



BRU Server

Installation and QuickStart Guide
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1 – Installation and Getting Started

BRU Server installation involves up to three separate component packages:

BRU Server Server– The main server software package. The BRU Server Server is the component that performs all I/O management for the disk Stage and any tape drives or libraries. As such, it is installed on the system that backs up the other systems and where the disk stage and/or tape drive(s)/Libraries are physically attached. It also manages the authentication and communication between the server and client systems.

BRU Server Agent – The client-side software package. This is installed on any systems that will be backed up by the server. Multiple servers may actually service an installed agent. Since there are agents for many different operating systems, be certain to install the agent package that is correct for your operating system.

BRU Server Console – The Management Console software package. This should be installed on any systems that you wish to use to manage the BRU Server environment. Since there are consoles for many different operating systems, be certain to install the console package that is correct for your operating system. There is no limit to the number of systems on which you can install the BRU Server Console.

System Requirements:

Server on Mac OS X:

- Mac OS X 10.4.11 or later (Server or Desktop)
- G4 500MHz or faster Processor (G4 1GHz Recommended)
- 512MB RAM 1GB Recommended)
- Compatible SCSI, SAS or Fibre-Channel HBA (if using tape)
- 4GB Disk Space (installation and Catalog growth)
- Admin defines required disk space for Staged (D2D) Backups

Server on Linux:

- Major Linux Distribution¹ Using GLIBC 2.3 or better and 2.6.24+ kernel
- x86 1GHz or better Processor
- x86_64 (AMD Athlon/Sempron 2800+ or better)
(Intel Core 2 or i series processor 1.6GHz or better)
- 512MB RAM (1GB Recommended)
- Compatible SCSI, SAS, or Fibre-Channel HBA (if using tape)
- 4GB Disk Space (installation and Catalog growth)
- Admin defines required disk space for Staged (D2D) Backups

Server on Solaris:

- Solaris 10
- Any SPARC CPU - UltraSPARC III or better processor recommended
- 512MB RAM (1GB Recommended)
- 4GB Disk Space (installation and Catalog growth)
- Admin defines required disk space for Staged (D2D) Backups

Server on IRIX:

- IRIX 6.5
- 256MB RAM
- 4GB Disk Space (installation and Catalog growth)
- Admin defines required disk space for Staged (D2D) Backups

Agent on Mac OS X:

- Mac OS X 10.4 or later (Server or Desktop)
- G4 500MHz or faster Processor
- 128MB RAM
- 20MB Disk Space

Agent on Linux or Unix:

No special requirements in that if your hardware supports your OS installation, the BRU Server Agent should run fine.

Agent on Windows:

- Windows 2000 (Professional and Advanced Server),
- Windows XP (Home, Professional, Media Center) SP2 Required,
- Windows Server 2003, Windows Server 2008
- Vista, Windows 7
- 20MB Disk Space
- PIII 600MHz minimum recommended if using compression or encryption

Console on Mac OS X:

- Mac OS X 10.4 or later (Server or Desktop)

¹ While BRU Server and other BRU products are compatible with most major Linux distributions, some distributions are still shipping installation kernels that are known to exhibit both SCSI and Networking problems. Please check your distribution for one of the kernels listed above before attempting to install and run BRU Server under Linux.

Console on Linux or Unix:

The BRU Server Linux Console is a x86 32-bit application, therefore, it will run on any modern 32-bit x86 Linux or an EM64T/x86_64 Linux system with the 32-bit compatibility libraries installed.

Console on Windows:

The BRU Server Windows Console is a 32-bit application, therefore, it will run on any Windows version newer than Windows 2000. Windows XP must be updated to at least Service Pack 2.

General Installation Considerations

The BRU Server components are currently provided via download as either zip files (Windows, Mac OS X), or tar.gz files (all other platforms). To install the components, extract the files into a folder on your system and execute the associated applications as outlined in the following pages.



Linux KDE Note: If you use Dolphin or Ark to extract the BRU Server components, the executable bit will be cleared on the extracted files. We recommend either using "Archive Manager" or manually extracting the files via the command line.

The packages are named appropriately. If you will be installing all three packages on the same system, they must be installed in the order of:

BRU Server
BRU Server Agent
BRU Server Console

On Mac OS X systems, you will be required to authenticate as the system administrator when installing the Server and Agent components since both packages require root level access to your system. The user account installing the Server and Agent ***MUST*** have a password; this is required for security reasons. If you attempt to authenticate as a user with no password, the authentication will fail. This is not a bug nor an error.

For Linux and other Unix systems, you must run the Server and Agent packages as root vi either sudo, gksudo, or kdesu. Once installed, the Agent UI on Linux is executable by any user, but configuration can only be executed by the root user.

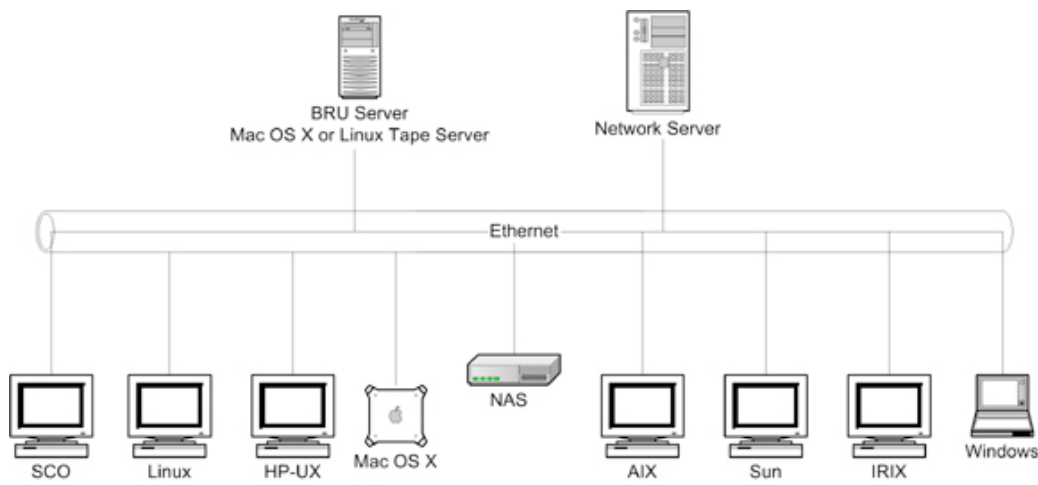
On Windows, as with most Windows packages, the Agent must be installed by an Administrator level user.

The Console package may be installed by any user and does not require root level access for operation.

If you are updating from a previous version of BRU Server, the update process will retain all of your existing configuration, jobs, schedules, and other settings during the installation process. You don't need to uninstall a previous version unless directed specifically to do so by TOLIS Group technical support.

If you do wish to be doubly sure that your existing BRU Server information is safe, you may refer to the information in Appendix C - **"Backing Up the BRU Server Server"**.

A Quick Word About BRU Server's Architecture



BRU Server Client Server Architecture

BRU Server uses a true client/server architecture for all operations. It consists of three components as previously described in the installation section – the server, agents, and consoles. Any client system may be accessed by the server system through the agent daemon that is installed on that client system. Also because the agent daemon runs continuously and with the permissions of the client system's admin user ("root" for Unix and OS X, and "Local System" under Windows), users do not need to be logged into the client system for backups to occur.

When accessing the server via the Console application, you are simply looking into and potentially modifying the state of the server environment. Therefore, the Console component may be installed and run from any compatible system that has network access to the server system. Such a system does not need to be part of your BRU Server backup environment and you are not limited in location nor number of systems as to where the Console component is installed.

Because BRU Server is true client/server, when you are running the console applications on a system, you are "viewing" the state of the server system. Since your console is simply a view into the server environment, the system running the console does not need to be the same OS type or have the server or agent daemons running. Additionally, from within a single console login, you may monitor and control multiple jobs simultaneously without interfering with the actual job processes. This asynchronous nature also means that multiple consoles may be monitoring the state of a job simultaneously.

Server Installation – OS X



If you are using a tape library, please ensure that there is at least one data tape available in slot 1 of the library before starting the installation.

You may configure the BRU Server components graphically or via command line. In either case, you must configure the server component prior to configuring any agent components.



*Because the BRU Server daemons (server and agent) **MUST** have full root authorization while running, you must perform the configuration steps as a user with an assigned password and administration rights on the machine where the configuration is being performed.*

Installation Prerequisites

- Mac OS X 10.4.11 or later (OS X Server or OS X Client)
- G4 500MHz or faster Processor (G4 1GHz or faster Recommended)
- 512MB RAM (1GB Recommended)
- Compatible SCSI, SAS or Fibre-Channel HBA (if using tape)
(TOLIS Group Recommends ATTO Technologies or ACard HBAs)
- 4GB Disk Space (installation and Catalog growth)
(Admin defines required disk space for Staged (D2D) Backups)
- TCP ports 14441-14450 for client / server communications
- Installing user must have admin rights and must have a password assigned
- If you are using a tape library, at least 1 data cartridge must be inserted into the first tape slot in the library.

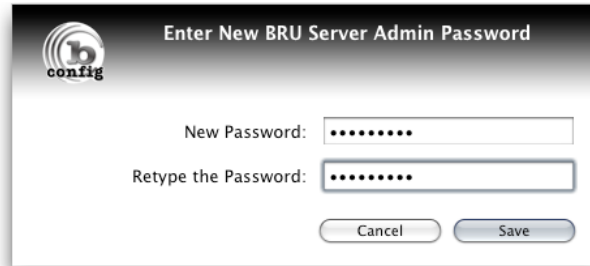
Graphical Server Configuration

- Locate the **BRU Server Config** application
- If you have a Tape Library, ensure at least one normal tape is installed.
- Start the "**BRU Server Config**" application
- Authenticate as your system administrator (not the same as the BRU Server "admin" account)



Server Configuration - OS X Authentication

Initially, the config tool will scan your system for compatible tape drives and libraries. If you are using a tape library, you **MUST** have at least one non-cleaning cartridge tape in the library. Once this scan completes, you will be asked to assign a BRU Server "admin" user password. ***This password should not be the same as your system administration password.*** The BRU Server "admin" user is a self-contained user that does not equate to any other user on your system. Do not confuse our use of the term "admin" with your system's Administrator.



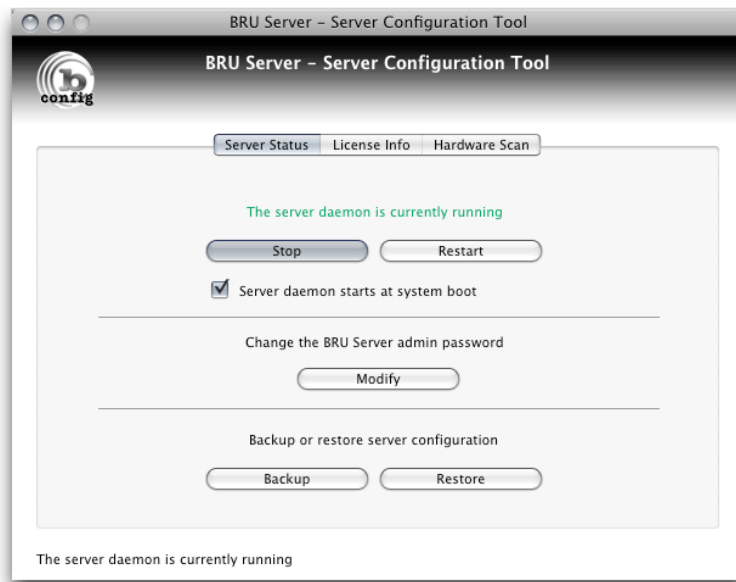
Server Configuration - Password Entry

Once the password is assigned, the server daemon will be started and the BRU Server boot time startup operation will be added to the system startup folder.



Server Configuration - Initial Hardware Scan

After you have set the BRU Server admin password, BRU Server Config will run a hardware scan. If you are using a tape drive or library, the device(s) should be turned on and prepared as mentioned above before running the tool. Once the scan completes, your BRU Server server will have all of the basic information that it needs to use your tape devices.

