Introduction to BlackMoon FTP Server

Welcome to the BlackMoon FTP Server installation and configuration guide. This guide is designed to inform you about how to install and configure the FTP server on your computer and network system. This guide also provides detailed guidance and tutorials on using features available in the software. This guide is designed for administrators, software configuration specialists and system designers.

System Requirements

Supported Microsoft® Operating Systems

- Microsoft Windows 2000 Service Pack 4
- Microsoft Windows XP (32bit and 64bit versions)
- Microsoft Windows 2003 (32bit and 64bit version)

Microsoft Data Access Components (MDAC) Version 2.7+ is required.

The software installation uses about 20megs of hard drive space, and 20megabytes of system memory.

This software will not work on Windows 95, 98 or Window ME.

Feature List

Active Directory and NT user authentication
Provide automatic and instant FTP access to your active directory or NT users without importing or configuring their accounts into the ftp server.

Database backend for user/server settings
Full, zero management support for database back-ends. Run multiple servers on different workstations sharing the same user database. No more custom, hard to parse application configuration files.

Support for the windows security model
Operate your ftp server with minimal exposure to risk by running it under a non administrator account. Software that supports your system security model, not the other way around.

System Event Logging / Easier Auditing
View all application events using the windows system event log viewer. Recorded events include service start/stops, application error reporting, maintenance pruning events and even buffer overflow attempts.

Secure FTP with 168-bit SSL Encryption
Supports up to 256bit SSL encryption for secure file transfers and login information encryption.

Run as System Service
Automatically run the ftp server in the background as a system service while managing it locally or remotely with an administrative GUI interface.

Assume Role of an NT User (NT User Impersonation)
BlackMoon can take over the role of a logged in NT user and restrict itself to any windows security permissions you have set for the impersonated NT user.

Multi-Level Server Wide Speed Limitations
Restrict file transfer speeds server-wide, based on folders, by day-of-week or time-of-day, or by individual accounts or user groups.

Full Virtual Folders, Merged Folders, Network Folders Support
Create virtual folders, merged folders (multiple folders appearing as one folder) and UNC network path folders for user accounts

Implemented FTP protocol extensions
Supports the newest FTP extensions such as MLST (platform independent file listings, MDTM (modify time), MODE Z (real-time compression), XCRC, XMD5, XSHA1 and more.

Easy, Intuitive, Administrative Interface
Monitor the server performance in the administrative GUI, get real-time server statistics, server and user logs, kick users and remove bans.

Login Rules and IP exclusions
Allow or deny access based on hostnames or IP addresses (supports IP/mask format) and bypass server restrictions based on hostnames or IP addresses.

Password protection and encryption
Store user login passwords in Clear text, MD5 or SHA1 hashes. Administrative and network passwords are automatically encrypted to keep your system safe.

Real-Time Statistics and Server Scripting
Extract real-time data from the server and develop extensible scripts like mp3 sorting, login name blacklists, custom login validation, welcome messages and emailing after file transfers.

Date/Time Based Activations
Schedule server availability on a weekly day/time base schedule or date periods. Limit bandwidth based on the time of day and control user login times based on day of the week and time of day.

Download and Upload File Transfer Resuming
Supports resuming previously failed file transfers without having to restart from the beginning of the file.

Automatic File and Database Logging
Log server uptimes, file transfers and client sessions in the database. Log server text and user command/responses in file based log files. Supports automatic deletion of database and file logs based on days.

Editions

Professional Edition

The professional edition has all the features enabled in the FTP Server. It supports unlimited users but is restricted to 100 concurrent connections. It also cannot authenticate NT users against a remote machine or remote Active Directory server. This edition is ideal for most administrators who run isolated FTP server machines or Home users.

Enterprise Edition

The enterprise edition is primarily for administrators who run sites on multiple computers and have users in an NTLM or Active Directories they would like to provide FTP access to. The distinguishing feature of the Enterprise Edition is the ability to authenticate against a remote Active Directory or remote computer on the same domain as the FTP server is running without importing users. The FTP server service can also impersonate an NT user restricting it to any restrictions placed on it by the Administrator in the NTLM or Active Directory.

Licenses

Workstation License

A workstation license is a license that restricts the FTP server to run on only one computer/workstation. The License you generate will be restricted to the name of the computer the server will be operating on. You will be allowed a limited number of renames in a month using the license manager.

Domain License

A domain license is like a site license but is for administrators who would like to run the FTP server on multiple computers within a domain. The domain license will only work on a computer in a Windows NT domain. Do not purchase this license if you plan on using the FTP server on a computer that is not part of the domain. With the domain license you can run multiple instances of the server on multiple computers as long as they are in the same Windows NT domain.

Installation

Purchasing the Software

BlackMoon FTP Server can only be ordered online through a secure payment processing website. Methods of payment supported are credit cards, purchase orders, check or money orders, by fax and by phone. To purchase through Paypal, please contact support@blackmoonftpserver.com for further instructions.

	Professional	Enterprise
Workstation	40$	70$
Domain	120$	200$

After a successful purchase you will receive an email containing your user-id and password and instructions detailing how to use the license manager to generate a license for the server.

Downloading the Trial Version

To try out the server before you buy, download the trial edition of the software from http://www.blackmoonftpserver.com/bmftp_trial.zip

Server Installation

- You must be logged in with an administrator account to install the ftp server.
- Extract the contents of the downloaded zip file into a temporary folder. Double click on the setup.exe file to begin installation.
- Follow the installation wizard's guide to complete the installation.
- For registered users read the license manager guide on how to create a new license before proceeding. Trial users do not need to use the license manager.
- Click on the Start button, navigate to All Programs, find the BlackMoon FTP Server entry and click on the BlackMoon FTP Server shortcut.
- After the program starts, you will be presented with an administrator login box. Leave all settings on their default values and click on the OK button to login.

Note: If you receive an error in the server log window about the interface or port is already in use, stop any other ftp servers listening on port 21. This includes the IIS ftp server.

Database Backend

Server configuration and user accounts are in a database instead of custom configuration files. The benefits of using a database include separation of server and data allowing multiple servers to access one central database. Data is stored in a logical manner and can be accessed, modified, moved and restored externally independent of the server operation. There are currently three database systems fully compatible with BlackMoon; Microsoft Access Database, Microsoft SQL Server 2000+ and Microsoft Desktop Engine.

Microsoft Access Database

This is the default database used when the server is installed. The database is in a flat file named blackmoon.mdb.

Tip: When backing up your server you only need to backup the blackmoon.mdb file. If you are using Microsoft SQL Server as your backend, add the config.xml file to your backup list.

For maximum compatibility your computer needs at least MDAC 2.7 installed. The Administrative GUI interface will display the installed MDAC version on startup and help on how to upgrade it if it is less than version 2.7.

To confirm there were no problems starting the server, open your system control panel, navigate to administrative tools and double click on the event logs icon. Select the node named BlackMoon FTP service to see a list of entries. Correct any error entries or contact support@blackmoonftpserver.com for help on how to fix them. A successful installation will have no error or warning entries in the event logs.

Microsoft SQL Server Database

See the section on how to switch to an MSSQL database backend

Other Database Vendor Support

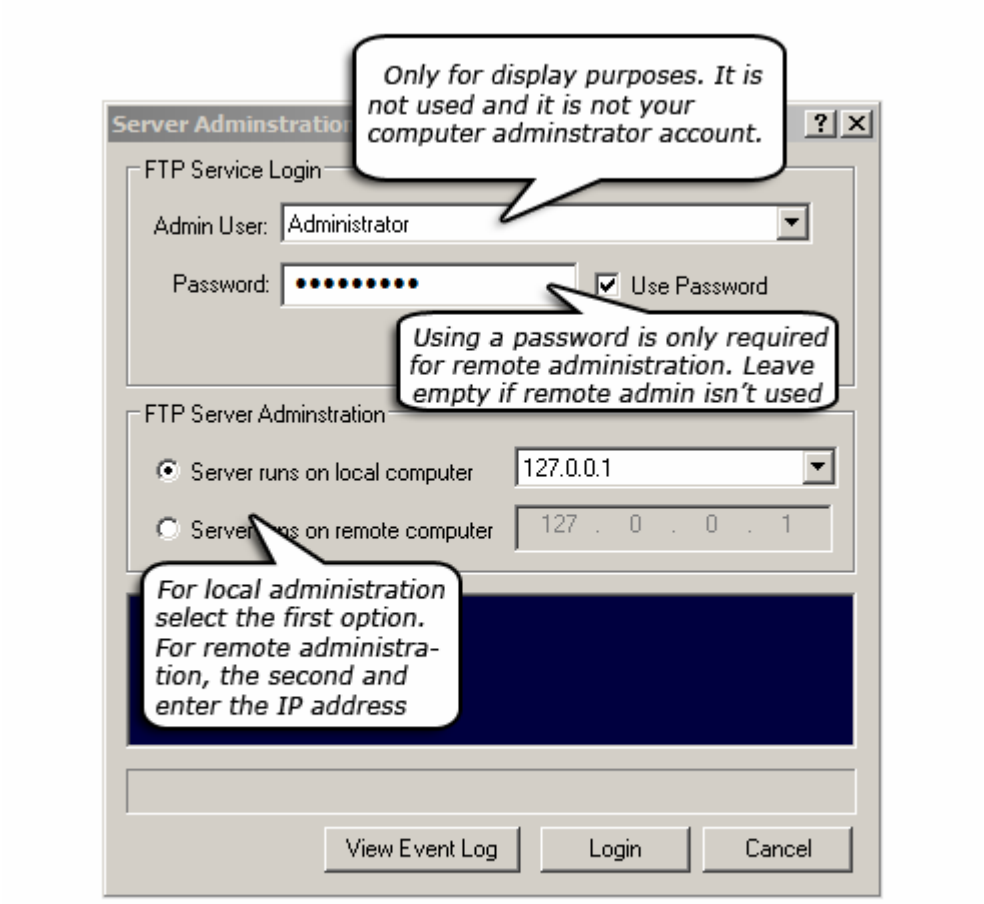
BlackMoon relies heavily on Microsoft ActiveX Data Objects. The only two databases with full compatibility are MSSQL server and MS Access. This document will be updated accordingly.

The Administrative GUI

BlackMoon is divided into two separate applications, the ftp service and the administrative graphical user interface (GUI). The ftp service operates independently and can be started by the system, service manager or the administrative GUI. The ftp service and administrative GUI establish a connection using TCP/IP and communicate with each other sending real-time information about the service state and the activity occurring on the server. The service can also receive commands from the administrative GUI to start, stop or even forcibly disconnect users. By using TCP/IP as the method of communication the service and the GUI can be operated remotely from anywhere on the internet.

Logging In

When you start the administrative GUI, you will be presented with a login screen.



The Admin User option is not used and it is not your computer's administrative account. It is there for only display purposes at this time.

For local administration the Use Password option should be left unchecked and the password box empty. If you intend to use remote administration, you must first set and use the password locally before a remote administrative connection will be allowed.

