Server Tools Installation Guide

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Software designed and built in Australia by BigWorld.

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Chapter 1. Overview

A suite of utilities collectively referred to as "server tools" is provided to monitor and query BigWorld servers' status, both live and post event. These tools include WebConsole, MessageLogger and StatLogger.

This document provides a step-by-step guide on how to set up a working monitoring machine within a BigWorld server cluster. Note that it is also possible for any user to run these tools without running them as system daemons. For details on these tools, see the Server Operations Guide.

For information on installing the BigWorld Server, see the Server Installation Guide.

Chapter 2. Recommended Setup

The recommended system configuration for the server tools is a single machine within the server cluster that does not run any server processes such as BaseAppMgr, CellAppMgr, and DBMgr. This machine will run the server tools components StatLogger, MessageLogger, WebConsole, as well as BWMachined and MySQL.

The isolation of the server tools on a separate machine is recommended in order to ensure that if high load situations occur on any cluster machines, the associated increase in logging and monitoring tasks performed by the server tools do not further degrade performance on any of the active cluster machines.

Due to the potential for log files to grow quite drastically in both a development and a production environment it is recommended that, when creating partitions for the operating system installation, to create a separate partition or have an entirely separate hard disk dedicated for the BigWorld server logs.

2.1. Supported Distributions

BigWorld only officially supports the 64-bit CentOS 5.*x* and RedHat Enterprise Linux 5.*x* distributions.

BigWorld has previously supported other Linux distributions, however in order to better support customers we have consolidated our support list to have a greater focus and reduce variability when resolving customer issues.

CentOS can be downloaded from the CentOS community portal.

RedHat Enterprise Linux is available from the RedHat website.

Chapter 3. Requirements and Caveats

3.1. Hardware Requirements

As a minimum, we recommend the following hardware system requirements:

- 1GHz CPU
- 1GB RAM
- 30GB Hard disk (for main OS install)
- 120GB Hard disk (for logging)
- 100Mbit NIC

If an external machine is hosting the MySQL server for use with WebConsole and StatLogger, we recommend that machine to have similar specifications. We also recommend that the network link between the machine hosting the WebConsole and/or StatLogger and the link to the MySQL server be low-latency and high capacity for best performance.

3.2. Other Requirements

- Dedicated user account for the server tools
- MySQL Database
- Python 2.4 or higher (default for RedHat / CentOS)
- TurboGears v1.x (default for RedHat / CentOS)

3.3. Dependencies

WebConsole uses a MySQL database server for managing all persistent data such as user information, preferences, etc.

For WebConsole, because of the way in which the MySQL connection is managed by CherryPy (the underlying web framework), we require that the MySQL version be at least 5.0 or later.

The statistics collecting process, StatLogger also relies on a MySQL database server for storing process and machine statistics, though this can potentially be different to the database server used by WebConsole.

3.4. Caveats

BigWorld only supports 64-bit CentOS and RedHat Enterprise Linux distributions. Testing is performed on the most up to date version of these distribution at the time of release.

Chapter 4. Installation Preparation

4.1. Introduction

Due to the dependencies of the server tools as outlined in "Dependencies" on page 9 it is nescessary to perform some steps on a Linux installation to bring the system to a state that is ready for the server tools to be installed.

The server tools have been tested to work against CentOS 5 (64 bit). For information on installing CentOS, refer to the Server Installation Guide chapter *Installing CentOS 5*.

Note

Make sure you install the MySQL server when prompted.

The following chapter will outline the steps required to prepare an installed Linux distribution for an installation of the BigWorld server tools.

4.2. Update System Packages

After any system installation it is a good idea to update all the installed system packages as there may have been important security fixes or other bug fixes which can impact the performance and security of your system since the installation media used for your install was produced.

As root:

```
# yum update
```

After performing this update it is a good idea to reboot your computer to pick up any system changes.

