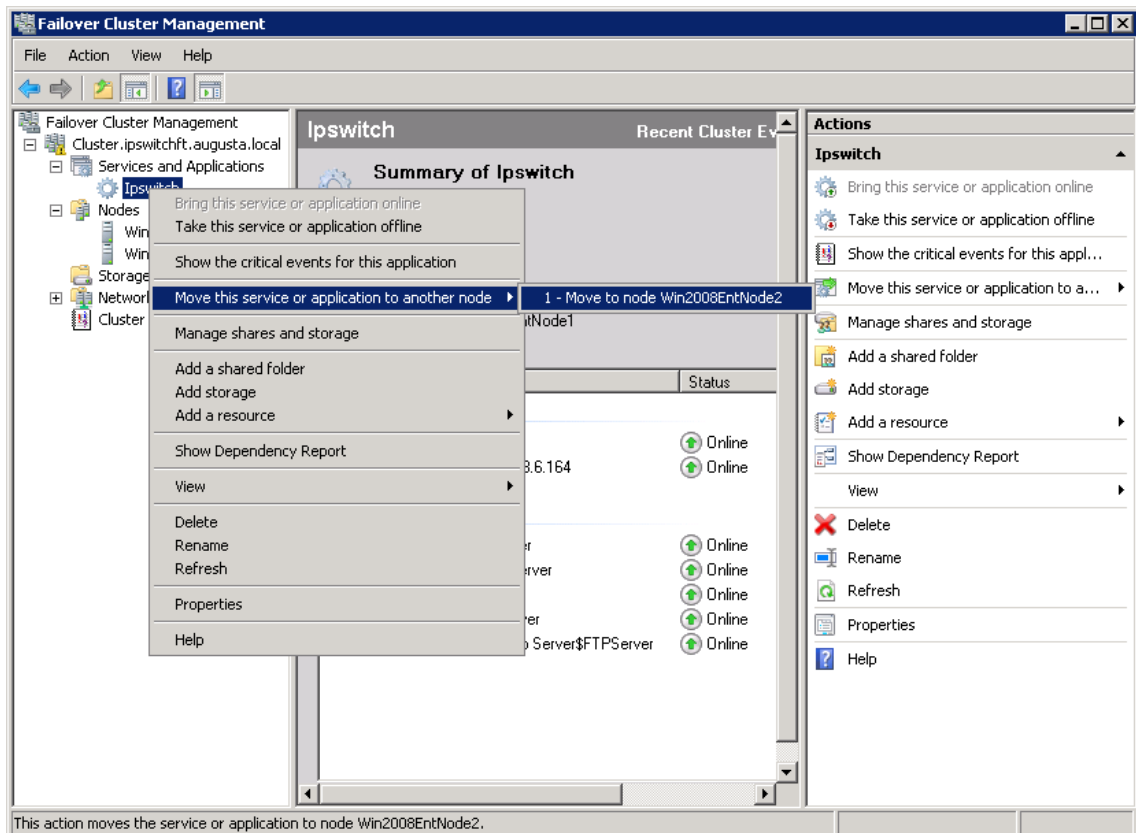


If logging is not functioning properly, ensure that the registry key to the logging directory is set to the proper UNC path (see the *Changing the log file path* (http://ipswitchft.custhelp.com/app/answers/detail/a_id/646) article in the Ipswitch Knowledge Base), that the Windows share has proper permissions if applicable (see *Configuring Windows Share Permissions for Failover Clusters* (on page 115)), and that you restarted the Ipswitch Logging Service after editing Ipswitch registry entries. Restart logging service on both nodes after you make any changes.

To move services from Node 1 to Node 2:

Windows Server 2008:

- 1 Open MSCS from **Administrative Tools > Failover Cluster Management**. The Failover Cluster Management main window opens. In the left pane, you should see the Generic Service that you set up under Services and Applications.



- 2 Right-click the Generic Service and select **Move this service or application to another node > 1 - Move to node <Node 2>**, where <Node 2> is the name of Node 2 in the cluster. The Ipswitch services move from the active node (Node 1) to the passive node (Node 2). When finished, the Status of each Server and Service should be **Online** and the Current Owner should be **Node 2**.

Windows Server 2012:

- 1 Open MSCS from **Administrative Tools > Failover Cluster Management**. The Failover Cluster Management main window opens.
- 2 In the left pane, open the cluster and select **Roles**.
- 3 In the action pane, right-click Node 1 and select **Move > Best Possible Node** or **Select Node**. The Ipswitch services move from the active node (Node 1) to the passive node (Node 2, the node you selected). When finished, the Status of each Server and Service should be Online and the Owner Node should be Node 2.

To transfer a file on Node 2:

- 1 Connect to the cluster with a file transfer client again, then transfer any file (for example, `node2active.log`) to ensure the cluster is functioning properly.
- 2 Check the log file again to ensure that logging is functioning properly. You will see that you have connected to Node 2 through the cluster.

12/22/2010 14:56:28	FTP	192.168.197.184:21	xp2008cluster1.ftp.development.com	14763886	156.21.3.118:64649	admin	XAUT		Success
12/22/2010 14:56:33	FTP	192.168.197.184:21	xp2008cluster1.ftp.development.com	14763886	156.21.3.118:64649	admin	STOR	node2active.log	Success
(C:\Program Files (x86)\Ipswitch\WS_FTP Server\xp2008cluster1.ftp.development.com\users\admin\node2active.log, 4 bytes, 0 ms)									



The file in the screenshot was sent from Node 2.

- 3 Move services back to Node 1 when finished.

Configuring a Failover Solution Using Microsoft Network Load Balancing

In This Chapter

Overview.....	67
Step 1: Configure the NLB Failover Solution.....	70
Step 2: Install WS_FTP on Both Nodes	78
Step 3: Edit Ipswitch Registry Settings on Both Nodes.....	79
Step 4: Install WS_FTP Server Modules.....	81
Step 5: Configure Ipswitch Services to Restart on Failure.....	84
Step 6: Configuring IIS for Log Viewing.....	85
Step 7: Test the Failover Cluster (NLB)	86

Overview

This guide describes how to implement a failover solution for WS_FTP Server using Microsoft Network Load Balancing (NLB) software. This solution is designed to provide continuous service to your file transfer users in the event of a node failure.

This failover solution provides one "active" and one "passive" node, each running identical configurations of WS_FTP Server. If the primary node itself is unavailable, processing switches over to the secondary node. This two-node configuration uses shared resources for the user database, configuration data, and the file system for user directories and log data.

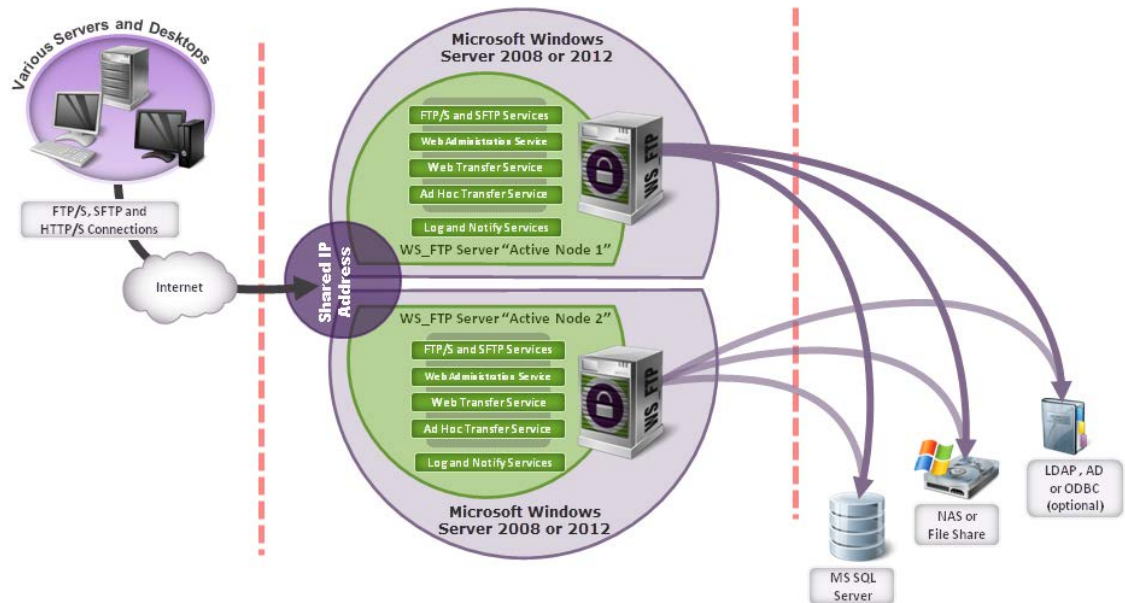


Carefully follow all directions in this document for configuring a failover cluster. Failure to do so may result in a nonfunctional or malfunctioning high availability environment. Ipswitch cannot support alternate NLB configurations.

If you are upgrading from a non-failover WS_FTP Server installation to a failover solution, we recommend that you configure your failover environment with fresh WS_FTP Server installations, then migrate your user and configuration data and file system over to the failover configuration.

Architecture

The following diagram shows the failover configuration using Network Load Balancing. The two WS_FTP Server installations are members of the cluster. NLB monitors the state of the primary node. The user and configuration databases and the file system are on systems that are outside of the cluster.



Each node has the following configuration:

- Two network adapters, each with a dedicated IP address
- Windows Server 2008 or Windows Server 2012 (includes NLB)
- WS_FTP Server with Log server, Notification server, and either Ipswitch Web server or Microsoft IIS

The following are configured on one or more systems outside of the cluster:

- Microsoft SQL Server 2008 or Microsoft SQL Server 2012 (to store WS_FTP Server configuration data)
- A supported user database for authentication (for example, Microsoft Active Directory)
- File system for users' home folders and storing log data for the FTP and/or SSH site

You will configure a shared IP address to be used for the cluster containing Node 1 and Node 2.

Requirements

To implement a two-node failover configuration for WS_FTP Server, you need the following:

- A single license with multiple activations for WS_FTP Server V7.6 (they must be the same edition; for instance, you cannot mix an FTP only edition with an SSH edition that includes the Ad Hoc Transfer module)
- Windows Server OS for each WS_FTP Server installation, also called a node.
Supported operating systems for NLB failover clustering are:

Operating System	Edition	Service Packs	Supported Versions
Windows Server 2012	<ul style="list-style-type: none"> ▪ Standard ▪ Datacenter 		<ul style="list-style-type: none"> ▪ 64-bit: English
Windows Server 2008	<ul style="list-style-type: none"> ▪ Standard ▪ Enterprise 	SP2 or later	<ul style="list-style-type: none"> ▪ 32-bit: English
Windows Server 2008 R2	<ul style="list-style-type: none"> ▪ Standard ▪ Enterprise 		<ul style="list-style-type: none"> ▪ 64-bit: English



Your NLB cluster must consist of identical operating systems on each node. For example: two Windows Server 2008 Standard installations, or two Windows Server 2012 Datacenter installations. Both nodes should have similar hardware, .NET frameworks and service packs.

- Each node requires two network adapters with dedicated IP addresses
- Microsoft Network Load Balancing (included with Windows Server 2008 and 2012) for each node

The shared resources should be installed on systems that are separate from the two WS_FTP Server installations:

- User database for authentication (shared by both nodes) can be: WS_FTP Server database, Active Directory, or other LDAP or ODBC database
- Microsoft SQL Server 2008 or 2012, Standard or Enterprise, for WS_FTP Server configuration data (shared by both nodes)
- A NAS or file share for the file transfer file system and log data shared by both nodes



You must configure all shared resources completely before installing WS_FTP Server or the failover solution may not function properly.

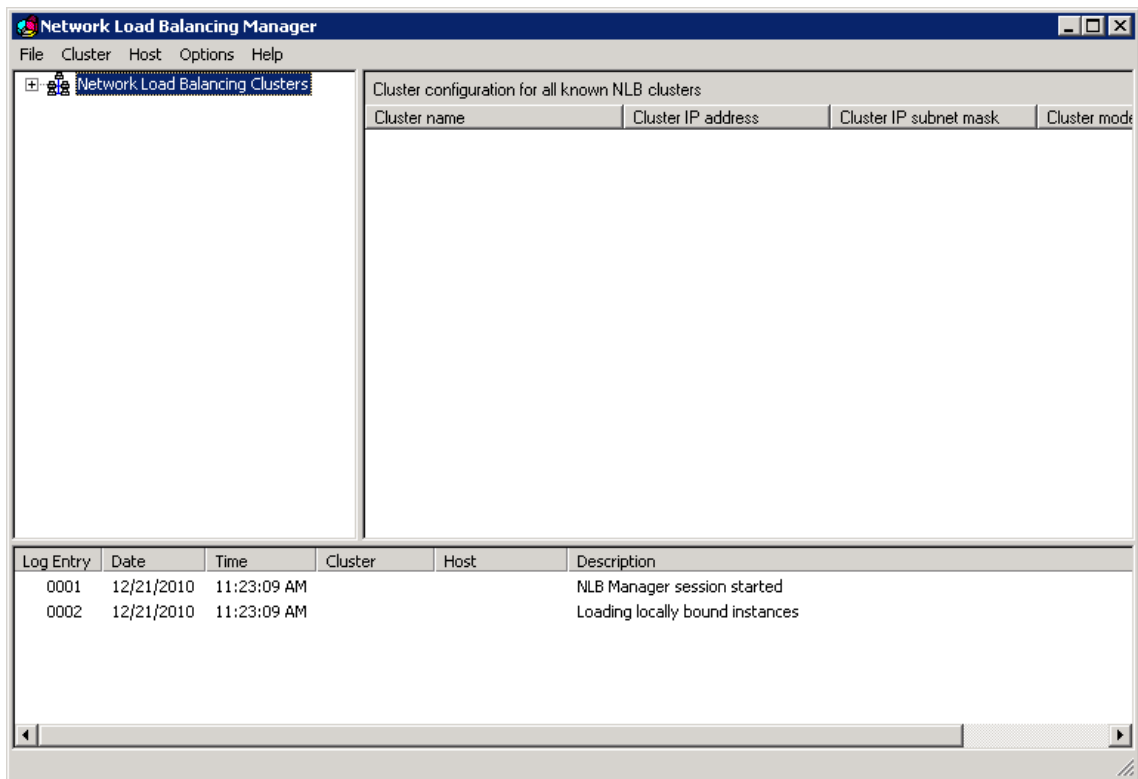
Step 1: Configure the NLB Failover Solution

Configuring a Two-Node Cluster in Windows Server 2008

On the two systems that will run WS_FTP Server (Node 1 and Node 2), set up Windows Server with the Network Load Balancing feature and configure a cluster using the cluster IP address.

