

starter

expert



INTRODUCTION

This article is about how to install the developing surface "Lazarus 1.6" into "Linux Mint 17.3".

It furthermore shows you how to set up Lazarus 1.6 and Freepascal 3.0.0, so you can create programs with Windows 32-Bit and Windows 64-Bit surfaces

Without an article in "Blaise Pascal Magazine 10/2015"

<http://www.blaisepascal.eu/>,
the help of the members of the "Free Pascal forum"
<http://forum.lazarus.freepascal.org/index.php/topic,31515.0.html>
and the German "Lazarus-Forum"
<http://www.lazarusforum.de/viewtopic.php?f=16&t=9411>I would have been able to make it. I hope the instructions are as clear as possible to you and you can get it all done and installed.

Perhaps, somebody will provide a guide on how to program "Android Apps", "iOS programs" and more based on this one.

INSTALLING LAZARUS

I assume **Linux Mint 17.3** is already installed. Therefore the next thing to do is install **Lazarus**. For this you will be using the following script from the **Blaise Pascal Magazine issue 10/2015**. The script has already been converted to Lazarus 1.6 (*without RC - Release Candidate*).

Mark the script and insert it into a text file. Rename the file to **getlaz.sh**. Execute the script in a terminal window with the command: **sudo sh getlaz.sh**

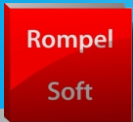
THE SCRIPT FOR LAZARUS:

```
#!/bin/bash
#
# run in your HOME-directory with: sudo sh getlaz.sh (HR)
# (C)by: Michael Van Canneyt (michael@freepascal.org)
#
# Release from: 2016-01-30 additional comments from:
# Heiko Rompel (HR)
#####
# Some variables. Set this to whatever you want
#####
# Where to download/install everything? (below home directory)
INSTALLDIR=fpc-install
# Which FPC version to use ?
VERSION=3.0.0
CPUARCH=`uname -p`
```

```
# INSTALL FPC/LAZARUS AS ROOT ? (YES OR NO)
USERROOT=YES
# Which lazarus version ? Set either tag or branch variable.
# If neither is set, trunk is used. When lazarus 1.6 is out, this
# becomes lazarus_1_6
# A newer RC is out (HR)
TAG=lazarus_1_6/
BRANCH=
#####
# No variables after this point.
#####
# Install preliminaries. This must be done as root.
sudo apt-get install subversion make
binutils gdb gcc libgtk2.0-dev
# Check if the rest must be done as root.
if [ "$USERROOT" = YES ]; then
    SUDO=sudo
fi
#####
# Get and install FPC.
#####
# Create installation directory
mkdir ~/INSTALLDIR
cd ~/INSTALLDIR
# Fetch the necessary files for FPC.
wget
ftp://ftpmaster.freepascal.org/pub/fpc/dist/$VERSION/source/fpc-VERSION.source.tar.gz
wget ftp://ftpmaster.freepascal.org/pub/fpc/dist/$VERSION/$CPUARCH-linux/fpc-$VERSION.$CPUARCH-linux.tar
# extract installer.
tar xvf fpc-3.0.0.$CPUARCH-linux.tar
cd fpc-3.0.0.$CPUARCH-linux
# Install FPC (possibly as root)
$SUDO sh ./install.sh
# Extract sources.
cd ~
tar xvzf $INSTALLDIR/fpc-$VERSION.source.tar.gz
cd ~/INSTALLDIR
#####
# Get and install Lazarus
#####
# Determine SVN url
BASEURL=http://svn.freepascal.org/svn/lazarus/

if [ ! -z "$TAG" ]; then
    SVNURL=$BASEURL/tags/$TAG
else
    if [ ! -z "$BRANCH" ]; then
        SVNURL=$BASEURL/branches/$BRANCH
    else
        SVNURL=$BASEURL/trunk
    fi
fi
# Check out sources
svn co $SVNURL lazarus
# Build the IDE
cd lazarus
make bigide
# Install lazarus (possibly as root)
$SUDO make install
```





AFTER THE SCRIPT

Although it is unusual for Linux, at this point you should log out and then log in again. *(The program group "development" wasn't created in the main menu otherwise for me).*

SETTING UP CROSS COMPILING FOR "WINDOWS 32-BIT".