Select the Server runs on local computer to locally administer the ftp server. If you are using a particular administrative interface select it from the list otherwise leave it at 127.0.0.1

To manage a remove server, select the Server runs on remote computer and enter the remote computer's IP address. The port used for remote administration is port 52111.

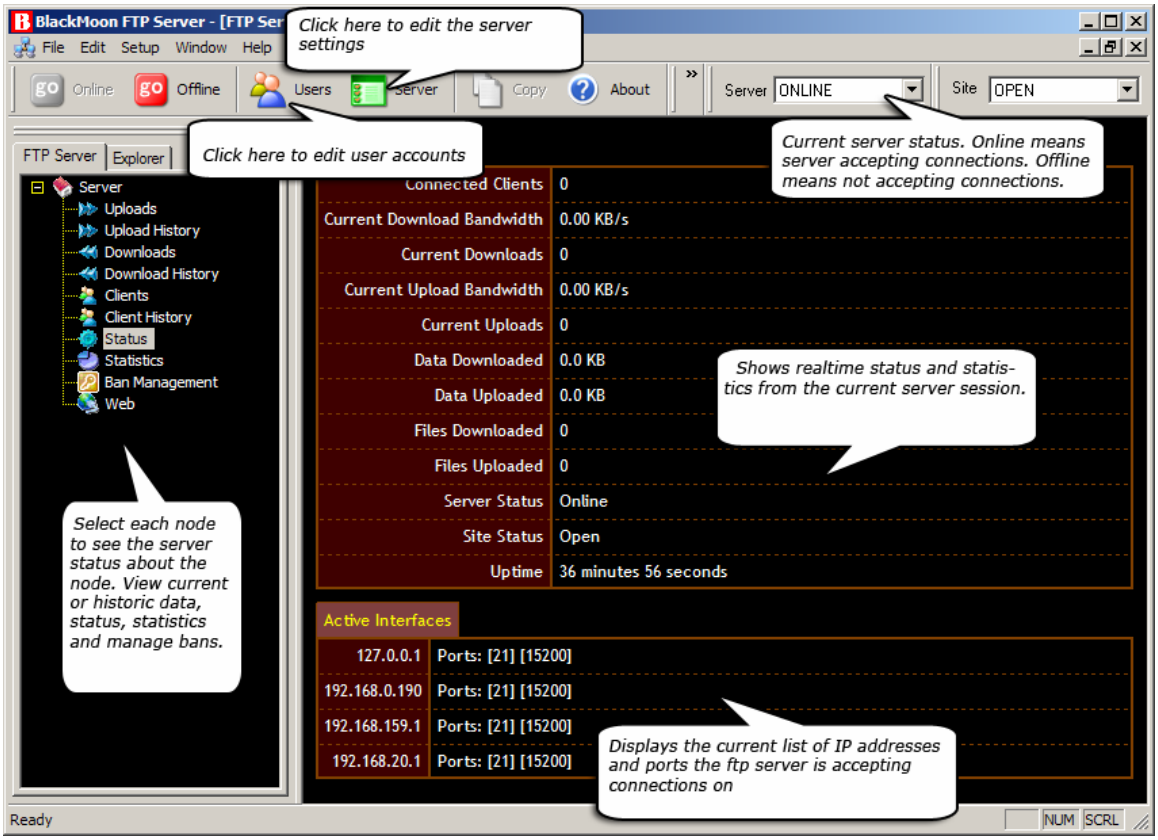
GUI Interface

The GUI interface is laid out in tree node form. You can select the various sections by clicking on the node under the Server tree. Uploads, Clients, Status and Ban Management display data from the current session of the FTP server. To see historic data, click on upload history, download history, client history or Statistics.

In the screenshot below, the server status screen is displayed. Here you see the current list of IP addresses and ports the ftp server is accepting connections on (minus the admin interface). Other session data is shown here such as the server uptime; files downloaded and uploaded, offline and online state and current speed being used.

The toolbar buttons are quick links to server and user configuration dialogs. Put the server in an online or offline state by clicking on the appropriate button or selecting it from the dropdown box. The site state can also be changed from open to close.

The colors of the GUI are fully customizable. Right click on any window of interest to access the configuration properties and change any settings or colors you wish. The color configuration can later be saved or restored by selecting Import/Export GUI customizations from the main menu.



Tip: What is the difference between offline/online and site closed/open? In offline mode the server does not accept connections. In site closed mode the server will accept connections but will inform ftp clients the site is closed.

See the next chapter on configuring the server settings and user accounts.

Configuration

The FTP server IP address is the address of the ftp server computer can be connected to from the internet or LAN. The server will listen for incoming connections on the ftp port. The port number can be any number between 1 and 65535. On installation, the server will listen on all the IP addresses available on the computer on port 21. Please see the section on internet explorer URL formats for FTP when giving out the address of your ftp server.

IP Address Configuration

The default configuration for the server is to listen on all available IP addresses found on the computer. To change this

- Click on the Setup menu option and select Server Options to open the server configuration dialog.
- Select IP Address Setup from the list to display the Interfaces property sheet.
- Uncheck the use default interface option and manually select a list of IP addresses to listen on.

FTP Server Port

The FTP server port is the port FTP clients will initiate connection establishment on. The default port is port 21. To change this value

- Click on the Setup menu option and select Server Options to open the server configuration dialog
- Select Connection Setup from the list
- Check the enable default listen port and enter the new port number in the port number box.
- The port number must be between 1 and 65535.

Login Banner

The login banner is the banner text displayed to the client immediately after a connection and before login. If the login banner is empty the server version and build is displayed instead. For example

> 220-BlackMoon FTP Server Version 3.0.3 Release 3 - Build 1722
> 220 service ready

When the login banner is changed to **The Bug Reaper's FTP Site** it becomes

220-The Bug Reaper's FTP Site
220 service ready

Tip: Changing the login banner is an easy way to hide what FTP server software and version your site is using.

Router / NAT Configuration

A router or NAT (network address translation) device can interfere with normal file transfer operations. If you are using a router or NAT (this includes ICS) it is highly recommended that you configure your passive IP configuration settings for maximum compatibility with FTP clients. If your server is directly connected to the internet you can skip the passive IP address configuration section.

Tip: How can you tell if you are using a NAT device? Click on the Status node in the BlackMoon GUI and look at the IP addresses listed in the Active Interfaces.

From	*To*
10.0.0.0	10.255.255.255
172.16.0.0	172.31.255.255
192.168.0.0	192.168.255.255
169.254.0.0	169.254.255.255

If your IP address is inside the range of IP's listed above you must configure your passive IP address settings.

- **Exception**: Your server is operating internally in a company or home local area network.

Passive IP Address Configuration

Visit http://www.blackmoonftpserver.com/whatismyip.aspx to find your internet IP address. Configure the server by

- Clicking on the Setup menu option and selecting Server Options to open the server configuration dialog.
- Select Connection Setup from the list.
- Check the Use Passive Host/IP option and enter your internet IP in the box.
- If you are on dialup, you can get and use a free dynamic host name from www.no-ip.com instead.
- Proceed to the firewall configuration

Firewall/Router Port Configuration

A firewall's job is to block any unauthorized access to ports your system. Many routers and NAT devices also block ports.

Note: You must read your firewall software or hardware documentation regarding opening ports. You must read your router and NAT documentation regarding forwarding ports.

Select an unused range of ports to use for your passive IP configuration. This guide recommends ten for small ftp servers and larger for busier servers. The port range you select should be between 1025 and 65535. Do not use any ports below 1025 for the port range.

- **Routers/NAT only**: Opening ports may be documented in your router as port forwarding. You should forward the ports to the IP address of the computer the ftp server is operating on. This IP address should be your LAN IP (not internet IP).

After making the necessary configuration changes in your firewall or router, you must configure the ftp server by

- Clicking on the Setup menu option and selecting Server Options to open the server configuration dialog.
- Select Connection Setup from the list.
- Check the listen for data connection in port range and enter the minimum and maximum port range you opened on your firewall or forwarded in your router.

- For example if you used ports 5010 to port 5020, then enter 5010 in the minimum port range and 5020 in the maximum port range.

Best Practices

- FTP Clients should use passive transfers when possible. With the proper configuration server side clients will experience no problems with file transfers.
- You can tell internet explorer to use passive transfers by clicking on the tools menu, selecting internet options and navigating to the advanced tab. Find and put a checkmark beside the Use Passive FTP option. Internet Explorer version 6.0+ has this enabled by default.

Testing the Server

Perform a quick test of the server configuration by

- Clicking on the Setup menu option and selecting User Accounts to open the user accounts dialog.
- Click on the New User button and select the Individual option and type Anonymous in the account name box.
- Press OK to create a new account.
- Select the Anonymous account and put a checkmark in the Allow Anonymous Access option.
- Change the Root Folder to a temporary folder containing files for testing.
- Open Internet Explorer and type in ftp://computername:port where computer name is the name of your computer and port is the server port
- For example with a computer name of BlackMoon and a port of 21 you would type ftp://blackmoon:21 to log into the server.
- If your configuration is correct you will see a list of files in the anonymous account's root folder.

Tip: For better debugging, use a real ftp client like Smartftp to test the server.

Internet Explorer FTP URL Formats

Internet Explorer uses the following URL formats for access ftp servers. The full format is ftp://username:password@ipaddress:port. The ipaddress can be replaced with a hostname. For example

- ftp://james:bond@192.168.0.1:21/
- ftp://james:bond@spygame.net:21/

Omit the username and password to login anonymously. For example ftp://spygame.net:21/ will login anonymously into the ftp server at spygame.net on port 21.

When the port number is left out, port 21 is assumed. For example ftp://ftp.microsoft.com will log into the ftp at microsoft.com with an anonymous account on port 21.

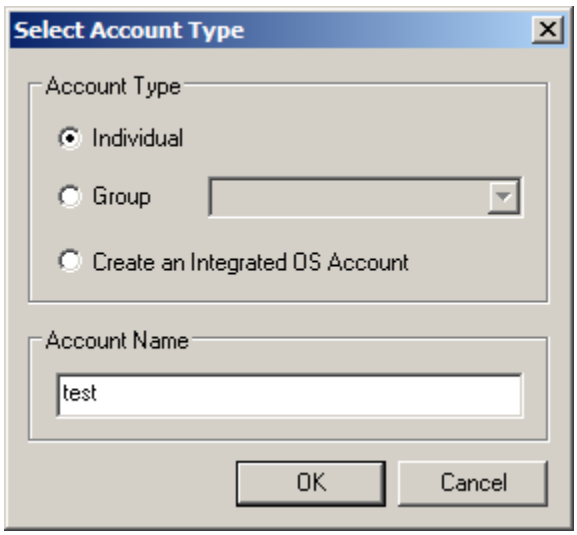
Note: Internet Explorer does not support SSL over ftp connections. Using a username and password in internet explorer will show in the user's history dropdown. It is recommended users be advised to use a real ftp client.