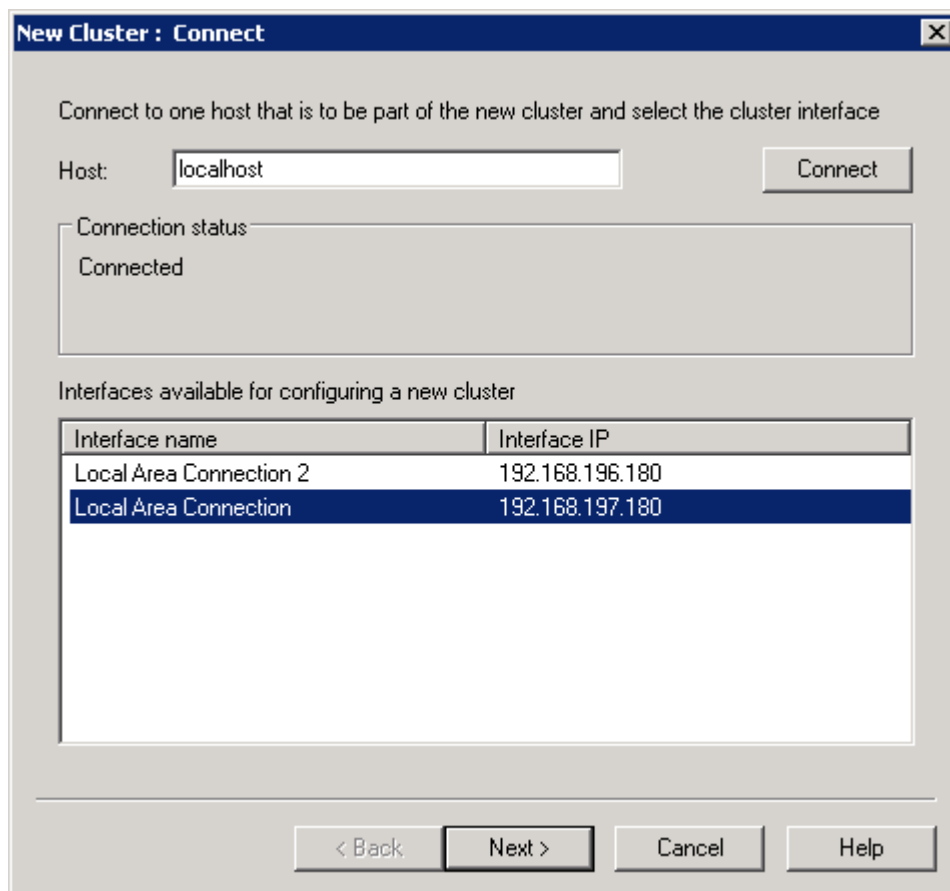
To configure a two-node cluster in Microsoft Network Load Balancing on Windows Server 2008/2012:

- 1 On each node, install the Network Load Balancing feature from the Server Manager.
- 2 To create a new cluster: On Node 1, open the Network Load Balancing Manager from **Administrative Tools > Network Load Balancing Manager**.

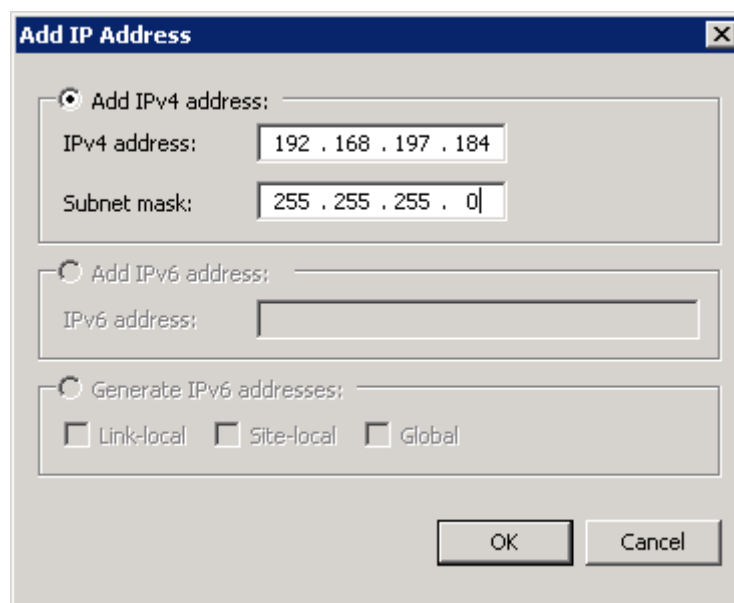


- 3 Click **Cluster > New**. The New Cluster : Connect window opens.

- For **Host**, enter localhost and click **Connect**. A list of interfaces appears.



- Select the interface with the IP address that the cluster will use and click **Next**. The Host Parameters page opens.
- Click **Next**. The Cluster IP Addresses page opens.
- Click **Add**. The Add IP Addresses dialogue window opens.



WS_FTP Server Installation and Configuration Guide

- 8 Enter the IP address that will be used to connect to the cluster and the subnet mask. The cluster IP address should not already be assigned to any host. Click **OK** to close the dialogue.
- 9 Click **Next**. The Cluster Parameters page opens.

New Cluster : Cluster Parameters

Cluster IP configuration

IP address: 192.168.197.184

Subnet mask: 255 . 255 . 255 . 0

Full Internet name: clusteron184.ftp.develop

Network address: 03-bf-c0-a8-c5-b8

Cluster operation mode

Unicast

Multicast

IGMP multicast

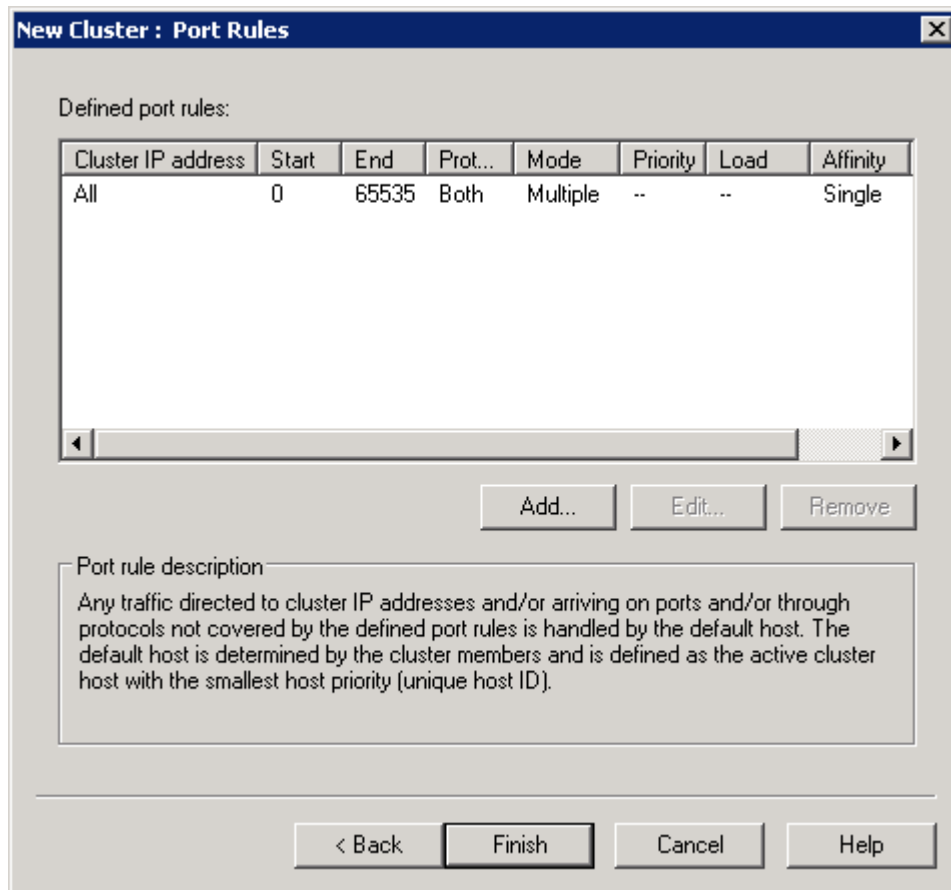
< Back Next > Cancel Help

- 10 Enter this information:
 - **Full internet name:** enter the full cluster name
 - **Cluster Operation Mode:** select **Multicast**

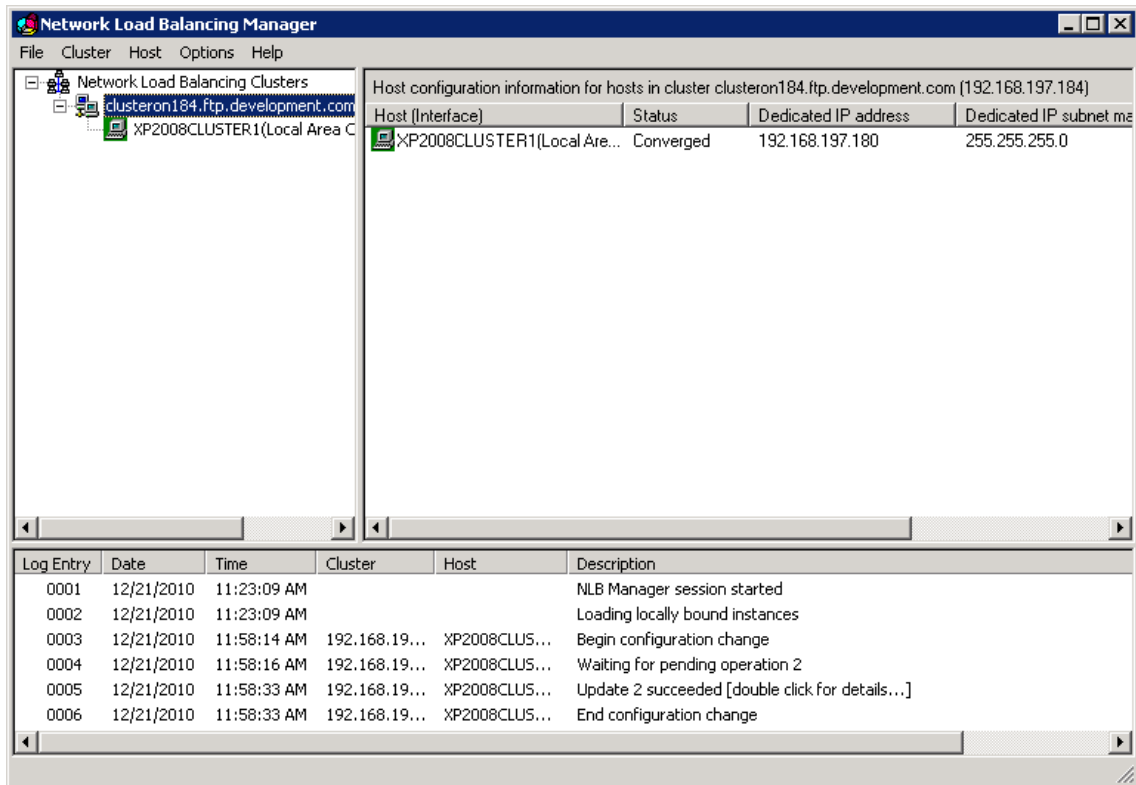


Clients will use the cluster IP address to connect to your FTP/SSH servers and your IIS-based Web Transfer Module or Ad Hoc Transfer module.

