

# Packet Forwarder Does Not Start on IXM When Radio is Off

## Contents

[Introduction](#)

[Problem](#)

[Solution](#)

## Introduction

This document describes how to resolve the issue where the packet forwarder on the IXM does not start when LoRa radio is off on the IXM.

## Problem

When you deploy a fresh IXM and install the Actility LRR package, you can see this message in the LRR trace.log:

```
Gateway#show packet-forwarder log name trace 250
...
03:40:45.990 (00834) [../main.c:954] no custom configuration file
'/tmp/mdm/pktfwd/firmware/usr/etc/lrr/dyncalib.ini'
03:40:45.990 (00834) [../main.c:979] search
'/tmp/mdm/pktfwd/firmware/lrr/config/channels_eu868_2015.ini'
03:40:45.990 (00834) [../main.c:2127] load default
'/tmp/mdm/pktfwd/firmware/lrr/config/channels_eu868_2015.ini'
03:40:45.990 (00834) [../main.c:951] search '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/channels.ini'
03:40:45.990 (00834) [../main.c:954] no custom configuration file
'/tmp/mdm/pktfwd/firmware/usr/etc/lrr/channels.ini'
03:40:45.991 (00834) [../main.c:2354] lgw thread is started
03:40:45.991 (02398) [../lgw_gen.c:1820] start lrr.x/lgw th=b63a7380 pid=834 count=1 capture=0
03:40:45.993 (02398) [../lgw_x8.c:1053] BOARD1 RADIO cannot be started ret=-1 'Invalid version
number for the top FPGA'
03:40:45.993 (02398) [../lgw_gen.c:1530] enter Idle loop ... waiting for cancelation
03:41:45.980 (00834) [../main.c:5346] no LRC connection during more than 1200sec => revssh
```

The packet forward stops further initialisation and does not attempt to connect to the TPE or TPW LRC.

## Solution

The reason, although not clear from the error message, for the error is because the radio hasn't been started on the IXM.

This is called "out-of-the-box".

You can check this as follows:

```
Gateway#show radio
LORA_SN: FOC203310DG
LORA_PN: 95.1602T00
LORA_SKU: 868
LORA_CALC: <135,123,115,107,99,95,91,87,78,70,62,53,45,41,37,33-
133,120,112,104,96,92,88,84,75,67,59,51,43,39,35,31>
CAL_TEMP_CELSIUS: 34
CAL_TEMP_CODE_AD9361: 90
RSSI_OFFSET: -204.07,-203.78
LORA_REVISION_NUM: A0+
RSSI_OFFSET_AUS:
```

```
radio status:
off
```

As you can see in the last line, the radio is marked as off.

In order to turn the radio on, follow this:

```
Gateway#configure terminal
Gateway(config)#no radio off
Gateway(config)#exit
*Aug 06 03:45:28: Configured from console by console
Gateway#copy running-config start
!
```

```
Copy 333 bytes took 00:00:01 [hh:mm:ss]
```

Then, restart the packet forwarder:

```
Gateway#configure terminal
Gateway(config)#packet-forwarder restart
Restarted packet-forwarder
Gateway(config)#exit
*Aug 06 03:46:07: Configured from console by console
```