4.3. Create User Account

The server tools require their own user account to run as. This is done to help isolation of processes and files. It is also suggested to create a unique group which all server tool components and logs will be owned as. To create a user and group on the current system we will use the **useradd** and **groupadd** commands.

For the purposes of this installation guide, we will use a *username* and *groupname* of `bwtools`, however these can be whatever you prefer for your own environment.

Note

If your environment uses an LDAP or NIS user account infrastructure, you will have to follow your own environment's account and group creation procedures.

Perform the following operations as root:

Create the group:

```
# /usr/sbin/groupadd bwtools
```

Create the user account:

```
# /usr/sbin/useradd bwtools -g bwtools -d /home/bwtools -m
```

Set the password of the user account:

```
# passwd bwtools
Changing password for user bwtools.
New UNIX password:
Retype new UNIX password:
passwd: all authentication tokens updated successfully.
```

4.4. Other Packages

Some packages required by the BigWorld server tools installation process are not installed when using the default Red Hat / CentOS installation options. Please ensure you install the following packages which will be required by the server tools.

In order to fully support the server tools under CentOS it is necessary to install some non-default packages. In order to facilitate this you must enable the Extra Packages for Enterprise Linux (EPEL) provided by the Fedora Project.

To enable the EPEL repository use the following command:

Note

The EPEL packages aren't kept as up to date as the official releases. If you have trouble downloading a version, try navigating to the directory and searching for the current version of the EPEL package. For example as of the CentOS 5.5 release the EPEL package still refers to 5.4.

Please modify the following URL as required.

As root, run:

```
# rpm -Uvh
 http://download.fedora.redhat.com/pub/epel/5/x86_64/epel-release-5-
4.noarch.rpm
```

With the EPEL repository enabled, as root run:

```
# yum install python-setuptools MySQL-python python-sqlobject TurboGears
```

4.5. MySQL Server

After installation it is quite common to not have the MySQL server active or setup to restart after a reboot. As it is a core component of the server tools, it is important to check the MySQL server is setup correctly before proceeding.

As root run:

```
# /sbin/chkconfig --levels 345 mysqld on
# /etc/init.d/mysqld start
```

4.5.1. Create a Database Account

The server tools by default will be installed to use a MySQL database. In order for this to work you must grant appropriate permissions for the user that will be using the database. Use the MySQL `GRANT` command to enable access for the new user. For example:

```
$ mysql -u root
mysql> GRANT ALL PRIVILEGES ON *.* TO 'bwtools'@'localhost' IDENTIFIED BY
 'bwtools_passwd';
mysql> GRANT ALL PRIVILEGES ON *.* TO 'bwtools'@'%' IDENTIFIED BY
 'bwtools_passwd';
```

4.6. BWMachined

If you do not yet have the BigWorld tools directory available on the installation machine, please read ahead to the chapter *Checkout / Unpack Tools Source* on page 15 and then come back here to install BWMachined.

In order to successfully install the server tools the BWMachined daemon must already be installed and functional. Please refer to the instructions in the Server Installation Guide, section “Installing BWMachined” for more information.

Chapter 5. Checkout / Unpack Tools Source

The only directory required to run the server tools is `bigworld/tools/server`. This directory should exist within and be owned by the `bwtools` user account created above in "Create User Account" on page 11 . It is recommended to keep the same directory layout when creating this directory as with all the other BigWorld software in the cluster. We also assume that these tools will be placed into the `/home/bwtools/mf` directory.

We recommend that you avoid using networked file systems, such as SMB/CIFS or NFS when installing the tools.

First, we need to log in as the `bwtools` user for installing the files as that user:

```
login: bwtools
Password: ********
```

or

```
su - bwtools
```

Confirm you are in the `bwtools` home directory:

```
$ pwd /home/bwtools
```

Confirm you are the `bwtools` user:

```
$ whoami bwtools
```

Because the user will only be running the server tools, we only require a minimal checkout of the respository.