11 Click **Next**. The Port Rules page opens.

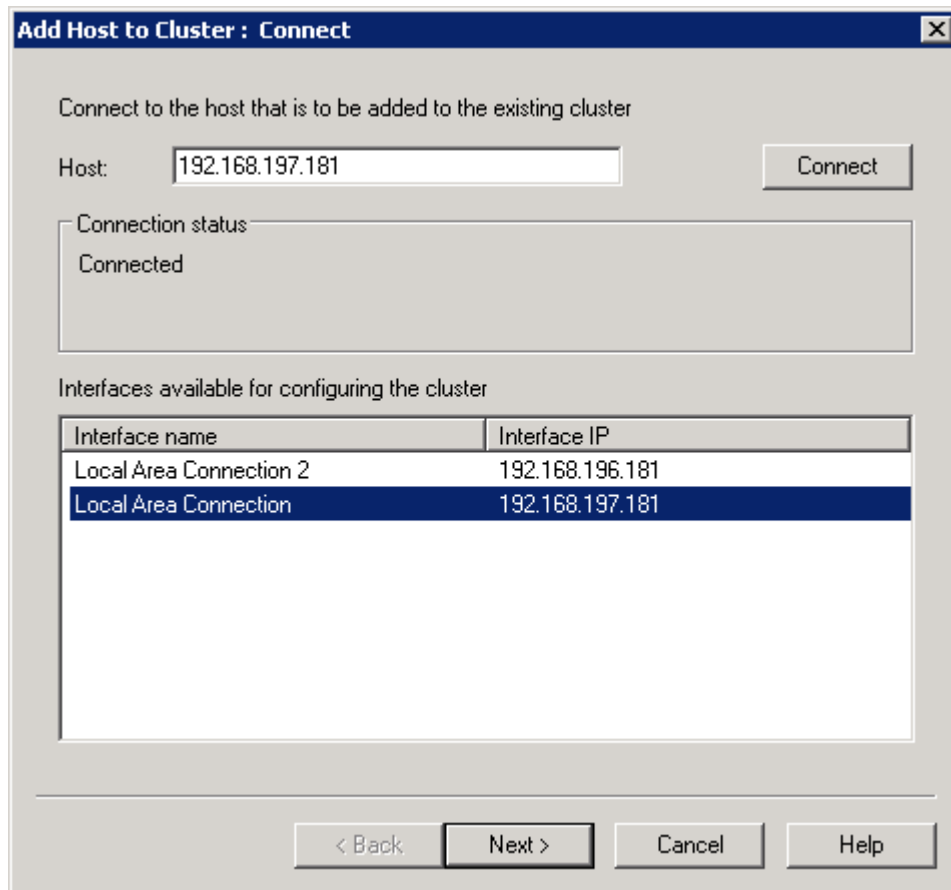


- Click **Finish**. Network Load Balancing creates the cluster. (The new cluster appears in the Network Load Balancing Manager.) When the Log displays the message "End configuration change" and the host displays the status Converged, the cluster is usable.



- Add Node 2 to the cluster. On Node 1, right-click the cluster and select **Add Host to Cluster**. The Add Host to Cluster : Connect window opens.

14 For **Host**, enter the IP address of Node 2 and click **Connect**. A list of interfaces appears.



- 15 Select the interface with the IP address that the cluster will use and click **Next**. The Host Parameters page opens.

Add Host to Cluster : Host Parameters

Priority (unique host identifier):

Dedicated IP addresses

IP address	Subnet mask
192.168.197.181	255.255.255.0

Initial host state

Default state:

Retain suspended state after computer restarts

- 16 Click **Next**. The Port Rules page opens.
- 17 Click **Finish**. Network Load Balancing adds the host to the cluster. When the Log displays the message "End configuration change" and both hosts display the status Converged, the cluster is usable.

Ensuring Both Nodes Can Access External Resources

- 1 Verify that both nodes can access the Microsoft SQL Server database (which is used for WS_FTP Server configuration data).
- 2 If you're using an external user database (for example, Active Directory or another supported user database), verify that both nodes can access the user database location.
- 3 Verify that both nodes can access the NAS via the UNC path.



If you are using a Windows Share as the NAS for the file transfer file system and logging directory, you must configure certain sharing and security permissions, otherwise logging will fail. See *Configuring Windows Share Permissions* (on page 115) to configure folder permissions.



If your nodes are having trouble accessing a resource, review your cluster configuration to verify that you have selected the appropriate settings for your environment.

If you are migrating from a standalone WS_FTP Server installation to a failover cluster, go to *Migrating WS_FTP Server to a Failover Cluster* (on page 121) to continue configuring the failover solution.

Step 2: Install WS_FTP on Both Nodes

You must install and configure WS_FTP Server on both nodes.

1 Install WS_FTP Server. Install WS_FTP Server first on Node 1 and then on Node 2. Use the custom install option, and use:

- Ipswitch web server or Microsoft Internet Information Services (IIS)
- Microsoft SQL Server database

For step-by-step instructions, see *Installing and Configuring WS_FTP Server* (on page 7).

2 Configure WS_FTP Server. On Node 1, on the Host Details page in the WS_FTP Server Manager:

- Set the top folder to the UNC path for the shared file system (NAS).
- In Impersonation Settings, specify a Windows user account that the server uses to request access to folders used by this host.

The screenshot shows the 'Host Details' page in the WS_FTP Server Manager. The page title is 'Host Details' and the URL is 'wsftpserver.ipswitch.com'. The 'Host name' field contains 'wsftphaserver.ipswitch.com'. The 'Top folder' field contains '\\FTPNAS\topfolder' and has a 'Browse...' button next to it. Below the 'Top folder' field are five checkboxes: 'Hide special files' (checked), 'Use local time' (unchecked), 'Enable extended FTP commands' (checked), 'Lock uploads' (checked), and 'Allow third party transfers' (unchecked). Below the 'Host Details' section is the 'Impersonation Settings' section. It has three fields: 'Domain' with 'IPSWITCH', 'User name' with 'ftpuser', and 'Password' with a masked password '*****'.



The WS_FTP Server installation creates a default host that uses the WS_FTP Server user database. To use another supported user database, you must create a new host and then configure the top folder and impersonation settings.

Step 3: Edit Ipswitch Registry Settings on Both Nodes

After installing WS_FTP Server, you must copy Ipswitch registry entries from Node 1 to Node 2. Ipswitch provides a script that backs up the registry on Node 1, writes the logging directory UNC path to the registry, and exports the registry entries to import to Node 2.

To Copy Registry Entries from Node 1 to Node 2:

- 1 On both nodes, open the WS_FTP Server Manager and stop Ipswitch Services.
- 2 On Node 1, open the Command Prompt in the WS_FTP Server Utilities directory:
 - **32-bit:** C:\Program Files\Ipswitch\WS_FTP Server\Utilities
 - **64-bit:** C:\Program Files (x86)\Ipswitch\WS_FTP Server\Utilities
- 3 To run the registry copy script, type this command and press **Enter**:


```
cscript wssregcopy.vbs "\\<hostname>\<sharename>"
```



\\<hostname>\<logdirectory> is the UNC path of the log directory.

```
Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>cd c:\Program Files (x86)\Ipswitch\WS_FTP Server\Utilities
c:\Program Files (x86)\Ipswitch\WS_FTP Server\Utilities>cscript wssregcopy.vbs "\\192.168.197.16\xpate1"
Microsoft (R) Windows Script Host Version 5.8
Copyright (C) Microsoft Corporation. All rights reserved.

Step 1 of 3: Successfully backed up registry to: c:\WS_FTP_Server_RegBackup_20101221.reg
Step 2 of 3: Successfully wrote UNC to the registry
Step 3 of 3: Wrote c:\WS_FTP_Server_Failover_Settings_20101221.reg

Please see Failover instructions for the next steps.

c:\Program Files (x86)\Ipswitch\WS_FTP Server\Utilities>
```



Be sure to save WS_FTP_Server_RegBackup_<date>.reg in a safe place. (<date> is the current date in the format YYYYMMDD.) This is the Ipswitch registry backup for Node 1.

- 4 Copy WS_FTP_Server_Failover_Settings_<date>.reg from Node 1 to Node 2. (<date> is the current date in the format YYYYMMDD.)



Be sure to save a copy of WS_FTP_Server_Failover_Settings_<date>.reg in a safe place.


WS_FTP Server Installation and Configuration Guide

- 5 On Node 2, backup the Ipswitch registry entries.
 - 1 Open the Windows registry and navigate to the Ipswitch registry key:
 - **32-bit:** HKEY_LOCAL_MACHINE\SOFTWARE\Ipswitch\
 - **64-bit:** HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Ipswitch
 - 2 Right-click the Ipswitch key and select **Export**.
 - 3 Save the .reg file. This is the Ipswitch registry backup for Node 2.



Be sure to save the .reg file in a safe place. This is the Ipswitch registry backup for Node 2.

- 6 On Node 2, right-click the WS_FTP_Server_Failover_Settings_<date>.reg file that you copied from Node 1 and select **Merge**. A dialogue window opens asking you to confirm the action.
- 7 Click **Yes** to copy the registry entries. A dialogue window opens informing you that the action was successful.
- 8 Click **OK** to close the dialogue.
- 9 On both Node 1 and Node 2, open the WS_FTP Server Manager, and restart the Ipswitch Services.

 Be sure that you clearly name and save the registry backups for each node. If something happens to your failover deployment, you can always roll back the registries on each node to a fresh installation of WS_FTP Server. You will also need them to replace any nodes that fail.

Step 4: Install WS_FTP Server Modules

You must install and configure the Ad Hoc Transfer module (AHT) and Web Transfer Module (WTM) on both Node 1 and Node 2. Before installing the modules:

- 1 Import the SSL certificate to the IIS sites on each node.
- 2 Apply the SSL certificate to the website in IIS on each node.



If you do not apply the SSL certificate to the website in IIS before installing the Web Transfer Module or the Ad Hoc Transfer module, you will have to uninstall and then reinstall the WTM or AHT module after the certificate is changed.

Installing and Configuring the Web Transfer Module

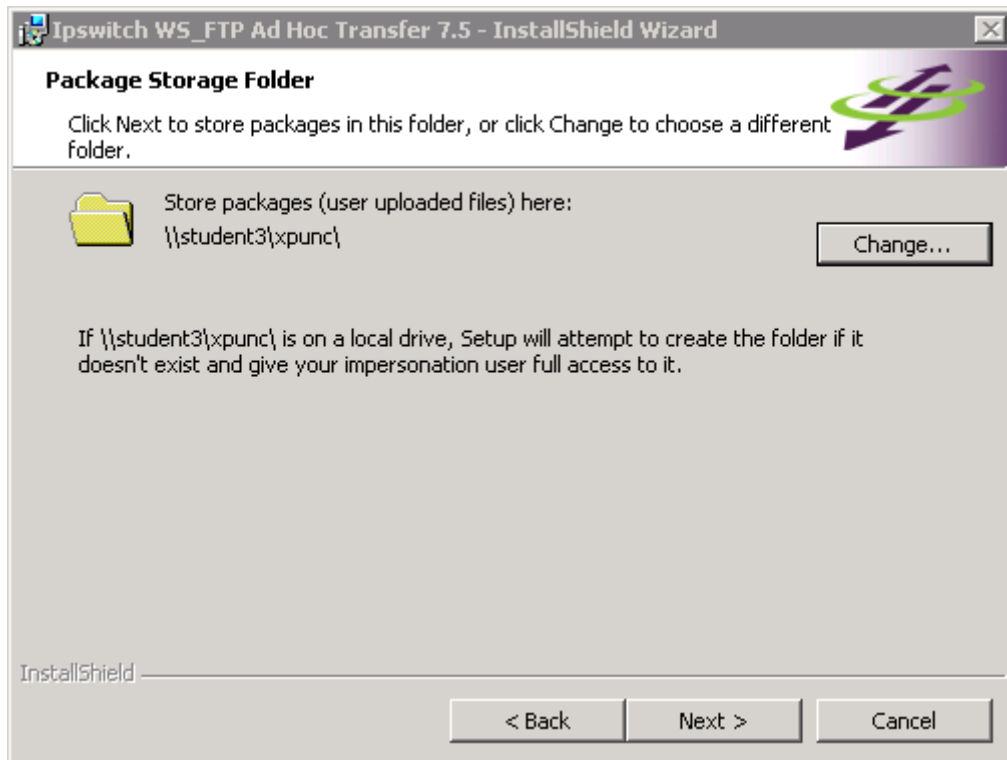
- 1 Install the Web Transfer Module on both Node 1 and Node 2.
- 2 After installation, browse to the install directory for the WMT web interface on each node. The default path is:
 - **Windows (32-bit)** - C:\Program Files\Ipswitch\WebClients\ThinClient
 - **Windows (64-bit)** - C:\Program Files (x86)\Ipswitch\WebClients\ThinClient
- 3 On both nodes, create a backup of `web.config` before making any changes. You can revert to these backups if something breaks during configuration.
- 4 On both nodes, open `web.config` in a text editor such as Notepad.
- 5 Locate the `machinekey` XML node. It should look like:

```
<machineKey
  validationKey="EA96C95FA2197D5500FF83F240A255F6C99C8120"
  decryptionKey="333D48BBCB70C5B3E9555FF438DFAB442924168CAB886EBA309
6B14106681850"
  validation="SHA1"
  decryption="AES"
/>
```

- 6 Copy each of these lines (the entire XML node, from `<machineKey` to `/>`) from `web.config` on Node 1 to `web.config` on Node 2.
- 7 If you make any other changes to `web.config`, ensure that you make them on both nodes.
- 8 Once you are finished making changes, save `web.config` on both nodes.
- 9 Restart the website in IIS on both nodes for the changes to take effect.

Installing and Configuring the Ad Hoc Transfer Module

- 1 Install the Ad Hoc Transfer module on Node 1 and Node 2. During the installation, change the Package Storage Folder to a folder on the NAS file system.



- 2 After installation, browse to the install directory for the AHT web interface on both nodes. The default path is:
 - **Windows (32-bit)** - C:\Program Files\Ipswitch\Ad Hoc Transfer\AHT
 - **Windows (64-bit)** - C:\Program Files (x86)\Ipswitch\Ad Hoc Transfer\AHT
- 3 On both nodes, create a backup of `web.config` before making any changes. You can revert to these backups if something breaks during configuration.
- 4 On both nodes, open `web.config` in a text editor such as Notepad.
- 5 On both nodes, locate the line that reads:

```
<add key="AHTDownloadURL_MachineName" value="localmachine.ipswitch.com"></add>
```

... where `localmachine.ipswitch.com` is the machine name of the node.
- 6 Replace each node's machine name in that line with the name of the cluster. This will allow users access to AHT in the event of a failover. For example:

```
<add key="AHTDownloadURL_MachineName" value="clustername.ipswitch.com"></add>
```

- 7 Locate the machinekey XML node. It should look like:

```
<machineKey
validationKey="EA96C95FA2197D5500FF83F240A255F6C99C8120"
decryptionKey="333D48BBCB70C5B3E9555FF438DFAB442924168CAB886EBA309
6B14106681850"
validation="SHA1"
decryption="AES"
/>
```

- 8 Copy each of these lines (the entire XML node, from `<machineKey` to `/>`) from `web.config` on Node 1 to `web.config` on Node 2.
- 9 If you make any other changes to `web.config`, ensure that you make them on both nodes.
- 10 Once you are finished making changes, save `web.config` on both nodes.
- 11 Restart the website in IIS on both nodes for the changes to take effect.