As you can see in the TRACE.log now, the packet forwarder is able to start:

```
Gateway#show packet-forwarder log name trace 250
...
#####
### restart(1) : 20160806 03:45:43
### pid=2741 szmax=unlimited (config files not yet read)
#####
03:45:43.479 (02741) Traces activated for startup
03:45:43.515 (02741) search '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/bootserver.ini'
03:45:43.515 (02741) no custom configuration file
'/tmp/mdm/pktfwd/firmware/usr/etc/lrr/bootserver.ini'
03:45:43.515 (02741) search '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/_system.sh'
03:45:43.515 (02741) load custom '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/_system.sh'
03:45:43.516 (02741) search '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/_parameters.sh'
03:45:43.516 (02741) load custom '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/_parameters.sh'
03:45:43.516 (02741) search '/tmp/mdm/pktfwd/firmware/lrr/config/defines.ini'
03:45:43.516 (02741) load default '/tmp/mdm/pktfwd/firmware/lrr/config/defines.ini'
```

```
03:45:43.516 (02741) search '/tmp/mdm/pktfwd/firmware/lrr/config/defines.ini'
03:45:43.516 (02741) load default '/tmp/mdm/pktfwd/firmware/lrr/config/defines.ini'
03:45:43.516 (02741) search '/tmp/mdm/pktfwd/firmware/lrr/config/lrr.ini'
03:45:43.516 (02741) load default '/tmp/mdm/pktfwd/firmware/lrr/config/lrr.ini'
03:45:43.519 (02741) search '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/lrr.ini'
03:45:43.519 (02741) load custom '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/lrr.ini'
03:45:43.519 (02741) search '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/gpsman.ini'
03:45:43.519 (02741) no custom configuration file
'/tmp/mdm/pktfwd/firmware/usr/etc/lrr/gpsman.ini'
03:45:43.519 (02741) search '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/custom.ini'
03:45:43.519 (02741) load custom '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/custom.ini'
03:45:43.519 (02741) search '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/_state.ini'
03:45:43.519 (02741) no custom configuration file
'/tmp/mdm/pktfwd/firmware/usr/etc/lrr/_state.ini'
03:45:43.522 (02741) [trace.c:128] TRACE used szmax: 1000000
03:45:43.522 (02741) [./main.c:7781] start lrr.x/main th=b6adc010 pid=2741 sickrestart=0
03:45:43.522 (02741) [./main.c:7782] @(#) Actility lrr 2.4.21 07/09/18 target=ciscoms
host=Ubuntu14-dev
03:45:43.522 (02741) [./main.c:7783] SX1301_AR
03:45:43.522 (02741) [./main.c:7785] HAL 5.1.0
03:45:43.522 (02741) [./main.c:7788] lrrid=68480c3f lrridext=0000 lrridpref=04
03:45:43.522 (02741) [./main.c:979] search '/tmp/mdm/pktfwd/firmware/lrr/config/lowlvlgw.ini'
03:45:43.522 (02741) [./main.c:2020] load default
'/tmp/mdm/pktfwd/firmware/lrr/config/lowlvlgw.ini'
03:45:43.522 (02741) [./main.c:979] search
'/tmp/mdm/pktfwd/firmware/lrr/config/lowlvlgw_ciscoms.ini'
03:45:43.522 (02741) [./main.c:2030] load default
'/tmp/mdm/pktfwd/firmware/lrr/config/lowlvlgw_ciscoms.ini'
03:45:43.523 (02741) [./main.c:979] search
'/tmp/mdm/pktfwd/firmware/lrr/config/lgw8_eu868_2015.ini'
03:45:43.523 (02741) [./main.c:2041] load default
'/tmp/mdm/pktfwd/firmware/lrr/config/lgw8_eu868_2015.ini'
03:45:43.523 (02741) [./main.c:951] search '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/lowlvlgw.ini'
03:45:43.523 (02741) [./main.c:2065] load custom
'/tmp/mdm/pktfwd/firmware/usr/etc/lrr/lowlvlgw.ini'
03:45:43.523 (02741) [./main.c:951] search '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/lgw.ini'
03:45:43.523 (02741) [./main.c:954] no custom configuration file
'/tmp/mdm/pktfwd/firmware/usr/etc/lrr/lgw.ini'
03:45:43.523 (02741) [./main.c:951] search '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/dyncalib.ini'
03:45:43.523 (02741) [./main.c:954] no custom configuration file
'/tmp/mdm/pktfwd/firmware/usr/etc/lrr/dyncalib.ini'
03:45:43.523 (02741) [./main.c:979] search
'/tmp/mdm/pktfwd/firmware/lrr/config/channels_eu868_2015.ini'
03:45:43.523 (02741) [./main.c:2127] load default
'/tmp/mdm/pktfwd/firmware/lrr/config/channels_eu868_2015.ini'
03:45:43.524 (02741) [./main.c:951] search '/tmp/mdm/pktfwd/firmware/usr/etc/lrr/channels.ini'
03:45:43.524 (02741) [./main.c:954] no custom configuration file
'/tmp/mdm/pktfwd/firmware/usr/etc/lrr/channels.ini'
03:45:43.525 (02741) [./main.c:7119] IfaceDaemon disabled
03:45:43.525 (02741) [./main.c:2296] gps thread is started
03:45:43.525 (02741) [./main.c:2354] lgw thread is started
03:45:43.525 (02741) [./shellcmd.c:155] cmd thread is started
03:45:43.525 (02741) [./rttping.c:406] thread itf idx=0 name='eth0' is started
03:45:43.525 (02741) [./main.c:7831] TRACE LEVEL IS SET TO 0
03:45:43.525 (02746) [./rttping.c:342] thread itf idx=0 name='eth0' is looping
03:45:43.526 (02744) [./lgw_gen.c:1820] start lrr.x/lgw th=b62da380 pid=2741 count=1 capture=0
03:45:43.527 (02743) [./gps.c:148] start lrr.x/gps th=b6adb380 pid=2741 count=1
```