

Choose one of below methods to install driver for TDM1600

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Method 1: Patch TDM1600 Driver for Asterisk

Before You Proceed:

1. Make sure you have already installed TDM1600 card and plugged in power cable.
2. Make sure you have already installed the kernel source code and gcc compiler.
3. Take version zaptel-1.4.11 for example.
4. The ystdm16xx-zaptel-1.4.11.patch include TDM1600 and TDM1600 drivers.

Begin to Install:

1. Choose a path to save the installation file, such as /usr/src
[root@localhost ~]# **cd /usr/src**
2. Download zaptel you want to use from asterisk website, such as zaptel-1.4.11
[root@localhost src]# **wget http://downloads.digium.com/pub/zaptel/releases/zaptel-1.4.11.tar.gz**
3. Download the driver patch for corresponding zaptel version. Here we take zaptel-1.4.11 for example, and download the corresponding patch.
[root@localhost src]# **wget http://www.yeostar.com/download/ystdm16xx-zaptel-1.4.11.patch.tar.gz**

4. Decompress the downloaded files

```
[root@localhost src]# tar xzvf zaptel-1.4.11.tar.gz
```

```
[root@localhost src]# tar xzvf ystdm16xx-zaptel-1.4.11.tar.gz
```

5. Install patch

```
[root@localhost src]# patch -p0 < ystdm16xx-zaptel-1.4.11.patch
```

You should see the following lines after entering the above command

```
patching file zaptel-1.4.11/Makefile
```

```
patching file zaptel-1.4.11/ystdm8xx.c
```

```
patching file zaptel-1.4.11/ystdm16xx.c
```

```
patching file zaptel-1.4.11/zaptel.sysconfig
```

Note: If it appears the lines be shown following rather than the above three

```
patching file zaptel-1.4.11/Makefile
```

```
Reversed (or previously applied) patch detected! Assume -R? [n]
```

It indicates that you had patched something before. Please delete the zaptel file and decompress and install patch again. Steps as show below:

```
[root@localhost src]# rm zaptel-1.4.11 -rf
```

```
[root@localhost src]# tar xzvf zaptel-1.4.11.tar.gz
```

```
[root@localhost src]# patch -p0 < ystdm16xx-zaptel-1.4.11.patch
```

6. Compile and Install

```
[root@localhost src]# cd zaptel-1.4.11
```

```
[root@localhost zaptel-1.4.11]# make clean
```

```
[root@localhost zaptel-1.4.11]# make
```

Note: Versions of zaptel 1.4 serial will come out the command as Figure 1.1 after entering 'make'

```
configure: *** Zaptel build successfully configured ***
****
**** The configure script was just executed, so 'make' needs to be
**** restarted.
****
make: *** [config.status] Error 1
[root@asterisk1 zaptel-1.4.6]#
```

<Figure 1.1>

You can **ignore** the error because it's just an error output of zaptel and has no influence to operation. Please continue to the next step:

```
[root@localhost zaptel-1.4.11]# make install
```

```
[root@localhost zaptel-1.4.11]# make config
```

7. Reboot to finish the installation of the card's driver

```
[root@localhost zaptel-1.4.11]# reboot
```

8. Read card information

Get into /xpp/utils under your zaptel path, and executive command genzaptelconf. If you save zaptel under /usr/src/, please follow the below commands:

```
[root@localhost ~]# cd /usr/src/zaptel-1.4.11/xpp/utils
```

```
[root@localhost utils]# ./genzaptelconf
```

9. Check the configuration of TDM1600 card

```
[root@localhost utils]# vi /etc/zaptel.conf
```

```
## Autogenerated by /usr/local/sbin/genzaptelconf -- do not hand edit
# Zaptel Configuration File
#
# This file is parsed by the Zaptel Configurator, ztcfg
#
# It must be in the module loading order
#
# Span 1: WCTDM/O "YSTDM8xx REV E Board 1"
fxsks=1
fxsks=2
fxoks=3
fxoks=4
fxsks=5
fxsks=6
fxoks=7
fxoks=8
# Global data
loadzone      = us
defaultzone   = us
```