So now you already have a running Lazarus which you can create Linux programs with. But of course you want more.

Now the information from the "Lazarus-Wiki" http://wiki.lazarus.freepascal.org/Cross_compiling_for_Win32_under_Linux becomes handy.

Enter the following lines one by one into a terminal window which should be started in this directory:

```
/home/laz-user/fpc-3.0.0
```

(replace Laz-user with your user name).

```
$ sudo make all OS_TARGET=win32 CPU_TARGET=i386
```

and then

```
$ su -c "make crossinstall OS_TARGET=win32 CPU_TARGET=i386"
```

Even if you are already finished according to the Wiki, there are still a few instructions left.

You have to insert into the config file `/etc/fpc.cfg` the line:
`-Fu/usr/local/lib/fpc/$fpcversion/units/$fpctarget/*`

The file is *(at least for me)* write-protected and can only be opened in a terminal window that was opened with "Open as administrator".

Now comes a symbolic link:

```
$ sudo ln -s /usr/local/lib/fpc/3.0.0/ppcross386 /usr/bin/
```

You don't need to type in the "\$" - sign. It is a cursor...

SETTING UP LAZARUS FOR WINDOWS 32-BIT

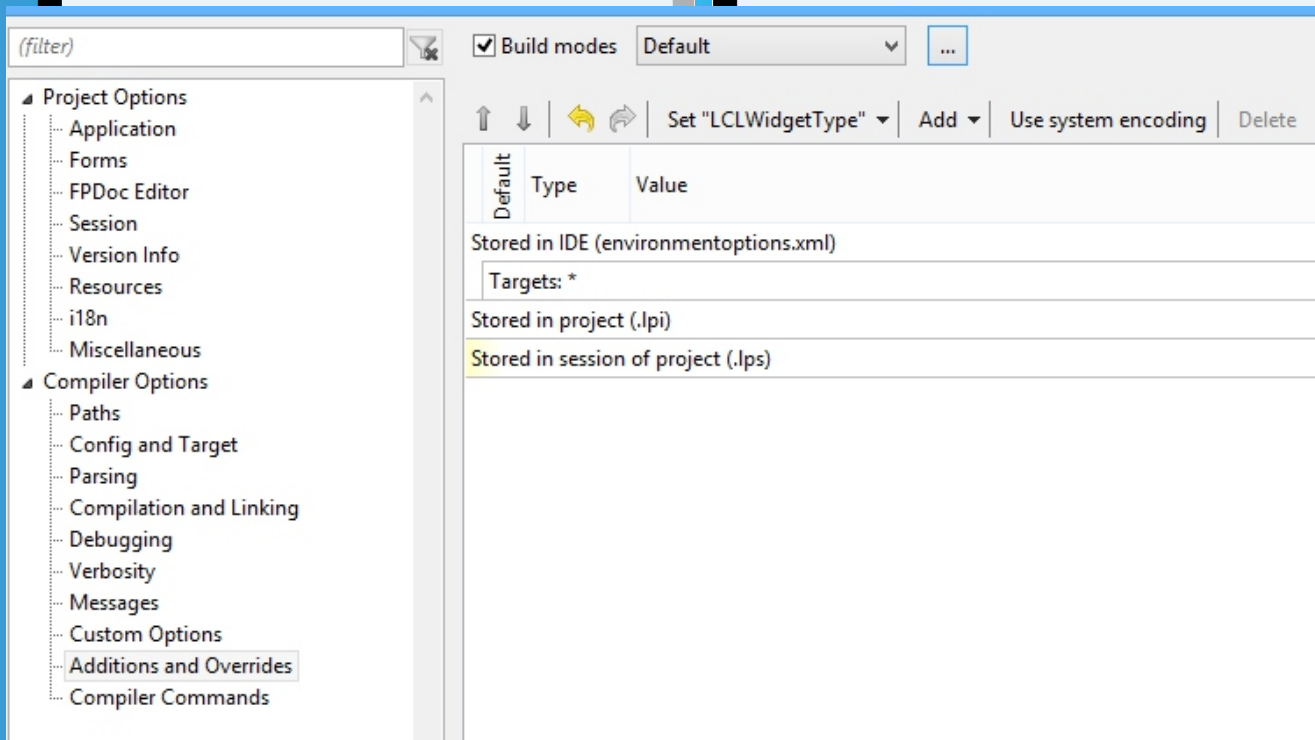
Now back to setting up Lazarus.

