Thinking Debian: The difference between stable, testing and unstable branches

In general the term stable means the same thing as mostly free of bugs and "can run without significant errors until the end of hardware". In Debian terms the previous statement is seen also as a true one. Problems however may emerge when we encounter the terms testing and unstable.This brief article will highlight the meanings of testing and ustable in Debian. The following is based upon personal experiences so opinions from matter may differ.

The movement of the software as a key

In order to understand what is meant by stable in full Debian terms consider the following example: Software is always on the move; it always develops and due to its natural evolution it gets different sometimes slowly sometimes rapidly. Now consider this: Are you satisfied knowing that your system will have the next major upgrade between the coming following years or do you want the the latest software as soon as possible?

If you want a system that is not old but tends to get bit outdated on the long run you will go for Debian Stable and enjoy the great stability it has to offer. Back in my early Debian days I was really enjoying Debian Stable and now things have gotten even better for the user since they have a repository called backports officially supported since the release of Debian 6.0 *codename Squeezy*. What is backports then? It is a repository which contains some commonly used software which is more up to date than its counterpart found in the default Debian main repository. Backports are compiled and build in a way thay they do not risk the system integrity and functionality. There is however one word of warning related to backports: do not overdo their usage. If you need a program x then just get a program x and not x,y and z. Generally it has proven to be the case, in my experiments, that too many backports might actually cause problems when doing system upgrades since they might be so recent that the upgrade program (apt-get or aptitude) does not know how to handle them.

But let us return to the case of the movement of the software.

If you have decided to have the greatest and the latest software you will naturally go for Testing or Unstable. The difference between the Testing and the Unstable, in general terms, is that packages do migrate from Unstable to Testing when they have been a certain number of days without any critical bugs which would prevent the migration process from happening.

Generally speaking in Debian Testing you might get more recent packages than in Stable without dangering your system too much but there is also the problem of migration. In some cases it might happen that the packages which are needed by program x have not yet been fully migrated to Testing and this might cause some "impossible demands" for apt-get or aptitude and so result in an installation failure or a partially broken system. The other nagativity of Debian Testing is that sometimes it might take really long for package x to arrive from unstable. On the good note it should be mentioned that testing does have a security support these days and you do not have to worry about security in a similar fashion like I did in 2007 literally checking everything manually before installing which got counter-productive at some point.

But what about Debian Unstable then? In that branch software is always moving as maintainers upload recent versions regularly. It is really hard to keep track of the package numbers in Debian Unstable since they might change a lot during even a one day. In order to keep track of what is happening you need to have at least

two programs installed: apt-listbugs and apt-listchanges so you can monitor the packages while you are upgrading them inside your system. Apt-listbugs and apt-listchanges are useful because they warn you if a package you are trying to install has some potential problems which might render your system unusable. It is also adviced that you do not install Debian Unstabe to production machine since you might encounter many problems with it in a time you would be more than happy doing something else than fixing your system. The advantage of Debian Unstable is however that everything is latest: there might be more better driver support, less problematic version of program x and a welcomed upgrade of a program y. So Debian Unstable is not bad at all but it does require some learning. So if you choose to get your hands dirty with Unstable you are possibly having some long nights ahead of you but then again you will more than likely learn a lot.

How to upgrade a Debian system?

If you are thinking about upgrading your Debian Stable system remember the following: the upgrade path should be from Stable to Testing and then from Testing to Unstable that is if you desire to run Debian Unstable. I have also done a direct upgrade from Stable to Unstable but you should not try it unless you are absolutely sure your system can handle it. I generally use very minimalistic installations which means there are fewer possibilities of a broken software available.

If youn want to upgrade your Debian you need to change the /etc/apt/sources.list file entries. In terminal client do:

```
su root
nano /etc/apt/sources.list   → you can replace nano with any other text editor.
```

Sources.list examples:

```
#Debian Stable sources.list
deb http://ftp.fi.debian.org/debian stable main contrib non-free
deb-src http://ftp.fi.debian.org/debian stable main contrib non-free

deb http://ftp.debian.org/debian/ squeeze-updates main contrib non-free
deb-src http://ftp.debian.org/debian/ squeeze-updates main contrib non-free

deb http://security.debian.org/ squeeze/updates main contrib non-free
deb-src http://security.debian.org/ squeeze/updates main contrib non-free
```

TO

```
#Debian Wheezy sources.list
deb http://ftp.fi.debian.org/debian testing main contrib non-free
deb-src http://ftp.fi.debian.org/debian testing main contrib non-free

deb http://ftp.debian.org/debian/ wheezy-updates main contrib non-free
deb-src http://ftp.debian.org/debian/ wheezy-updates main contrib non-free

deb http://security.debian.org/ wheezy/updates main contrib non-free
deb-src http://security.debian.org/ wheezy/updates main contrib non-free
```

OR

```
#Debian Sid sources.list
deb http://ftp.fi.debian.org/debian unstable main contrib non-free
deb-src http://ftp.fi.debian.org/debian unstable main contrib non-free
```

Notice how there are entries of Squeeze in Stable and Wheezy in Testing sources? You can use either the branch names or the codenames of releases in sources list. Stable is now the same as Squeeze Testing is now the same as Wheezy and Unstable is always the same as Sid (Still in development).

Once you are done safe the file. Also a note about repositories: main contrib non-free. Main is Debian supported repository which contains only GPL software. Debian does not support proprietary software but it gives possibilities to add them if so chosen. Contrib repository contains software which is GPL but has some proprietary or not free software bindings. Non-free repository is not free like the name states and has software which cannot be modified or fixed by Debian manintainers. This means that if an error exists on non-free program the original software developer is the one who fixes it if so desired. There is however no guarantee that non-free software will get fixes.

To upgrade the system do as a root in terminal:
apt-get update
apt-get upgrade
apt-get dist-upgrade

OR

apt-get update
apt-get upgrade
apt-get dist-upgrade

Now the upgrading should start. Once it is done you should be in a Debian branch of your choice. Always remember to backup every important file you have in your computer. Things can fail and go badly wrong in some occasions so be prepared to it in a best way you can.

This article was written by JJ Posti the author and maintainer of techtimejourney.net The information provided shall be used with your own responsibility.