<Figure 1.2>

10. Modify configuration of card

On /etc/zaptel.conf file, change the loadzone and defaultzone to the country where you are. You can find the abbreviation on zonedata.c of folder zaptel. If your country is unavailable, please use the default 'us'.

```
[root@localhost utils]# vi /usr/src/zaptel-1.4.11/zonedata.c
```

```

root@asterisk1:/usr/src/zaptel-1.4.6
{ ZT_TONE_DIALRECALL, "!425/100,!0/100,!425/100,!0/100,!425/10
0,!0/100,425/330,0/330,425/660,0/660" },
/* RECORDTONE - not specified */
{ ZT_TONE_RECORDTONE, "1400/500,0/14000" },
{ ZT_TONE_INFO, "950/330,0/30,1400/330,0/30,1800/330,0/1000" }
},
/* STUTTER - not specified */
{ ZT_TONE_STUTTER, "425/450,0/50" },
},
},
{ 33, "cn", "China", { 1000, 4000 },
{
/* Reference: http://www.itu.int/ITU-T/inr/forms/files/tones-0
203.pdf */
{ ZT_TONE_DIALTONE, "450" },
{ ZT_TONE_BUSY, "450/350,0/350" },
{ ZT_TONE_RINGTONE, "450/1000,0/4000" },
{ ZT_TONE_CONGESTION, "450/700,0/700" },
{ ZT_TONE_CALLWAIT, "450/400,0/4000" },
{ ZT_TONE_DIALRECALL, "450" },
{ ZT_TONE_RECORDTONE, "950/400,0/10000" },
{ ZT_TONE_INFO, "450/100,0/100,450/100,0/100,450/100,0/100,450
/400,0/400" },

```

<Figure 1.3>

[root@localhost utils]# vi /etc/zaptel.conf

```

# Autogenerated by /usr/local/sbin/genzaptelconf -- do not hand edit
# Zaptel Configuration File
#
# This file is parsed by the Zaptel Configurator, ztcfg
#
# It must be in the module loading order
#
# Span 1: WCTDM/O "YSTDM8xx REV E Board 1"
fxsks=1
fxsks=2
fxoks=3
fxoks=4
fxsks=5
fxsks=6
fxoks=7
fxoks=8
# Global data
loadzone      = cn
defaultzone   = cn
~

```

<Figure 1.4>

Save and take it effect:

[root@localhost utils]# **ztcfg -v**

11. Patching is complete.

Method 2: Patch TDM1600 Driver for Trixbox

Before You Proceed:

1. Make sure you have already installed TDM1600 card and plugged in power cable.
2. Take version zaptel-1.4.11 for example. If you are using other version such as zaptel-1.4.3, please replace the zaptel-1.4.11 with zaptel-1.4.3 in all places.

Begin to Install:

1. Choose a path to save the installation file, such as /usr/src
[root@localhost ~]# **cd /usr/src**
2. Download zaptel you want to use from asterisk website, such as zaptel-1.4.11
[root@localhost src]# **wget http://downloads.digium.com/pub/zaptel/releases/zaptel-1.4.11.tar.gz**
3. Download the driver patch for corresponding zaptel version. Here we take zaptel-1.4.11 for example, and download the corresponding patch.
[root@localhost src]# **wget http://www.yeostar.com/download/ystdm16xx-zaptel-1.4.11.patch.tar.gz**
4. Decompress the downloaded files
[root@localhost src]# **tar xzvf zaptel-1.4.11.tar.gz**
[root@localhost src]# **tar xzvf ystdm16xx-zaptel-1.4.11.patch.tar.gz**
5. Install patch
[root@localhost src]# **patch -p0 < ystdm16xx-zaptel-1.4.11.patch**
You should see the following lines after entering the above command
patching file zaptel-1.4.11/Makefile
patching file zaptel-1.4.11/ystdm8xx.c
patching file zaptel-1.4.11/ystdm16xx.c
patching file zaptel-1.4.11/zaptel.sysconfig