If you are working from SVN, you may wish to obtain the source similar to this:

```
$ cd $HOME
$ svn co http://YOUR_REPOSITORY/bigworld/tools/server mf/bigworld/tools/server
```

Chapter 6. Server Tools Installation

Before installing the server tools, make sure that MySQL is installed, and a MySQL user has been added. For details on how to do this, see the document Server Installation Guide, section "Configure MySQL Server".

The final step to installing the server tools is to run the script `bigworld/tools/server/install/install_tools.py`. The purpose of the `install_tools.py` script is to install system startup scripts into `/etc/init.d`, and setup which run levels the new system services should start in. Once this has been done, the installation script will attempt to launch the services. This process will also attempt to verify the environment in which the server tools have been installed in and create any required directories.

The installation script must be run as root from the `bigworld/tools/server/install` directory.

```
$ cd /home/bwtools/mf/bigworld/tools/server/install
$ su
# ./install_tools.py
BigWorld Server Tools Installation
NOTE: This installation program will not copy binaries into your
        system paths, the system startup scripts and configuration
        files are used to reference back into the current tools
        directory. If you intend on moving the tools you will need
        to re-run this script.
```

The first stage of the installation will ask you about your MySQL database. Default settings have been provided, which should be correct for the hostname and port if the recommended system setup is used. You may have to modify the username and password fields depending on your desired MySQL configuration. Once this information has been entered, the script will attempt to connect to the database to verify its existence, and to create the necessary database for WebConsole, and will then modify the configuration files for the server tools that need to connect to the database.

```
* Database Configuration
Please input MySQL database information:
Hostname [localhost]:
Port [3306]:
Username [bigworld]: bwtools
Password [bigworld]: bwtools_passwd
StatLogger DB name prefix [bw_stat_log_data]:

MySQL database configuration:
Hostname : localhost
Port : 3306
Username : bwtools
Password : btools_passwd
Prefix   : bw_stat_log_data

Are these details correct?
 [yes]

+ Creating web_console database in MySQL
+ Writing '../web_console/prod.cfg'.
+ Writing '../stat_logger/preferences.xml'.
```

The next set of questions will verify that the environment that the tools are installed in (and will be run from) is as expected. This is a last chance for you to make any modifications to the environment before the server tools are installed. The environment can be changed at any point. Doing so, however, will require updating configuration files or re-running the installation script.

```
* Server Tools Installation

Server tools will be run as:
User : bwtools
Group : bwtools

Are these details correct?
 [yes]

* Server Tools: Installation Paths
This installation is being run from under
 '/home/bwtools/mf/bigworld/tools/server'.
Configuration files and system startup scripts will be modified
to refer to this installation directory.

Is this directory correct?
 [yes]
```

Next, we specify where MessageLogger is to store its logs. This should be a location with enough room to cope with a large amount of logs.

```
Where should message_logger store its logs?
 [/var/log/bigworld/message_logger]
```

The server tools startup scripts will need a location to store `.pid` files, which record the process ID and running state of the server tools. This is specified as below:

```
Where should .pid files be stored?
 [/var/run/bigworld]
```

You are now given an opportunity to confirm the input directories and modify them if necessary.

```
Server tools directories:
Tool dir : /home/bwtools/mf/bigworld/tools/server
Log dir : /var/log/bigworld/message_logger
PID dir : /var/run/bigworld

Are these details correct?
 [yes]

+ Chown'ing '/var/log/bigworld' to bwtools:bwtools

+ Chown'ing '/var/run/bigworld' to bwtools:bwtools

+ Chown'ing '/var/log/bigworld/message_logger' to bwtools:bwtools

+ Chcon'ing '../message_logger/bwlog.so' type to
 user_u:object_r:textrel_shlib_t
```