(You will partially set up the 64-bit version along the way.)

The following settings are made under "Project / Project Settings".

1. ADDITIONS AND OVERRIDES

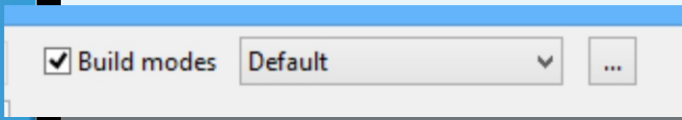
If you select this point for the first time it will look something like below:



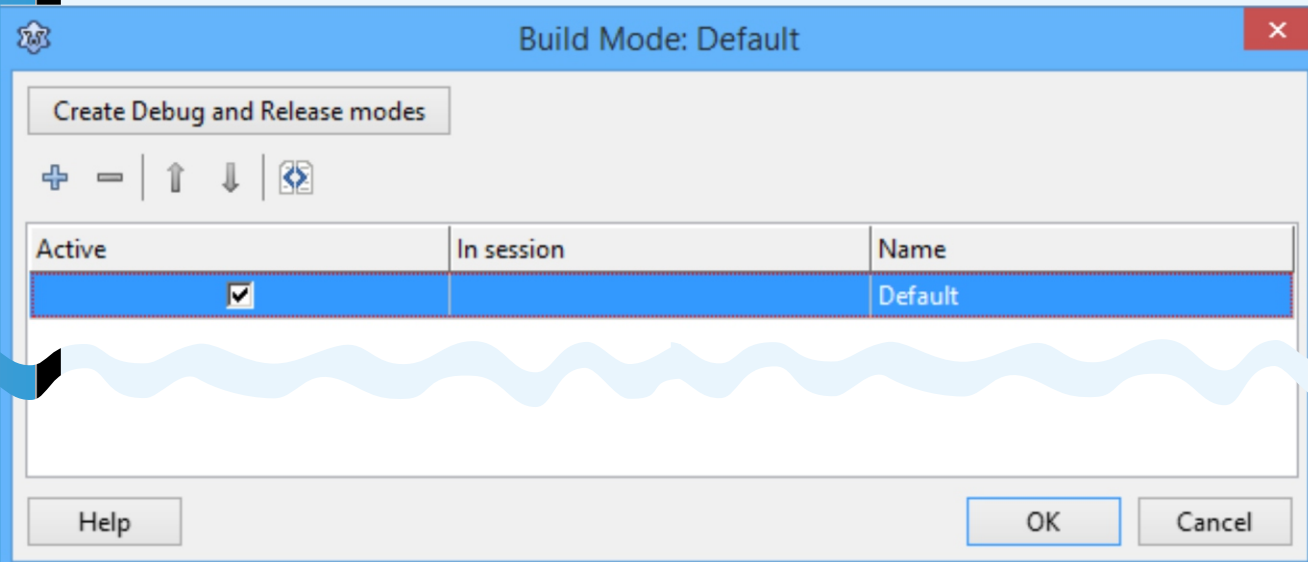


THE BUILD MODE

First you create the „Buildmodes“.