User Accounts

Creating Standalone Accounts

A standalone account is an FTP user account that is not part of a group. Standalone accounts are very easy to create and configure but do not share properties with other accounts. Having a lot of standalone accounts with similar settings can become difficult to manage. Follow the instructions below to create a standalone account.

- Click on Setup menu and select User Accounts to open the user account configuration dialog
- Click on the New User button and choose Individual in the list and type in Test



- Press the OK button to create a new account named test.
- Change the password to test.
- Change the root folder to an empty folder or leave it on the default if you wish.

Tip: You may change the profile name to something that describes the account more clearly. The profile name is for display purposes only.

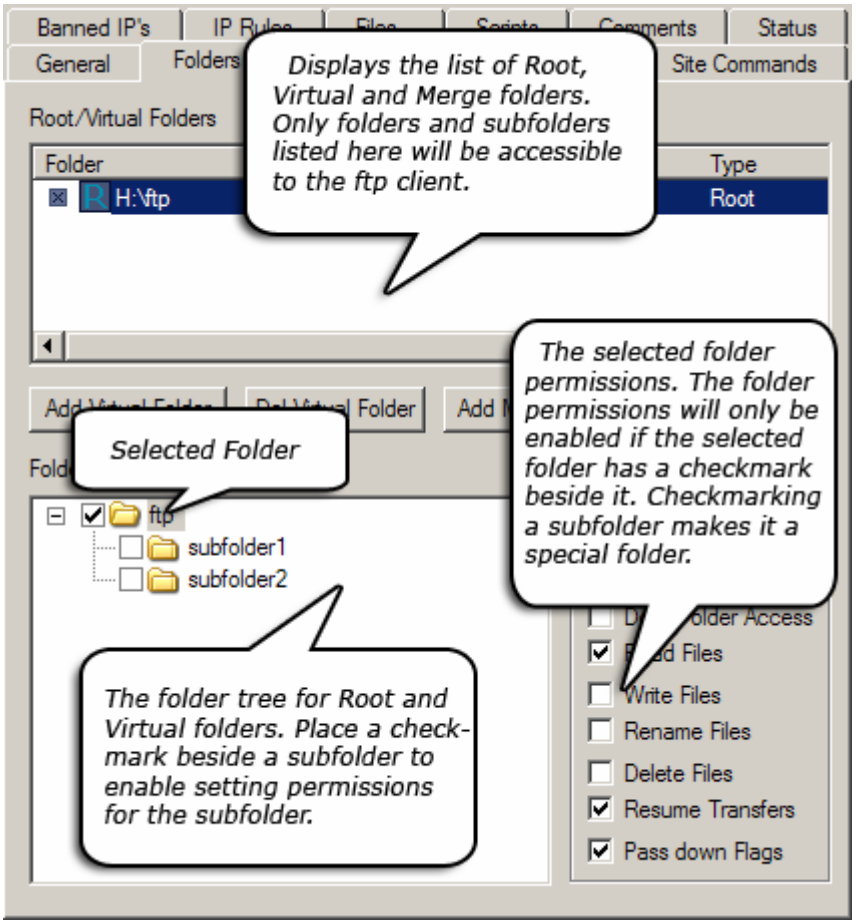
Setting up Folders
Users are always restricted to their root folders. The server will not allow an FTP client to traverse to a folder above the root folder. To allow users to access folders that are not subfolders of the root folder, you may create two other kinds of folders; **virtual folders** and **merge folders**.

A **virtual folder** is a folder that is not a subdirectory of the root folder. It may be located on another drive or may even be a network folder. A virtual folder has two properties; the **alias** and the **actual path**. The alias is the folder name shown in the ftp client folder listings and the actual path is hidden from the ftp client. When a virtual folder points to a UNC path (UNC path is the universal naming convention for network paths e.g. \\network\folder), you may set additional properties such as the login/password for the UNC path. A virtual folder does not inherit the permissions of the root folder; it is separate and has its own permission settings on creation.

Merge Folders are folders whose contents are merged with their parent. Only Root and Virtual folders can have merge folders. The number of merge folders you can add is unlimited. A merge folder assumes the permissions of its parent folder.

There is another type of folder called a **Special Folder**. A special folder is a subfolder of a Root or Virtual folder with its own folder permissions.

Tip: You can change the properties of the Root or Virtual folder by right clicking on them and selecting properties from the popup menu.



The list view displays the Root, Virtual and Merge folders added to the folder list. FTP Clients will be restricted to navigating folders and subfolders in the list. When a folder is selected, the file hierarchy is displayed in a tree form. The parent node always has a checkmark beside it; this indicates that you can set permissions for the folder. To set permissions for subfolders, place a checkmark in the box to enable setting of permissions.

- **Note**: All subfolders with checkmarks beside them are Special Folders because they have their own permissions.

Folder Flags

Folder flags determine the permissions an FTP client has to the contents of a folder tree. Folder flags sit above the operating system's file and folder permissions.

List Folder Contents – Allows ftp clients to see the contents of the folder.

Create Sub-Folders – Allows FTP clients to create sub-folders.

Delete Sub-Folders – Allows FTP clients to delete sub-folders.

Deny Folder Access – Denies FTP clients access to the folder. They can see it but cannot enter it.

Read Files – Allows files to be downloaded.

Write Files – Allows files to be uploaded.

Rename Files – Allows files and subfolders to be renamed. This also applies to moving files.

Delete Files – Allows files to be deleted.

Resume Transfers – Gives permission to the ftp client to append to files when resuming file transfers.

Pass down flags – Applies the permissions for the folder to all subfolders beneath it. The exception is when a subfolder has its own permission.

Creating Group Accounts

Accounts that share common options like folder permissions, ratio or speed limit settings can be created as group accounts. First a group must be created with the settings required. Creating new group by

- Clicking on Setup menu and selecting User Accounts to open the user account configuration dialog.
- Click on the New Group button and type in the group name in the input box.
- A new group will automatically appear in the user list.

Configure the group just like you would with a standalone account.

Group Folders

A user account in a group (also known as group account) has three folder options relating to its parent.

Merge Account and Parent Folders – Allows the account to define its own root/virtual folder settings and still use the parent group's folder configuration. If

the **show group folder as virtual folder in client listings** option is **disabled** in the parent group, then the account and parent group's folder configuration are merged and appear as one. However if the **show group folder as virtual folder in client listings** option is **enabled**, then the parent group's folder appears as a virtual folder in the accounts folder listings. You may change the name of the virtual folder if you wish.

Use Account Folders Only – The group account will define its own root/virtual folder configuration and not use the parent group's.

Use Parent Folders (default) – The group account will display the parent group's root/virtual folder configuration.

Override Group Settings
Group accounts have the ability to override certain group settings with their own configuration. This applies to folders, ratios, quotas, scripts and IP rules.

Active Directory / NTLM Authentication

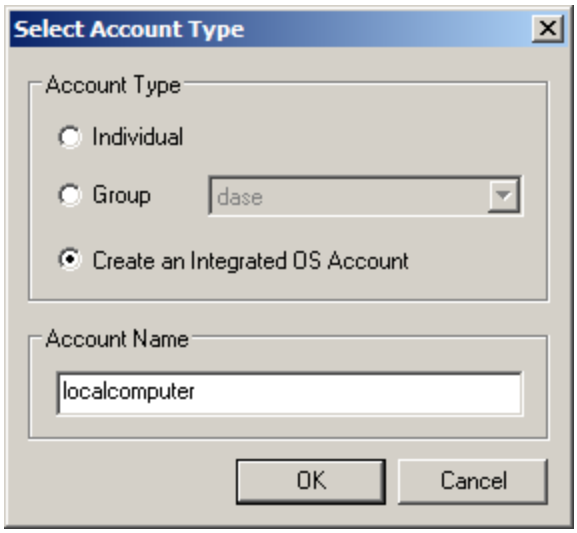
Auto OS accounts are accounts that defer authentication to the operating system (to authenticate operating system user accounts) remotely or locally, or to an active directory.

Note: Auto OS Accounts are not single accounts. They apply to all accounts on the authenticating server. Think of auto OS accounts rather as something that applies to an entire group of accounts on another server.

Tip: You can control which accounts are allowed to authenticate by editing the login rules for the auto OS account. This allows the administrator to only give ftp access to certain users and not others.

To create an auto OS account

- Click on Setup menu and select User Accounts to open the user account configuration dialog.
- Click on the New User button and select the Auto OS Account option.
- Type in the display name in the input box.



Configuring Auto OS accounts

Security

Run under security context of user account – All authenticated auto OS account users have their own operating system security permissions. Select this option to make impersonate (the ftp server assumes their operating system permissions) the user.

Run under security context of service account - Uses the security permissions of the service account.

Note: Impersonation is only available in the enterprise edition.

Home Folder

Use user account home folder - The ftp server will query the OS for the location of the user's home folder on the system. If the user has no home folder the login will be denied. You can set the user home folder in the computer management administrative console. This option requires that you enter a value in the **User database** server edit box.

Open or create home folder under root folder

A folder will be created under the root folder if one does not exist, or if one exists it will be used as the user's home folder. The subfolder created will be the user's login name.

Root folder is the default home folder

The root folder will be shared by all authenticated logins.

Authentication Domain / Server
Enter the authentication domain or server; not both. If you are running an active directory cluster and the ftp server is not running on the active directory computer, enter the domain name of the active directory.

If the ftp server is running on the active directory server then enter the fully qualified name of the computer name. You can get this value from the control panel->system->computer name tab.

If active directory is not being used, then enter the fully qualified name of the computer that does the authentication. It can be the local computer or a computer accessible over the network.

User Database Server
If **use user account home folder** is selected, enter the computer name where this information is stored. If you are using a remote active directory, enter the computer name of the remote active directory (not the domain name).

Login Rules
The login rules controls which users are allowed or disallowed from logging in with the auto OS account template. For example you may want to have different virtual folder settings for different groups of OS users. With login rules you can set which users are allowed to login with the template.

Remote Administration

Remote Administration Options

There are several ways to remotely administer the ftp server. The GUI component of BlackMoon FTP server is a separate application that can make a remote connection over the LAN or internet to the ftp server to administer it.

There is also a web administration component that requires IIS and ASP.net v1.1. The web admin can do everything the normal GUI application admin can do.

Finally you could use RDP (Remote Desktop Client) to log into your windows system to administer the ftp server. You may also use RDP clones like VNC server and client.

Remote Admin with the BlackMoon GUI

Only one GUI admin can be logged in at a time. This includes the local GUI admin. To run the GUI admin remotely, first run it locally and login with a password. After the password is set exit the local admin while keeping the ftp service running (select NO if it asks you to shut down the ftp service while exiting). Port 52111 on the local computer must be open to allow the remote GUI connection.

The GUI can be copied over to the remote system. The system requirements remain the same. You need the blackmoon.exe, mfc*.dll, coptiontree.dll, msvc*.dll and shared.dll. The mfc*.dll and msvc*.dll are not required if the remote system has the mfc7.1 dlls already installed. Start the GUI on the remote computer, enter your admin password and connect.