Note 1: If it appear the lines be shown like follow:

-bash: patch: command not found

That is mainly the system doesn't have patch command, please follow below steps to install patch:

```
[root@localhost src]# yum install patch
```

Note 2: If it appears the lines be shown following rather than the above three

patching file zaptel-1.4.11/Makefile

Reversed (or previously applied) patch detected! Assume -R? [n]

It indicates that you had patched something before. Please delete the zaptel file and decompress and install patch again. Steps as show below:

```
[root@localhost src]# rm zaptel-1.4.11 -rf
```

```
[root@localhost src]# tar xzvf zaptel-1.4.11.tar.gz
```

```
[root@localhost src]# patch -p0 < ystdm16xx-zaptel-1.4.11.patch
```

6. Install kernel code and gcc complier

```
[root@localhost src]# yum install kernel-devel
```

```
[root@localhost src]# yum install gcc
```

Note: For lack of *newt.h* file in kernel-headers, please download it from Yeostar website:

```
[root@localhost src]# wget http://www.yeostar.com/download/newt.h
```

```
[root@localhost src]# mv newt.h /usr/include/
```

7. If you are using Linux kernel version 2.6.9-34.0.2.EL or 2.6.9-34.0.2.ELsmp (Tribox2.2 embedded version), you should amend an error in kernel as show below. If you are not using those versions mentioned, please skip this step.

```
[root@localhost src]# vi /usr/src/kernels/2.6.9-34.0.2.EL-i686/include/linux/spinlock.h
```

Or

```
[root@localhost src]# vi /usr/src/kernels/2.6.9-34.0.2.EL-smp-i686/include/linux/spinlock.h
```

Original:

```
#define DEFINE_RWLOCK(x) rw_lock_t x = RW_LOCK_UNLOCKED
```

Modified:

```
#define DEFINE_RWLOCK(x) rlock_t x = RW_LOCK_UNLOCKED
```

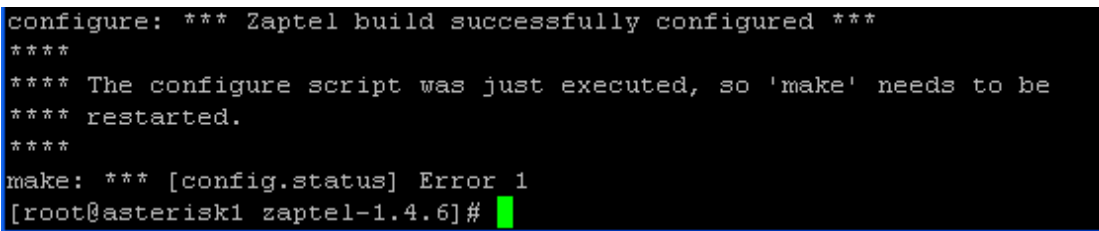
8. Compile and Install

```
[root@localhost src]# cd zaptel-1.4.11
```

```
[root@localhost zaptel-1.4.11]# make clean
```

```
[root@localhost zaptel-1.4.11]# make
```

Note: Versions of zaptel 1.4 serial will come out the command as Figure 1 after entering 'make'



```
configure: *** Zaptel build successfully configured ***
****
**** The configure script was just executed, so 'make' needs to be
**** restarted.
****
make: *** [config.status] Error 1
[root@asterisk1 zaptel-1.4.6]#
```

<Figure 2.1>

You can ignore the error because it's just an error output of zaptel and has no influence to operation. Please continue to the next step:

```
[root@localhost zaptel-1.4.11]# make install
```

```
[root@localhost zaptel-1.4.11]# make config
```

9. Reboot to finish the installation

```
[root@localhost zaptel-1.4.11]# reboot
```

10. Read card information

Enter command **genzaptelconf**

```
[root@localhost ~]# genzaptelconf
```

Note1: Please executive 'genzaptelconf' again if any error occurred.