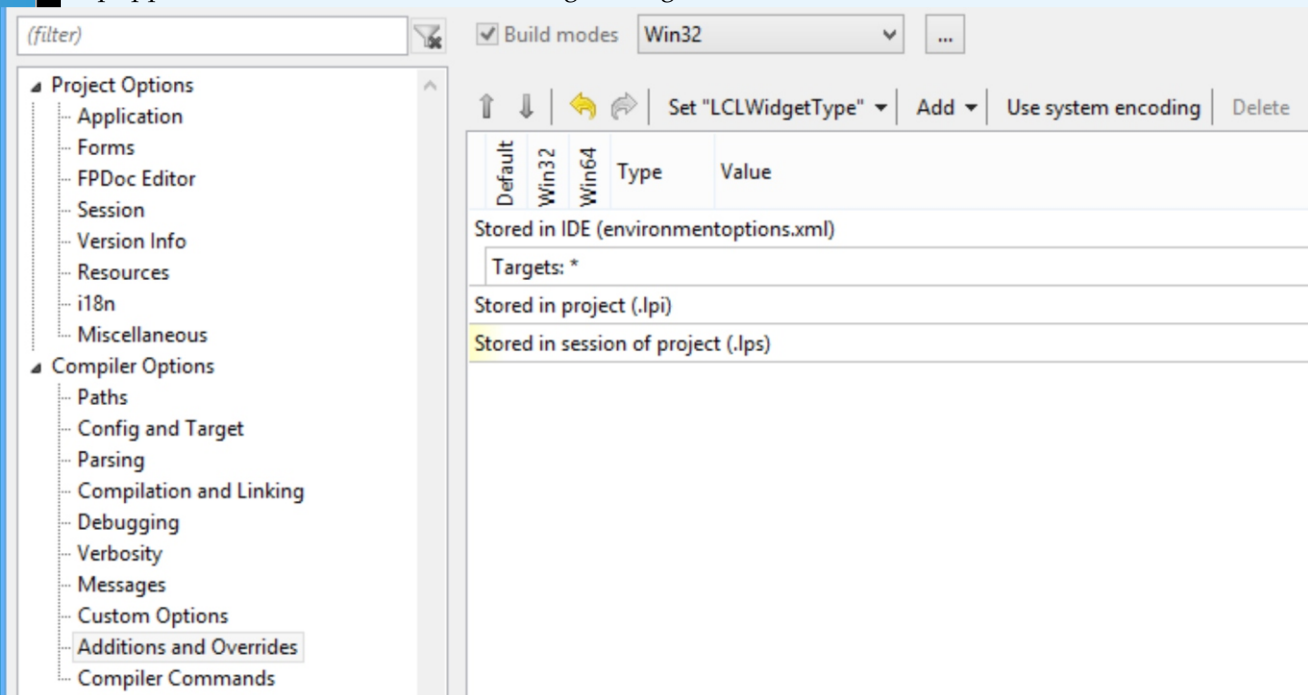
Please click on the ellipsis (*three dots*). This dialog appears:



Now click on the „+“-sign.

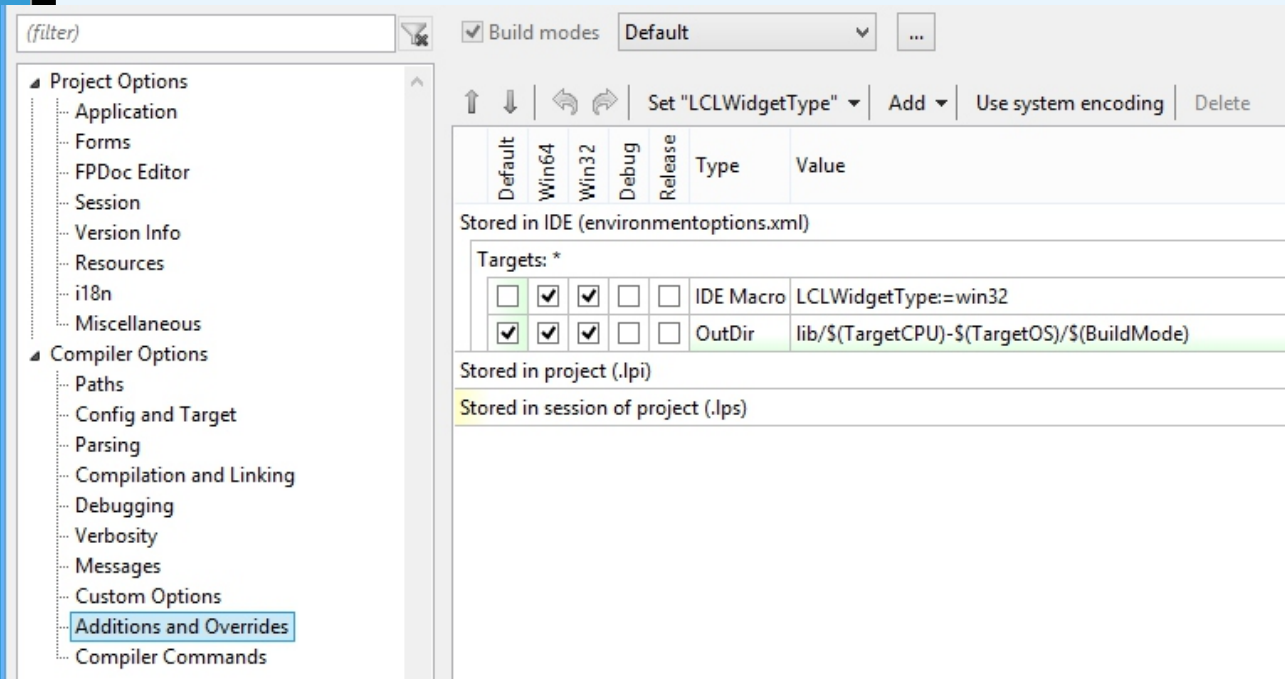
A new line appears. Type in "Win32" into the "Name" column. Create a new line and rename it "Win64". Now you have three "Build Modes" to choose from.