If you are using the default ms access database configuration, you will notice that the editing users is not available remotely. This is because ms access database files cannot be accessed remotely. To edit users remotely, switch to MS-SQL or MSDE type databases. After switching, set Remote User Edit to true in the server custom configuration section. This is indicates to the GUI that it is safe to make a direct connection to the SQL server.

The SQL server or MSDE server must also allow remote connections. Install all the SQL server patches before exposing your SQL server remotely.

Web Administration

The web admin provides an easier way to remotely manage the server. With the web-admin you can administer the ftp server through a webpage from anywhere on the internet or LAN. The web-admin does not require any database configuration changes. To use the web-admin you need to install Internet Information Server (IIS) from your windows cdrom and install asp.net 1.1.

Download the web-admin from
http://www.blackmoonftpserver.com/scripts/bmftp_webadmin.zip

See the web-admin documentation file zip file for installation instructions.

License Management

The License Manager (Registered Users Only)

The license manager lets you manage the licenses you purchased. The number of license you can manage depends on the quantity you bought in your order. After your purchase, you will receive a user id and password. This user id and password is required to use with the license manager to manage licenses.

The FTP Server does not use your user id and password; it only uses your generated license file.

Workstation Licenses are tied to the computer name and Domain Licenses are tied to the domain name of the computer the ftp server is operating on. If you happen to reinstall your operating system or move the ftp server to another computer, you can use the License Manager to generate a new license and invalidate the old license.

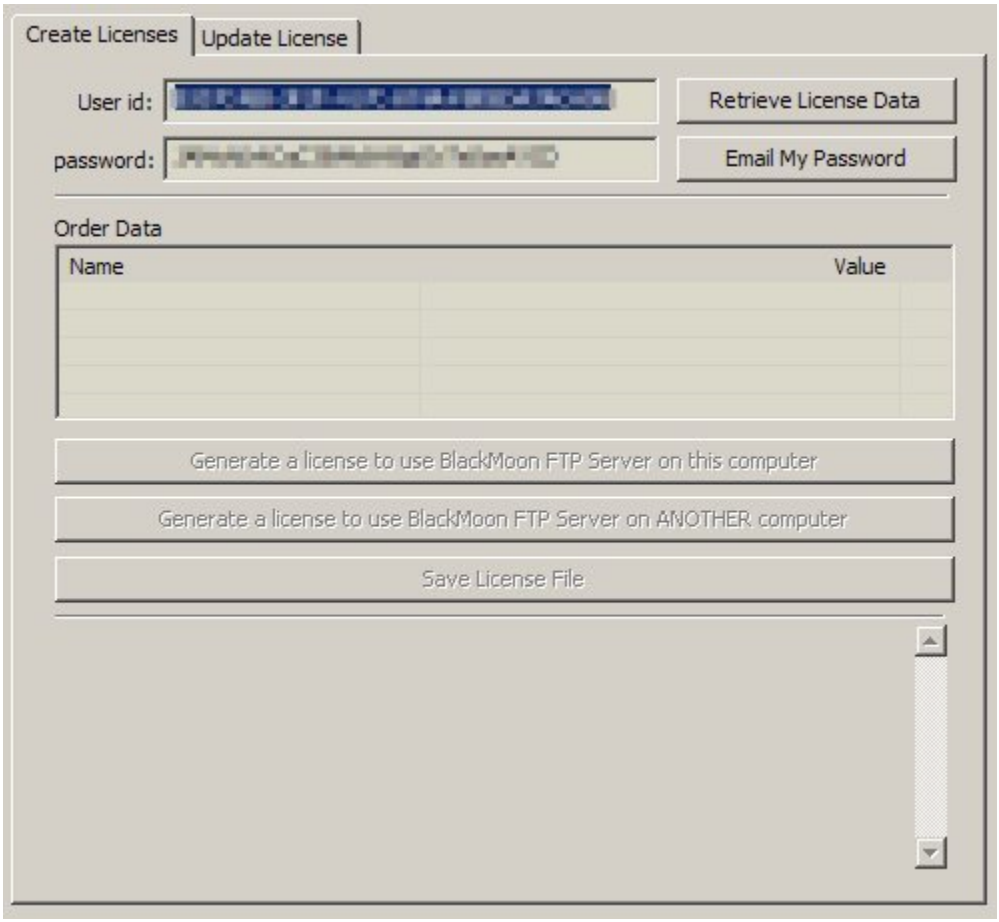
The license manager checklist

- The number of licenses you can generate will depend on the quantity you purchased in your order.
- A license file is required before the ftp server will start.
- Workstation license is tied to the computer name and a Domain license is tied to the Windows NT® domain name.
- You can generate a new license if you reinstall your operating system or move the ftp server to another computer or domain.
- Every license has a serial number and password. It is needed to rename or redownload an existing license file with the License Manager. The license serial number and password is not required when requesting through email.
- If you forget your license password, select the license and click on the email my license password to get it or email support@blackmoonftpserver.com to request it.
- The license file(s) you generate are not transferable. Contact support@blackmoonftpserver.com to request a change of ownership.
- Distributing license files is prohibited and can result in the termination of your user id.

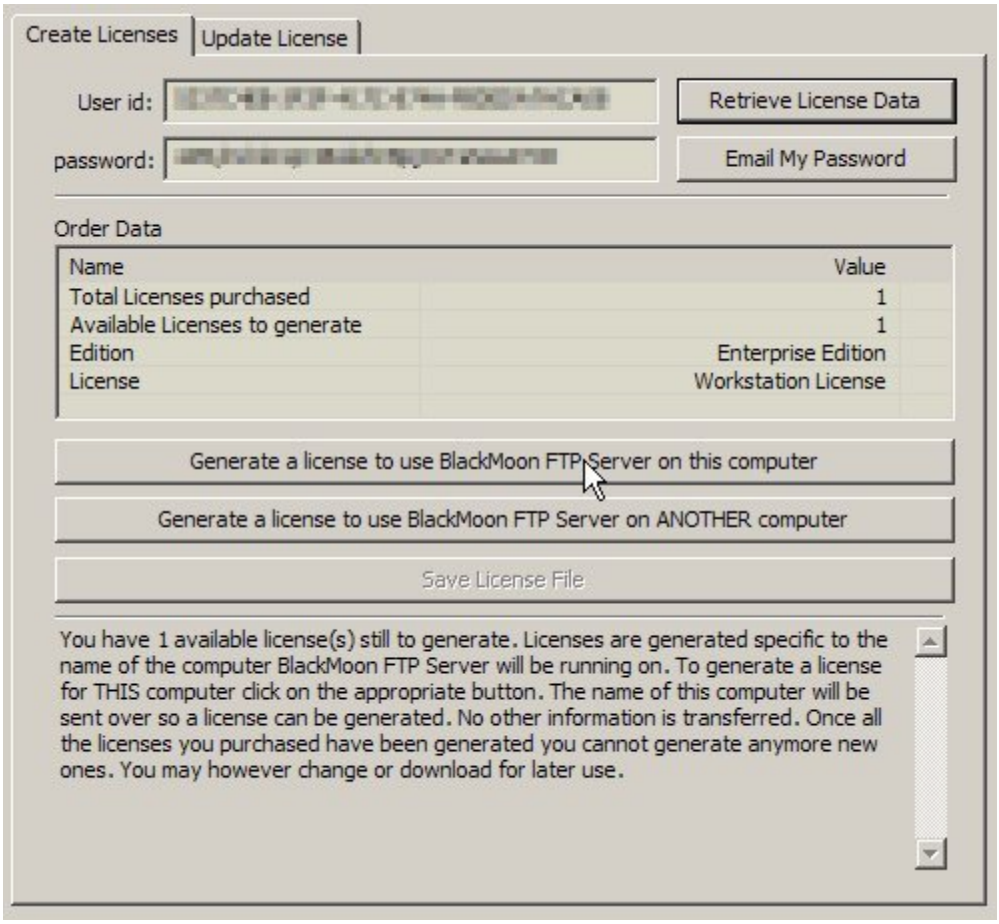
License Creation

This is a sample tutorial that will show the steps involved in generating a license. The user id and password here are samples only. You will receive your own unique user id and password after your purchase via email. Begin by

- Opening the license manager application and entering your user id and password in the user-id and password edit boxes.
- Click on the Retrieve License Data button.



You will now see details about your BlackMoon FTP Server purchase. It will display the type of Edition and License your purchased, the quantity you bought and the number of license generations you have left. In this sample the user bought 1 copy, the user hasn't generated a license yet, so it shows there is still 1 license left to generate

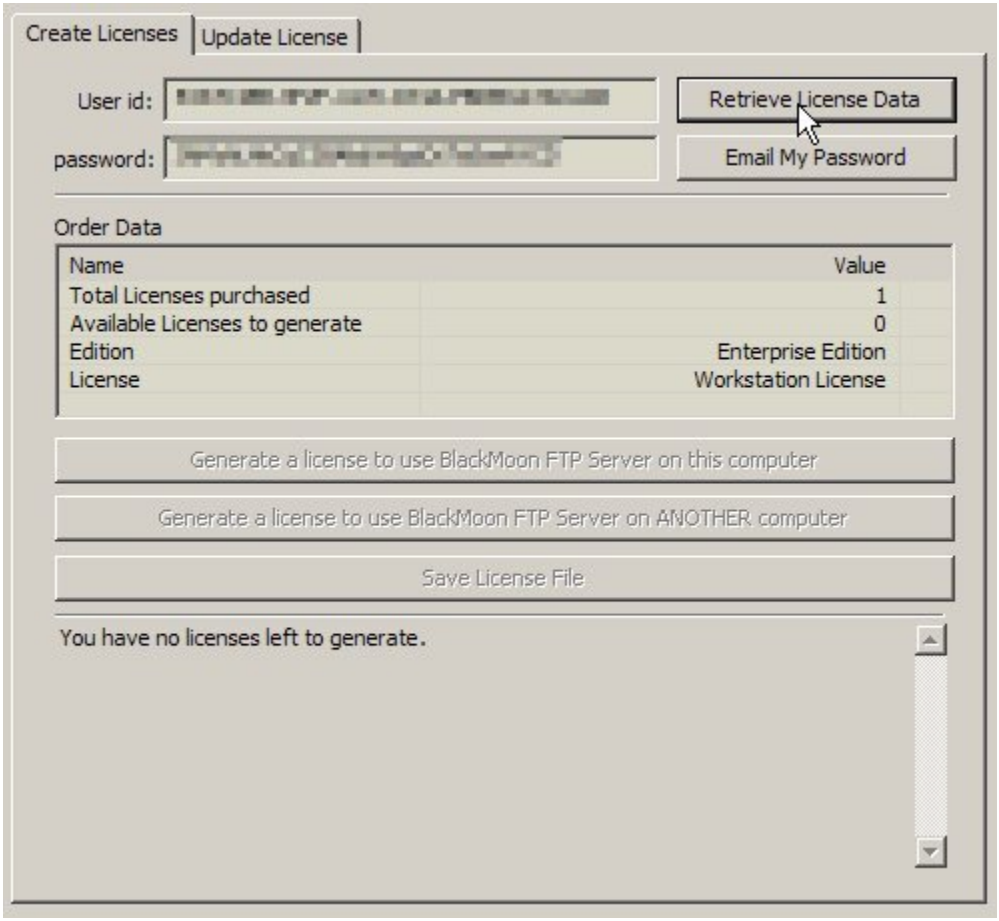


In this sample the user purchased a workstation license so he must generate a license for a computer name. To generate a license for the current computer click on the Generate a license to use BlackMoon FTP Server on this computer. Clicking on this button will instruct the license manager to retrieve the name of your computer and submit it to generate a license.

