

# GMOD in a Box

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GMOD in a Box is a [GMOD virtual server](#) equipped with a suite of preconfigured GMOD components, including a **Chado** database, **GBrowse2**, **JBrowse**, **Tripal**, and **Apollo or WebApollo**. Setting up a GMOD in a Box instance is quick and easy; it even comes with demo data to explore if you do not have your own. If you are investigating GMOD for the first time, GMOD in a Box provides an excellent way to assess GMOD components without having to do any installation; for longer-term uses, the virtual server can be kept running as long as required, and data can easily be moved when new versions of GMOD in a Box are released.

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## What's in GMOD in a Box

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**CHADO** 1.23

 2.55

**GBrowse**  


 1.10.12

 **Tripal** 1.1

**Web**  **pollo** 11/22/2013

## Where to find GMOD in a Box

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GMOD in a Box can be downloaded from the [GMOD ftp site](#) .

Filename: GMOD\_in\_a\_Box-2.05.ova.bz2 (approx. 2.1GB).

md5sum: e359f690cc373f5e78dac4c0d34849f1

You will also need to install [VirtualBox](#) if you do not already have it.

*Important note:* GMOD in a Box includes a small script that sends an email to the GMOD developers to let them know that someone is using a GMOD in a Box instance. GMOD uses this to track the popularity of virtual GMOD installations for grants and funding purposes. For more information, see [the phoning home section](#) below.

### Build information

[Scott](#) has fairly extensive notes on the configuration file edits and the commands used when building GMOD in a Box. See his [github repository](#) for more information.

## Getting Started

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GMOD in a Box is running on Ubuntu 12.04 LTS. The virtual machine is split into two partitions, root and data. All user information should be kept in the data partition to make backup and updates easy.

To run GMOD in a Box, you will need to download [VirtualBox](#) and set it up to use GMOD in a Box (full instructions coming).

When you first log in to GMOD in a Box, you will need to do so with username ubuntu and password ubuntu. If this machine is going to be publicly accessible, **change this password as soon as possible!**

Networking is set up to use **bridged networking**; the virtual machine will try to connect to your DHCP server to get an IP address. You can then use that IP address to access the machine via ssh.

### Directory Structure

When you first log in to the virtual machine, you will be in the *ubuntu* user's home directory, `/home/ubuntu`, on the root partition of the machine. We recommend that any information that you want to save be kept in the data partition. There is a link to the data partition called `dataHome`, so you can easily change directories by running `cd /home/ubuntu/dataHome` or `cd ~/dataHome`. The `dataHome` directory contains `abashrc` ([bash shell](#) configuration file) that is automatically executed when you log in, and any shell environment changes you want to make should be added to this file.

There are several other important directories that have been moved to the data partition. In all cases, the original files have been replaced by symlinks, so changes made to the files noted below are picked up as if the files were in their original locations. If you need other files moved to the data partition, please [email the GMOD developers list](#) so that we can incorporate the changes into future iterations of GMOD in a Box.

<code>/data/etc/gbrowse</code>	The config directory for GBrowse.
<code>/data/etc/postgresql</code>	The config directory for PostgreSQL
	A good place to install any other

/data/opt	software you want to use
/data/var/lib/gbrowse2	Other GBrowse files that might be modified on your instance, including user session data and flat file databases.
/data/var/lib/postgresql	Files for the PostgreSQL database
/data/var/www/.htaccess	The htaccess file for the main Drupal site
/data/var/www/jbrowse/jbrowse_conf.json	Config file for JBrowse
/data/var/www/jbrowse/data	All of the data files needed for running JBrowse
/data/var/www/sites/default	Site-specific files and directories for Drupal; modules and themes go here (though Tripal is in /var/www/sites/all)
/data/webapollo	WebApollo data
/data/var/lib/tomcat7/webapps/WebApollo/config	Config options for WebApollo
/data/usr/share/tomcat7/bin	setenv.sh for tomcat; used to increase allocated memory for tomcat

Note that changes made to files in any other locations will be lost.