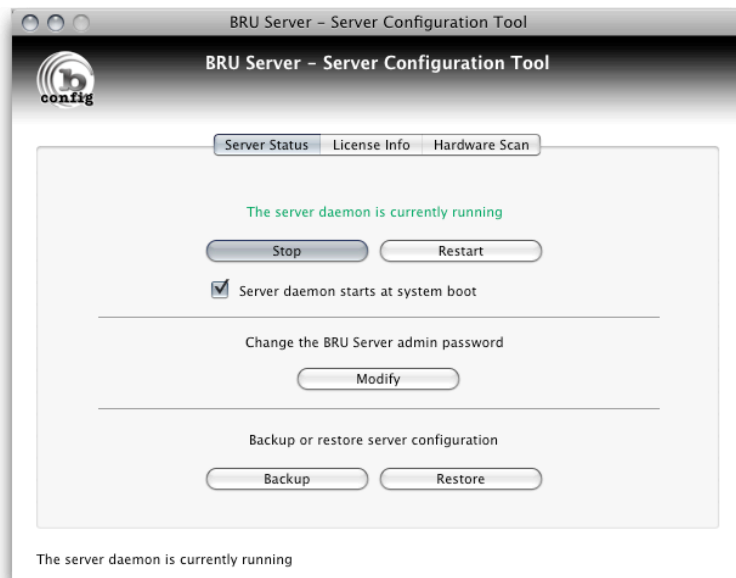


Server Configuration - Main Admin Window

At this point, the server daemon is running in demo mode and your server system is ready to use. If you have a license, the next step is to enter the license information.

Server Configuration - License Entry

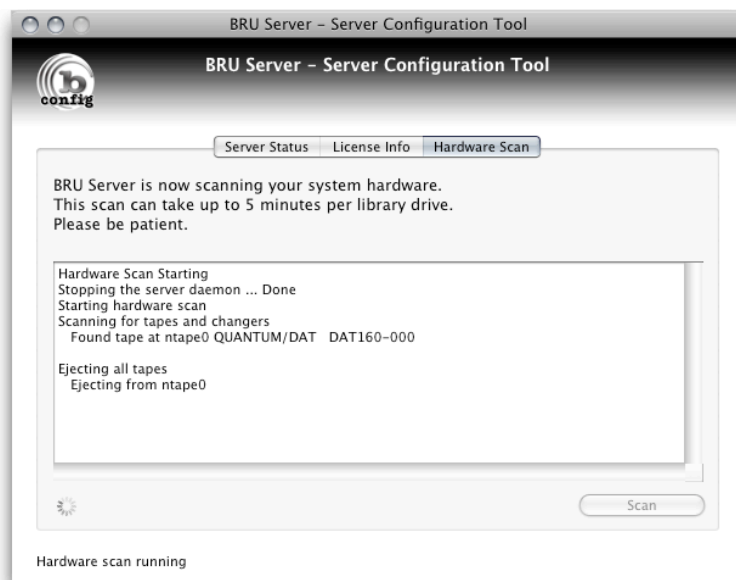
If you do not wish to have the BRU Server server daemon started at boot, simply click the “**Server daemon starts at system boot**” checkbox to remove the daemon from the Startup Items and set server daemon startup to manual.



Server Configuration - Configuration Complete

Once the Password and License information have been properly added, you are now ready to configure any client systems.

Tape Hardware Change



Server Configuration - Tape Hardware Scan

In the event that you change your tape hardware configuration, BRU Server will require that you rescan your system before you can return to backup operations (this is to prevent device assignment changes from affecting your destinations). To rescan the hardware, select the **“Hardware Scan”** tab and click the **“Scan”** button.

Command Line OS X Server Configuration

Connect to your server system via ssh or open the Terminal.
Execute the following commands and respond to the prompts:

```
sudo -s
cd /usr/local/bru-server
./server --kill
./server --password
    (Enter your new BRU Server "admin" Password – will not be echoed)
./server
```

The BRU Server server daemon will start as a background process. To check the status, you may monitor the server log file using the "tail" command:

```
tail -f /var/log/bru_server.log
```

Your output should look something like:

```
Oct 13 08:47:55 Configuration signature same as saved configuration
Oct 13 08:47:55 Listening on port 14441
Oct 13 08:47:55 Bound socket
Oct 13 08:48:05 Starting system housekeeping
Oct 13 08:48:05 Cleaning catalog directory
Oct 13 08:48:05 Stage directory '/Applications/BRU Server Config Tool.app/
Contents/MacOS/stage' not found
Oct 13 08:49:34 Accepted new connection from 192.168.1.7:60524
Oct 13 08:49:34 Authenticated user admin from 192.168.1.7:60524
```

To exit the tail function, type CTRL-C.

Server Installation – Linux



If you are using a tape library, please ensure that there is at least one data tape available in slot 1 of the library before starting the installation.

You may configure the BRU Server components graphically or via command line. In either case, you must configure the server component prior to configuring any agent components.

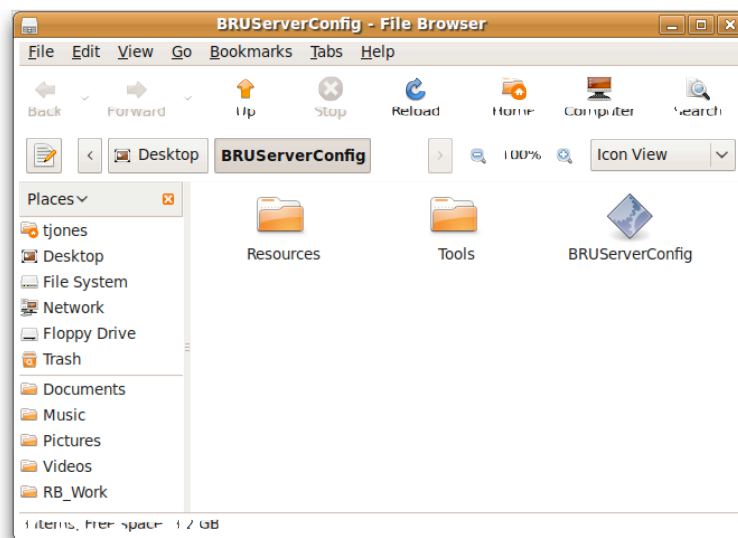


*Because the BRU Server daemons (server and agent) **MUST** have full root authorization while running, you must perform the configuration steps logged into the system as root or by using `sudo`, `gksudo`, or `kdesu` to execute the BRU Server Config.*

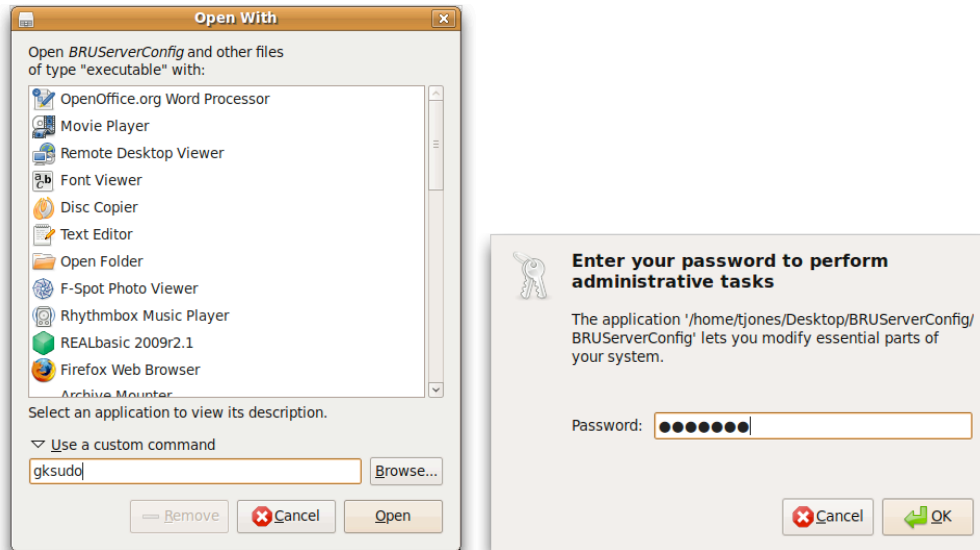
Installation Prerequisites

- Major Linux distribution using GLIBC 2.3 or better and 2.6.24+ kernel
- x86 1GHz or better Processor
- x86_64 (AMD Athlon/Sempron 2800+ or better or Intel Core 2 or i series processor 1.6GHz or better)
- 512MB RAM (1GB Recommended)
- Compatible SCSI, SAS, or Fibre-Channel HBA (if using tape)
- 4GB Disk Space (installation and Catalog growth)
Admin defines required disk space for Staged (D2D) Backups
- TCP ports 14441-14450 for client / server communications
- Installing user must log in as root or be able to run the `sudo`, `gksudo`, or `kdesu` utilities
- If you are using a tape library, at least 1 data cartridge must be inserted into the first tape slot in the library.

Graphical Server Configuration



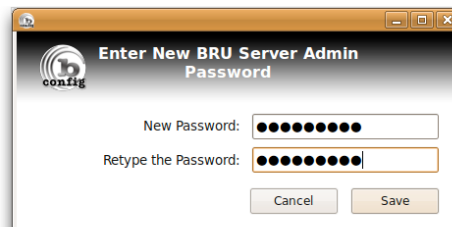
Server Configuration - Linux Application Executable



Server Configuration - Using gksu To Execute The BRU Server Config Application

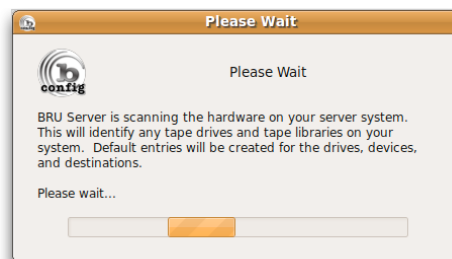
- Locate the **BRU Server Config** application
- If you have a Tape Library, ensure at least one normal tape is installed.
- Start the "**BRU Server Config**" application using a root-enabled account
- Authenticate as your system administrator (not the same as the BRU Server "admin" account)

Initially, the config tool will scan your system for compatible tape drives and libraries. If you are using a tape library, you **MUST** have at least one non-cleaning cartridge tape in the library. Once this scan completes, you will be asked to assign a BRU Server "admin" user password. ***This password should not be the same as your system administration password.*** The BRU Server "admin" user is a self-contained user that does not equate to any other user on your system. Do not confuse our use of the term "admin" with your system's Administrator.



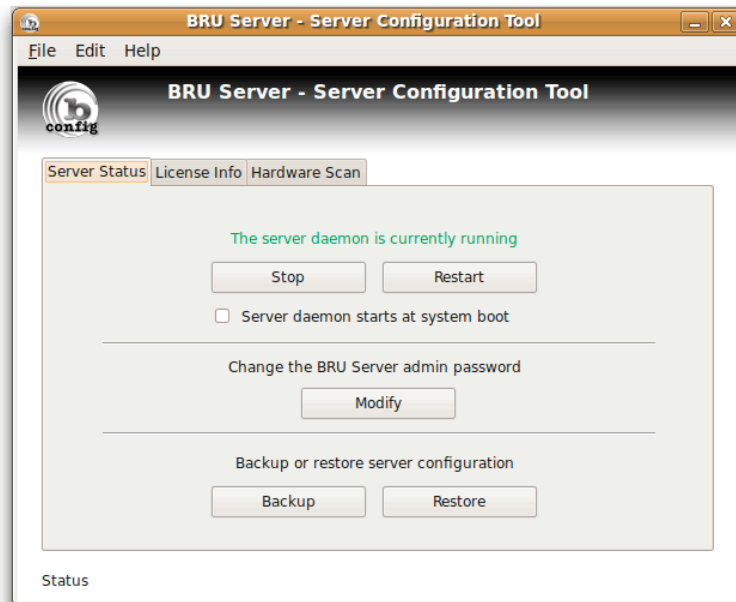
Server Configuration - Password Entry

Once the password is assigned, the server daemon will be started and the BRU Server boot time startup operation will be added to the system startup folder.