Note2: Check asterisk have load TDM1600 card.

```
[root@localhost ~]# asterisk -r
```

```
asterisk1*CLI> restart now
```

```
[root@localhost ~]# asterisk -r
```

```
asterisk1*CLI> zap show channels
```

check the channels, if the channel number is error. Please do like below:

```
[root@localhost ~]# vi /etc/asterisk/zapata.conf
```

Modify the blue line <Figure 2.2> to the red line like <Figure 2.3>

```
:Include genzaptelconf configs
#include zapata-auto.conf

group=1

:Include AMP configs
#include zapata_additional.conf
```

<Figure 2.2>

```
:Include genzaptelconf configs
#include zapata-channels.conf

group=1

:Include AMP configs
#include zapata_additional.conf
```

<Figure 2.3>

Save file.

```
[root@localhost ~]# genzaptelconf
```

```
[root@localhost ~]# asterisk -r
```

```
asterisk1*CLI> restart now
```

11. Check the configuration of TDM1600 card

```
[root@localhost ~]# vi /etc/zaptel.conf
```

```

# Autogenerated by /usr/local/sbin/genzaptelconf -- do not hand edit
# Zaptel Configuration File
#
# This file is parsed by the Zaptel Configurator, ztcfg
#
# It must be in the module loading order

# Span 1: WCTDM/O "YSTDM8xx REV E Board 1"
fxsks=1
fxsks=2
fxoks=3
fxoks=4
fxsks=5
fxsks=6
fxoks=7
fxoks=8

# Global data

loadzone      = us
defaultzone   = us

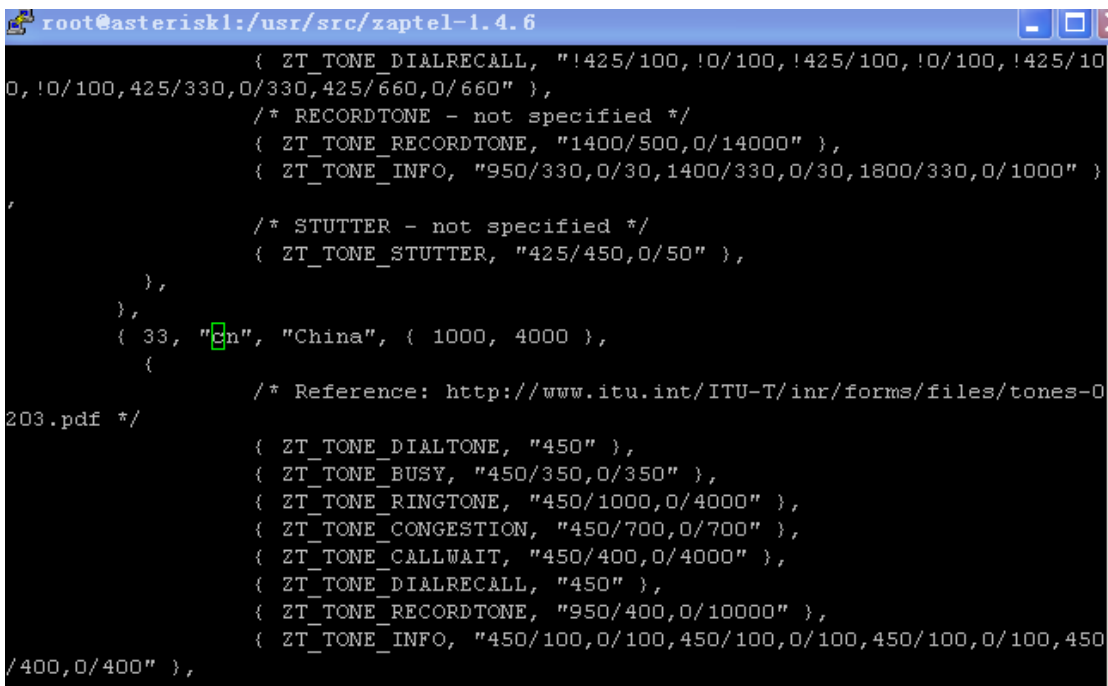
```