Default: Here the values are the same as right after the installation and in this case they are for the creation of Linux programs. Win32 and Win64 are self-explanatory and are subsequently equipped with more values. Your settings dialog now looks like this:

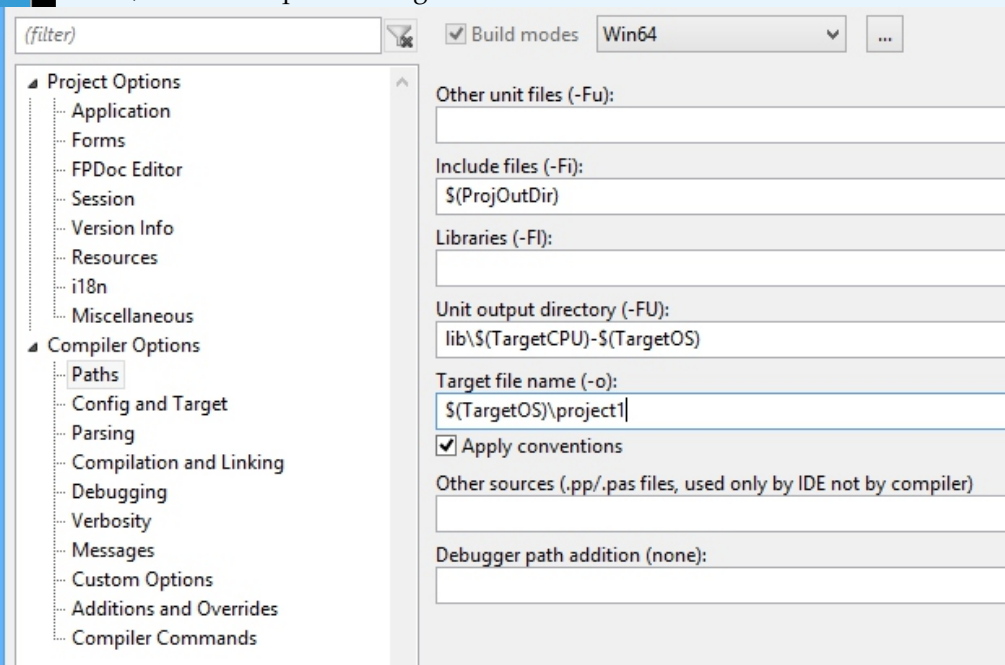




Now you need to select the "Build mode" "Win32".
You should store the other settings in the IDE. For this click on the line "Stored in the IDE ...".
Select the value "Win32" from "Add ..." the "LCL Widget Type".
When you have selected the value put a check mark in the line at both "Win32" and "Win64".
It means that this value applies for both "Build Modes".
For having some more clarity in the directory afterwards, choose "replace Output Folder" from the "Add" list and fill in the "Value" row with: `$(TargetOS) / lib / $(Build mode)`
By doing this a subdirectory for each target operating system is created.
Your dialog should look like this:



Next, turn to the path settings.