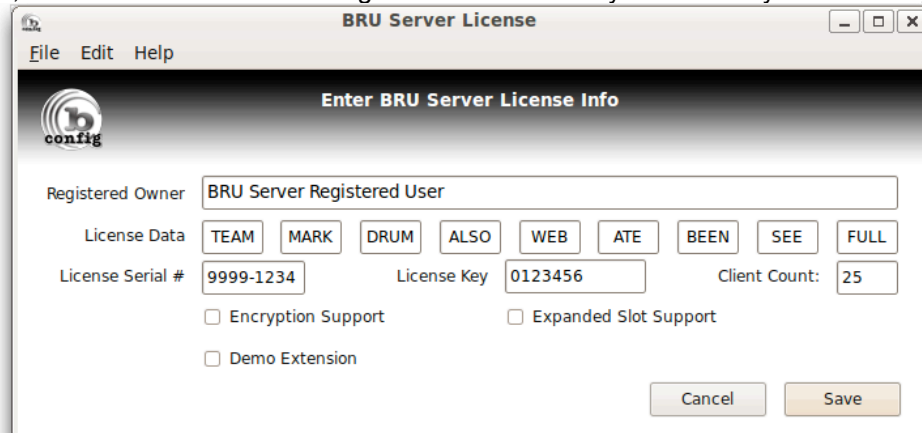
Server Configuration - Initial Hardware Scan

After you have set the BRU Server admin password, BRU Server Config will run a hardware scan. If you are using a tape drive or library, the device(s) should be turned on and prepared as mentioned above before running the tool. Once the scan completes, your BRU Server server will have all of the basic information that it needs to use your tape devices.



Server Configuration - Main Admin Window

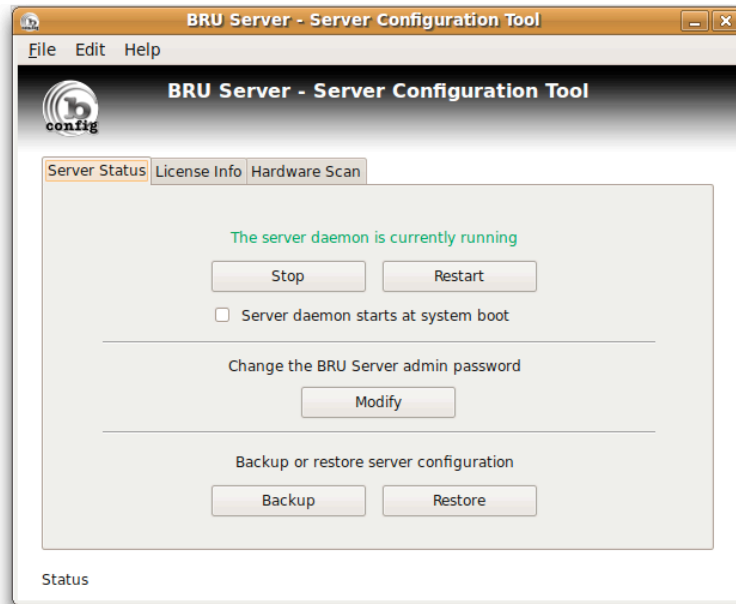
At this point, the server daemon is running in demo mode and your server system is ready to use.



Server Configuration - License Entry

If you have a license, the next step is to enter the license information.

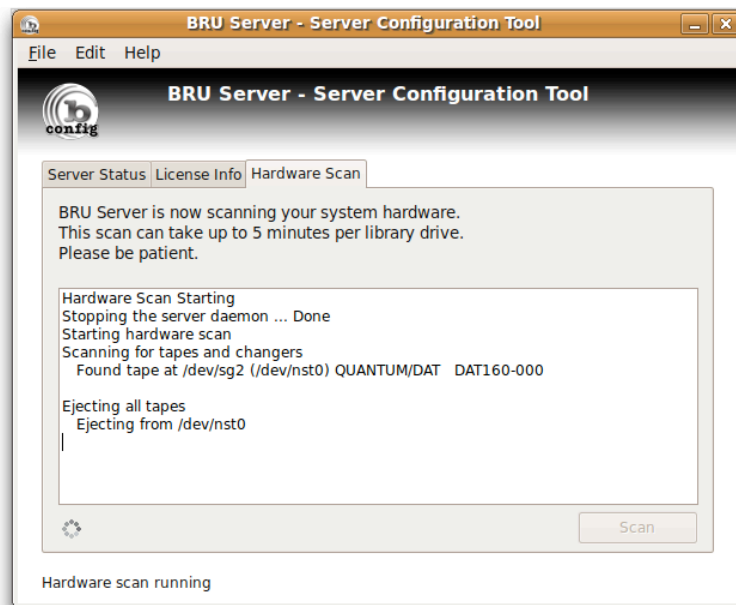
If you do not wish to have the BRU Server server daemon started at boot, simply click the “**Server daemon starts at system boot**” checkbox to remove the daemon from the Startup Items and set server daemon startup to manual.



Server Configuration - Configuration Complete

Once the Password and License information have been properly added, you are now ready to configure any client systems.

Tape Hardware Change



Server Configuration - Tape Hardware Scan

In the event that you change your tape hardware configuration, BRU Server will require that you rescan your system before you can return to backup operations (this is to prevent device assignment changes from affecting your destinations). To rescan the hardware, select the **"Hardware Scan"** tab and click the **"Scan"** button.

Command Line Linux Server Configuration

Connect to your server system via ssh or open a terminal.
Execute the following commands and respond to the prompts:

```
sudo -s
cd /usr/local/bru-server
./server --kill
./server --password
    (Enter your new BRU Server "admin" Password – will not be echoed)
./server
```

The BRU Server server daemon will start as a background process. To check the status, you may monitor the server log file using the "tail" command:

```
tail -f /var/log/bru_server.log
```

Your output should look something like:

```
Oct 13 08:47:55 Configuration signature same as saved configuration
Oct 13 08:47:55 Listening on port 14441
Oct 13 08:47:55 Bound socket
Oct 13 08:48:05 Starting system housekeeping
Oct 13 08:48:05 Cleaning catalog directory
Oct 13 08:48:05 Stage directory '/Applications/BRU Server Config Tool.app/
Contents/MacOS/stage' not found
Oct 13 08:49:34 Accepted new connection from 192.168.1.7:60524
Oct 13 08:49:34 Authenticated user admin from 192.168.1.7:60524
```

To exit the tail function, type CTRL-C.

Server Installation – Unix

Installation Prerequisites

- Processor type depends on your platform
- 256MB RAM (512MB Recommended)
- 4GB Disk Space (installation and Catalog growth)
(Admin defines required disk space for Staged (D2D) Backups)
- TCP ports 14441-14450 for client / server communications

The server installation on Unix systems is text based. To begin the installation, after extracting the tarball, cd into the unix directory and execute the install script:

```
cd unix
./install
```

After agreeing to the license, the first menu presented allows you to choose which options you will install:

```

                BRU Server Installation

Toggle   Install      Component
-----
S:        [ Yes ]      Server - Drives tapes/libraries
A:        [ Yes ]      Agent - Backup/Restore services for this machine
C:        [ Yes ]      Console user interface
G:        [ Yes ]      Graphical (X11) user interface

D: Installation directory [/usr/local/bru-server]
I: Install (or upgrade) selected components
U: Uninstall BRU Server
Q: Quit

Enter command:
```

Selecting any of the top four letters will toggle the installation state of the associated component. For the primary server installation, we recommend that you accept the defaults and install all of the components.

Also, while it is possible to modify the installation directory, we recommend that you accept the default of `/usr/local/bru-server`. Select the I option to begin the installation.

```
Beginning installation. Looking for a prior installation
Prior installation not found

Installing console interface
Copied console files

Create a symbolic link in /usr/bin to "bru-server.console" executable? (y/n) y
Installing gui interface
Copied gui files

Create a symbolic link in /usr/bin to "bru-server" executable? (y/n) y
Installing server
Copied server files
```

By answering Yes to the symbolic link questions, entries will be placed into `/usr/bin` to allow easier access by system users to the console tools. The tools will be accessed as `bru-server` (GUI), `bru-server.console` (Curses), and `bru-server.cmd` (command line). If you answer no to these

questions, you will either need to add `/usr/local/bru-server` to your path, or call out the tools by their full paths.

During this phase, the installer will check for any existing BRU Server installations. If a previous installation is found, you have the option of retaining the existing database elements for the updated install.

The next phase will ask if you wish to add the server to the startup environment and whether you wish to start the server once the installation completes. We recommend that you answer yes to both of these questions.

The next step will scan your system hardware to locate any tape drives and libraries. If you are using a tape library, there **MUST** be at least one non-cleaning cartridge tape in the library. This process can take up to 5 minutes per tape drive, so please be patient.

After the server is installed, the agent will be installed. For more information on the agent installation, refer to the following section.

Licensing the Unix server

Applying a license to the Unix server currently requires the manual editing of the license file. While the Server Config Tool GUI allows you to enter your license under OS X, you may also manually edit the license file with these same instructions if you prefer to use the Terminal on OS X. This file exists as `/usr/local/bru-server/license`.

If you are adding the primary license, your entry line should look like this (all on one line):

```
MEET-BAR-DEMO-CAR-TAP-ATE-CARE-SAY-TEST:0123456:0000-0000:BSRV1:darwin:
150ES::Registered User or Company Name
```

This line breaks down into the following elements separated by colons “.”

```
License Data
License Key Verifier
Serial Number
Product
Platform
Client Count with special keys
Name of the registered user or company
```

Note that you should only have a single line in your license file. Any other line in the file will cause the license to be read as invalid.

Command Line Daemon Management

Manually start or stop the server daemon

Please note that it can take up to 90 seconds between the stopping of a server and the primary communications socket being completely closed and available. If you are restarting the server after manually stopping it, please wait at least 90 seconds before attempting to connect to the server via the Console. Otherwise, the connection will be refused since the socket has not been reopened.

Start:

```
sudo /usr/local/bru-server/server
```

Stop:

```
sudo /usr/local/bru-server/server --kill
```

Manually re-run the Unix Agent configuration steps

If you need to re-run the Unix Agent configuration steps, you may execute the daemon process passing the `--config` argument (as root):

```
sudo /usr/local/bru-server/agent --config
```

Manually update the admin password on the Unix server

To change the Unix BRU Server server admin password, you may execute the server daemon process passing the `--password` argument (as root):

```
sudo /usr/local/bru-server/server --password
```

Manually stop a running BRU Server server under Unix

To stop a running server without using the GUI, you may execute the server daemon process passing the `--kill` argument (as root):

```
sudo /usr/local/bru-server/server --kill
```

Manually re-run a Hardware Scan

To re-run the BRU Server Hardware Scan, you must first stop the BRU Server server daemon. Once the daemon is stopped, you may execute the scan process passing the `--scan` argument (as root):

```
sudo /usr/local/bru-server/server --scan
```

After the hardware scan is complete, the BRU Server server daemon must be restarted.

Mac OS X EMail Considerations

The BRU Server server daemon contains a built in MTA. As such, it doesn't require that you have an email, or SMTP server running on the BRU Server server system. However, it does need information about how to transmit mail messages that are generated during normal operations. This means that the BRU Server server system must know how to find the destination mail server and also be able to identify itself using a standard domain name (DNS) type machine name (i.e.: bruserver1.tolisgroup.com rather than bruserver1.local).

If your network environment uses DNS services, the simplest solution is to ensure the BRU Server server system has a proper DNS entry. If you do not use DNS services internally, you may provide the necessary information via the hosts file (/private/etc/hosts on OS X).

If you don't have DNS available (and can't enable it), you will need to edit the hosts file on both your BRU Server server and your mail server. On the BRU Server server system, you must add entries for both the destination mail server and the system itself:

```
##
# Host Database
#
# localhost is used to configure the loopback interface
# when the system is booting. Do not change this entry.
##
127.0.0.1      localhost
255.255.255.255 broadcasthost
::1           localhost

## This next line is the local system as the mail server will recognize it
192.168.1.37   bruserver1 bruserver1.tolisgroup.com

## This next line is the entry for the mail server as the local system should know it
192.168.1.5    mail      mail.tolisgroup.com
```

The "Do not change" message relates to the 127.0.0.1 and ::1 entries. It does not mean that you can't add entries for other systems into the file. In this example, we've added both the IP address for the mail server (192.168.1.5) and the machine itself (192.168.1.37). On an OS X system, we would also need to make a change to the /private/etc/sysconfig file

On the mail server, you only need to include the BRU Server server system:

```
127.0.0.1      localhost
192.168.1.1    gw      gw.tolisgroup.com gw
192.168.1.37   bruserver1 bruserver1.tolisgroup.com
```

With these changes in place, each server knows the other and your BRU Server mail will be properly delivered.

Agent Installation OS X, Linux, Windows

The new BRU Server 2.0 agents are installed on Linux and OS X by running the Agent application. On Windows systems, the Agent is a standard setup executable.

Linux x86

To install the Agent on Linux, extract the gzipped tarball and copy the entire “BRU Server Agent Config” folder to a location on your system. The first time that you run the application, you must run it as root by either logging in as root or by executing it with sudo, gksudo, kedsu or similar tool. When you execute the application as root, the tool will examine your system for an existing BRU Server agent version and either update that version to 2.0, or create and install the necessary files for operation.