ONLY THE NAME OF YOUR COMPUTER, USERID AND PASSWORD ARE SENT. NO OTHER INFORMATION IS TRANSFERRED.

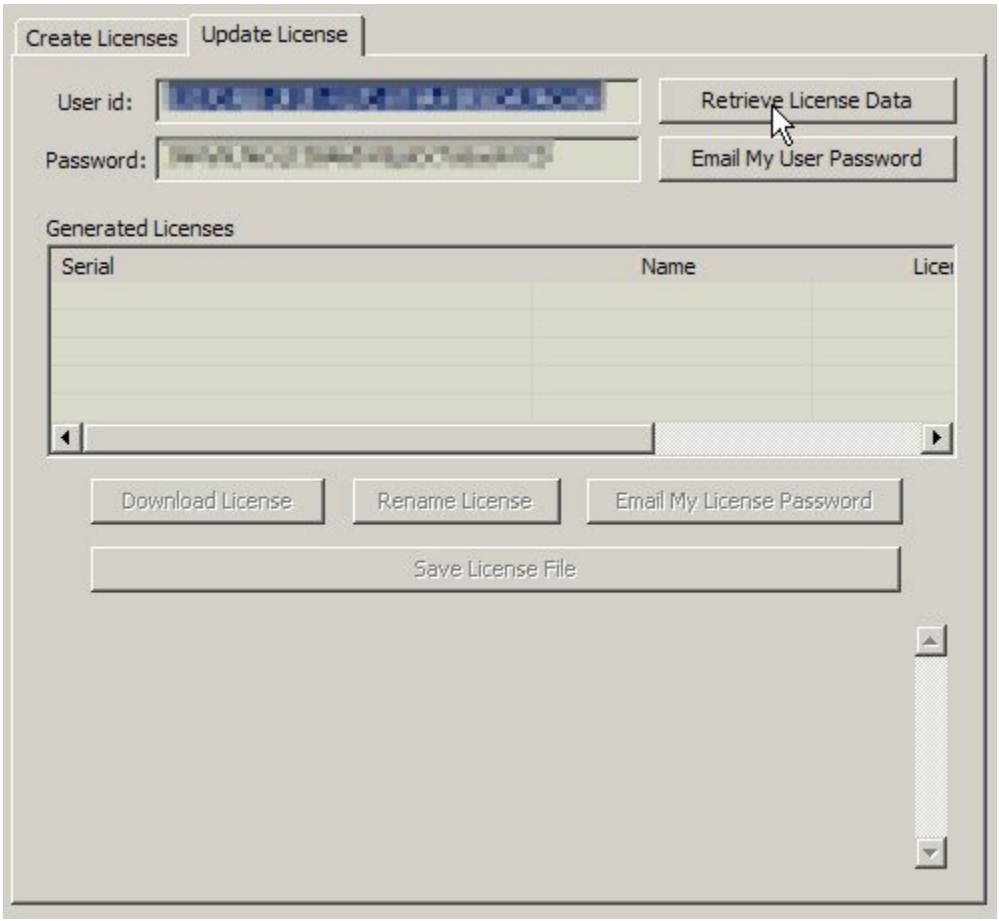
After a successful license generation a summary text will be displayed to you. This text contains very important information. Please make sure to write down your license serial number and password somewhere safe. Although the information is stored in your computer's registry, it can be lost if you reinstall your computer or try to rename your license from another computer. The final task is to save your license. Click on the Save License File to save the license file in your BlackMoon FTP Folder. You should now be able to start the ftp server for use.

Click on the Retrieve License Data button again. You will notice the available licenses to generate have shrunk by one. Since this user purchased only one license he cannot generate any more licenses. He can download his license again or rename his current license to use on a new computer using the Update License tab.



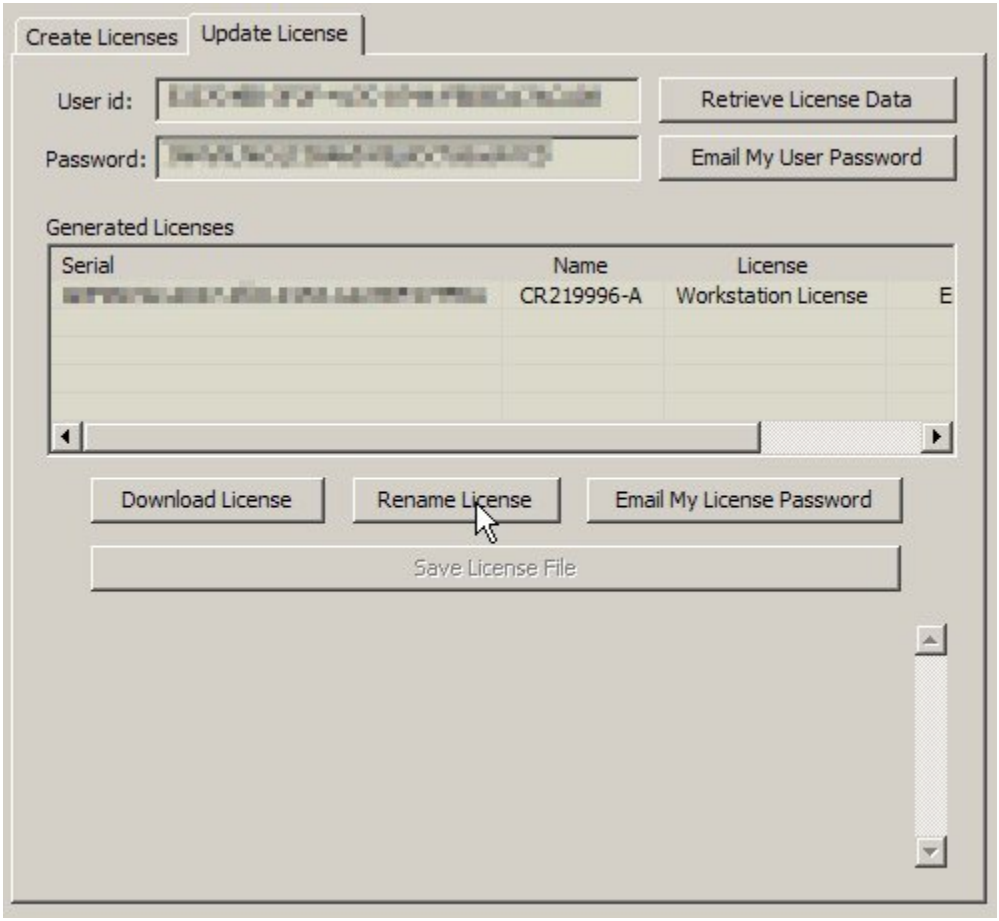
License Management

The Update License tab displays the licenses you have generated so far. It allows you to re-download your license or rename and even request the serial number and password of your existing license so you can download or rename them. Enter your user id and password and click on the Retrieve License Data button.

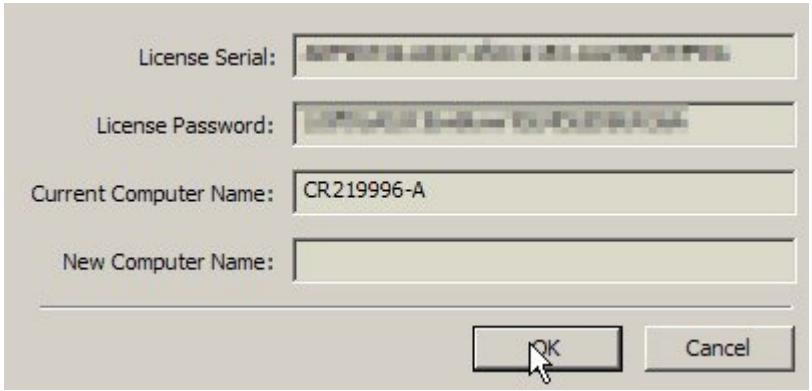


Renaming Licenses

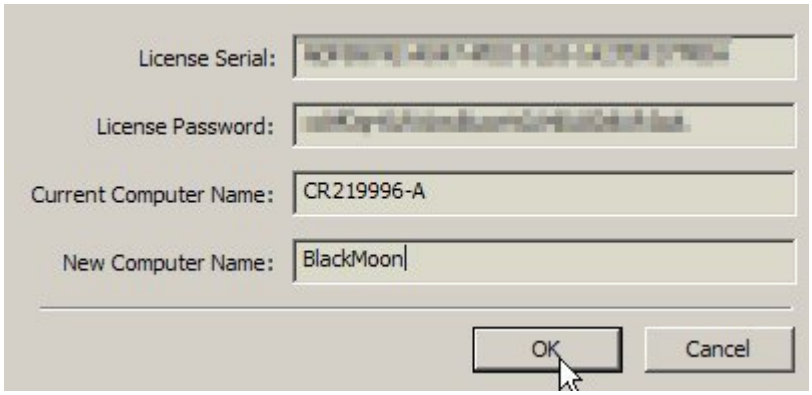
To rename a license, click on the license entry to select it. Then click on the Rename License button.