2. PATHS

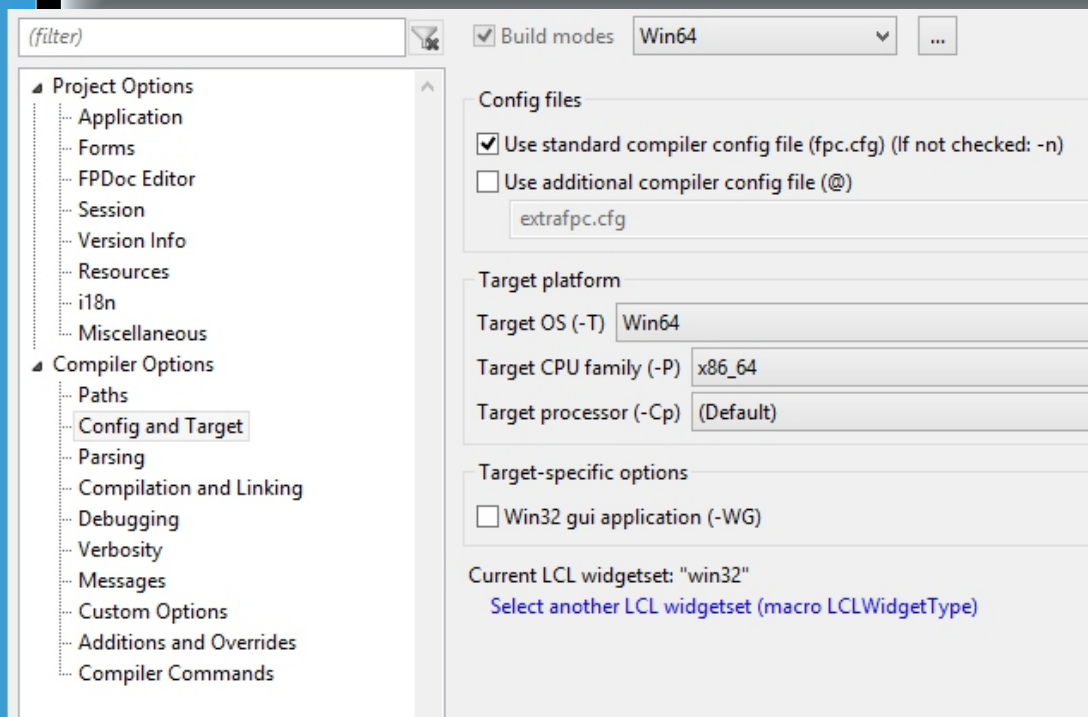
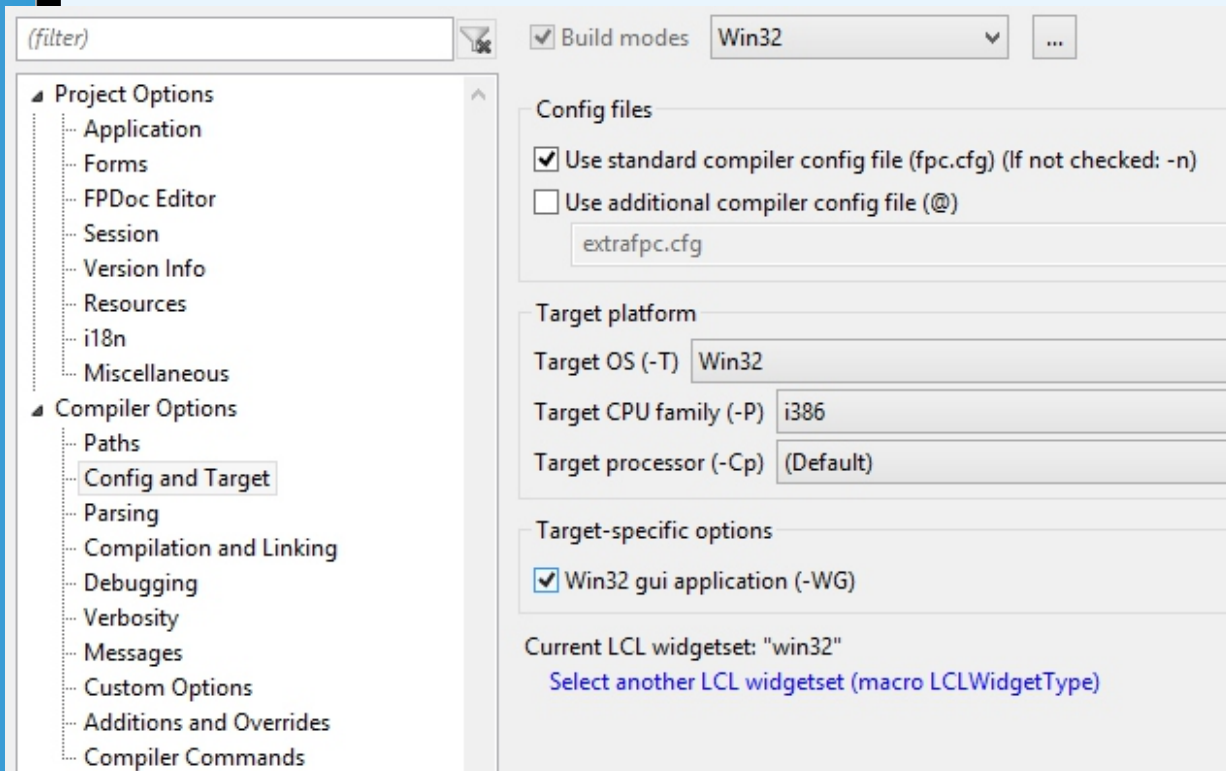
Above you one by one choose all "Build Modes" and enter the following into the line
"Target File Name (-o)": `$(TargetOS) /project1`
This will also sort the created executable files in the project directory into respective subdirectories.