Mac OS X

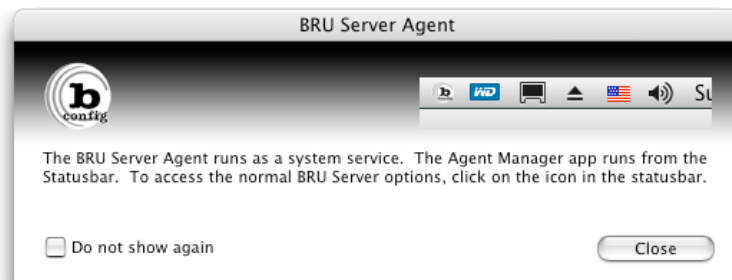
Installation of the Agent component onto a Mac OS X system is also performed by executing the “BRU Server Agent Config” application. After extracting the application bundle, you may place it anywhere on your systems, but we recommend creating a folder within your Applications Folder named “BRU Server”. After copying the application bundle, execute it and authenticate when requested. As with the Server component, the user must be an admin user and must have a password assigned.

Windows

For Windows systems (Windows 2000 and newer), the Agent is installed via a Windows setup application. Run the setup application as an administrative user.

The Agent UI Menu Options

Once installed and configured, the BRU Server Agent application does not need to be executed for your system to be recognized by the BRU Server server system to which you have authenticated. However, the Client-side initiated backup and restore operations use the new Agent user interface accessed through either the taskbar tray icon (on Linux and Windows) or the statusbar icon on Mac OS X systems.

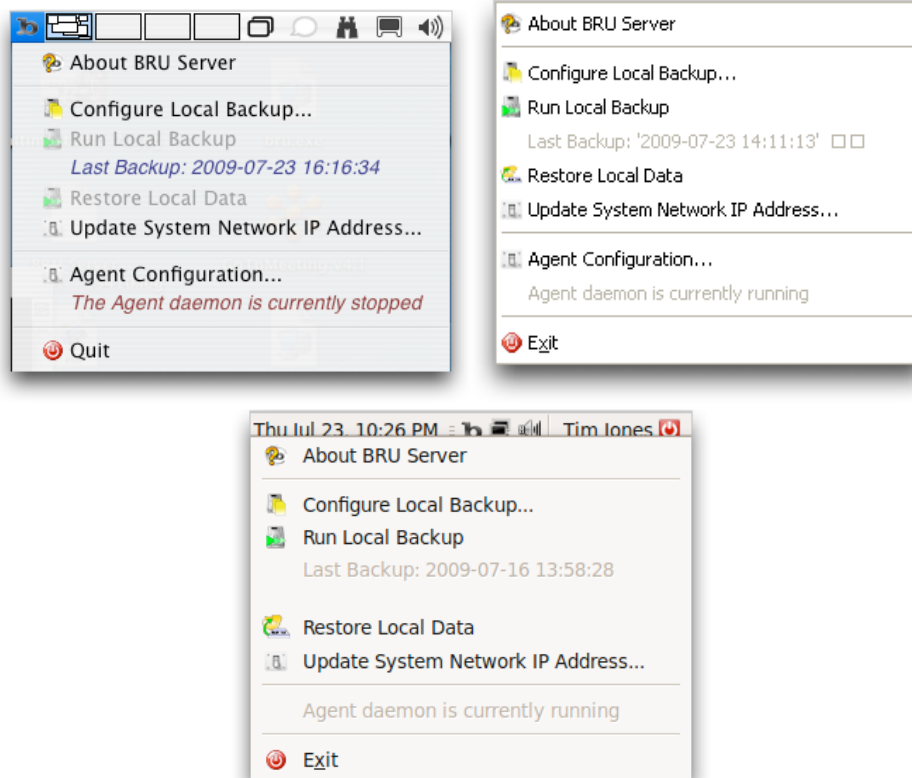


UI Access Reminder Dialog



OS X Statusbar and Windows and Linux Taskbar Agent UI Icons

Under OS X, click on the 'b' icon with your main mouse button. On Windows and Linux systems, use the right mouse button.



Agent User Menu (OS X, Windows, Linux)

The user Agent menu is basically the same on all three platforms with one exception - the Linux menu does not allow you to access the configuration option as the configuration options must be executed by the Linux system root user.

The menu options are described below

About BRU Server

Display the About Dialog

Configure Local Backup

Allows you to configure the files and folders to be included within a locally initiated backup. A backup created using this mechanism may also be restored locally without BRU Server admin actions. Entries are automatically saved.

Run Local Backup

Executes the backup of the job defined in the "Configure Local Backup" window.

Last Backup

Displays the date and time of the last locally executed backup job.

Restore Local Files

Allows you to select from locally initiated backup job archives and restore them to the local system.

Update System Network IP Address

If you are using a DHCP server for system IP address assignment, this option will allow you to update the IP address for your system on the server.

Agent Configuration - (OS X and Windows Only)

Displays the Agent configuration dialog.

Agent Status

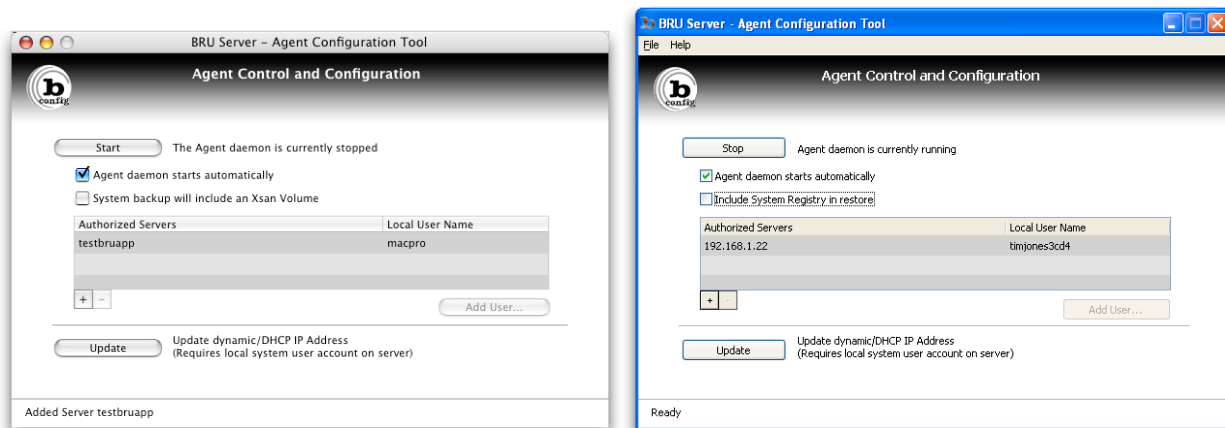
Displays the current run state of the BRU Server Agent daemon / service.

Quit

Exits the User interface. Does not affect the daemon / service.

Using the Agent Interface

To configure the client system to allow local user control, on OS X or Windows, open the statusbar menu and select the “Agent Configuration” option.



Agent Configuration - Daemon, Servers, and Local user

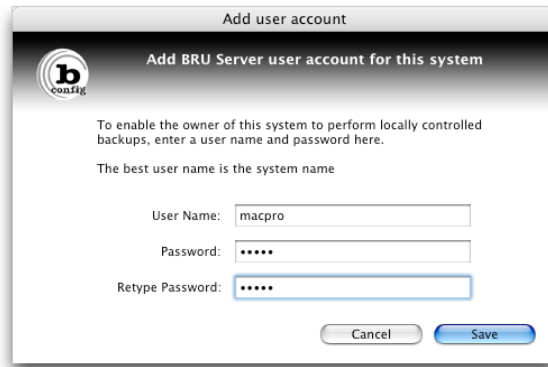
When you first execute the application, your system will be checked for any existing BRU Server Agent Version. Please note, the 2.0 agent is not compatible with prior versions of the server and vice versa. You must only use the 2.0 agent with the 2.0 server.

To authorize a new server to perform backup and restore operations on this system, click the “+” button below the “Authorized Servers” listbox.



Agent Configuration - Specifying a New Server

Enter the DNS name or IP address of the server. The password requested is the server's admin password (BRU Server admin, not the OS) - as an administrator, you should not share this password with the client system user as they will have their own password assigned below (if they will be performing client initiated backup and restore operations). If this client system will support client-side initiated backup and restore, check the “Add User” checkbox.



Add user account

Add BRU Server user account for this system

To enable the owner of this system to perform locally controlled backups, enter a user name and password here.

The best user name is the system name

User Name: macpro

Password: *****

Retype Password: *****

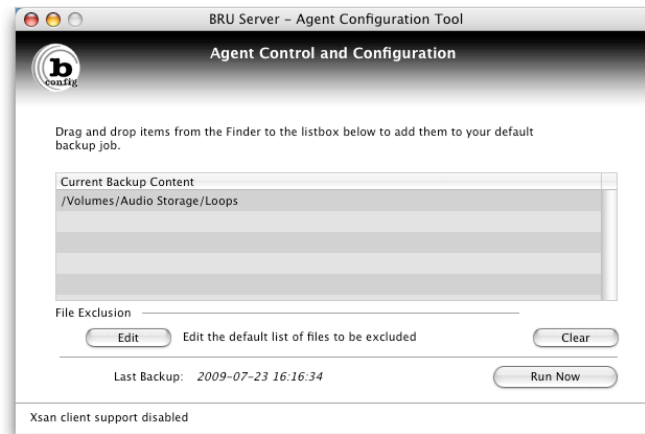
Cancel Save

Agent Configuration - Adding the local system user

If you add a user, the default user name will be the machine's hostname. This is done for ease in matching BRU Server user accounts with client system. However, you may assign any, single word, alphanumeric name that you choose (no spaces). The password is the password that the created user will use to log in to the associated BRU Server server for local backup and restore operations.

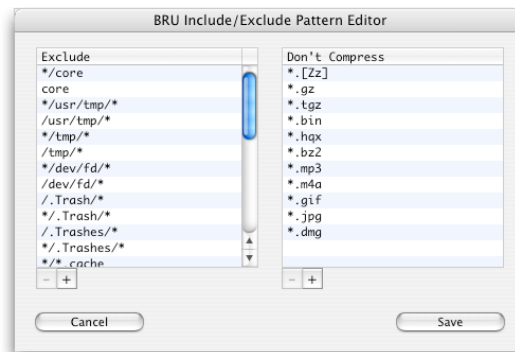
Once authenticated, the local user will be automatically entered for the client system user for backup and restore operations.

Configuring the Default Local Backup



Agent Configuration - Local backup definition

Selecting data for backup is as simple as drag and drop. With the Local Backup window open, simply drag volumes, folders, or files onto the listbox. The list created is automatically saved. If you wish to edit the exclusion table file (bruxpat), click the “Edit” button below the list.



Agent Configuration - Excluded Files List Editor

The bruxpat file is a plain text file that contains a list of patterns to match for exclusion. While the patterns may be defined as either standard shell patterns (**xs**) or regular expressions (**xr**), most users will find the shell patterns easier to work with. A simple exclusion of all MP3, WMA, and AAC files would be:

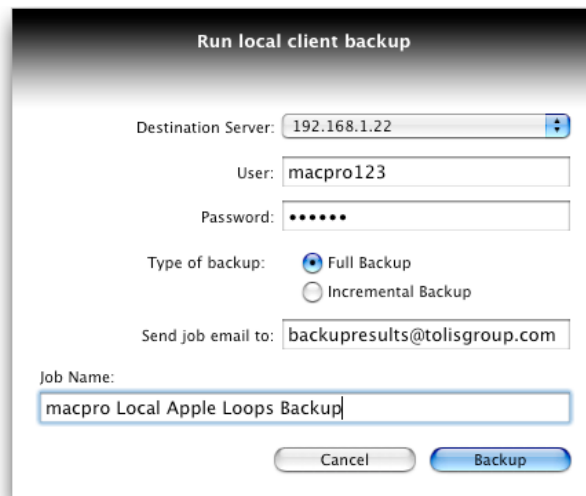
```
xs */*.mp3
xs */*.MP3
xs */*.wma
xs */*.WMA
xs */*.m4a
xs */*.M4A
```

To accomplish this with a regular expression exclude pattern, you could use:

```
xr */*.[mM][PpMm4][3aAp]
```

This says in any directory, match any file that has an extension with a first character m or M, a second character P, p, M, m, or 4, and a last character of 3, a, A, or p.