Configuring the Ad Hoc Transfer Outlook Plugin

- 1 After installing and configuring the Ad Hoc Transfer module, browse to the install directory for the Outlook plugin web service on both nodes. The default path is:
 - **Windows (32-bit)** - `C:\Program Files\Ipswitch\Ad Hoc Transfer\XFTWebService`
 - **Windows (64-bit)** - `C:\Program Files (x86)\Ipswitch\Ad Hoc Transfer\XFTWebService`
- 2 On both nodes, create a backup of `web.config` before making any changes. You can revert to these backups if something breaks during configuration.
- 3 On both nodes, open `web.config` in a text editor such as Notepad.
- 4 On both nodes, locate the line that reads:

```
<add key="AHTDownloadURL_MachineName"
value="localmachine.ipswitch.com"></add>
```

... where `localmachine.ipswitch.com` is the machine name of the node.
- 5 Replace each node's machine name in that line with the name of the cluster. This will allow users access to AHT in the event of a failover. For example:

```
<add key="AHTDownloadURL_MachineName"
value="clustername.ipswitch.com"></add>
```
- 6 If you make any other changes to `web.config`, ensure that you make them on both nodes.
- 7 Once you are finished making changes, save `web.config` on both nodes.
- 8 Restart the website in IIS on both nodes for the changes to take effect.

Step 5: Configure Ipswitch Services to Restart on Failure

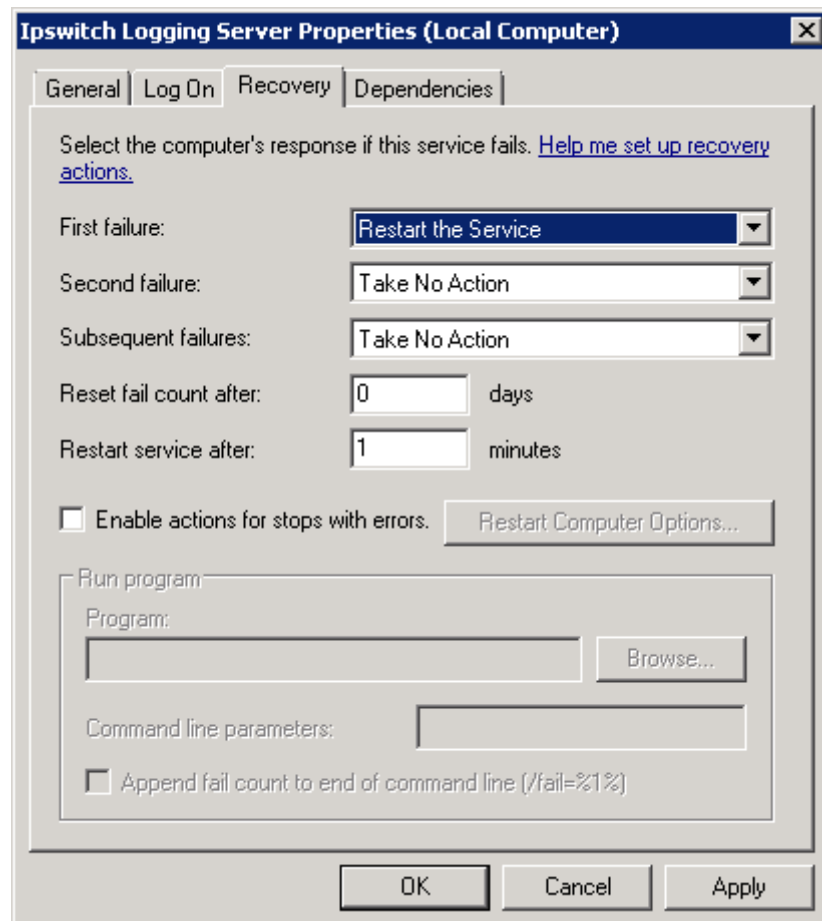
You can configure Ipswitch Services to automatically restart in the event of a service-level failure.



Network Load Balancing does not support service-level failover. If services continue to fail on the active node, you must induce failover by shutting down the active node.

To configure Ipswitch Services to restart on failure in Windows Server:

- 1 To open Services, go to **Administrative Tools > Services**.
- 2 Right-click the **Ipswitch Logging Server** service and select **Properties**.
- 3 On the Recovery tab, for First Failure, select **Restart the Service**, then click **OK**.



- 4 Repeat Steps 2-3 for **Ipswitch WS_FTP Web Server\$FTPService**, **Ipswitch Notification Server**, **Ipswitch WS_FTP Server**, and **Ipswitch SSH Server**.

Step 6: Configuring IIS for Log Viewing

If you are using Microsoft IIS as your web server and you want to view logs in WS_FTP Server's Log Viewer, you must complete the following steps on all machines on which WS_FTP Server is installed:

- 1 Create a Windows Domain User on the Domain Controller that responds to authentication requests. For Domain, use the domain on which the Windows Servers are located. For User name, select a user name that describes the purpose of the account.



The Domain account should have access full access to this directory:

Windows (64-bit): C:\Program Files (x86)\Ipswitch\WWWROOT

Windows (32-bit): C:\Program Files\Ipswitch\WWWROOT

- 2 Give the newly created user Read access to the Shared location where the logs are located. See *Setting Sharing and Security Permissions in Windows Server 2008 and 2012* (on page 116) for details on how to do this.
- 3 Open IIS, and under Default Web Site select **WSFTPSVR**.
- 4 Double-click **Authentication** in the right-window and then edit **Anonymous Authentication**.
- 5 Change **Specific user** from the local IPS Account and set it to use the Domain account you just created.



When installing WS_FTP Server using IIS, a local IPS_account is created and is used by default for anonymous authentication of the WSFTPSVR IIS application.

- 6 Once done, restart IIS for the changes to take effect.

Step 7: Test the Failover Cluster (NLB)

You should ensure your failover environment is functioning properly after configuration. You can test the cluster by disconnecting the active node from the network to force a failover.

To test the failover cluster:

- 1 Disable Node 2 to make Node 1 the active node.

To disable Node 2, disconnect the node from the network. You can either:

- Shut down the node, or
- Disable the node's Network Connection.

Node 1 is now the active node.

The screenshot shows the Network Load Balancing Manager console. The main window displays host configuration information for the cluster 'clusteron184.ftp.development.com (192.168.197.184)'. The configuration table is as follows:

Host (Interface)	Status	Dedicated IP address	Dedicated IP subnet mask
XP2008CLUSTER1(Local Area C...	Converged	192.168.197.180	255.255.255.0
XP2008CLUSTER2(Local Area C...	Unreachable	192.168.197.181	255.255.255.0

Below the configuration table is a log of events:

Log Entry	Date	Time	Cluster	Host	Description
0007	12/21/2010	12:28:07 PM	192.168.19...	XP2008CLUS...	Begin configuration change
0008	12/21/2010	12:28:07 PM	192.168.19...	XP2008CLUS...	Waiting for pending operation 2
0009	12/21/2010	12:28:30 PM	192.168.19...	XP2008CLUS...	Update 2 succeeded [double click for details...]
0010	12/21/2010	12:28:30 PM	192.168.19...	XP2008CLUS...	End configuration change
0011	12/21/2010	4:10:44 PM		XP2008CLUS...	Unable to connect to "192.168.197.181"
0012	12/21/2010	4:10:47 PM		192.168.197...	Host unreachable. Error connecting to "192.168.197.181"

- 2 Connect to the cluster with a file transfer client via the cluster IP address, then transfer any file (for example, `node1active.log`) to ensure the active node is functioning properly.



If you can't connect to the cluster, ensure that you can reach the cluster from your client, that you configured the IP addresses associated with the cluster, and that both nodes have the proper firewall exceptions.

WS_FTP Server Installation and Configuration Guide

3 Check the log file to ensure that logging is functioning properly.

12/22/2010 14:11:07	FTP	192.168.197.184:21	xp2008cluster1.ftp.development.com	58507047	156.21.3.118:64432	admin	XAJT		Success
12/22/2010 14:11:24	FTP	192.168.197.184:21	xp2008cluster1.ftp.development.com	58507047	156.21.3.118:64432	admin	STOR	node1active.log	Success
(C:\Program Files (x86)\Ipswitch\WS_FTP Server\xp2008cluster1.ftp.development.com\users\admin\node1active.log, 4 bytes, 0 ms)									
12/22/2010 14:11:39	FTP	192.168.197.184:21	xp2008cluster1.ftp.development.com	58507047	156.21.3.118:64432	admin	QUIT		Success



The file in the screenshot was sent from Node 1.



If logging is not functioning properly, ensure that the registry key to the logging directory is set to the proper UNC path (see the *Changing the log file path* (http://ipswitchft.custhelp.com/app/answers/detail/a_id/646) article in the Ipswitch Knowledge Base), that the Windows share has proper permissions if applicable (see *Configuring Windows Share Permissions for Failover Clusters* (on page 115)), and that you restarted the Ipswitch Logging Service after editing Ipswitch registry entries. Restart logging service on both nodes after you make any changes.

4 Reconnect Node 2 to the network and ensure it is part of the cluster.

The screenshot shows the Network Load Balancing Manager interface. The left pane displays the cluster hierarchy: Network Load Balancing Clusters > clusteron184.ftp.development.com > XP2008CLUSTER1(Local Area C) > XP2008CLUSTER2(Local Area C). The right pane shows host configuration information for hosts in cluster clusteron184.ftp.development.com (192.168.197.184):

Host (Interface)	Status	Dedicated IP address	Dedicated IP subnet mask
XP2008CLUSTER1(Local Area C)	Converged	192.168.197.180	255.255.255.0
XP2008CLUSTER2(Local Area C)	Converged	192.168.197.181	255.255.255.0

The bottom pane shows a log entry table:

Log Entry	Date	Time	Cluster	Host	Description
0001	12/22/2010	11:08:55 AM			NLB Manager session started
0002	12/22/2010	11:08:55 AM			Loading locally bound instances
0003	12/22/2010	11:08:58 AM			Loading configuration information from host "xp2008cluster1.FTP.development.com"
0004	12/22/2010	11:09:24 AM			Loading configuration information from host "xp2008cluster1.FTP.development.com"
0005	12/22/2010	2:29:12 PM			Loading configuration information from host "xp2008cluster2.FTP.development.com"

5 Disable Node 1 to make Node 2 the active node.

To disable Node 1, disconnect the node from the network. You can either:

- Shut down the node, or
- Disable the node's Network Connection.

Node 2 is now the active node.

6 Connect to the cluster with a file transfer client via the cluster IP address again, then transfer any file (for example, node2active.log) to ensure the cluster is functioning properly.

WS_FTP Server Installation and Configuration Guide

- 7 Check the log file again to ensure that logging is functioning properly. You will see that you have connected to Node 2 through the cluster IP address.

12/22/2010 14:56:28	FTP	192.168.197.184:21	xp2008cluster1.ftp.development.com	14763886	156.21.3.118:64649	admin	XAUT		Success
12/22/2010 14:56:33	FTP	192.168.197.184:21	xp2008cluster1.ftp.development.com	14763886	156.21.3.118:64649	admin	STOR	node2active.log	Success
(C:\Program Files (x86)\Ipswitch\WS_FTP Server\xp2008cluster1.ftp.development.com\users\admin\node2active.log, 4 bytes, 0 ms)									



The file in the screenshot was sent from Node 2.

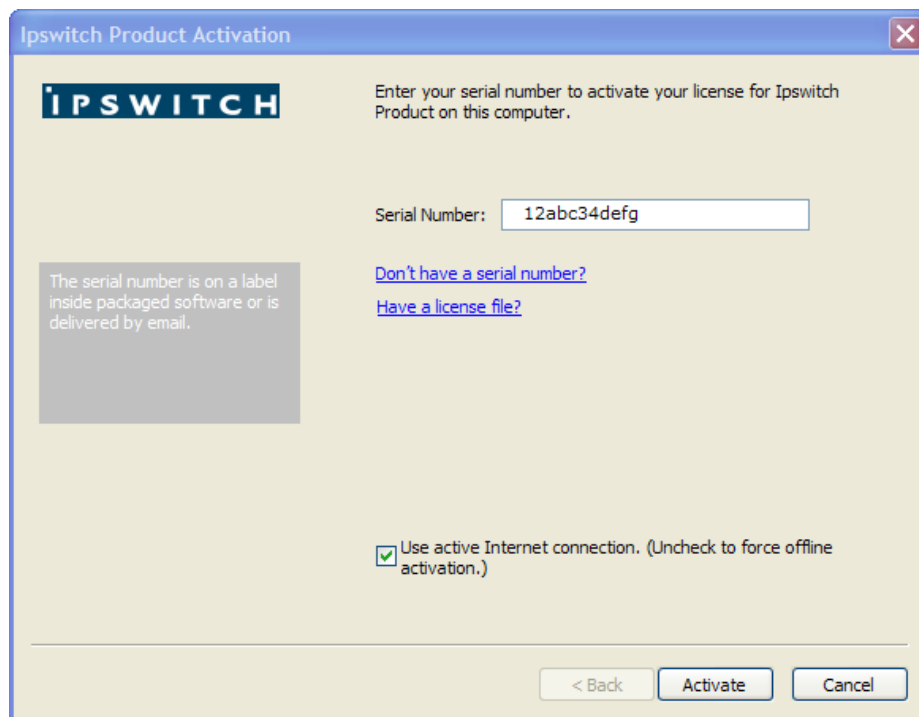
- 8 Connect the disconnected node to the network again.
- 9 Check the status of the cluster in the Network Load Balancing Manager again.