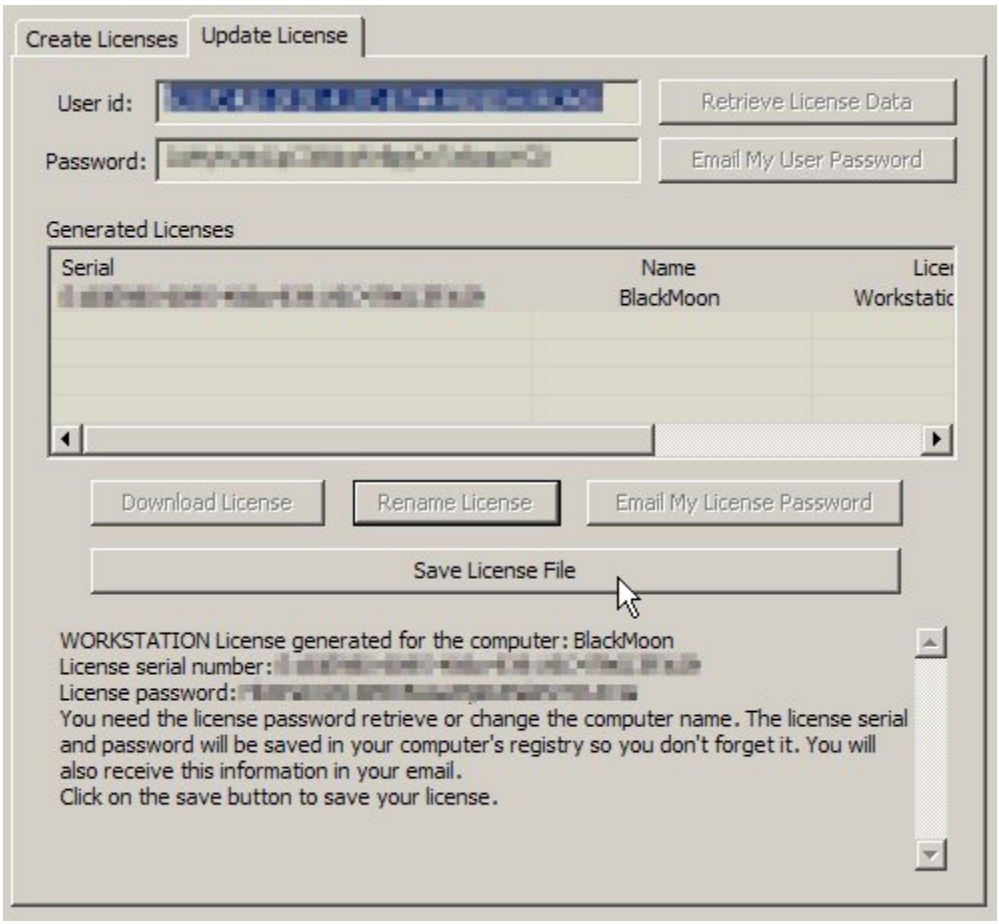
You will be presented with a dialog box that contains the license serial and password (if it was stored in your registry). The license password is needed to rename a license. The current computer name of the existing license is shown too.



Enter in the New Computer Name: edit box, the name of the computer you are moving the ftp server to.



Click on the OK button to get a new license. Renaming your license invalidates the old license. The old license will not be recognized by future versions of the ftp server. Once the new license file has been created, save it and delete your previous license file.



You will notice the license list has now been updated to show your new license serial and computer name.

Troubleshooting the License Manager

Error occurred while creating a session : -2147467259 (or similar)

This can be caused by a number of things.

- The error code number is -2147221164. This means you haven't installed mdac2.7 on your machine. Please do so and try again. You can find it here.
- You are behind a firewall or proxy server, or the license server is down. Either way, just go back to the license manager and click on Show My Computer Name Info. Then email support@blackmoonftpserver.com and submit the following information.

    1. Your purchase order id.
    2. The information you got from the computer name info button.

I purchased a domain license but it says my domain name is empty when I try to generate a license

Domain Licenses will only work on computers that are part of a Windows NT domain. If you attempt to use the license manager to generate a domain license from a computer that is not part of the domain you will get this error. To resolve this, run the license manager on a computer that is part of the domain.

If you get this error while running the license manager on a computer that is part of the domain, click on "Show My Computer Name Info " and then email support@blackmoonftpserver.com and submit the following information.

1. Your purchase order id.
2. The information you got from the computer name info button.

I am a beta user and my license expired

Beta licenses last for two months. To renew your beta license run the license manager, click on the Update Tab and rename your license (to the same name if that's the case) to get a new license.

Securing the Server

SSL and TLS Encryption

What is SSL?

SSL stands for Secure Socket Layer and its counterpart/enhancement TLS stands for Transport Layer Security. They are protocols for communicating securely over a medium such as the internet. FTP servers need SSL certificates to use SSL and TLS. FTP Clients are not required to have one.

SSL Certificates

Certificates are like ID cards and like all ID cards they are easy to fake. There are companies or organizations known as trusted authorities that perform background checks before issuing certificates to people or businesses. Companies like Verisign and Thawte are some of the known trusted authorities. By trusting Verisign you can also trust anyone with a certificate signed by Verisign. This is known as delegating trust. All trusted authorities have their root certificate in your root certificate system store.

The certificate contains two very important things; your public key and your private key. Data encrypted with your public key can only be decrypted with your private key. Imagine a scenario where a friend wanted to send you his credit card number had concerns about a third party monitoring the transaction. You would send him your public key which he would use to encrypt the credit card number and send the encrypted data back to you. Because you are the only one who knows your private key, you are the only who can decrypt the message and retrieve the credit card number securely.

Chances are if you wanted to encrypt your data, you would want to make sure you are sending that data to the correct person. This is the reason why verifying certificates is important.

How to obtain SSL Certificates

Trusted SSL Certificates can be obtained from certificate authorities such as Verisign and Thawte. You can also create self signed certificates (you become your own certificate authority) if you do not mind using untrusted certificates. Please see the how to section on requesting certificates if you choose to obtain a certificate from a trusted certificate authority.

Using SSL Encryption for FTP

For testing purposes create a self-signed certificate to use for FTP encryption. Many FTP clients do not check the certificate trust list and only use SSL for encryption.

- Open the server configuration menu, click on the Server Security node to open the SSL properties.
- Click on the Create Self-Signed Cert button and change the values as you see fit.
- Click on the OK button to create the new certificate.

Note: Certificates are stored in your system certificate store. Visit http://www.blackmoonftpserver.com/Portal/DesktopModules/ViewInfoArticle.aspx?Id=5A341E8E to learn how to remove and manage certificates from the system store.

Login with an FTP client that supports SSL (smartftp, flashfxp, ws-ftp) and select the explicit SSL connection option.

Note: BlackMoon only supports explicit SSL.

Advanced SSL Configurations

Cipher Strengths

You can select the minimum and maximum cipher strengths required for encrypted file transfers. The minimum strength must be less than or equal to the maximum cipher strength.

Note: Setting the minimum or maximum cipher strengths too high may cause SSL connection negotiations to fail because a common cipher cannot be established.

Forcing SSL logins

SSL encrypted FTP sessions can be forced or disabled by selecting the appropriate option from the security drop down box. With Client Decides, the client chooses to login with SSL or not. This provides the best compatibility with normal and SSL aware FTP clients.

Verifying Client Certificates
Normally, the client is the party that examines the server certificate for validity but it is also possible verify the clients certificate. The verification includes a check for expiration or revocation. You may also verify that the client certificate was issued by a particular certificate authority.

Tip: If you are externally issuing certificate to clients from a custom certificate server, setting verification to specific issuer is a great way to ensure that only clients with issued certificates are allowed to login.

Note: Verifying client certificates causes the client to transfer its certificate during the SSL negotiating. FTP clients that do not have a certificate will fail to establish a secure connection.

When Any Trusted Issuer is selected for this option the client certificate will only be accepted if it was issued by a root certificate in your system root certificate store.

When Specific Issuer is selected, you may pick the root certificate of the issuer in the drop down list below to verify client certificates.

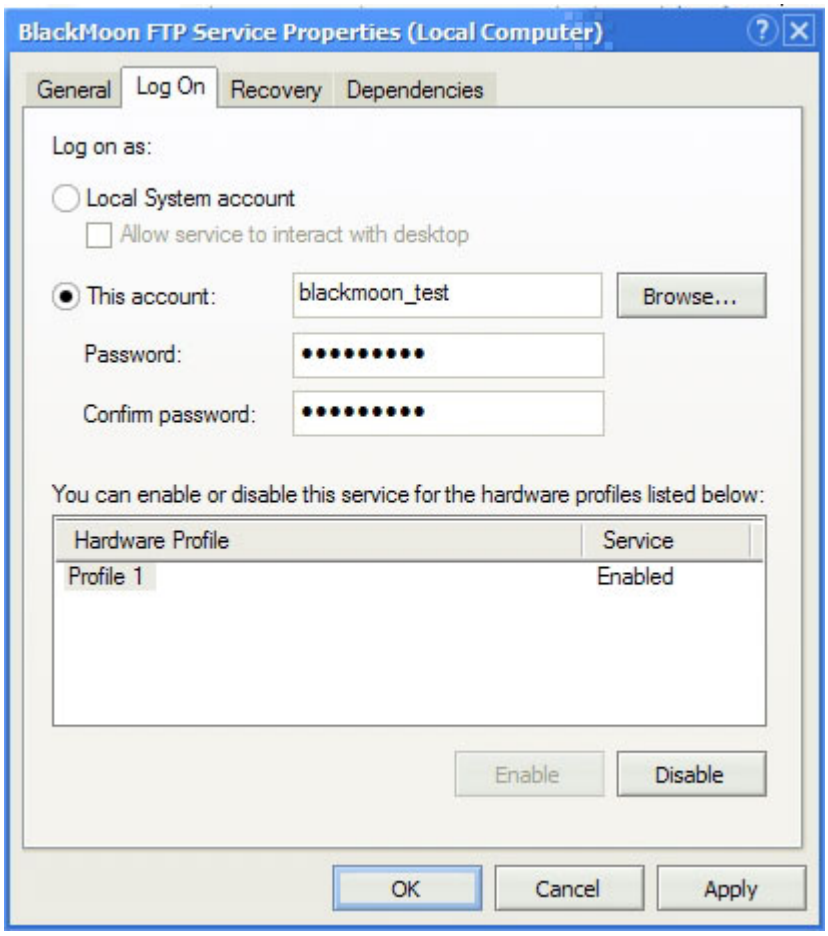
Run the FTP Service under a Non-Administrative Account

THIS TUTORIAL DOES NOT WORK IN THE TRIAL VERSION OF BLACKMOON FTP SERVER. YOU CAN ONLY USE IT IN THE REGISTERED VERSIONS.

Installation and Configuration
Depending on your security policy, you may need to run the ftp service as a non-administrator or another user account. The tutorial will skip the sections on how to create users on different operating systems. The non-administrator account I will be using in this tutorial is called blackmoon_test.

The first thing to do is to change the service account from the default (LOCALSYSTEM) to the blackmoon_test account. We do this by opening the service control manager (control panel->computer administration->services) and double-clicking on the BlackMoon ftp service entry to bring up the service properties. We click on the Log

On tab. The service account name change is illustrated in the two screenshot below.