3. CONFIG AND TARGET

These settings are required if you are developing for a 64-bit system on a 32-bit system or the other way around.

FOR WIN32 APPLICATIONS



FOR WIN64 APPLICATIONS

If you've done everything correctly you can now create programs for 32-bit Windows systems. Of course, the Windows programs you created under Linux won't run on the Linux machine after creating. To make Windows programs run directly under Linux, you need either WINE or a real Windows in a virtual machine. So now we will talk about the **Win64 configuration**.



Setting up crosscompiling for Windows 64-Bit

Now the additional information from the "Lazarus-Wiki"

http://wiki.lazarus.freepascal.org/Cross_compiling_for_Win32_under_Linux
is very helpful. Enter the following lines into a terminal window that is started in this directory:

```
/home/laz-user/fpc-3.0.0 (replace Laz-user with your user name).
```

```
$ sudo make all OS_TARGET=win64 CPU_TARGET=x86_64 and then
```

```
$ su -c "make crossinstall OS_TARGET=win64 CPU_TARGET=x86_64"
```

Now comes a symbolic link:

```
$ sudo ln -s /usr/local/lib/fpc/3.0.0/ppcrossx64 /usr/local/bin
```

You don't need to type in the "\$" - sign because it has the function of the cursor.

Embed WINE into Lazarus

To make Windows programs start by pressing F9, you have to embed WINE into Lazarus.

First you have to install „WINE“ using the Linux application manager.

As soon as you're finished you have to instruct Lazarus to transfer Win32 / 64 programs to "WINE".