Running a Local Backup Job



The image shows a dialog box titled "Run local client backup". It contains the following fields and options:

- Destination Server: 192.168.1.22
- User: macpro123
- Password: (masked with dots)
- Type of backup: ☒ Full Backup, ☐ Incremental Backup
- Send job email to: backupresults@tolisgroup.com
- Job Name: macpro Local Apple Loops Backup
- Buttons: Cancel, Backup

Agent Configuration - Run Local Backup Operation

By either clicking the “**Run Now**” button of the Local Backup Definition window, or by selecting the “Run Local Backup” from the Agent UI menu, you will be asked to log into the specified server system. You may also name the backup job and select whether it is to be a Full backup or an Incremental backup of the data in the Backup Content list. In addition to the name you give the backup, the system will add a “(F)” or “(I)” to the start of the job name to make it easier to recognize (F)ull versus (I)ncremental jobs when you need to restore data.

Once the backup starts, the window is closed and the backup runs until completion or the client user manually aborts the job via the Agent UI menu.



Local Backups vs. Server Scheduled Backups - The locally configured and executed backup and restore options provided in the OS X, Linux, and Windows Agents are intended to be used in conjunction with normal organization-wide backup/archival requirements rather than as a replacement for them. The purpose is to enable desktop users to manage their own small-content backup and restores without the requirement of involving IT administration staff for simple “I didn’t mean to delete that file” restore situations.

One method used by many of our customers is to install 2 or more BRU Server server systems - one for desktop users with a large D2D stage volume, and a second for your organization’s mandated backup/archive scheduled operations to either disk or tape.

As an administrator, you can control the amount of disk space that each user may use (Stage Quota). and how long their local backups are retained on the server stage disk volume. Refer to the section in Chapter 6 on User administration for more information.

OSX Agent Notes

Configuring The Agent “brutab” file for Xsan Support

If you are using the OS X Agent user interface, there is a checkbox that turns Xsan support for this client on or off. Note that you only need to enable Xsan support on the client system that will specifically be used as the hosting client for the Xsan volumes.

Because of a slight difference in the way the Xsan filesystem works, the HFS+ `btime` (backup time) parameter is not available. This means that a default installation of the Agent on a system that will be the client involved with backing up the Xsan storage pool(s) may not process the appropriate files in the case of an Incremental or Differential backup. To enable proper handling of Incremental or Differential backup operations on the Xsan volumes, add the following line to top of your

`/usr/local/bru-server/brutab.agent` file:

```
#+IGNOREBTIME=YES
```

Note that there are no spaces in that line and the hash (#) is not a mistake. Also, you must use pico, vi, TextWrangler, or some other editor that will preserve Unix line breaks. Using TextEdit or SimpleText will add Mac line breaks and cause errors when the BRU engine reads the contents of the file.

Configuring Agents Using Apple Remote Desktop

You may also send the agent configuration sequence to a group of managed OS X systems using ARD's “Send a Unix shell command to Target Computers”. Select the appropriate computers ARD console and select the Manage -> Send UNIX Command... menu option. The command to send is a single line and consists of the command, the server that will be authorized to backup the systems followed by a comma and then (no space) the BRU Server server's admin password:

```
/usr/local/bru-server/agent --config2 servername,password
```

As an example, to authorize the server “`backup1`” with a BRU Server admin password of “`RemBackup`” to backup the OS X clients, send the command as follows”

```
/usr/local/bru-server/agent --config2 backup1,RemBackup
```

Agent Installation – Unix

Installation Prerequisites

- TCP ports 14441-14450 for client / server communications

To install the agent under a Unix system, extract the tarball as previously described, cd into the unix directory and execute ./install.

BRU Server Installation

```
Toggle  Install      Component
-----
A:      [ Yes ]      Agent - Backup/Restore services for this machine

D: Installation directory [/usr/local/bru-server]
I: Install (or upgrade) selected components
U: Uninstall BRU Server
Q: Quit

Enter command:
```

Select **I** to begin the installation. If you are installing as part of a full server install, this will be the next step after the server installation completes. Once the appropriate files are copied, you will be prompted to add a server to the list of authorized servers.

```
Now configuring the agent:
The agent will only accept connections from authorized servers
```

BRU Server Agent Configuration

```
Authorized Servers:
None
```

```
Enter the number to delete, N to add a new server or RETURN to quit >
```

Select **N** to authorize a new server and enter the server name or IP address and admin password as prompted. This step will contact the server and login using the admin password provided. It will also add this system to the server's client list automatically.

Finally, you may choose to add the agent to the system startup and start the agent.

To manually start or stop the Unix agent, execute:

Start:

```
/usr/local/bru-server/agent
```

Stop:

```
/usr/local/bru-server/agent --kill
```

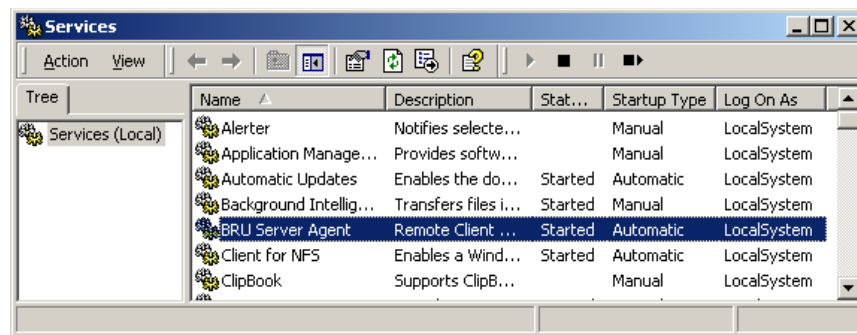
Windows Notes

Installation Prerequisites

- Any Windows version from Windows 2000 to Windows Server 2008 and Vista
- Windows XP SP2 and Vista SP1 strongly advised
- Administrator level user for installation

The Windows Agent is installed with the standard Windows Installer. An MSI file is available for all versions of Windows. While the installer package is configured to require a restart after installation, some users have reported that this does not occur in all installation instances. **Please be sure that you restart your Windows system after the installation completes.**

The Windows Agent is run as a Service after it is installed. To configure the Agent and authorize servers to access the system, use the BRU Server Agent Config application, in the **Start -> Programs -> TOLIS -> BRU Server Agent Configuration** menu.



Windows Services Manager

To start or stop the Agent service, or change the default startup setting, you may use the Agent UI, the Windows Service Manager tool, or the Windows “sc.exe” command line tool. The service is “BRU Server Agent”.

Windows Open File Support

If you purchased the BRU Open File Access Manager with your BRU Server licenses, it should be installed on the Windows client system along with the agent (install the agent package first). It is not necessary to install a copy on all Windows clients systems, only Windows systems that support platforms such as Exchange Server, SQL Server, Lotus Notes / Domino, Oracle, FileMaker Pro, or other platforms that utilize live file access that would normally prevent the platform data from being properly backed up. For more information on the Open File Access Manager, please refer to the Manual included with the software.

DNS Note (applies to ALL platforms)



In the event that you do not have proper DNS set up for your local networking environment, BRU Server may not be able to properly resolve your network addresses for clients and servers. In this case, we recommend that you add entries to the /etc/hosts or LMHOSTS file on your systems. These additions must be performed as root. An entry would look like this:

```
192.168.1.34  myserver.mydomain.com  myserver
192.168.1.46  myclient.mydomain.com  myclient
...
```

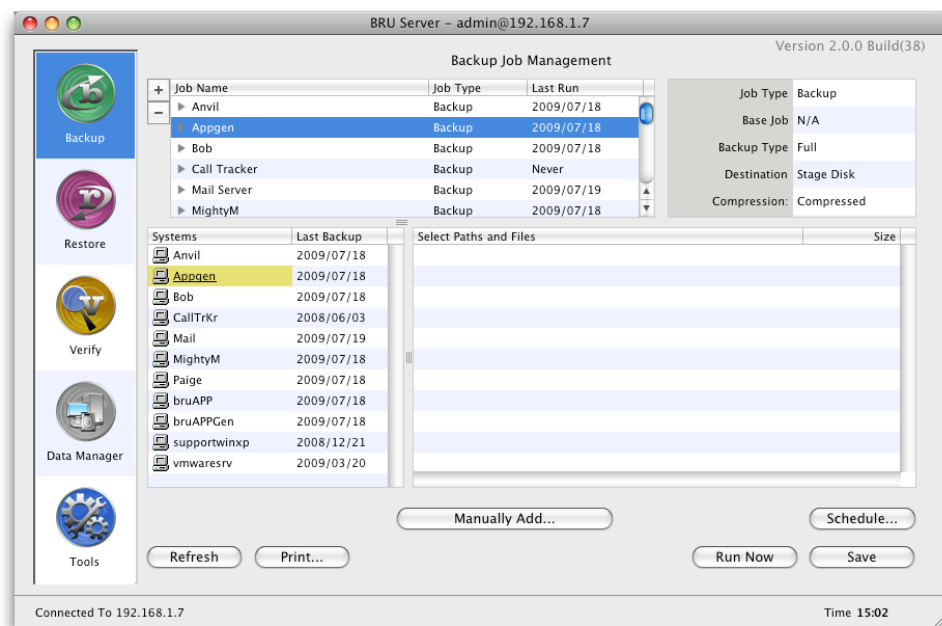

Console Installation

Once the server and agent components are installed and configured, the final installation step is to install the console component. While most users will install a console on the actual server system, this is not required. In fact, the console may be installed on any compatible system that has a network connection to the server.

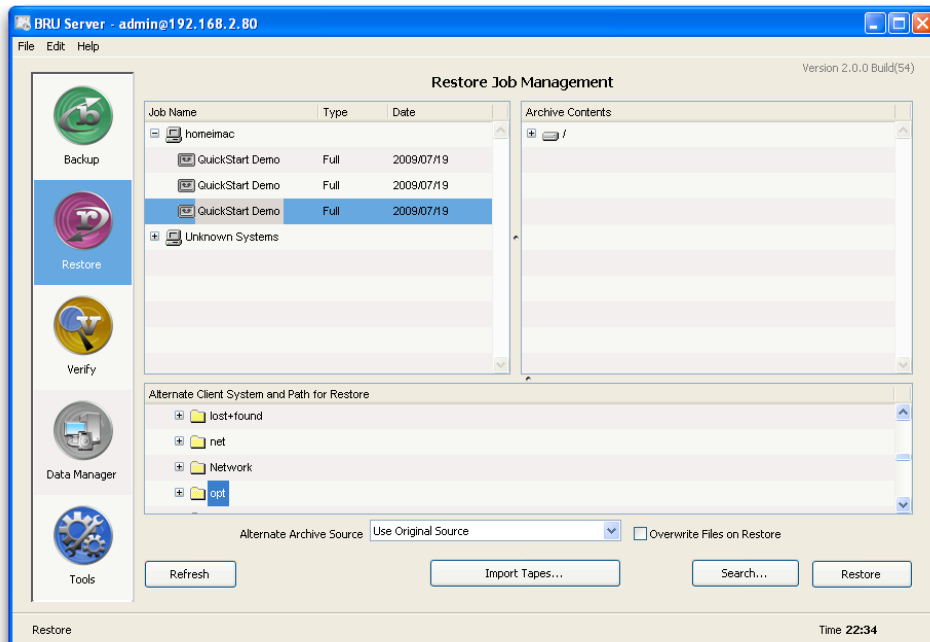
The BRU Server 2.0 Console does not require special installation steps and can be executed from any location on your system. The only exception is there are a few files that must be installed on a Linux system, therefore, the first time that you execute the Console on Linux, you must execute it as root by either logging in temporarily as root, or by using a helper tool such as sudo, gksudo, or kdesu. After that initial run, any logged in user may execute the Console application.

There are two versions of the console available – the graphical console and a character-based console that can be executed over any standard terminal connection to the system on which it's installed.