Upgrades

Upgrading Licenses

If you are upgrading an existing WS_FTP Server 7 license, use the following procedure. Upgrading an existing license includes the following:

- Upgrading from an evaluation license to a full license
 - Adding a feature(s) to an existing license, for example, adding the Ad Hoc Transfer Module, or upgrading to WS_FTP Server Corporate
- 1 Purchase the feature.
 - 2 Click **Program Files > Ipswitch WS_FTP Server > Activate or Refresh WS_FTP Server License**. The Ipswitch Product Activation program opens.



Note that your serial number should appear in the Serial Number box. If it does not appear, please enter it.

- 3 Click **Activate** to upgrade your license.

Your license will be upgraded to include the new purchased feature. This upgrade process does not create a second activation of the product, it just updates the existing license.

Upgrading from previous WS_FTP Server versions

- To upgrade to WS_FTP Server 7.6 or later, your currently installed version must be WS_FTP Server 7.1 or later.
- Before doing an upgrade see the *system requirements* (on page 7) for changes to supported operating systems and database versions.
- Make a backup of your existing server before starting the installation program. The WS_FTP Server 7.x installation program makes changes to your database that will not work with pre-7.0 versions of WS_FTP Server. We recommend that you back up your database so you retain the option of reverting to the previous version. To back up a PostgreSQL database, see the Knowledge Base article on how to back up *WS_FTP Server 6+* (<http://ipswitchft.force.com/kb/articles/FAQ/Backup-and-Restore-PostgreSQL-database-from-PGadmin3-Console-1307565979764?retURL=%2Fkb%2Fapex%2FknowledgeHome&popup=false>). To back up a SQL Server database, see your SQL Server documentation.
- If the WS_FTP Server installation uses PostgreSQL, you must install Microsoft .NET Framework 3.5 when upgrading to WS_FTP Server 7.6 or later from versions before 7.5.1, otherwise the installer will not let you complete the upgrade.
- If you are upgrading from WS_FTP Server 6.x (with FTP only, no SSH) to WS_FTP Server with SSH 7, the SSH Listener is not created by the installation program. When the installation program completes, you need to log on to the WS_FTP Server Manager, select Listeners, and create the SSH listener.

Upgrading your WS_FTP Server Installation OS from Windows 2003 to 2008

These instructions explain how to migrate your present WS_FTP Server installation from a Windows 2003 to 2008/2012 operating system, complete with your present accounts, configuration, and data:

- 1** If your current installation is a release prior to WS_FTP Server v7.5.1, upgrade your current installation to the 7.5.1 version. This step is necessary because the migrated database must be a version 7.5.1-compatible database.
- 2** Back up the “ws_ftp_server” and “ips_notifications” databases created by your current 2003 installation. (If your installation uses PostgreSQL for its database, use PostgreSQL’s pgAdminIII tool to back up these two databases. If your installation uses MS SQL Server, use the BACKUP DATABASE command, or the Backup Database option in Enterprise Manager. Refer to the appropriate Microsoft or PostgreSQL documentation for details.)
- 3** Install WS_FTP Server on the Windows 2008/2012 server you want your WS_FTP Server 2008/2012 installation to reside on. (See the section *Installing WS_FTP Server* (on page 11).) Also install Server modules, as appropriate, such as the WS_FTP Server Web Transfer Client.
- 4** Copy the files for the databases (created in step 2 above) to the target Windows 2008/2012 Server.
- 5** Stop all Ipswitch services on the target Windows 2008/2012 server. You can do this by navigating to **Server > Services**, selecting the checkboxes next to each service, then clicking **Stop**.
- 6** Drop empty databases for both WS_FTP Server and IPS Notifications database on 2008/2012 (“ws_ftp_server” and “ips_notification”). For SQL Server use the DROP DATABASE command, or drop the database in Enterprise Manager using the “Drop Database” task. For PostgreSQL, use the pgAdminIII tool.

- 7 Create new database and restore the database with the new files. With MS SQL, the command will be RESTORE DATABASE, or the Restore Database option in Enterprise Manager. With a PostgreSQL database, in the pgAdminIII tool, right click Databases, choose New Database, then use the following parameters:

Name your new database "ws_ftp_server"

Owner = IPS_admin

Encoding = UTF8

Template = template0

Tablespace = pgdefault

Ok

After right clicking and creating a second New Database:

Name your new database "ips_notifications"

Owner = IPS_admin

Encoding = UTF8

Template = template0

Tablespace = pgdefault

- 8 Restart the services stopped in Step 5. Verify that WS_FTP Server is in proper working order on the target 2008/2012 machine by transferring a test file, logging into WS_FTP Server, and checking to see if data is correctly displayed under Users, Listeners, and Notifications.

Upgrading Ad Hoc Transfer Plug-in for Outlook



Ipswitch no longer supports the Ad Hoc Transfer Plug-in for Outlook on Windows Server 2003 or 2008. Do not upgrade to the Ad Hoc Transfer Plug-in for Outlook V2.3 on those operating systems.

An Upgrade Affects Any Customizations to the User Interface and Help Topics

When you upgrade from version 2.1 of Ad Hoc Transfer Plug-in for Outlook, a new customizations sample file is installed. This is necessary because the schema for this XML file has changed. In order to maintain your customizations, you need to copy the entries from your existing customizations.xml file to a new customizations.xml that is based on the new sample file. The new sample file can be found in: `C:\ProgramData\Ipswitch\Ad Hoc Transfer Plug-in for Outlook\customizations.xml.sample`

For more information, see *Customizing the User Interface*.

If you are upgrading from version 2.2 of Ad Hoc Transfer Plug-in for Outlook, any changes that you have made to the customizations.xml file are maintained.

Standard Upgrade

If you have a previous version of the Ad Hoc Transfer Plug-in for Outlook installed on a system with a supported version of Outlook, you can upgrade to the Ad Hoc Transfer Plug-in for Outlook V2.3 by running the installer. It retains the previous configuration settings so that the Ipswitch client can use them to connect to the WS_FTP Server server.

See *Installing* (on page 47) for installation requirements and information.

Silent Upgrade

If your current version is Ad Hoc Transfer Plug-in for Outlook V2.0 or later, the silent installation will handle the upgrade to the new version, and can install Sync at the same time.

If your current version is Ad Hoc Transfer Plug-in for Outlook V1.5, before silently upgrading to the Ad Hoc Transfer Plug-in for Outlook V2.3, you must first uninstall the previous version using command line options to execute the uninstall. The installer can use the previous configuration settings during installation so that the plug-in can use them to connect to the WS_FTP Server server.



Ensure that you meet all requirements before attempting a silent install, or you will break the plug-in installation. See *"Silent" install* (on page 107) for information about installing the requirements and configuring the silent installation.

To silently upgrade the client application:

- 1 Ensure Outlook is closed on the computer.
- 2 If your current version is Ad Hoc Transfer Plug-in for Outlook V1.5, you need to silently uninstall the version 1.5 of the plug-in. When you run the installer, you must use this syntax:

```
msiexec /x {D05A1A4A-82E2-4C04-8566-FB792A66C8E} /q
```



If you did not install the plug-in silently on Windows Vista or 7, an Administrator must either uninstall from the command line without using the quiet (/q) parameter or uninstall the plug-in from **Programs and Features**.

- 3 Once the uninstall is complete, you can install the Ad Hoc Transfer Plug-in for Outlook V2.2.1 using this syntax:

```
msiexec /i [path+executable].msi /q  
DRIVER_NAME="xftWSFTPDriver.dll" [optional connection properties]
```



The previous connection configuration information is saved on the computer after uninstalling the plug-in. You do not need to enter connection properties again.



You must run all installer commands from the Administrator account.

Remote Upgrade using Active Directory Group Policy

Since remote installation uses silent installation via the Windows Installer, if your current version is Ad Hoc Transfer Plug-in for Outlook V1.5, you must uninstall the plug-in before installing Ad Hoc Transfer Plug-in for Outlook V2.3. If your current version is Ad Hoc Transfer Plug-in for Outlook 2.0 or later, the silent installation handles the upgrade to the new version. (See Silent Upgrade above for more information.) Once the previous version is uninstalled, you can remotely upgrade the Ad Hoc Transfer Plug-in for Outlook the same way you remote install it. See *Remotely Deploying the Ad Hoc Transfer Plug-in for Outlook* (on page 111) for more information.

Upgrading the Ad Hoc Transfer Plug-in for Outlook on Outlook 2003

If you installed a previous version of the Ad Hoc Transfer Plug-in for Outlook on a system with Outlook 2003, you must upgrade to Outlook 2007/2010 because Outlook 2003 is no longer supported. Before you upgrade Outlook, uninstall the previous version of Ad Hoc Transfer Plug-in for Outlook. Once Outlook is upgraded, you can install the Ad Hoc Transfer Plug-in for Outlook V2.3.

Upgrading Outlook 2007 to Outlook 2010 or 2013

If you have the Ad Hoc Transfer Plug-in for Outlook V2.0 installed on a system with Outlook 2007, you can upgrade to Outlook 2010 or 2013 without reinstalling the plug-in.

If you have a previous version of the Ad Hoc Transfer Plug-in for Outlook installed on a system with Outlook 2007, you must upgrade the plug-in to Ad Hoc Transfer Plug-in for Outlook V2.0 before upgrading to Outlook 2010 or 2013.

"Silent" Install

"Silent" install for WS_FTP Server

WS_FTP Server install allows for a "silent" (unattended) product install. In the present WS_FTP Server version, you can use silent install to automate installations for local computers only.

Silent install requires two operations. The first operation "records" the options that you choose during a normal install, storing them in a local "response" file. The second automatically runs an install on a different computer, based on the options recorded in the file created in the first operation.

This means that if other computers require identical install options to the ones you recorded in a response file, you can use that file to automate installation on those computers. A simple command will automatically perform the installation using the entries recorded in response file. Other than the execution of the command, the install will require no input from the user.



Note: If the respective computers do *not* have the same install option requirements, and you nonetheless run the silent install using the same file, an error may result and the install will fail.

You can also run a silent *uninstall*. You can do this by initiating a record operation, recording an *uninstall*, and then performing a silent install process described below, using the response file you created during the *uninstall* process.

To perform a silent install (or uninstall):

- 1 Initiate the recording to start the response file:

Execute the following at a command line or Run dialog:

```
[path+executable].exe -r -f1[path]\setup.iss SERIAL="[serial  
number + UAP]"
```

where *[path+executable]* is the name of the WS_FTP install executable you are creating the response file for, plus its location

...the second *[path]* is the location where you wish to create the response file

...setup.iss is the response file itself (you can name the file a different name if you wish). There should be no space between the option "f1" and the path for the setup.iss file



Note:The "SERIAL=" argument is optional depending on whether your install executable has an embedded serial number, and whether the install machine has Internet connectivity, as described the next section.

...*[serial number + UAP]* is your assigned serial number + the UAP, which is a security code that you append to the serial number to activate the license. You can find the product name plus the assigned serial number in the My Licenses tab on Mylpswitch.com. A license's UAP is exposed to users under "Additional License Information." The UAP is displayed only when you are authorized to activate the license on more than one system.

For example, using all arguments, the command would look like:

```
[c:\downloads\wsftp_install.exe].exe -r -f1  
c:\silentinstall\setup.iss SERIAL="1X4CF7M10W33XS1OVCCW2ST"
```

- 2 Proceed with the install using the options you wish to record. When you click Finish, the install (or uninstall) recording will be complete. If you use the WS_FTP Web Server install option, to avoid port conflicts, it is recommended that you not use port 80.

- 3 Execute the silent install on the desired computer by running the following:

```
[path+executable].exe -s -f1[path]\setup.iss SERIAL="[serial  
number + UAP]"
```

where the bracketed values are the same ones mentioned in the previous step. (Again, there should be no space between the option "f1" and the path for the setup.iss file.)

...again, the "SERIAL=" argument is optional depending on whether your install executable has an embedded serial number, and whether the install machine has Internet connectivity, as described in the next section.

For example, using all arguments, the command would look like:

```
[c:\downloads\wsftp_install.exe].exe -s -f1  
c:\silentinstall\setup.iss SERIAL="1X4CF7M10W33XS1OVCCW2ST"
```

After this step, the silent install will proceed with no further input needed.

You can run each of these operations with no specifics after the command. This will perform the operation with default values. The default for the record operation will store the file as "setup.iss" in the system's Windows folder. The execute silent install operation will look for a file of that name in the same folder. If there is no .iss file present, the install will fail.

More on Serial Numbers

You may need to use the SERIAL argument to this command to specify your serial number and to activate your software. Activation of the silent install depends on two factors: whether your install executable has an embedded serial number, and whether the install machine has Internet connectivity. There are four scenarios:

You have a downloaded WS_FTP Server install executable, which has an embedded serial number and the install machine has Internet connectivity. In this case:

- 1 Run the command without the SERIAL argument. Activation will occur silently.
- 2 Run the recorded file without the SERIAL argument. Activation will occur silently.

Result: You can run the recorded install up to your maximum permissible license activations.

You have a downloaded WS_FTP Server install executable, which has an embedded serial number and the install machine does not have Internet connectivity. In this case:

- 1 Rename the install executable so that the file name does not include the serial number and UAP.
- 2 Run the record command without the SERIAL argument. While recording, when the Activation dialog opens, click Cancel to close the dialog and return to the install wizard. Complete the installation.
- 3 Run the recorded file without the SERIAL argument.

