

# Firebird on Linux



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**Date:** 2010-09-28

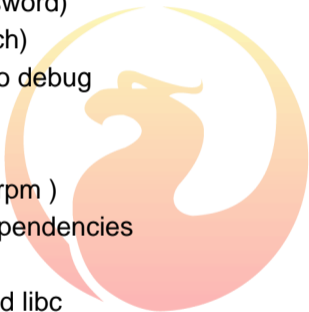
# How to install

- Project packages
  - rpm
  - tar.gz
- Distributions packages
- Build from sources



## Project packages - rpm

- pro
  - easy ?
  - secure (sysdba password)
  - project build (no patch)
  - project build easier to debug
- con
  - too generic
  - not support update (rpm )
  - not always check dependencies
  - all in /opt
  - pre 2.5 builds with old libc
  - old and not full icu



## Project packages - tar.gz

- pro
  - easy (extract, install)
  - secure (sysdba password)
  - project build (no patch)
  - project build easier to debug
- con
  - not support update
  - not check dependencies
  - pre 2.5 builds with old libc
  - old and not full icu



## Project packages - check list

- classic server
  - xinetd:

```
yum install xinetd
```

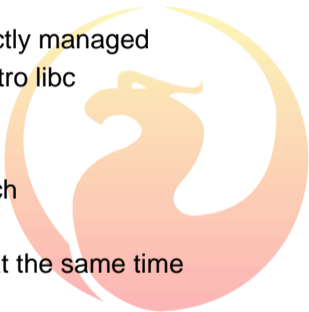
- all
  - libc for pre 2.5 (libstdc++.so.5):

```
urpmi libstdc++5  
yum install compat-glibc
```

- problem ? support list

## Distribution packages

- pro
  - easy
  - good integration
  - dependencies correctly managed
  - build with default distro libc
  - full icu
- con
  - can have wrong patch
  - available later
  - usually one version at the same time
  - full icu



## Build from sources

- pro
  - choice
- con
  - time
- what you need to build
  - g++, awk, sed, autoconf
  - lib headers

example under debian:

```
apt-get install g++ autoconf automake libtool sed libncurses5-dev make
```

## Build from sources - options

Building from source give you options :

- with or without OS editline
- with or without OS ICU
- service name, port
- files location options

Example:

```
./autogen.sh --prefix=/opt/firebird --enable-superserver --with-system-editline --with-system-icu
```

**Fine tuning of the installation directories:**

```
--with-fbbin executables DIR (PREFIX/bin)
--with-fbsbin system admin executables DIR (PREFIX/bin)
--with-fbconf config files DIR (PREFIX)
--with-fbllib object code libraries DIR (PREFIX/lib)
--with-fbinclude C/C++ header files DIR (PREFIX/include)
--with-fbdoc documentation root DIR (PREFIX/doc)
--with-fbudf UDF DIR (PREFIX/UDF)
--with-fbsample examples DIR (PREFIX/examples)
--with-fbsample-db examples database DIR (PREFIX/examples/empbuild)
--with-fbhelp QLI help DIR (PREFIX/help)
--with-fbintl international DIR (PREFIX/intl)
--with-fbmisc misc DIR (PREFIX/misc)
--with-fbsecure-db security database DIR (PREFIX)
--with-fbmsg message files DIR (PREFIX)
--with-fblog log files DIR (PREFIX)
--with-fbglock guardian lock DIR (PREFIX)
--with-fbplugins plugins DIR (PREFIX)
```

### After installation

Some points you have may have to check :

- xinetd
- max open files
- file system



## Classic and xinetd

Below is a sample `/etc/xinetd.conf` file:

```
defaults
{
    instances                = 500
    log_type                 = SYSLOG authpriv
    log_on_success           = HOST PID
    log_on_failure           = HOST
    cps                      = 5000 1000
    per_source               = 200
}
includedir /etc/xinetd.d
```

*instances* — Sets the maximum number of requests xinetd can handle at once

*cps* — Configures xinetd to allow no more than 5000 connections per second to any given service. If this limit is reached, the service is retired for 1000 seconds.

*per\_source* — Defines the maximum number of instances for a service per source IP address.

## Check max open files

You have to check :

- file-max
- ulimit

On Linux systems, there is a limit set in the kernel on how many open file descriptors are allowed on the system

To check this value:

```
# sysctl fs.file-max  
fs.file-max = 203786
```

usually this number is high enough, but if you need to change it:

```
# sysctl -w fs.file-max=360000  
fs.file-max = 360000
```

Above commands let the system remember new settings until the next system restart. If you want to make the change permanent you have to edit file: `/etc/sysctl.conf`:

```
fs.file-max=360000
```

It will be automatically loaded next time you start the server. Command:

```
# sysctl -p
```

Causes the `/etc/sysctl.conf` to be reloaded which is useful when you added more parameters to the file and don't want to restart the server.

There are also 2 types of system limits: soft limit which can be temporarily exceeded by the user and hard limit which can not be exceeded. To see your hard limit execute command:

```
# ulimit -Hn
```

but to see the limit for the firebird user, you have to be logged in as firebird user.  
To set up firebird limits, edit `/etc/security/limits.conf`:

```
firebird soft nofile 4096  
firebird hard nofile 10240
```

For those changes to make an effect you have to logout from the modified account and login again. New limits should be applied.



# File system

No obvious rules there

- kernel dependant
- choose the file system you trust

What can have performance influence :

- mount option
  - sync / async : How the input and output to the filesystem should be done. sync means it's done synchronously (more secure)
  - atime / noatime : atime (update on access), noatime (do not update) last accessed time.

you can check this in */etc/fstab*

- scheduler : often deadline scheduler perform better than cfq

you can check the scheduler used with:

```
# cat /sys/block/sda/queue/scheduler  
noop deadline [cfq]
```

About the scheduler, pass the option to your boot loader, */etc/grub.conf*:

```
title Red Hat Enterprise Linux Server (2.6.18-8.el5)
  root (hd0,0)
  kernel /vmlinuz-2.6.18-8.el5 ro root=/dev/sda2 elevator=deadline
  initrd /initrd-2.6.18-8.el5.img
```

or change it for the hard disk you want:

```
# echo deadline > /sys/block/sda/queue/scheduler
or
$ echo deadline | sudo tee /sys/block/sda/queue/scheduler
```

If you want a permanent change, use `sysfsutils`:

```
# apt-get install sysfsutils
# grep scheduler /etc/sysfs.conf
block/sdc/queue/scheduler = cfq
# /etc/init.d/sysfsutils restart
```

Make your own tests, read

Article about Firebird and Linux File Systems :

[http://www.ibphoenix.com/main.nfs?a=ibphoenix&page=ibp\\_file\\_linux\\_firebird](http://www.ibphoenix.com/main.nfs?a=ibphoenix&page=ibp_file_linux_firebird)



**Thank you !**