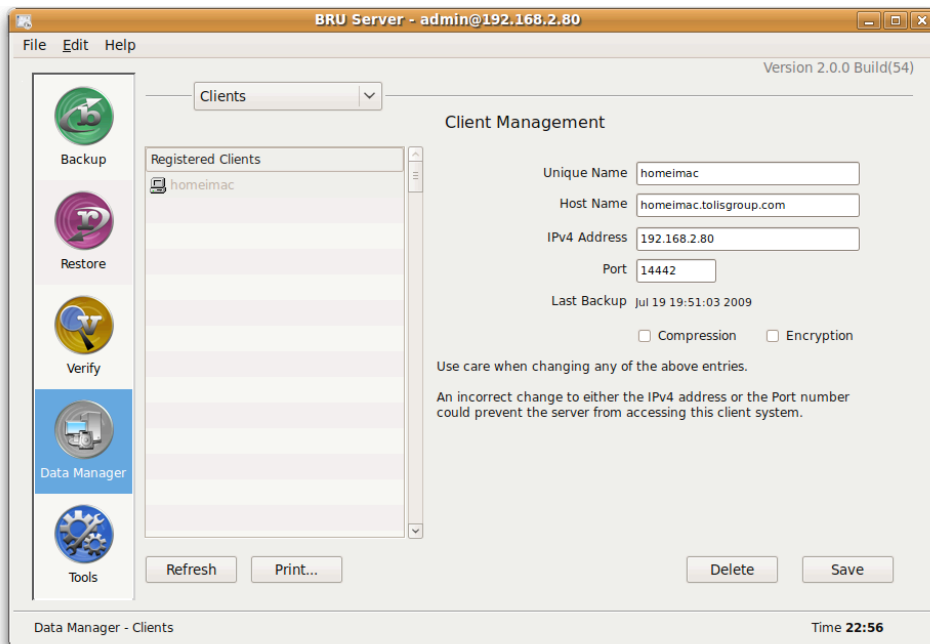
To start the graphical console, under OS X, double-click the **BRU Server Console** icon.



GUI Console for Mac OS X



GUI Console for Microsoft Windows



GUI Console for Linux

The Console GUI provides a full, mouse driven user interface to all BRU Server operations and options.

```
root@gw:/home/e-smith/files/primary/html — bru-server.conso — 80x25
Uncached slots [1, 2, 3, 4, 5, 6, 7, 10]
Trying tape in slot 1
Looking for tape in 'ntape1'
Tape is online
Reading header
Found unknown tape 401e7ea16b70:0
Making this tape '777734'
Checking TapeAlert status on ntape1
No TapeAlert messages
label = g4mac
label = (null)
buffer size = 128k bytes
media size = <unknown>

Backup:
Read:      6102 files    300.406 M bytes
Read End Rates:  BRU:      2.870 MB/s  Network:    11.838 MB/s

Write:      4886 files    259.350 M bytes
Write End Rates:  Network:    4.827 MB/s  BRUio:      2.018 MB/s

Verify:      0 files    0 K bytes
-2.3/Mac/OSXResources/app/Resources/English.lproj/Documentation/ide/index.html
|
```

Main Backup Window – Character Console

The character-based console requires that you type commands, but provides the same capabilities as the GUI console. During installation, the character-based console app is made available from the `/usr/bin` directory. This should place the application – `bru-server.console` – into all default user paths.

In addition to the character based console `bru-server.console`, we also provide a command line tool that simplifies third-party wrapper development called `bru-server.cmd`. Please refer to Chapter 6 for more information on using these tools.

Additional Setup Considerations

Setting the Server's Stage Path

The server Stage path is a volume or folder that disk to disk backups are written. By default, BRU Server uses a path named "stage" within the installed environment - the complete absolute path is `/usr/local/bru-server/stage`. Once you have completed the installation of the server and configured your other defaults, we recommend that you examine your system configuration and assign a path on a volume that will support your disk to disk backup needs (see Chapter 5 for more information).

Firewall and Routing Considerations

BRU Server uses ports 14441 through 14450. To allow proper communications in an environment where firewalls must be considered, please make sure that these ports are available for bi-directional, TCP and UDP packet traffic.

Executing Tasks Before or After a Job Run

If you have a task that should be performed before or after the BRU Server job is executed, there is a mechanism provided for both agents and the server. Such tasks include stopping and restarting a mail server, exporting a database to a flat file, warning users that a backup is about to occur, and many more. The files may be created using any programming or scripting language supported by your system including shell, python, perl, Applescript, or even compiled C/C++. The only requirement is that the resulting file be executable and return a zero for success or non-zero for any error condition.

On your agents, add executable files named **pre** and **post** to the agent install directory – `/usr/local/bru-server` on all OS X and Unix variants, and as **pre.bat** or **pre.cmd**, and **post.bat** or **post.cmd** in `C:\Program Files\BRU Server Agent Configuration\` on Windows systems.

Additionally, there is a master pre and post capability on the server system. The file should be placed into the server application directory - `/usr/local/bru-server/` - and be named **backup.pre** and **backup.post**. The server sequences will be executed before any client backup operation is begun and after **ALL** client backup operations have completed. The same rules apply for creating the server-specific jobs as for the client system pre and post sequences.

Excluding Specific Files or File Types From Backup

In addition to explicitly specifying excluded paths in the backup job definition, each client system may have a list of parameters that will cause the backup operation to exclude specific files, directories, or file types for any backup. This file is the **'bruxpat'** (BRU eXclusions PATtern) file. It is placed within the actual agent install directory on each client system.

These directories are –

OS X and Unix variants

“/usr/local/bru-server”

On Windows Systems

“C:\Program Files\BRU Server Agent Configuration\”

There are sample files included within the directories that may be viewed for further details. This is a plain text file that contains a list of patterns to match for exclusion. While the patterns may be defined as either standard shell patterns (**xs**) or regular expressions (**xr**), most users will find the shell patterns easier to work with. A simple exclusion of all MP3, WMA, and AAC files would be:

```
xs  */*.mp3
xs  */*.MP3
xs  */*.wma
xs  */*.WMA
xs  */*.m4a
xs  */*.m4p
```

To accomplish this with a regular expression exclude pattern, you could use:

```
xr  */*. [mM] [PpMm4] [3aAp]
```

This says in any directory, match any file that has an extension with a first character m or M, a second character P, p, M, m, or 4, and a last character of 3, a, A, or p.

Getting Started

A Simple Backup and Restore Tutorial



Note - While the screenshots presented in this guide may be of one particular platform, the operations and layouts are the same for all 3 platforms.

Once you've completed the server and agent setup, the next step is to create a backup job definition, define the data to be included, and set the job schedule.

You may use the graphical interface or either of the command line interfaces to perform these tasks. For this simplified tutorial, we will utilize the BRU Server GUI Console.

Start the GUI Console and you will be greeted with the Login window.



BRU Server Login Dialog

To login to your BRU Server server:

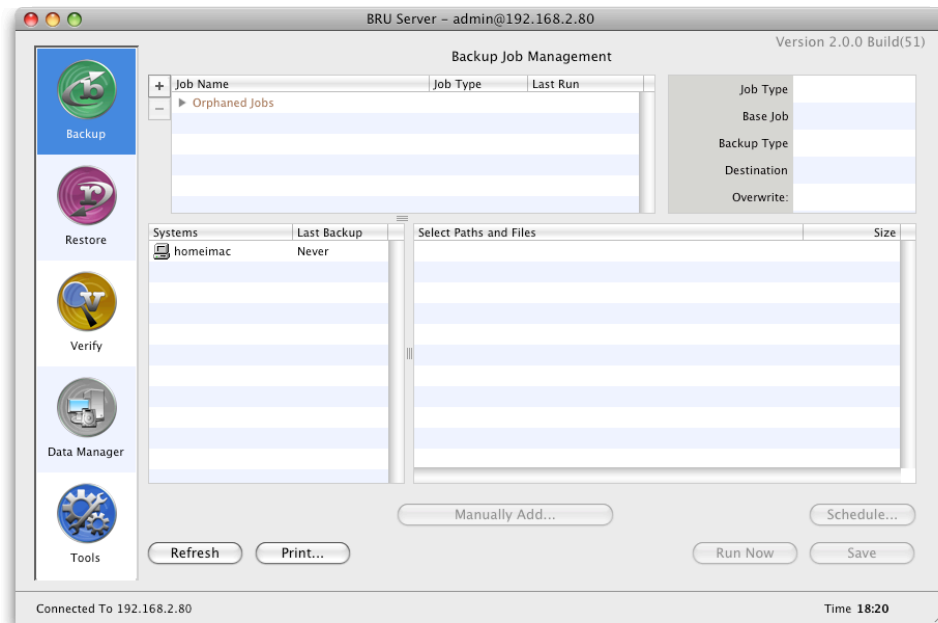
- Enter the BRU Server server system's DNS name or IP address
- Use the TAB key or mouse to move to the BRU User field and enter admin
- Use the TAB key or mouse to move to the Password field and enter the admin user password.

Hit ENTER or click the "Login" button to connect to the BRU Server server and login.

Defining and Performing a Backup

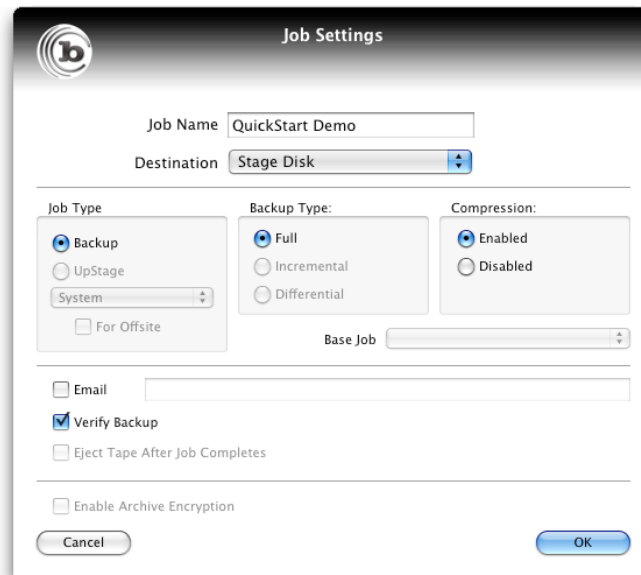
Once the user and password are accepted, the BRU Server Configuration Assistant is displayed. If you wish to continue with the assistant, step through each of the panels and respond as necessary. However, for this tutorial click the “Skip Assistant and Configure Manually” checkbox since this tutorial does not require changes to the installation defaults.

In either case, the main BRU Server console window is displayed next. Please wait while the interface communicates with the server to load information about the server status. This may take a minute, so please be patient. Because BRU Server is a true client-server application, the console is simply a view into the state of the server system and must communicate with the server to update its displayed information from time to time.



BRU Server Console - Main Window

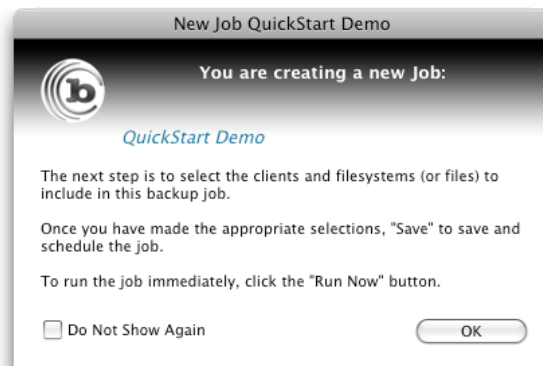
The first step in creating a backup job is to name the job. Click the “+” button next to the Jobs list or select “**New Job**” from the File menu. You will see the New Job Name dialog.

The image shows a 'Job Settings' dialog box with a 'b' logo in the top left. It contains several configuration options: 'Job Name' is 'QuickStart Demo', 'Destination' is 'Stage Disk', 'Job Type' has 'Backup' selected, 'Backup Type' has 'Full' selected, and 'Compression' has 'Enabled' selected. There are also checkboxes for 'Email', 'Verify Backup' (checked), 'Eject Tape After Job Completes', and 'Enable Archive Encryption'. A 'Base Job' dropdown is also present. At the bottom are 'Cancel' and 'OK' buttons.

BRU Server Console – New Job Dialog

For the tutorial, we will name the job “QuickStart Demo” and leave the destination set to the “Stage Disk” and Compression should be “Enabled”. Click “Ok” or hit the ENTER key to continue.

The next tip dialog informs you of the remaining steps required before you’ve actually created a job.