Result: The WS_FTP Server is installed, but does not have a license file.

- 4 Contact customer service to arrange a license with multiple activations or use offline activation to activate each installation. For offline activation, go to *myipswitch.com* (<http://www.myipswitch.com>), click on **Offline Activation**, and follow the instructions displayed.

You have a CD with the WS_FTP install executable and the install machine has Internet connectivity. In this case:

- 1 Run the record command with the SERIAL argument. Activation will occur silently.
- 2 Run the recorded file with the SERIAL argument. Activation will occur silently.

Result: You can run the recorded install up to your maximum permissible license activations.

The SUPPRESSREBOOT option

Some installs will require a reboot, especially installs on computers that have never had a WS_FTP installation. If you do not want the target computer to reboot, enter the command "SUPPRESSREBOOT" at the end of the command line. For instance:

```
[path+executable].exe -s -f1[path]\setup.iss SUPPRESSREBOOT
```

You may need to edit the setup.iss file.

If the setup.iss contains a line with the ending `SdFinishReboot=0`, you will need to replace it with `SdFinish=0`. For instance, you should replace the line--

```
Dlg###={3F464442-A51F-414B-ACA4-78BCF276B346}-SdFinishReboot=0
```

...with the line:

```
Dlg###={3F464442-A51F-414B-ACA4-78BCF276B346}-SdFinish=0
```

...where "###" represents the install dialog screen number that the line describes.

Similarly, the lines--

```
[ {3F464442-A51F-414B-ACA4-78BCF276B346}-SdFinishReboot=0]  
Result=6  
BootOption=3
```

...should be changed to:

```
[ {3F464442-A51F-414B-ACA4-78BCF276B346}-SdFinish=0]  
Result=1  
bOpt1=0  
bOpt2=0
```

Note that if a reboot was required by the installation, you will still need to perform a reboot for the application to work as expected.

"Silent" install for the WS_FTP Server Web Transfer Client



If you purchased a WS_FTP Server Corporate license, make sure this license is activated before you run the "silent" install for the WS_FTP Server Web Transfer Client. If you purchased the WS_FTP Server Web Transfer Client as an add-on module to Ipswitch WS_FTP Server, you need to refresh your Ipswitch WS_FTP Server license. To refresh, from the Start menu, select **Program Files > Ipswitch WS_FTP Server > Activate or Refresh WS_FTP Server License**. If you purchased a WS_FTP Server Corporate license, you do not to refresh your license.

To automate installation of WS_FTP Server Web Transfer Client, you can use silent install. This silent install uses the Microsoft Windows Installer and command line options to execute the installation, rather than the record and play mechanism used by the WS_FTP Server. The syntax for the command line is:

```
msiexec -i [path+executable].msi -q IISWEBSITENAME="Default Web
Site" IMP_DOMAIN="Impersonation domain/computer"
IMP_USER="Impersonation username" IMP_PASS="Impersonation
password"
```

The "-i" option indicates install. To uninstall, use the option "-x." The record (r) and silent (s) options are not used for the WS_FTP Server Web Transfer Client silent install.

WS_FTP Server Installation and Configuration Guide

The install properties are as follows (follow each option with an equals sign and enclose each of the values in quotes):

Property	Description
IISWEBSITENAME	This is the name of the IIS web site which will host WS_FTP Server Web Transfer Client (such as Default Web Site).
INSTALLDIR	Optionally, use this property to specify the install path. The default path is: 32-bit: \Program Files\Ipswitch\WebClients 64-bit: \Program Files (x86)\Ipswitch\WebClients Use this command last.
IMP_DOMAIN	The domain or computer name that authenticates the impersonation credentials. In other words, where the impersonation user exists.
IMP_USER	The username impersonation credential.
IMP_PASS	The password impersonation credential.
LOG_NAME	Optionally, change the name of the install log. The default is WS_FTP_WEB_TRANSFER_MODULE.log.
LOG_PATH	Optionally, change the path where the install log is written. The default path is the Windows system32 folder.
-lv	To enable verbose logging by Windows Installer, add the following to the command line: -lv c:\install.log (or whatever log path and name you have set)

After the installation is completed, you can navigate to the INSTALLDIR to make sure the files are installed there.



For further information useful in troubleshooting an install, you can also refer to the WS_FTP_WEB_TRANSFER_MODULE.log, which the installer writes to:

32-bit: C:\Windows\System32\

64-bit: C:\Windows\SysWOW64\

"Silent" install for the Ad Hoc Transfer Module



Either before or after you install the Ad Hoc Transfer Module, you need to refresh your Ipswitch WS_FTP Server license. To refresh, from the Start menu, select **Program Files > Ipswitch WS_FTP Server > Activate or Refresh WS_FTP Server License**.

To automate installation of Ad Hoc Transfer Module, you can use silent install. This silent install uses the Microsoft Windows Installer and command line options to execute the installation, rather than the record and play mechanism used by the WS_FTP Server. The syntax for the command line is:

```
msiexec -i [path+executable].msi -q IISWEBSITENAME="Default Web
Site" IMP_DOMAIN="Impersonation Domain/Computer"
IMP_USER="Impersonation username" IMP_PASS="Impersonation
password" MAIL_SERVER="mail server address"
MAIL_PORT="mail server port number" MAIL_USER="Mail server
username" MAIL_PASS="mail server password"

INSTALLDIR="Ad Hoc Transfer install directory"
PACKAGE_FOLDER="Package storage folder"
```

The "-i" option indicates install. To uninstall, use the option "-x." The record (r) and silent (s) options are not used for the Ad Hoc Transfer Module silent install.

WS_FTP Server Installation and Configuration Guide

The install properties are as follows (follow each option with an equals sign and enclose each of the values in quotes):

Property	Description
IISWEBSITENAME	This is the name of the IIS web site which will host the Ad Hoc Transfer Module (such as Default Web Site).
INSTALLDIR	Optionally, use this property to specify the install path. The default path is: 32-bit: \Program Files\Ipswitch\Ad Hoc Transfer 64-bit: \Program Files (x86)\Ipswitch\Ad Hoc Transfer Use this command last.
IMP_DOMAIN	The domain or computer name that authenticates the impersonation credentials. In other words, where the impersonation user exists.
IMP_USER	The username impersonation credential.
IMP_PASS	The password impersonation credential.
MAIL_SERVER	The address of the mail server to which Ad Hoc Transfer Module will connect to send emails to package recipients, and to send notifications.
MAIL_PORT	Optionally, specify the port that the mail server uses. The default is port 25.
MAIL_USER	Optionally, specify a user to connect to your mail server. This is typically not needed.
MAIL_PASS	Optionally, specify the password for the MAIL_USER. This is typically not needed.
PACKAGE_FOLDER	Optionally, specify the folder where Ad Hoc Transfer packages (user uploaded files) will be stored. The default folder is "\Ipswitch Ad Hoc Transfer Packages" on the drive where Windows is installed (usually C:).
LOG_NAME	Optionally, change the name of the install log. The default is AD_HOC_TRANSFER_INSTALL.log.
LOG_PATH	Optionally, change the path where the install log is written. The default path is the Windows system32 folder.
-lv	To enable verbose logging by Windows Installer, add the following to the command line: -lv c:\install.log (or whatever log path and name you have set)

After the installation is completed, you can navigate to the INSTALLDIR to make sure the files are installed there.



For further information useful in troubleshooting an install, you can also refer to the AD_HOC_TRANSFER_INSTALL.log, which the installer writes to:

32-bit: C:\Windows\System32\

64-bit: C:\Windows\SysWOW64\

"Silent" install for the Ad Hoc Transfer Plug-in for Outlook

This installation procedure is for installing the Ad Hoc Transfer Plug-in for Outlook on an end user's computer. This plug-in uses the Ad Hoc Transfer Module that you've already installed on the WS_FTP Server computer. Each end user needs to install the plug-in in order to use Outlook to send files via Ad Hoc Transfer.

To automate installation of the client, you can use silent install. This silent install uses the Microsoft Windows Installer and command line options to execute the installation.



You must first manually install Microsoft redistributable packages if they are not already installed on the user's machine, otherwise the client will not install properly.



You must run the installer as Administrator.

You can also silently install the client remotely on multiple computers via Active Directory Group Policy. See *Active Directory Group Policy* (on page 111) for more information.

Requirements

Before installing the client:

- 1 Ensure the end user's computer meets the requirements in System Requirements.
- 2 (All OS; Outlook plug-in only) If not already installed, choose the appropriate architecture and language for the system and download the *Microsoft Visual Studio 2010 Tools for Office Runtime (VSTOR 2010) Redistributable* (<http://www.microsoft.com/en-us/download/details.aspx?id=40790>) from the Microsoft Download Center. Use these commands for silent installations:
 - **32-bit:** `vstor40_x86.exe /quiet`
 - **64-bit:** `vstor40_x64.exe /quiet`
- 3 (Non-English OS; Outlook plug-in only) If not already installed, download and install the appropriate *Microsoft Visual Studio 2010 Tools for the Microsoft Office System (Version 4.0 Runtime) Language Pack* (<http://www.microsoft.com/en-us/download/details.aspx?id=40791>) for your OS. Use these commands for silent installs:
 - **32-bit:** `vstor40_LP_x86_<lang>.exe /quiet`
 - **64-bit:** `vstor40_LP_x64_<lang>.exe /quiet`
- 4 Ensure Outlook is closed on the computer.

Using the Silent Install Program



The silent install program installs the client for all user accounts on the end user's computer. It does not allow you to run the installation for only the logged on user.



You must run the installer as Administrator.

Use this syntax to run the installer:

```
msiexec /i [path+executable].msi /q DEFAULT_HOSTNAME="[Ad Hoc
Transfer server address]" DEFAULT_SECURE="TRUE" DEFAULT_PORT="443"
DRIVER_NAME="xftWSFTPDriver.dll"
```

Using the silent install with the command shown above (with configuration properties) will install the client and configure the connection to the WS_FTP Server server to use SSL on port 443 for all users on a computer. There are additional properties you can choose depending on the situation.

The install properties are as follows (follow each option with an equals sign and enclose each of the values in quotes):

Property	Description
INSTALLDIR	(Optional) Use this property to specify the install path. The default path is: 32-bit: \Program Files\Ipswitch\Ad Hoc Transfer Plug-in for Outlook 64-bit: \Program Files (x86)\Ipswitch\Ad Hoc Transfer Plug-in for Outlook Use this command last.
DEFAULT_HOSTNAME	The address of the server where Ipswitch WS_FTP Server and Ad Hoc Transfer Module are installed.
DEFAULT_SECURE	Specify TRUE to use a secure SSL connection (HTTPS) or FALSE to use an unsecure connection (HTTP). The default is TRUE .
DEFAULT_PORT	The port used to connect to Ad Hoc Transfer. For secure SSL connections, this is typically 443. For unsecure connections, this is typically 80. The default is 443.
DEFAULT_LOGFILE	(Optional) Changes the path where the install log is written. The default path is: \Users\[Username]\AppData\Roaming
DEFAULT_SUPPCERTERRORS	To secure communications, Ipswitch WS_FTP Server sends a certificate back to your local PC. Specify TRUE to suppress any errors related to the certificate coming back from the file transfer server. The errors will not displayed on your PC. Specify FALSE to display any certificate errors.

WS_FTP Server Installation and Configuration Guide

DEFAULT_DEBUGLEVEL	Sets the level of information to be reported in the Ad Hoc Transfer log file: NONE - No information is logged NORMAL - Logs each Ad Hoc transaction DEBUG - Provides the connection and transfer information, in addition to the transaction.
DRIVER_NAME	You must include <code>DRIVER_NAME="xftWSFTPDriver.dll"</code> in the silent install command. This indicates the Ad Hoc Transfer plug-in version.

After you run the silent install, the default values in the table above can be found in the following folder on the end user's computer:

C:\ProgramData\Ipswitch\Ad Hoc Transfer Plug-in for Outlook\DefaultClientRepositorySettings.xml.

Each user will need to enter their WS_FTP Server password (and possibly their username) to complete the configuration. By default, the installation is for "All Users" on the computer. When an end user launches the plug-in or the WS_FTP Connector, the name of the currently logged on user is added to this configuration file.

For more information on entering the username and password, see [Completing the End User Configuration](#).

Silent Install for a Single Computer and a Single User Account

You can use the silent install, with a slightly different set of properties, to install Ad Hoc Transfer Plug-in for Outlook to a specific user account on the machine. In this case, use this syntax to run the installer:

```
msiexec /i [path+executable].msi /q CONNECTION_HOSTNAME="[Ad Hoc Transfer server address]" CONNECTION_SECURE="TRUE" CONNECTION_USER="[Ad Hoc Transfer username]" CONNECTION_PASS="[Ad Hoc Transfer password]" CONNECTION_PORT="443" DRIVER_NAME="xftWSFTPDriver.dll"
```

Using the silent install command as shown above will install the plug-in and configure the connection to the Ipswitch WS_FTP Server to use SSL on port 443. The username and password will also be configured, which makes this appropriate only for a single user account on a single computer.