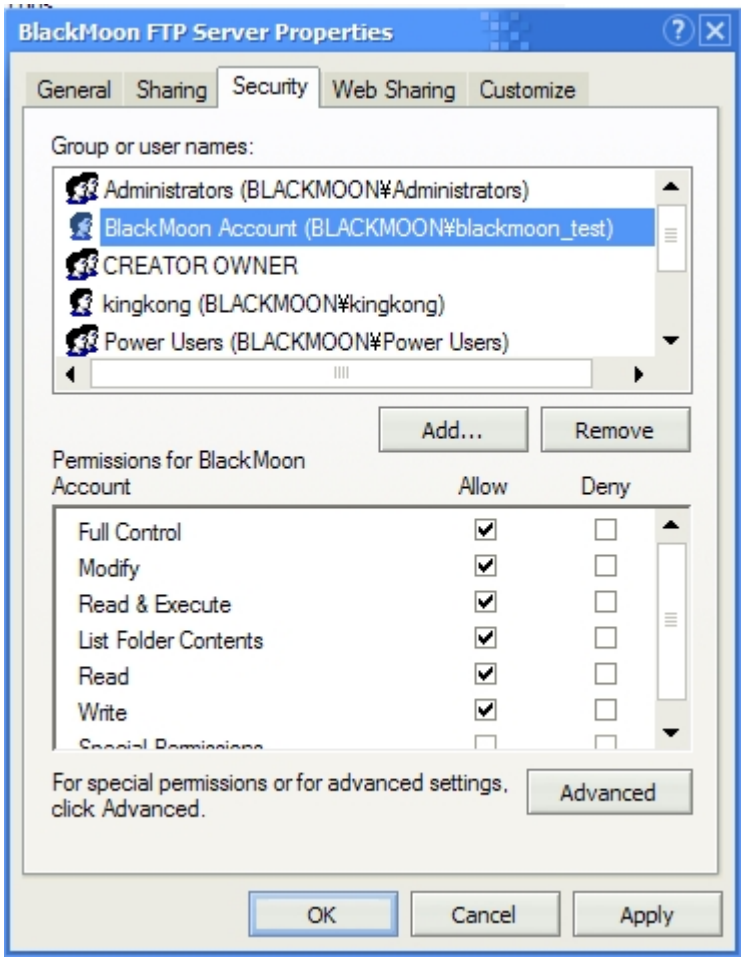


After confirming the service account name change, the system will automatically give the blackmoon_test account rights to log on as a service. It will notify you of this change.

Setting Folder Permissions

The blackmoon_test account I am using is not an Administrator account, so it will have only read and list folder permissions since this is the default permission for non-administrator accounts. To add custom permissions to a folder for a user account, right click on the folder and select the security tab. Click on the Add button and enter the account you want to add custom permissions for, in my case blackmoon_test. As in the screenshots below, change the permissions by clicking on the Full Control checkbox to give the user full control over the folder. Do this for the BlackMoon folder, the temporary folder and any other folders the ftp server will be serving files from.

Certain ftp server operations may fail without the appropriate folder permissions for your user account.

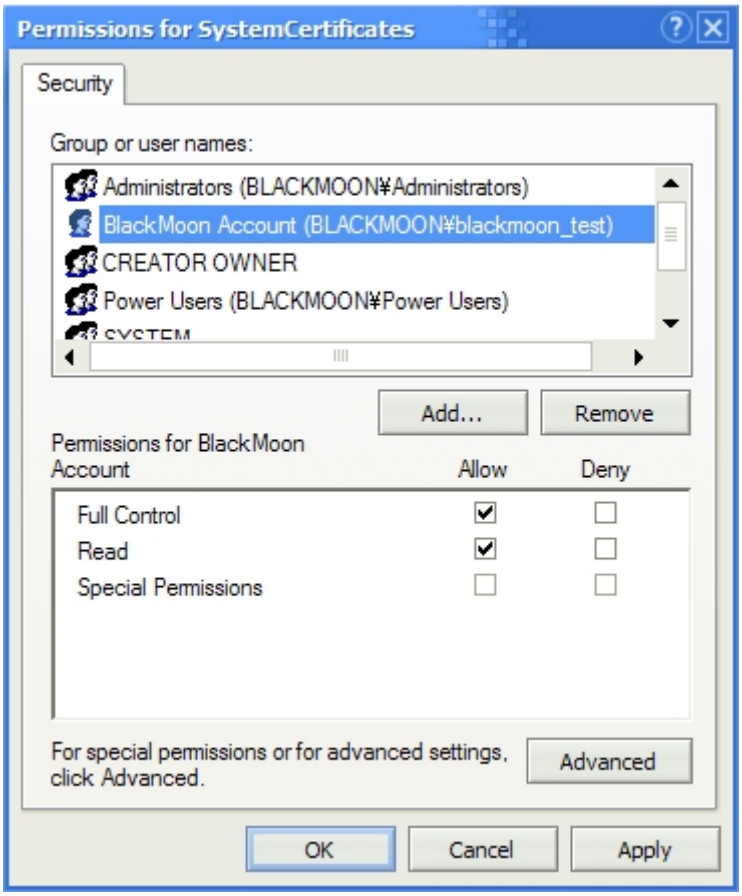


SSL and non-administrator accounts

BlackMoon uses OS managed certificate stores to hold certificates. These certificate stores are controlled by ACL's (Access Control Lists) that make it difficult for non-administrator accounts to access their contents. To use SSL with non-administrator service accounts, click on the start button and select run to bring up the run dialog box. Enter regedt32.exe (this is not the same as regedit!!). Regedt32 has the ability to change permissions on registry keys just like we did above with the folders.

Navigate to HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\SystemCertificates and right click on the registry key to bring up its properties. You will notice

there is only one tab which is security. Add your user account, in my case blackmoon_test and give it full permissions to the registry key like in the screenshots below.



We still have permissions to the private key of the SSL certificate to deal with. Without access to the private key, the selected ftp server SSL certificate will not work for SSL connections. To make sure your account has access to the private key, download and install a tool called WINHTTPCERTCFG from the Microsoft website. The installation folder is \program files\Windows Resource Kits\Tools.

My SSL certificate is called blackmoon_cert. To display user accounts with permissions to the private key of my SSL certificate, I open a command prompt to the WINHTTPCERTCFG folder and type

winhttpcertcfg -l -c LOCAL_MACHINE\My -s blackmoon_cert

```
D:¥Program Files¥Windows Resource Kits¥Tools>winhttpcertcfg -l -c LOCAL_MACHINE¥My -s blackmoon_cert
Microsoft (R) WinHTTP Certificate Configuration Tool
Copyright (C) Microsoft Corporation 2001.

Matching certificate:
C=US
S=New York
L=New York
OU=north america
O=earth
E=a@b.c
CN=blackmoon_cert

Additional accounts and groups with access to the private key include:
    BLACKMOON¥kingkong
    NT AUTHORITY¥SYSTEM
```

To grant the blackmoon_test account access to the private key of the blackmoon_cert SSL certificate, I would type

winhttpcertcfg -g -c LOCAL_MACHINE\My -s blackmoon_cert -a blackmoon_test

```
D:¥Program Files¥Windows Resource Kits¥Tools>winhttpcertcfg -g -c LOCAL_MACHINE¥My -s blackmoon_cert -a blackmoon_test
Microsoft (R) WinHTTP Certificate Configuration Tool
Copyright (C) Microsoft Corporation 2001.

Matching certificate:
C=US
S=New York
L=New York
OU=north america
O=earth
E=a@b.c
CN=blackmoon_cert

Granting private key access for account:
    BLACKMOON¥blackmoon_test
```

Double checking to see if our blackmoon_test account has been granted access to the private key, we check again

```
D:¥Program Files¥Windows Resource Kits¥Tools>winhttpcertcfg -l -c LOCAL_MACHINE¥My -s blackmoon_cert
Microsoft (R) WinHTTP Certificate Configuration Tool
Copyright (C) Microsoft Corporation 2001.

Matching certificate:
C=US
S=New York
L=New York
OU=north america
O=earth
E=a@b.c
CN=blackmoon_cert

Additional accounts and groups with access to the private key include:
    BLACKMOON¥kingkong
    NT AUTHORITY¥SYSTEM
    BLACKMOON¥blackmoon_test
```

The winhttpcertcfg contains a help file that shows the syntax and sample commands on how to use the tool.

Security Tips

- Change the default password format from Clear Text to MD5 or SHA-1.
- Disable the default ftp banner by using a custom banner text.
- Disable any anonymous accounts.
- Do not use the variable user script or any scripts from unknown sources.
- Change the FTP service account to an account that does not have administrator or root privileges.
- Use the login rules or IP rules to keep unwanted and unknown hosts from the server.
- Enable the hammer ban and login retry ban options in the Access Control node of the server settings.
- Disable server to server file transfers (also known as FXP) in the user account options.
- Regularly review the FTP server file and event logs.
- Encourage FTP clients to use SSL encryption whenever possible.
- Enable logging of client sessions and file transfers for at least a month before pruning.
- Do not set an administrative password for the BlackMoon GUI unless you intend to use it for remote administration.
- Use at least IIS6.0 (windows 2003+) if you intend to use the web administration GUI. Run IIS6 on a custom port other than port 80 when you do so.

Tutorials

Use MS SQL Server Database

BlackMoon FTP Server stores all of its configuration data in a database file. The database holds server settings and all user/group settings and logs. The default database is an MS Access database file named blackmoon.mdb in the installation folder.

MS Access database files have several limitations. It can grow very large and will need to be manually compressed. It cannot be accessed remotely making remote user editing impossible and it can become corrupted if it is replaced while the ftp server is running.

Microsoft SQL Server is an enterprise level RDBMS. It is faster, better, more efficient and scales well. It is possible to do remote user editing with the BlackMoon GUI when an MSSQL server database is used. Backup's can be done independent of the server operation and multiple servers can be run in a cluster while using a single database server for user accounts and server settings.

This article details the steps required to use an MSSQL server database for your ftp data. Before you proceed you need

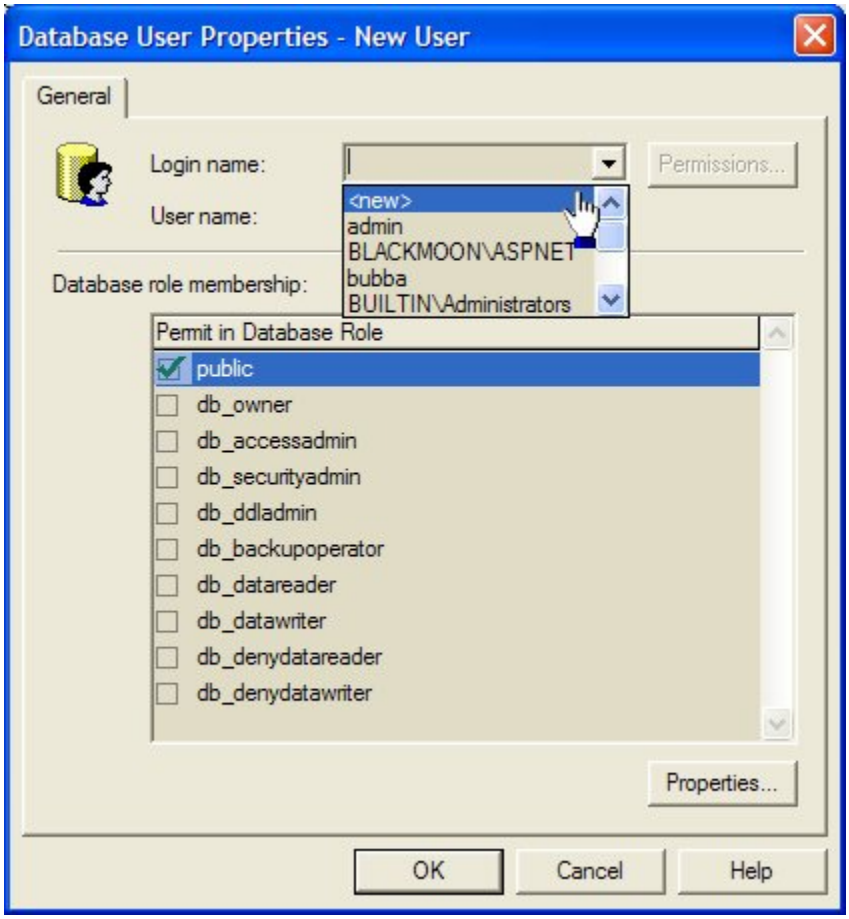
- Microsoft SQL Server 2000 and above
- SQL Server Enterprise Manager
- A Server Administrator Account in SQL server with permissions to create and modify databases

- You must create an empty database using the MSSQL Server's Enterprise Manager. Name the new database **ftp**.