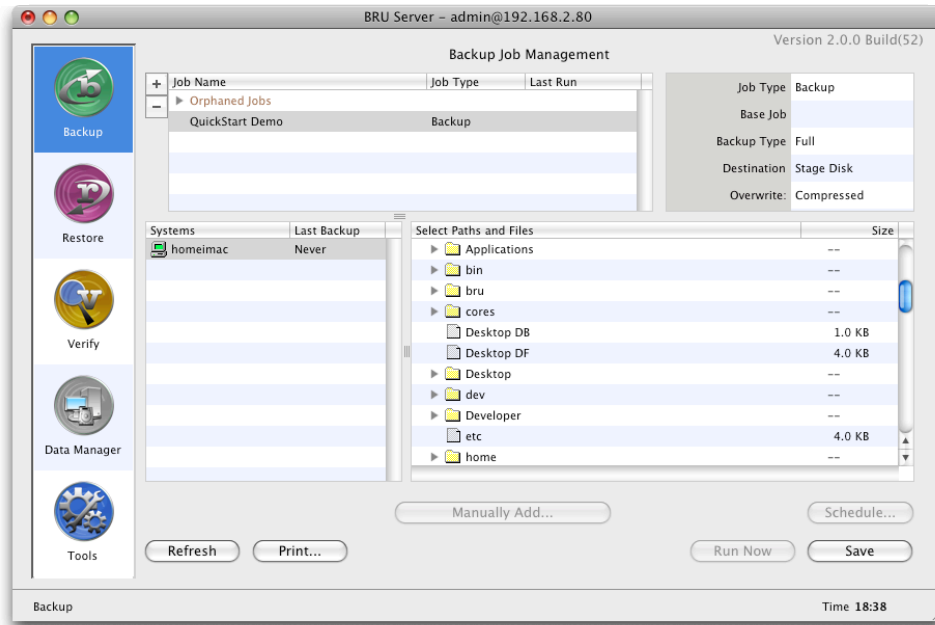
The image shows a 'New Job QuickStart Demo' tip dialog box. It features the 'b' logo and the text 'You are creating a new Job: QuickStart Demo'. It provides instructions on the next steps: selecting clients and filesystems, saving the job, and running it immediately. At the bottom, there is a 'Do Not Show Again' checkbox and an 'OK' button.

BRU Server Console – New Job Tip

If you do not want the console to remind you of these steps each time you create a new job, click the “Do Not Show Again” checkbox.

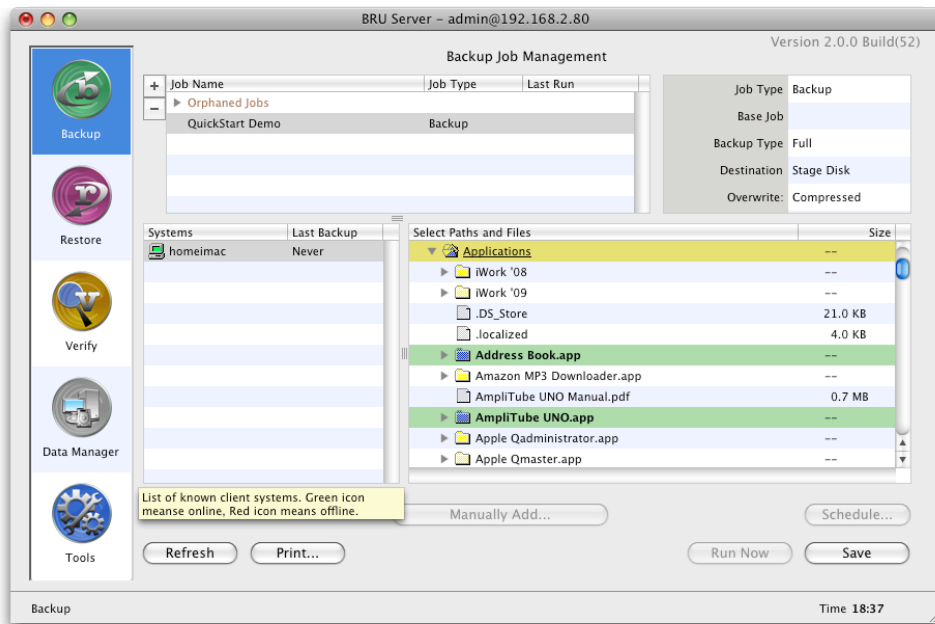
Click the “Ok” button to continue.

Expand the client system entry for your client by clicking on the disclosure triangle to the left of the system name. To match the steps in this tutorial, you should expand a Mac OS X client system.



BRU Server Console – Expand the Client System and Root Volume

Next, expand the root volume and scroll down to the “Applications” folder. Expand the “Applications” folder and single click on the entries for “Address Book.app”, “Applescript”, and a few other applications (we chose around 150MB for this tutorial). Your selection list should look something like the figure below.

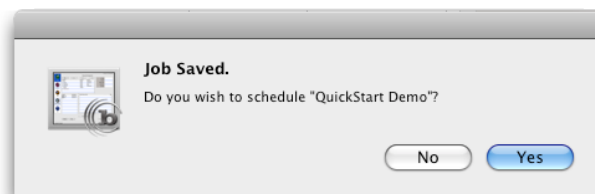


BRU Server Console – Selected Files and Folders

Note: Each color has it's own meaning. The meanings are as follows:

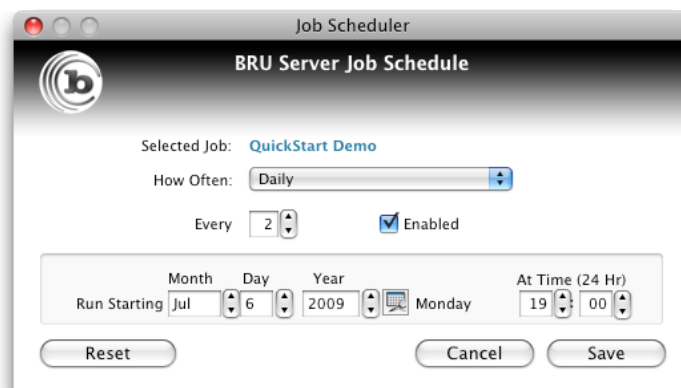
- **GREEN** - When a file is highlighted in green, this means that the file as been selected for backup. If a folder/volume is highlighted in green, then the folder and all of its contents have been selected for backup.
- **YELLOW** - Only folders and volumes are possibly colored yellow. Yellow indicates that a portion of that folder/volume has been selected for backup, but not the complete volume.
- **RED** - When a file/folder/volume has been highlighted in red and struck through, BRU Server in instructed to explicitly exclude the selected item from back up. Use this option to explicitly exclude files from your backup. This setting is handy for when you've selected a top level folder and you need to explicitly exclude one or more items from the folder's contents rather than selecting each of the wanted items in the folder. It also means that any items added to the top level folder after the backup job is defined will automatically be included without further action or changes to the job definition.
- **NONE** - If the file/folder/volume is not highlighted in any color, then it has not been chosen as part of the backup. Therefore, this file will not be backed up by BRU Server.

Check the Email checkbox and set the appropriate email address in the Email field. The next step is to save these settings. While we could simply run this job now without saving it, we want to save in this case so we may reuse the job later in the tutorial. Click the "Save" button to continue.



BRU Server Console – Job Was Saved Successfully

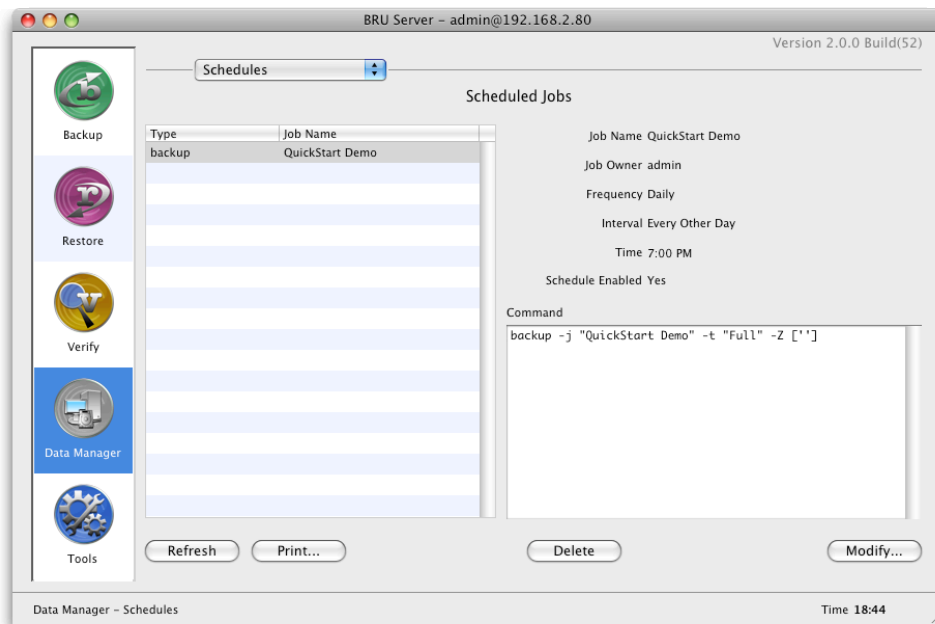
Next, we want to schedule the job, so answer Yes or hit the ENTER key to continue.



BRU Server Console – Job Schedule Dialog

For our tutorial, select "Daily" from the How Often popup menu and set the "Every" value to "2". This setting means that this job definition is to be run daily, every other day, at the time specified starting on the date specified. The current values assigned to the date and time fields are the current day and time. For now, accept the date and set the time 5 minutes into the future. Click the "Save" button to continue.

To see that the job has been scheduled, click on the "Data Manager" tab and then select "Schedules" from the popup menu.

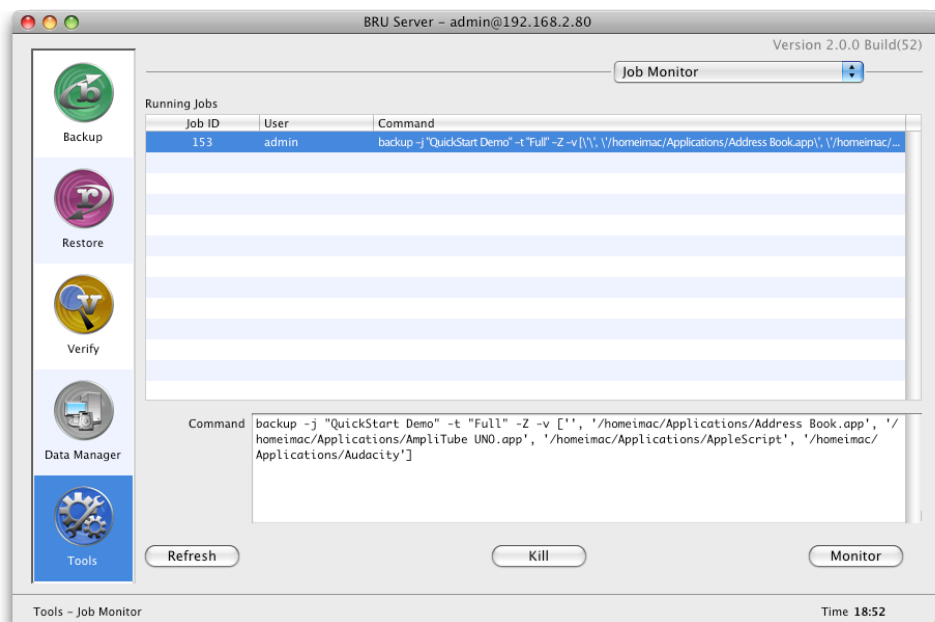


BRU Server Console – Schedule Manager

If you click on the “QuickStart Demo” entry, the Command field will list the actual command that the server daemon will execute to perform the specified job. Wherever possible, the console will disclose the command line that will be executed.

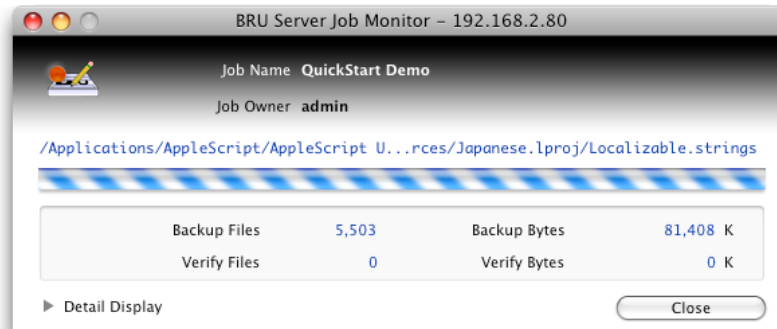
If you wished to remove this job from the scheduler, click the “Delete” button. To Change the schedule, click the “Change” button. For now, leave the job as it is and click the “Tools” tab.