WS_FTP Server Installation and Configuration Guide

The install properties are shown below (follow each option with an equals sign and enclose each of the values in quotes):

Property	Description
INSTALLDIR	(Optional) Use this property to specify the install path. The default path is: 32-bit: \Program Files\Ipswitch\Ad Hoc Transfer Plug-in for Outlook 64-bit: \Program Files (x86)\Ipswitch\Ad Hoc Transfer Plug-in for Outlook Use this command last.
CONNECTION_HOSTNAME	The address of the server where Ipswitch WS_FTP Server and Ad Hoc Transfer Module are installed.
CONNECTION_SECURE	Specify <code>TRUE</code> to use a secure SSL connection (HTTPS) or <code>FALSE</code> to use an unsecure connection (HTTP). The default is <code>TRUE</code> .
CONNECTION_USER	The user's Ad Hoc Transfer user name. This is the same as their Ipswitch WS_FTP Server user name. If this property is left blank, it defaults to the user name of the currently logged on user.
CONNECTION_PASS	The user's Ad Hoc Transfer password. This is the same as their Ipswitch WS_FTP Server password.
CONNECTION_PORT	The port used to connect to Ad Hoc Transfer. For secure SSL connections, this is typically 443. For unsecure connections, this is typically 80. The default is 443.
LOG_NAME	(Optional) Changes the name of the install log. The default is: <code>OUTLOOK_PLUGIN.log</code>
LOG_PATH	(Optional) Changes the path where the install log is written. The default path is: <code>\Users\[Username]\AppData\Roaming</code>
-lv	(Optional) To enable verbose logging by Windows Installer, add the following to the command line: <code>-lv c:\install.log</code> (or whatever log path and name you have set)
DRIVER_NAME	You must include <code>DRIVER_NAME="xftWSFTPDriver.dll"</code> in the silent install command. This indicates the Ad Hoc Transfer plug-in version.

Remotely Deploying the Ad Hoc Transfer Plug-in for Outlook

Remote Deployment via Active Directory Group Policy

Administrators can remotely deploy a client application to a large number of machines via Active Directory Group Policy by assigning a user logon script to a Group Policy Object. After installing the client, each user must enter credentials to authenticate to WS_FTP Server.



The Ipswitch Client Installer must be run as Administrator.

Requirements

- **Domain controller.** A Microsoft Windows Server 2008 or 2012 Active Directory domain controller.
- **Client computers.** Each users' computer must meet the same requirements as a silent installation. See *Silent Install* (on page 107) for more information.

Remote Deployment via Group Policy



Always test the remote deployment on non-production computers before installing the client on your users' computers.

To install via Active Directory Group Policy:

- 1 Configure a Group Policy Object that applies to all users for whom you plan to install the client. See Microsoft Windows Server documentation for information about configuring Group Policy Objects in Active Directory.
- 2 Create a new user logon script in any language supported by the users' computers that calls this command to run the installer from a shared location:

```
msiexec /i \\[sharename]\[sharepath]\[executable].msi /q  
DRIVER_NAME="xftWSFTPDriver.dll" DEFAULT_HOSTNAME="[Ad Hoc  
Transfer server address]" DEFAULT_SECURE="TRUE" DEFAULT_PORT="443"
```



You cannot use the `Connection_` properties (for example, `CONNECTION_USER` and `CONNECTION_PASS`) as those are for configuring a specific user. Users must enter their credentials to authenticate to WS_FTP Server after logging onto Windows. See *Silent Install* (on page 107) for the complete list of install properties and their usage.

- 3 Ensure that each requirement is met on all users' computers before running the Microsoft Windows Installer (.msi).
 - Each end user's computer must meet the requirements in System Requirements.
 - (All OS; Outlook plug-in only) If not already installed, choose the appropriate architecture and language for the system and download the *Microsoft Visual Studio 2010 Tools for Office Runtime (VSTOR 2010) Redistributable* (<http://www.microsoft.com/en-us/download/details.aspx?id=40790>) from the Microsoft Download Center. Use these commands for silent installations:
 - **32-bit:** `vstor40_x86.exe /quiet`
 - **64-bit:** `vstor40_x64.exe /quiet`
 - (Non-English OS; Outlook plug-in only) If not already installed, download and install the appropriate *Microsoft Visual Studio 2010 Tools for the Microsoft Office System (Version 4.0 Runtime) Language Pack* (<http://www.microsoft.com/en-us/download/details.aspx?id=40791>) for your OS. Use these commands for silent installations:
 - **32-bit:** `vstor40_LP_x86_<lang>.exe /quiet`
 - **64-bit:** `vstor40_LP_x64_<lang>.exe /quiet`



You must install all requirements before running the installer, otherwise the client will not install properly.

- 4 Use the Group Policy Management Console to assign the user logon script for the client installation to the Group Policy Object. For information on assigning user logon scripts, see:
 - **Windows 2008:** *Using Startup, Shutdown, Logon, and Logoff Scripts* ([http://technet.microsoft.com/en-us/library/cc730773\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc730773(WS.10).aspx))
 - **Windows 2008 R2:** *Using Startup, Shutdown, Logon, and Logoff Scripts* (<http://technet.microsoft.com/en-us/library/cc730773.aspx>)
 - **Windows 2012:** *Using Startup, Shutdown, Logon, and Logoff Scripts* ([http://technet.microsoft.com/en-us/library/cc775970\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc775970(WS.10).aspx))
- 5 After installing the Ad Hoc Transfer Plug-in for Outlook, notify users that they must enter their authentication credentials in the WS_FTP Connector Configuration dialog after logging onto Windows.

WS_FTP Server Installation and Configuration Guide

After you run the silent install, the default values for the install properties can be found in the following folder on the end user's computer:

C:\ProgramData\Ipswitch\Ad Hoc Transfer Plug-in for Outlook\DefaultClientRepositorySettings.xml

Each user will need to enter their Ipswitch WS_FTP Server password (and possibly their username) to complete the configuration. By default, the installation is for "All Users" on the computer. When an end user launches the plug-in or the WS_FTP Connector, the name of the currently logged on user is added to this configuration file.

For more information on entering the username and password, see [Completing the End User Configuration](#).

Configuring Windows Share Permissions for Failover Clusters

Configuring Sharing and Security Permissions

If you are using a Windows Share as the file system and logging directory for a WS_FTP Server cluster, you must configure certain sharing and security permissions. These objects require **read**, **write**, and **modify** permissions:

- Windows user account used in the WS_FTP host's Impersonation Settings (see *Changing user context via user impersonation* http://docs.ipswitch.com/WS_FTP_Server76/Help/15025.htm in the WS_FTP Server Manager Help for more information)
- Computer account for Node 1 of the cluster
- Computer account for Node 2 of the cluster
- Local Administrator group (present with read and write permissions by default)

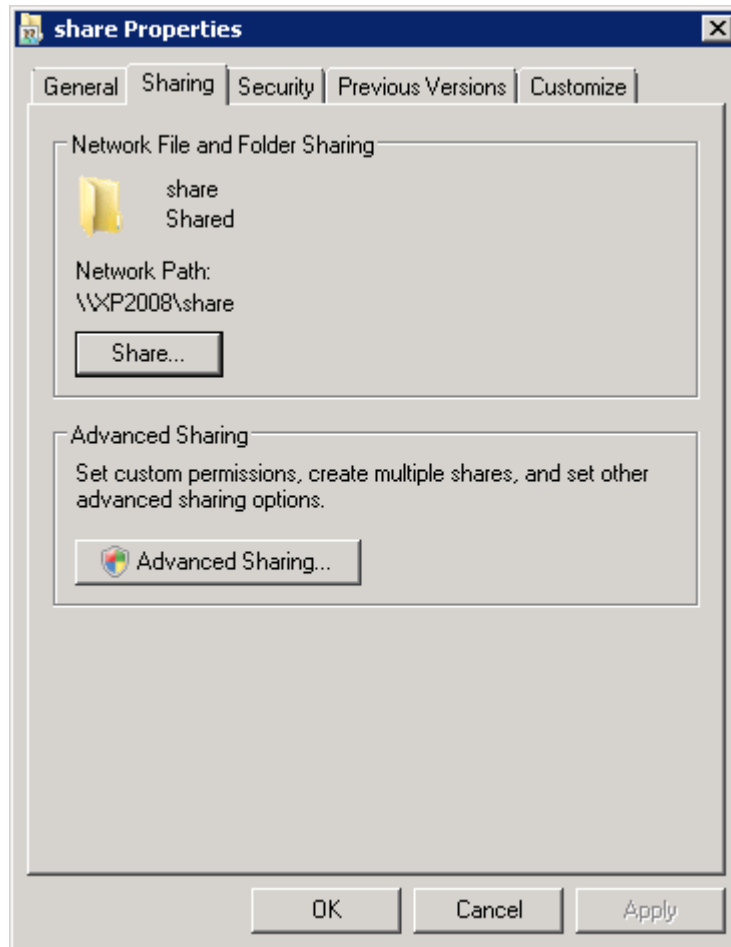


The Windows share and the Nodes in the cluster must be in the same domain. You must also be able to authenticate as a domain administrator to set permissions for the Share folder.

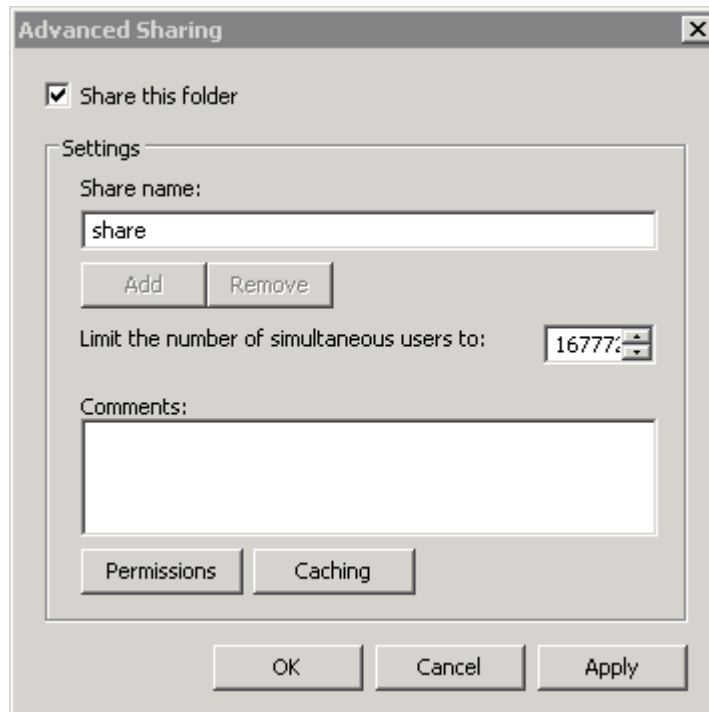
Setting Sharing and Security Permissions in Windows Server

To set sharing and security permissions:

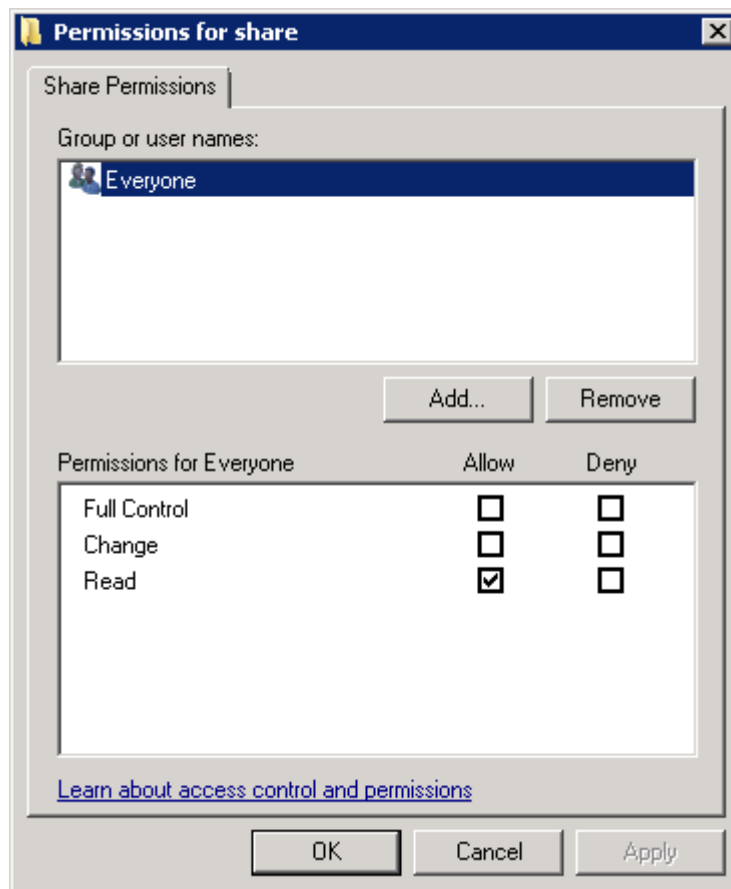
- 1 Click **Properties** on the right-click menu of the share folder on the Windows server. The Properties window opens.



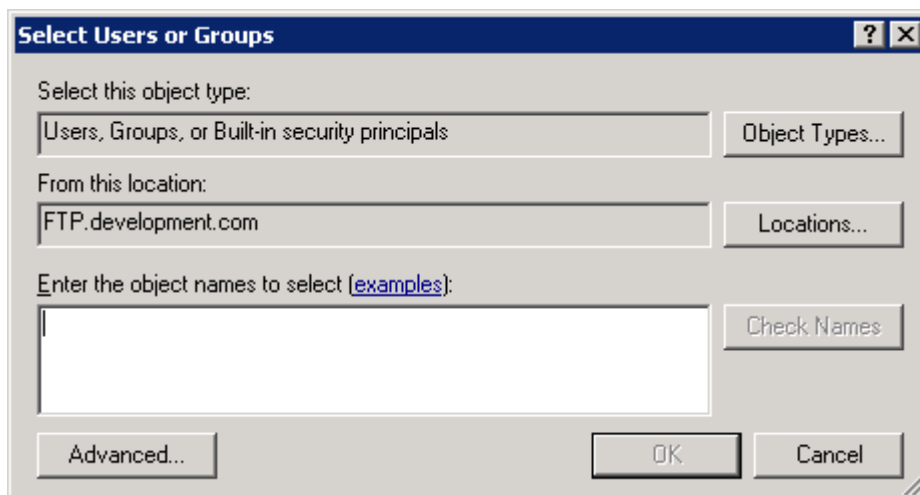
- 2 On the Sharing tab, click **Advanced Sharing**. The Advanced Sharing window opens.