- Select the database named **ftp** from the tree, expand it and click on the **Users** tree item.

- Right click in the view and select **New Database User** from the popup menu.

- In the dialog, click the down arrow in the login name box and select **<new>** like it shows in the image below.

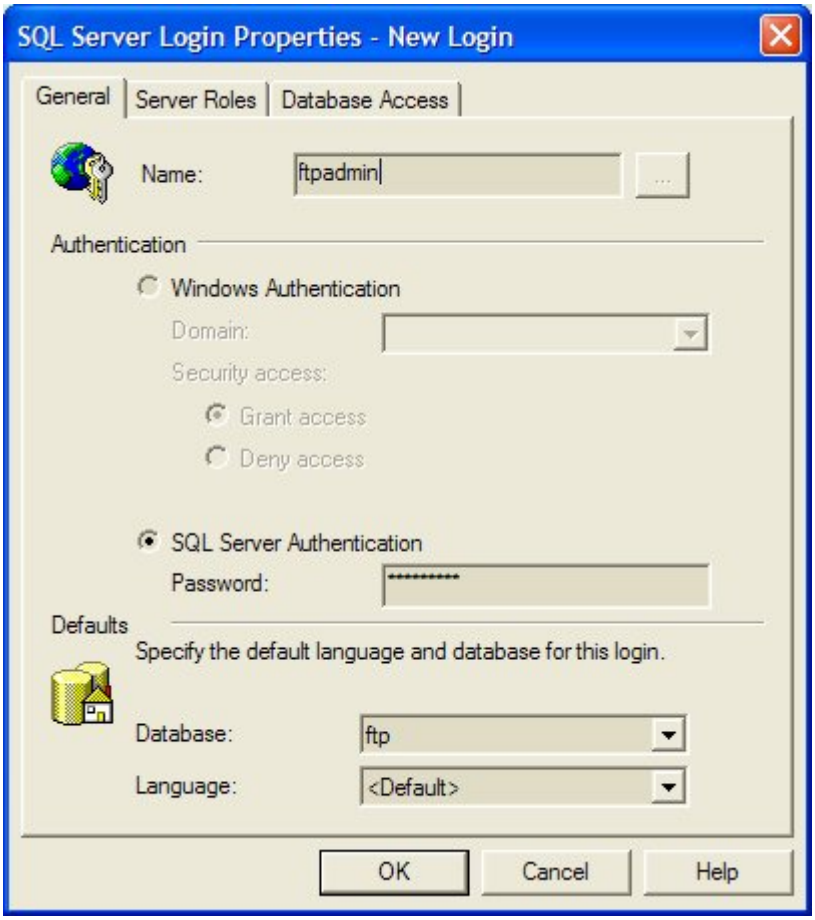


- For the new user login name, enter **ftpadmin**

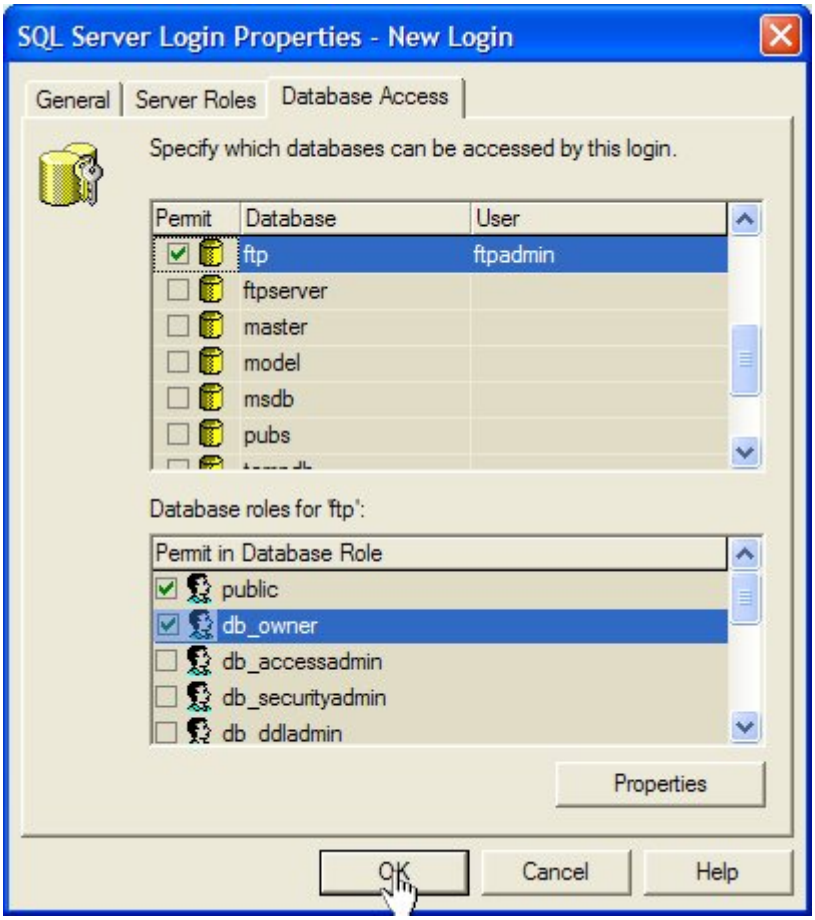
- Select **SQL Server Authentication** and enter **bomberman** as your password

- Select **ftp** in the database entry below that.

- Your setting should look similar to the screenshot below.



- Click on the **Database Access** tab.
- Find the database named **ftp** and check the box beside it so a green checkmark appears beside it.
- In the database roles check the **db_owner** so it also has green beside it.
- Your screen should look similar to the one below.



- Click on the OK button to save and close.
- If prompted to confirm your password, enter **bomberman** again.
- Click on the Cancel button in the new user dialog box close all the dialog boxes.
- The SQL Server setup portion is now complete.
- Next navigate to Start->Program Files->BlackMoon FTP Server and choose BlackMoon Helper from the list of shortcuts
- You will now enter a database connection string which will instruct BlackMoon FTP Server to what database you are using.
- Your connection string will look like **Provider=SQLOLEDB.1;Password=bomberman;User ID=ftpadmin;Initial Catalog=ftp;Data Source=<sqlserver_ipaddress_or_hostname>**.

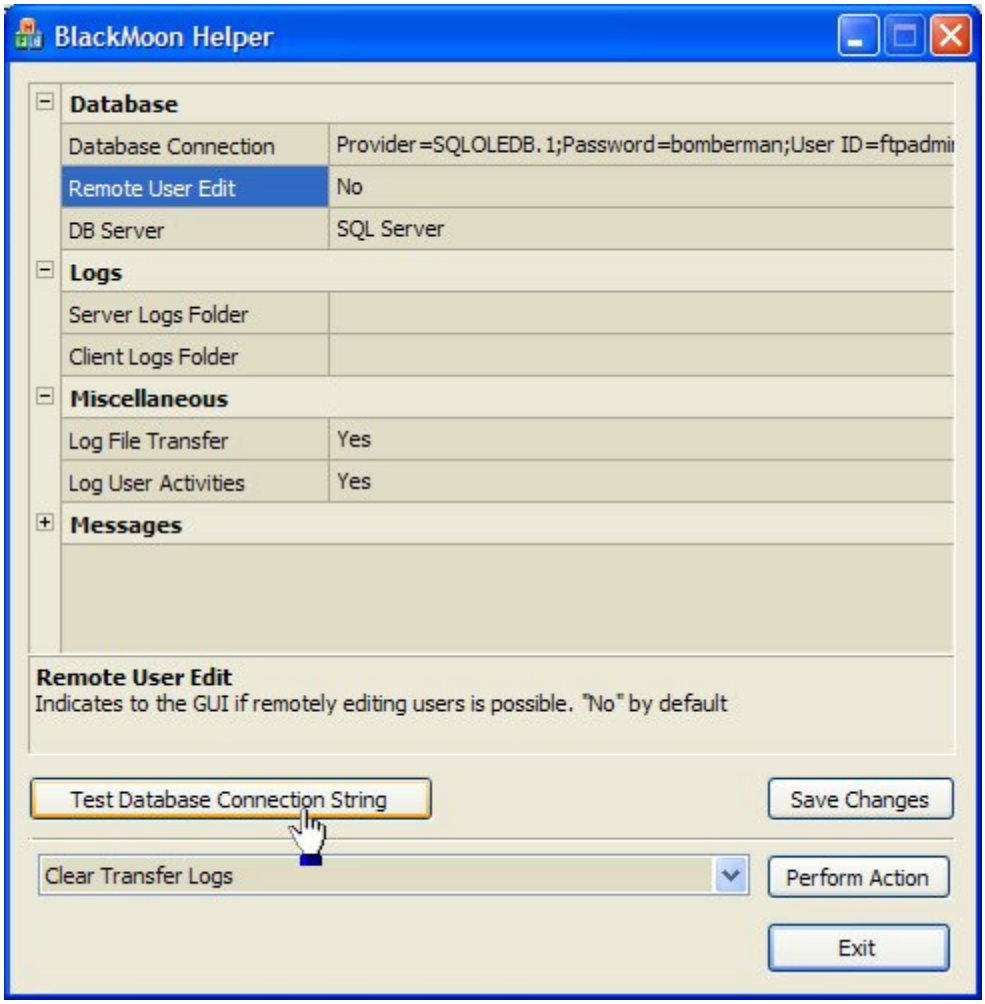
- Replace **<sqlserver_ipaddress_or_hostname>** with the IP address or hostname of the computer the SQL server runs on. For example my connection string while creating this article looked like **Provider=SQLOLEDB.1;Password=bomberman;User ID=ftpadmin;Initial Catalog=ftp;Data Source=192.168.2.27**.

- Enter the connection string into the Database Connection entry in BlackMoon Helper.

- Select No for remote edit

- Select SQL Server for the DB Server option.

- Your BlackMoon Helper screen should look like the image below



- Click on the Test Database Connection String button to test if it can connect and log into the database.

- If it succeeds, click on the Save Changes button and Exit to close BlackMoon Helper.

- Now Start the FTP Server and it will automatically create all the required tables needed to start using the SQL Server database for the ftp configuration data.