Before the scheduled job has a chance to start, click the “Tools” button in the tab list. The default panel on the Tools tab is the “Job Monitor” panel. This panel displays all active jobs and allows you to monitor them or stop/cancel them.



BRU Server Console – Job Monitor Panel

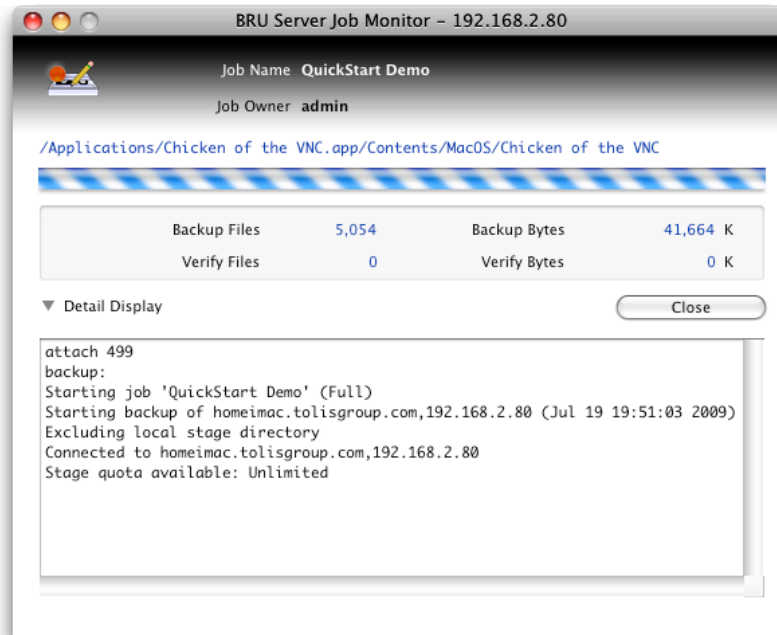
If your scheduled job has not started, wait until the time that you specified and its entry will appear in the upper list box as shown above. Once it appears, click on the entry and then click the “Monitor” button. The Monitor window will open and you will be monitoring the operation of your scheduled backup.



BRU Server Console – Monitor Window (Low Detail Display)

The Monitor window allows you to view the operation, but does not allow you to physically interact with the running job. In fact, you could be monitoring this job for a dozen or more locations within your network and none of the Monitor windows would interfere with the others. The Monitor window displays the current job name, owner, current file being processed, a count of files processed, and the amount of BRU data that has been processed.

If you wish to see more of the behind-the-scenes info, you may check the “Detail Display” check box and the Monitor window will expand to show more information about the job.



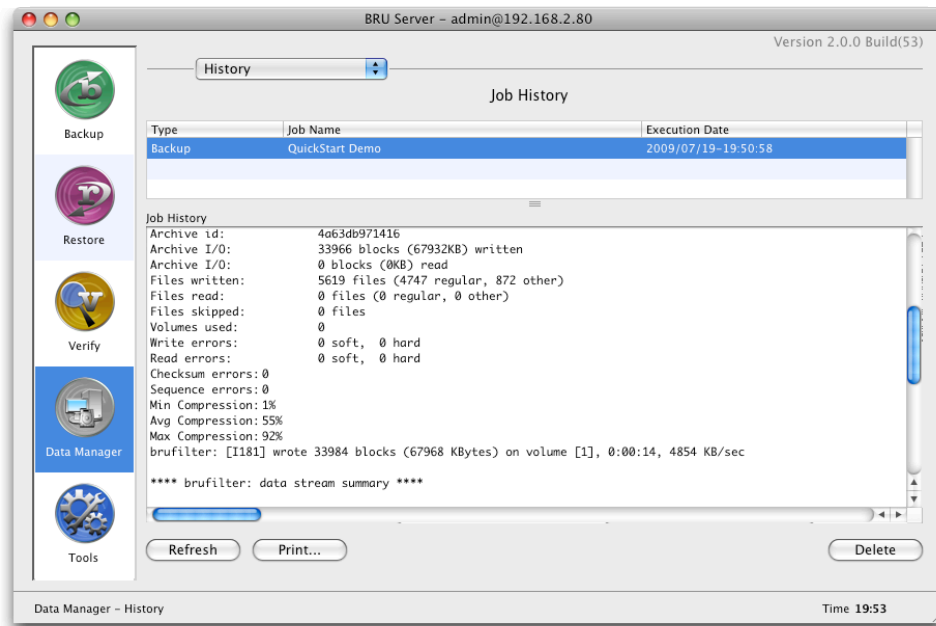
BRU Server Console – Monitor Window (Detailed Display)

The “Detail Display” provides additional information from the server concerning this job. The values displayed in the bottom panel are instantaneous snapshot values and are really only useful for troubleshooting network problems. Do not look at them as representing the actual final throughput of your backup.

If the job has not finished, click the “Close” button and watch the Job Monitor panel in the main window. When the job completes, it will be removed from the list.

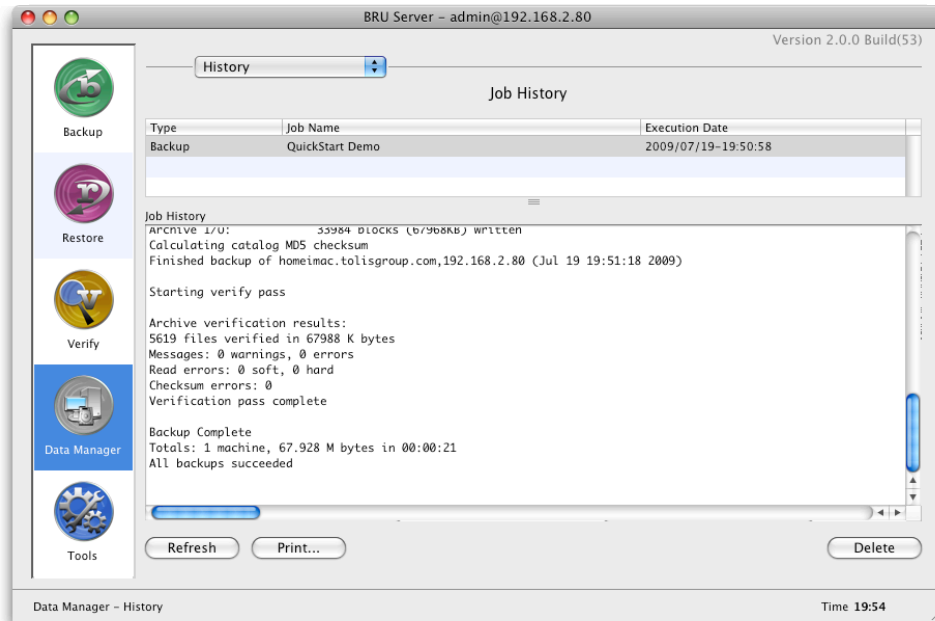
Once the backup and verify is completed, you will find information about the job in the History database and the Archives database. In this instance, there will be no entry in the Tapes database since the backup was written to the Stage folder. Also, a summary email will be sent to the address that you entered in the Email field.

To see the history report for this operation, open the Data Manager panel and select the History option from the popup menu.



BRU Server Console – Job History Panel

In this case, there is only one entry – the backup and verify that we just ran. By selecting it in the top list, the actual history information will be displayed in the lower list. All pertinent information about each system selected in this job will be listed. At the end of the history report will be a summary for the entire job as shown below.

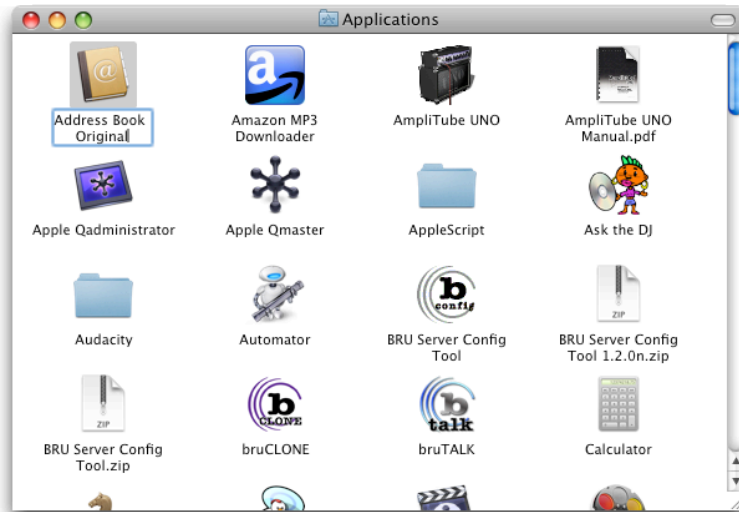


BRU Server Console – Job History Summary

Performing a Restore

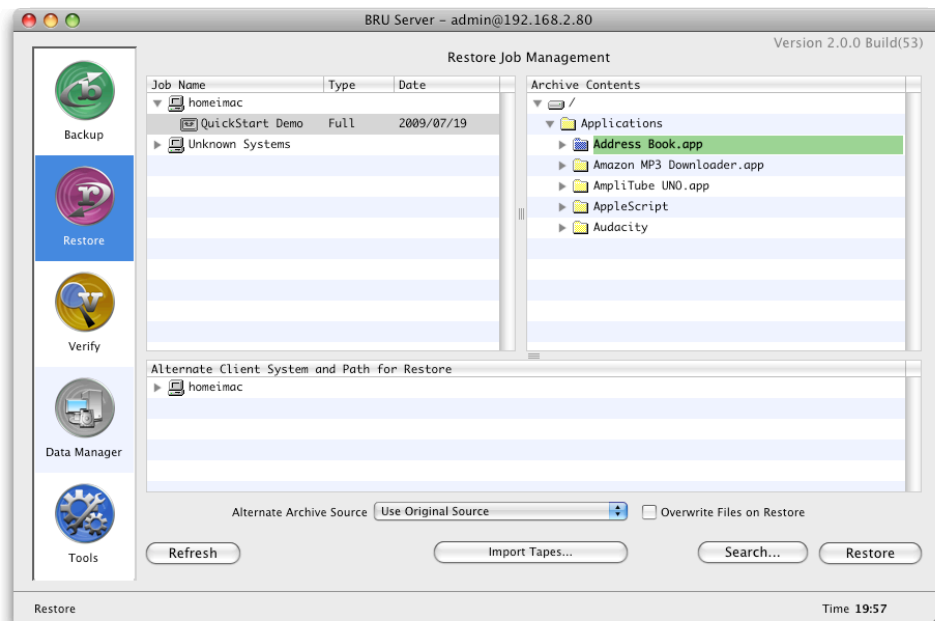
The final step in this tutorial is to restore an application. We have chosen to restore the “Address Book” application.

Open a Finder window and go to the Applications folder. Find the “Address Book” and rename it to “Address Book Original” as shown in the next figure.



Finder – Rename “Address Book” to Address Book Original”

Next, select the Restore tab to display the Restore panel. Click the “**Refresh**” button and expand the client system that we just backed up and the expand the archive as shown.



BRU Server Console – Restore Panel

Next, select the “**Address Book.app**” entry

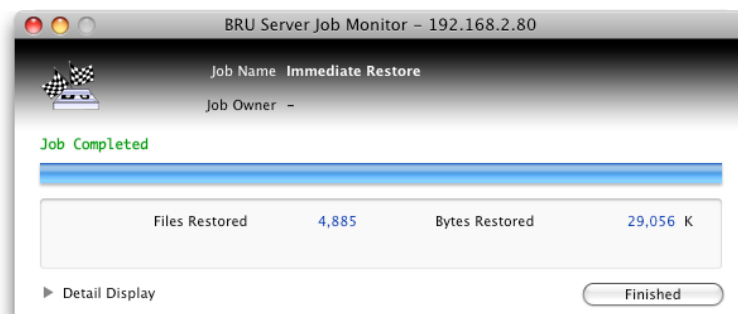
Finally, click the “Restore” button. BRU Server will verify that you wish to restore by displaying a

verification dialog. Click the "Yes" button to continue.



BRU Server Console – Restore Verification

The Monitor window will be displayed and the progress of the restore will be shown. This particular example will not take long.



BRU Server Console – Restore Completed

To check the success of the restore, return to the Finder window and you will see your "Address Book Original" along with the restored "Address Book" app.



Finder – Restored "Address Book" application

This concludes the QuickStart tutorial. For more in-depth information on BRU Server management and operation, please refer to the BRU Server Administrators Guide.