The final step to install the server tools will attempt to copy the *init.d* scripts for the 3 server tools into `/etc/init.d` then start the services. The MySQL service should be started before StatLogger and WebConsole, otherwise they will fail to load.

```
* Installing system services
- Uninstalling existing system service 'bw_stat_logger'
```

```
+ Installing package: bw_stat_logger
Starting stat_logger:                                      [ OK ]
- Uninstalling existing system service 'bw_message_logger'
+ Installing package: bw_message_logger
Starting message_logger:                                   [ OK ]
- Uninstalling existing system service 'bw_web_console'
+ Installing package: bw_web_console
Starting BigWorld web console:                             [ OK ]
```

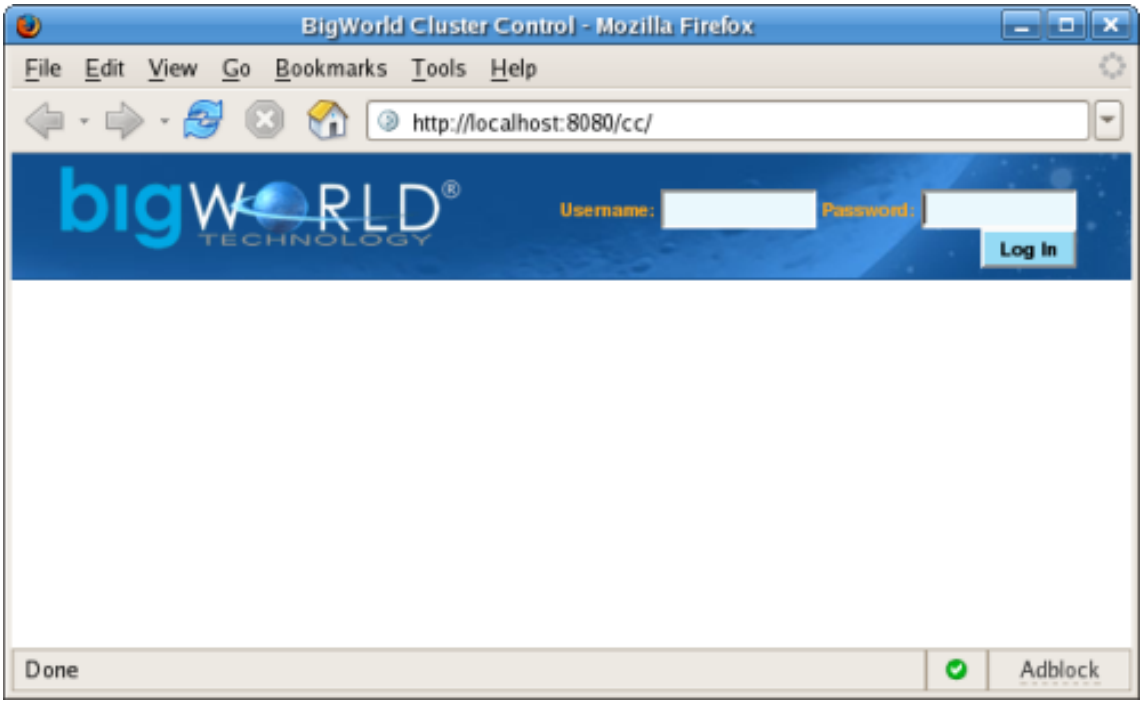
Chapter 7. Post-installation

The server tools should now be completely installed and running on your new machine. All that remains is a few final testing and configuration steps.

First, we will confirm that all services are running:

```
$ /etc/init.d/bw_stat_logger status
Status of stat_logger: running
$ /etc/init.d/bw_message_logger status
Status of message_logger: running
$ /etc/init.d/bw_web_console status
Status of web_console: running
```

Once we are sure the services are running, we can attempt to connect to the WebConsole via HTTP. The web server is started on port 8080, so connect to the WebConsole using a URL such as `http://hostname:8080/`. You should be presented with the page similar to the following:



The user accounts on the WebConsole now need to be created and the default administration login password changed. To do this, log in with username `admin`, password `admin`. Please refer to the Server Operations Guide for details.