## Updating from previous versions

Instances of GMOD in a Box can be updated by replacing the data partition in the new instance with the data partition from the old instance. For more information, see [the updating guide](#).

## Phoning home

When a GMOD in a Box server starts up for the first time, it sends an email to the GMOD developers with information about the instance. These data are kept private and are strictly for statistical purposes, primarily for funding and grant applications.

The script runs at the first interactive log in and prompts the user for information about how GMOD in a Box will be used. Running the script on subsequent logins is suppressed unless the file `~/GMODintheCloud/gitc_lock` is removed.

## Installed GMOD software

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### PostgreSQL

Database name: `drupal`

Username: `drupal`

See the [Postgres](#) database connection parameters in `/var/www/sites/default/settings.php` for more information.

There is also a Postgres user named **ubuntu** with superuser privileges. The `Postgressearch_path` for this user is set to look in the Chado schema before the public schema; this account should be used for tools that interact with Chado (e.g. GBrowse, Tripal, and any command line tools from GMOD).

### Drupal

Version: 6.28

Source: [Drupal website](#)

Installation dir: /var/www

Web URL: http://your-ip-address/

When navigating with a web browser to the Apache document root (i.e., <http://127.0.0.1/> or the IP address of your server), you will get the Drupal home page.

New modules can be added at /data/var/www/sites/default/modules and new themes can be added at /data/var/www/sites/default/themes.

## Tripal

Version: 1.1

Source: [Tripal svn](#)

Installation dir: /var/www/sites/all/modules/tripal

## Chado

Version: 1.23

Tripal was used to install the Chado 1.23 database schema and load ontologies and a GFF file containing yeast genome annotations from SGD (source:[http://downloads.yeastgenome.org/curation/chromosomal\\_feature/saccharomyces\\_cerevisiae.gff](http://downloads.yeastgenome.org/curation/chromosomal_feature/saccharomyces_cerevisiae.gff) ), as well as a sample GFF contig file output from [MAKER](#) for the *Pythium ultimum* (source:[http://icebox.lbl.gov/webapollo/data/pyu\\_data.tgz](http://icebox.lbl.gov/webapollo/data/pyu_data.tgz) ).

The Chado software package is in the home directory, ~/sources/chado, and was used to install many utility scripts via the standard installation method for Perl modules (perl Makefile.PL; make; sudo make install). This checkout can be updated with "svn update" like the Tripal svn checkout.

## GBrowse2

Version: 2.55

The configuration file for the Chado database is /data/etc/gbrowse2; config files for the demo data: yeast: 07.chado.conf; *P. ultimum*: pythium.conf.

GBrowse is configured to use [fcgid](#) , a web server add-on that helps speed up GBrowse. To use it, your GBrowse URLs should look like this:

```
http://your-ip-address/fgb2/gbrowse/yeast
```

If there are problems with fcgid, you can still use the non-accelerated GBrowse at

```
http://your-ip-address/cgi-bin/gb2/gbrowse/yeast
```

## JBrowse

Version: 1.10.12

Source: [JBrowse website](#)

Installation dir: /var/www/jbrowse

Web URL: http://your-ip-address/jbrowse

Configuration file (defines database connection parameters, tracks): ~/jbrowse.conf.

The Pythium dataset was created in a way similar to the [JBrowse tutorial](#) and using the configuration file ~/pythium-1.conf.

JBrowse was configured to have multiple datasets using the jbrowse\_conf.json file as described in the [JBrowse configuration guide](#). This file is at/data/var/www/jbrowse/jbrowse\_conf.json.

## WebApollo

Version: 11/22/2013

WebApollo was installed per the directions on the [WebApollo](#) page. In addition to the admin user, a second user with limited permissions was created with username: "guest", password: "guest".

Check out the [WebApollo setup instructions](#) specific to the VM for help in setting up your data.