<Figure 2.4>

12. Modify configuration of card

On /etc/zaptel.conf file, change the loadzone and defaultzone to the country where you are. You can find the abbreviation on zonedata.c of folder zaptel. If your country is unavailable, please use the default 'us'.

[root@localhost ~]# [vi /usr/src/zaptel-1.4.11/zonedata.c](#)



```

root@asterisk1:/usr/src/zaptel-1.4.6
{ ZT_TONE_DIALRECALL, "!425/100,!0/100,!425/100,!0/100,!425/10
0,!0/100,425/330,0/330,425/660,0/660" },
/* RECORDTONE - not specified */
{ ZT_TONE_RECORDTONE, "1400/500,0/14000" },
{ ZT_TONE_INFO, "950/330,0/30,1400/330,0/30,1800/330,0/1000" }
,
/* STUTTER - not specified */
{ ZT_TONE_STUTTER, "425/450,0/50" },
},
),
{ 33, "cn", "China", ( 1000, 4000 ),
{
/* Reference: http://www.itu.int/ITU-T/inr/forms/files/tones-0
203.pdf */
{ ZT_TONE_DIALTONE, "450" },
{ ZT_TONE_BUSY, "450/350,0/350" },
{ ZT_TONE_RINGTONE, "450/1000,0/4000" },
{ ZT_TONE_CONGESTION, "450/700,0/700" },
{ ZT_TONE_CALLWAIT, "450/400,0/4000" },
{ ZT_TONE_DIALRECALL, "450" },
{ ZT_TONE_RECORDTONE, "950/400,0/10000" },
{ ZT_TONE_INFO, "450/100,0/100,450/100,0/100,450/100,0/100,450
/400,0/400" },

```

<Figure 2.5>

[root@localhost ~]# [vi /etc/zaptel.conf](#)


```
# Autogenerated by /usr/local/sbin/genzaptelconf -- do not hand edit
# Zaptel Configuration File
#
# This file is parsed by the Zaptel Configurator, ztcfg
#
# It must be in the module loading order

# Span 1: WCTDM/O "YSTDM8xx REV E Board 1"
fxsks=1
fxsks=2
fxoks=3
fxoks=4
fxsks=5
fxsks=6
fxoks=7
fxoks=8

# Global data

loadzone      = cn
defaultzone   = cn
```

<Figure 2.6>

Save and take it effect:

```
[root@localhost utils]# ztcfg -v
```

13. Source code installation is complete.

Note: If you are Trixbox 2.4 User and hears no sound on the telephone that connected with FXS, please empty the echocancel and echotraining when configuring extension for FXS, shown as below. It is a bug on Trixbox.

Device Options

This device uses zap technology.

channel	<input type="text" value="7"/>
context	<input type="text" value="from-internal"/>
immediate	<input type="text" value="no"/>
signalling	<input type="text" value="fxo_ks"/>
echocancel	<input type="text"/>
echocancelwhenbridged	<input type="text" value="no"/>
echotraining	<input type="text"/>
busydetect	<input type="text" value="no"/>
busycount	<input type="text" value="7"/>
callprogress	<input type="text" value="no"/>
dial	<input type="text" value="ZAP/7"/>
accountcode	<input type="text"/>
mailbox	<input type="text" value="5007@device"/>

<Figure 2.7>

For any technical support, please contact

E-Mail: support@yeostar.com

Skype ID: support.yeostar

MSN ID: support@yeostar.com

<End>