Chapter 8. Upgrading From A Previous Release

Please be aware that as with any software upgrade, changes may occur in a manner you aren't expecting. We strongly urge a test period on a separate installation prior to migrating to the new release to ensure all functionality works for your site prior to making the new release live.

There is currently no dedicated utility to assist with upgrading from a previous release, and while a fresh installation will ensure the best success installing the server tools, the following procedure should enable a successful migration path from a previous release.

8.1. Stop Current Services

As root run:

```
# /etc/init.d/bw_web_console stop
Stopping BigWorld web_console:                             [ OK ]
# /etc/init.d/bw_message_logger stop
Stopping message_logger:                                   [ OK ]
# /etc/init.d/bw_stat_logger stop
Stopping stat_logger:                                      [ OK ]
```

8.2. Backup Old Release and Preferences

As a safety measure it is recommended to keep a copy of your current installation around in case you find you need to revert to it. It is also recommended to backup your preference files to avoid performing a re-installation with the `install_tools.py` script.

As the `bwtools` user:

```
$ mkdir $HOME/preferences_backup $HOME/preferences_backup/init.d
$ cd $HOME/mf/bigworld/tools/server
$ cp message_logger/message_logger.conf $HOME/preferences_backup
$ cp stat_logger/preferences.xml $HOME/preferences_backup
$ cp web_console/*.cfg $HOME/preferences_backup
$ cp /etc/init.d/bw_* $HOME/preferences_backup/init.d
```

As the `bwtools` user:

```
$ cd $HOME
$ mv mf old_tools_mf
```

8.3. Upgrading Packages

It is wise at this point to update any packages installed on the system to pickup any security patches that may have been applied since your first installation.

As root:

```
# yum update
```

After performing this update it is a good idea to reboot your computer to pick up any system changes.

8.4. Installing the New Version

To install the new version of the server tools, follow the procedure outlined in *Server Tools Installation* on page 17 . It may also be worthwhile skimming through the earlier chapters to ensure your system is as up to date as possible.

8.5. Setup Preferences

Now that the server tools should be installed, copy the old preference files into place.

As the `bwtools` user:

```
$ cd $HOME/mf/bigworld/tools/server
$ cp $HOME/preferences_backup/message_logger.conf message_logger/
$ cp $HOME/preferences_backup/preferences.xml stat_logger/
$ cp $HOME/preferences_backup/*.cfg web_console/
```

It is also recommended to upgrade the `init.d` scripts.

As root:

```
# cd /home/bwtools/mf/bigworld/tools/server/install
# cp bw_functions.sh /etc/init.d/
# cp stat_logger.sh /etc/init.d/bw_stat_logger.sh
# cp message_logger.sh /etc/init.d/bw_message_logger.sh
# cp web_console.sh /etc/init.d/bw_web_console.sh
```

8.6. Re-start Services

As root:

```
# /etc/init.d/bw_stat_logger start
Starting stat_logger:                                      [ OK ]
# /etc/init.d/bw_message_logger start
Starting message_logger:                                   [ OK ]
# /etc/init.d/bw_web_console start
Starting BigWorld web_console:                             [ OK ]
```

Chapter 9. Running SpaceViewer on Windows

Space Viewer can be run under Windows, and requires the following to be installed on the host machine:

- Python 2.4 (and above). Refer to the Python project page for downloading a Windows installer.
- wxPython 2.6 (and above). Refer to the wxPython project page for downloading a package.

Space Viewer can be run through the following command:

```
python space_viewer.py
```

Located in the directory `bigworld/tools/server/space_viewer`.

Replace *`python`* above with the path to your Python interpreter executable, or alternatively, you may also be able to double-click on `space_viewer.py` to run Space Viewer.