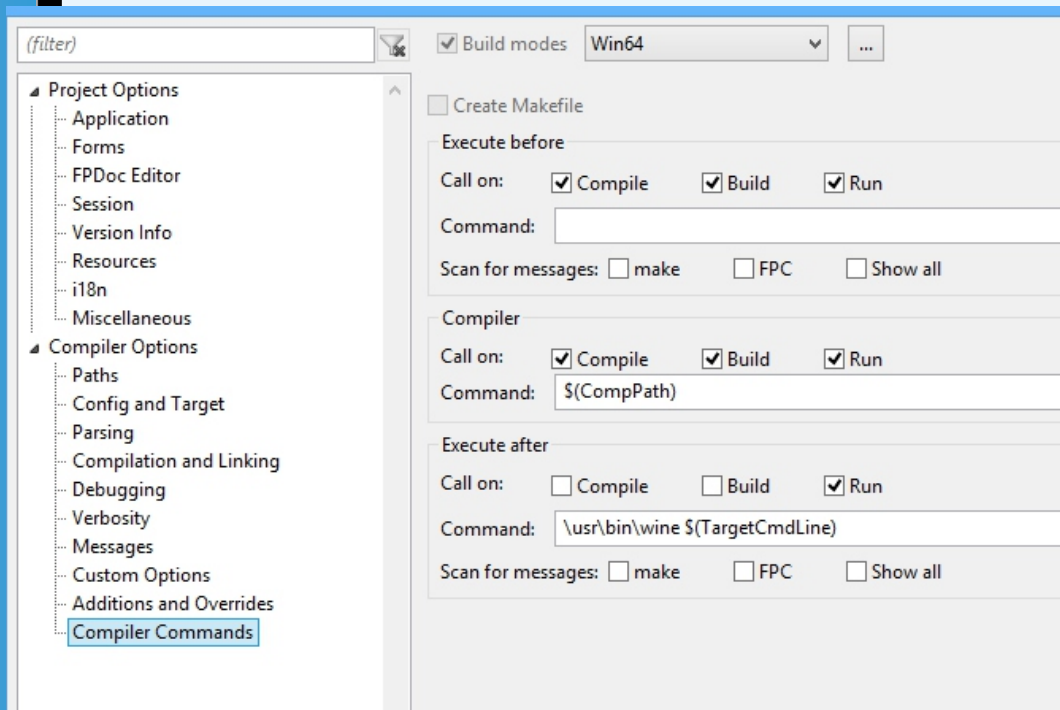
This is done under "**Project / Project settings / Compiler Commands**".

Here you can make settings for each defined creation mode just like before.

For "Win32" and "Win64" you have to type in the following into "command" at "Execute After":

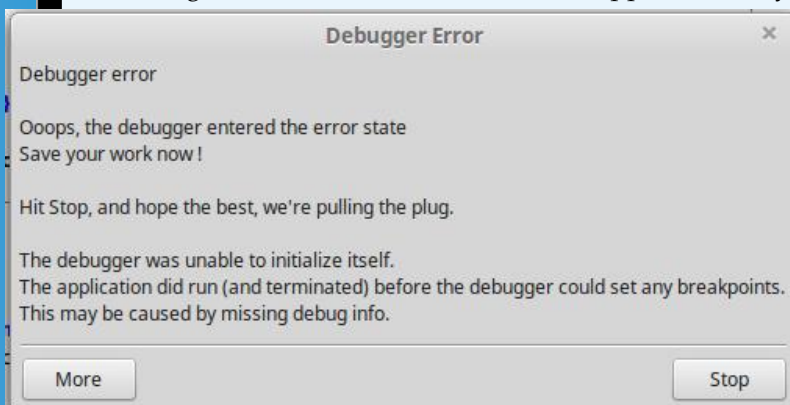
```
/usr/bin/wine $(TargetCmdLine)
```

The checkboxes for "[] Compile" and "[] New compile" need to be unchecked.



If you transfer the command line by "Copy and Paste" make sure that there is no space in front of the line - otherwise it won't work. When you start a Windows application using F9 for the first time, WINE will tell you that it needs "Mono" and twice "Gecko" and will also offer to install them. Now Win32 applications and Win64 applications should be automatically executed in WINE.

One thing that bothers is the window that appears when you close your Win32 / 64 application:



Just click on the "Stop" button and to your surprise Lazarus continues normally. Maybe someone has a solution to this little problem and informs me.

Have Fun! Heiko

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