- 3 Select **Share this folder** and click **Permissions**. The Permissions for share window opens.



- 4 Click **Add**. The Select Users, Computers, or Groups window appears.



- 5 Click **Object Types**. The Object Types window opens.
- 6 Select **Users, Groups, and Computers** and click **OK**.
- 7 Set Locations to the root of the domain directory.
- 8 Enter the **user account** to the Windows share in the **Enter the object names to select** field. You can separate object names with semicolons (;).

- 9 Enter the **computer name** for each node in the **Enter the object names to select** field. This gives permission to the System account for each node.



Computer names must be entered in the <DOMAIN>\<COMPUTERNAME> format.

- 10 Enter the **Administrators group** if it's not already added.
- 11 Click **Check Names** to verify the name of each object.
- 12 Click **OK**. The Select Users, Computers, or Groups window closes.
- 13 Allow **Change** and **Read** permissions for each object and click **OK**. The Permissions for share window closes.
- 14 Click **OK**. The Advanced Sharing window closes.
- 15 Click **OK** to share the folder. The Properties window closes.



Both Windows 2008 and 2012 automatically set complementary security permissions for accounts that have share permissions. There is no need to independently configure security permissions.

Migrating WS_FTP Server to a Failover Cluster

Overview

When moving WS_FTP Server from a standalone server to a failover cluster environment, you should install and configure a fresh WS_FTP Server failover cluster and then migrate the WS_FTP Server configuration data to the new installation. Make sure you completely configure the nodes and external resources before you begin migrating your data.



Make sure that you upgrade your standalone WS_FTP Server installation to V7.5.1 or later before migrating to the failover cluster. See *Upgrading from previous WS_FTP Server versions* (on page 90) for more information.

To migrate WS_FTP Server to a failover cluster:

- 1 Migrate the WS_FTP configuration database from the standalone server to a remote Microsoft SQL Server database.
- 2 Install and configure WS_FTP on both nodes.
- 3 Copy Ipswitch registry settings from the standalone server to both nodes via the included registry copy script.

After migrating the WS_FTP Server data, you can continue configuring your clusters.



If you want to roll-back to a non-failover WS_FTP Server deployment, you can shut down the cluster, migrate the WS_FTP Server configuration data to the standalone system, and then bring the standalone server online.

Migrating Data from the Standalone Server

Migrate the configuration data on the standalone WS_FTP Server system to external resources before installing WS_FTP Server.

To migrate your data from non-failover to failover installations:

- 1 Backup **all configuration data** on the source system.

If you are using a PostgreSQL database for your configuration data, see the *Backup and Restore PostgreSQL database from PAdmin3 Console* (http://ipswitchft.custhelp.com/app/answers/detail/a_id/649) article in the Ipswitch Knowledge Base for more information.

- 2 Stop all Ipswitch services on the standalone server from the WS_FTP Server Manager. WS_FTP Server is effectively offline now.
- 3 If your non-failover installation uses a local PostgreSQL database, migrate the database to Microsoft SQL Server.

For more information, see *Configuring a remote Microsoft SQL database* (http://docs.ipswitch.com/WS_FTP_Server76/Help/mssql_db.htm) in the Server Manager Help.



If you are already using a supported remote Microsoft SQL Server database, you do not need to change anything. However, you should still ensure that SQL Server backups are properly configured.



If you are using the WS_FTP Server user database, migrating the SQL database also migrates all user information. If you are using an external user database, you do not need to migrate any information. However, you should still ensure that user database backups are properly configured.

- 4 Move the folders and files in each host's top directory from the current server to the UNC share that you will specify as the top folder of each host in the failover cluster.
- 5 Deactivate the WS_FTP Server on the standalone server. To deactivate the license:
 - 1 Go to **Start > Programs > Ipswitch WS_FTP Server > Deactivate WS_FTP Server License**. The Ipswitch Product Activation window opens.
 - 2 Enter the Serial Number associated with your license and click **Activate**.
 - 3 If you unchecked the box to force offline deactivation, log into *myipswitch.com* (<http://www.myipswitch.com>) to finish deactivating the license.

Installing WS_FTP on Both Nodes

You must install and configure WS_FTP Server on both nodes.

- 1 Install WS_FTP Server.** Install WS_FTP Server first on Node 1 and then on Node 2. Use the custom install option, and use:
 - Web Server:
 - **MSCS:** Ipswitch web server
 - **NLB:** Ipswitch web server or Microsoft Internet Information Services (IIS)
 - Microsoft SQL Server

For step-by-step instructions, see *Installing and Configuring WS_FTP Server* (on page 7).
- 2 Configure WS_FTP Server.** On Node 1, on the Host Details page in the WS_FTP Server Manager:
 - Set the top folder to the UNC path for the shared file system (NAS).
 - In Impersonation Settings, specify a Windows user account that the server uses to request access to folders used by this host.

The screenshot shows the 'Host Details' configuration page for a WS_FTP Server host. The page title is 'Host Details' and the URL is 'wsftpserver.ipswitch.com'. The 'Host name' field contains 'wsftphaserver.ipswitch.com'. The 'Top folder' field contains '\\FTPNAS\topfolder' and has a 'Browse...' button next to it. Below the 'Top folder' field are five checkboxes: 'Hide special files' (checked), 'Use local time' (unchecked), 'Enable extended FTP commands' (checked), 'Lock uploads' (checked), and 'Allow third party transfers' (unchecked). Below the 'Host Details' section is the 'Impersonation Settings' section, which has three fields: 'Domain' with 'IPSWITCH', 'User name' with 'ftuser', and 'Password' with a masked password of seven dots.



The WS_FTP Server installation creates a default host that uses the WS_FTP Server user database. To use another supported user database, you must create a new host and then configure the top folder and impersonation settings.

Copying Ipswitch Registry Settings to Both Nodes

After installing WS_FTP Server, you must copy Ipswitch registry entries from the standalone server to both Node 1 and Node 2. Ipswitch provides a script that backs up the registry on the standalone server, writes the logging directory UNC path to the registry, and exports the registry entries to import to Node 1 and Node 2.

To Copy Registry Entries from the standalone server to Node 1 and Node 2:

- 1 On both Node 1 and Node 2, open the WS_FTP Server Manager and stop Ipswitch Services.
- 2 On the standalone server, open the Command Prompt in the WS_FTP Server Utilities directory:
 - **32-bit:** C:\Program Files\Ipswitch\WS_FTP Server\Utilities
 - **64-bit:** C:\Program Files (x86)\Ipswitch\WS_FTP Server\Utilities
- 3 To run the registry copy script, type this command and press **Enter**:

```
cscript wssregcopy.vbs "\\<hostname>\<sharename>"
```



\\<hostname>\<logdirectory> is the UNC path of the log directory.

```
Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>cd c:\Program Files (x86)\Ipswitch\WS_FTP Server\Utilities
c:\Program Files (x86)\Ipswitch\WS_FTP Server\Utilities>cscript wssregcopy.vbs "\\192.168.197.16\xpatel"
Microsoft (R) Windows Script Host Version 5.8
Copyright (C) Microsoft Corporation. All rights reserved.

Step 1 of 3: Successfully backed up registry to: c:\WS_FTP_Server_RegBackup_20101221.reg
Step 2 of 3: Successfully wrote UNC to the registry
Step 3 of 3: Wrote c:\WS_FTP_Server_Failover_Settings_20101221.reg

Please see Failover instructions for the next steps.
c:\Program Files (x86)\Ipswitch\WS_FTP Server\Utilities>
```



Be sure to save WS_FTP_Server_RegBackup_<date>.reg in a safe place. (<date> is the current date in the format YYYYMMDD.) This is the Ipswitch registry backup for the standalone server.

- 4 Copy WS_FTP_Server_Failover_Settings_<date>.reg from the standalone server to both Node 1 and Node 2. (<date> is the current date in the format YYYYMMDD.)

- 5 On both Node 1 and Node 2, backup the Ipswitch registry entries:
 - 1 Open the Windows registry and navigate to the Ipswitch registry key:
 - **32-bit:** HKEY_LOCAL_MACHINE\SOFTWARE\Ipswitch\
 - **64-bit:** HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Ipswitch
 - 2 Right-click the Ipswitch key and select **Export**.
 - 3 Save the .reg file. This is the Ipswitch registry backup for the node.



Be sure to save both .reg files in a safe place. These are the Ipswitch registry backups for Node 1 and Node 2.

- 6 On Node 1 and Node 2, merge the Ipswitch registry entries that you copied from the Standalone server into their registries:
 - 1 Right-click the WS_FTP_Server_Failover_Settings_<date>.reg file that you copied from the standalone server and select **Merge**. A dialogue window opens asking you to confirm the action.
 - 2 Click **Yes** to copy the registry entries. A dialogue window opens informing you that the action was successful.
 - 3 Click **OK** to close the dialogue.
- 7 On both Node 1 and Node 2, open the WS_FTP Server Manager, and restart the Ipswitch Services.



Be sure that you clearly name and save the registry backups for the standalone server and for each node. If something happens to your failover deployment, you can always roll back the registries on each node to a fresh installation of WS_FTP Server. You can also roll back the registry to your pre-cluster configuration on the standalone server if you want to revert to a non-failover deployment. You will also need them to replace any nodes that fail.

You can now finish configuring the failover clusters.

For Microsoft Cluster Services, see *Step 4: Configure Ipswitch Services in Microsoft Cluster Services* (on page 58).

For Network Load Balancing, see *Step 4: Install WS_FTP Server Modules* (on page 81).

Replacing a Failed Node in a Failover Cluster

Replacing a Failed Node

When a node fails in a failover cluster, you must remove the node from the cluster and replace it with another machine that has an identical configuration.

To replace a failed node:

- 1** Remove the failed node from the cluster using the active node's cluster management console.
- 2** Log into *mylpswitch.com* (<http://www.myipswitch.com>) and deactivate the license associated with the failed node.
- 3** Configure the replacement node. Install an identical version of Windows Server and the same Service Packs, Windows updates, .NET releases, and clustering software as the active node. The replacement node must also use the same hardware as the active node.
- 4** Install WS_FTP Server on the replacement node using the recently deactivated license and the same installation options as the active node.
- 5** Copy the Ipswitch registry entries that the registry copy script created to the replacement node.
- 6** Add the replacement node to the cluster.
- 7** If using Microsoft Clustering Services, configure Ipswitch services for failover on the replacement node.
- 8** Test the cluster to ensure failover is working properly.

For Microsoft Clustering Services, see *Testing the MSCS Failover Cluster* (on page 64).

For Network Load Balancing, see *Testing the NLB Failover Cluster* (on page 86).

Index

A

activation	
new license	16
upgrading licenses	89
Ad Hoc Transfer module.....	37
Outlook Plug-in.....	47
architecture	
Microsoft Clustering Services	52
Network Load Balancing	68
assistance	4

C

clustering.....	51, 67
configuring	
Ad Hoc Transfer module.....	43
MSCS cluster.....	51
NLB cluster	67
remote services	18
Web Transfer Module	31
Windows Share permissions.....	115
context menu	24

F

failover cluster	
installing modules	81
Microsoft Clustering Services	51
migrating to	121
Network Load Balancing	67
replacing a node.....	127
services.....	58, 84
FTP.....	1
FTP protocol.....	1

I

IETF.....	1
installing	
Ad Hoc Transfer module.....	37
Outlook Plug-in.....	47
Web Transfer Module	25
WS_FTP Server.....	7
custom.....	14
express.....	12
failover.....	55, 78
remote services	17
silent	97

Internet Engineering Task Force.....	1
Ipswitch services	17, 58, 84
Ipswitch WS_FTP Server.....	1

L

left menu.....	24
license	
activate	16
upgrade.....	89
login.....	23

M

menu	24
top	24
Microsoft Clustering Services (MSCS)	51
architecture.....	52
configuring a cluster	54
configuring services	58
requirements.....	53
testing an MSCS cluster.....	64
migrating to a failover cluster	121

N

Network Load Balancing.....	67
architecture.....	68
configuring a cluster	70
configuring modules.....	81
requirements.....	69
testing an NLB cluster	86
Windows Server 2008	70

O

Outlook Plug-in	47
-----------------------	----

R

registry settings.....	56
remote services	
configuring.....	18
installing.....	17
requirements	
Ad Hoc Transfer module	37
Microsoft Clustering Services.....	53
Network Load Balancing.....	69
Web Transfer Client	25
WS_FTP Server	7

RFC	1
-----------	---

S

server	23
--------------	----

install	23
manage	23
network access.....	23
Server Manager	23, 24
accessing	23
navigating	24
SFTP	1
sidebar menu.....	24
silent install	
silent Ad Hoc Transfer Outlook Plug-in	
installation	107
silent Web Transfer Module installation	103
silent WS_FTP Server installation.....	97
silent install:.....	105
SSH.....	1
SSH2	1
T	
testing a cluster.....	64, 86
top menu.....	24
U	
uninstalling	
Ad Hoc Transfer module.....	45
Web Transfer Client	34
WS_FTP Server.....	21
updates	
upgrades.....	89
upgrading	
Ad Hoc Transfer Outlook Plug-in	93
licenses	89
Windows 2003 to 2008	91
WS_FTP Server from previous version	90
upload	1
W	
Web Transfer Module	25
Windows Share permissions.....	115