AudioCodes CPE & Access Gateway Products

# Configuration Note

## Connecting a Third-Party 3G LTE Dongle to MP-26x/MP-27x

**Document #: LTRT-27510**


AudioCodes

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# Related Documentation

| Document Name |
|---|
| MP-262 User's Manual |
| MP-264 User's Manual |
| MP-26x Release Notes |

# 1 Introduction

This document provides a step-by-step procedure for connecting a new type of 3G LTE dongle to an AudioCodes MP-26x/MP-27x multimedia home gateway (Version 4.2.0 and later).

Dongles are USB adapters that are used to provide an Internet connection over 3G LTE networks. Many types of dongles are available in the market, supplied by various vendors.

This document provides guidelines on the procedure and information required for AudioCodes to develop support for a new dongle type.

For a list of supported dongle types, see Section 2.1 on page 9.

**Note:** Throughout this document, the term *device* is used to represent MP-26x/MP-27x models.

## Reader's Notes

# 2 Requirements

Before connecting the 3G dongle to the device, make sure you have the following dongle information:

- Model name (must be the exact name)
- Vendor ID and Product ID for first identification
- Information on whether the dongle uses Huawei mode
- Vendor ID and Product ID after the dongle has been identified logically as a GSM modem
- Data Line number and Control Line number

## 2.1 Supported 3G Dongles List

The following is a list of supported 3G dongles for primary WAN backup:

- HUAWEI E160
- HUAWEI K3765
- HUAWEI E1750
- HUAWEI E1756
- HUAWEI E1756 Movistar
- ZTE MF110
- HUAWEI E156
- ZTE MF626
- Vertex

**Reader's Notes**

# 3 Configuring Device to Work with 3G Dongle

This procedure describes how to configure the device to work with a 3G dongle.

➢ **To configure the device to work with a 3G dongle:**

1. Before inserting the 3G dongle, configure Point-to-Point Protocol over Serial (PPPoS) and 3G SIM (Modem) properties of the device as shown in Sections 3.1 and 3.2 respectively.
2. Disconnect the Ethernet WAN and DSL cables from the device. This will leave the 3G dongle as the only connection to the Internet.
3. Connect the 3G dongle to the device.
4. Wait for one minute. Once the GSM connection has successfully been established, the **Broadband** LED turns red. Once the PPPoS has connected, the **Broadband** LED turns green.
5. If the connection to the Internet via the 3G dongle fails, refer to Section 5 on page 17.

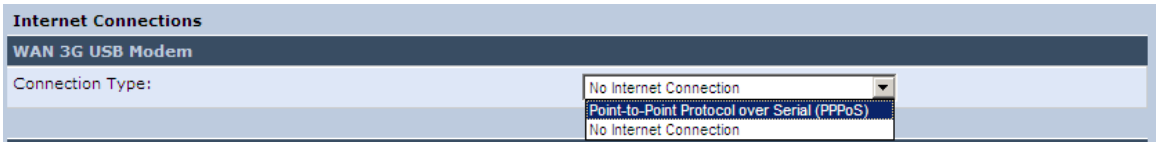
## 3.1 Configuring PPPoS

This procedure describes how to configure PPPoS.

➢ **To configure PPPoS:**

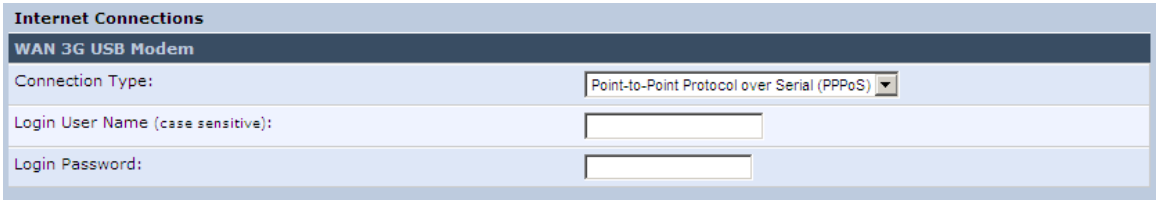
1. Open the Internet Connections page (**Quick Setup** > **Internet Connections**).
2. From the 'Connection Type' drop-down list, select **Point-to-Point Protocol over Serial** (**PPPos)** (as shown in the figure below).

**Figure 3-1: Internet Connections**




3. After selecting the connection type, the following screen appears:

**Figure 3-2: Point-to-Point Protocol over Serial (PPPoS)**




4. If required by the provider, enter the PPPoS User/Password.
5. Click **OK**.

## 3.2 Configuring 3G USB Modem Properties

This procedure describes how to configure 3G USB Modem properties.

➢ **To configure 3G USB Modem properties:**

1. Open the WAN 3G USB Modem Properties page, (**Network Connections** > **WAN 3G USB Modem**).

**Figure 3-3: WAN 3G USB Modem**


2. Click the **Setting** tab.
3. Under the **3G Modem Settings** group, enter the APN (Access Point Name).
4. If required by the ISP, configure the other fields shown in the figure above.
5. Click **OK**.

# 4 Verifying Dongle Configuration via CLI

The CLI can be used to:

- View operation status (See Section 4.1 below)
- Obtain the Vendor ID and Product ID from the 3G dongle (See Section 4.2 on page 15)
- View the current dongle configuration of the device (See Section 5 on page 17)

## 4.1 Viewing Operation Status using CLI

This procedure describes how to view operation status using CLI .

➢ **To view operation status using CLI :**

1. Unplug the dongle and then wait two minutes.
2. Establish a CLI session with the device through Telnet.
3. Type the following CLI command to view the connection:

```
crash print_current_buffer
```

Depending on functionality, the CLI displays the following:

- **Dongle plugged in and identified as storage device (in most cases):**

```
Network Registration: failed to send AT+COPS
usb 1-1: new high speed USB device using ifxusb_hcd and address 2
,;¼X,;¼X€r€n”<6>usb 1-1: configuration #1 chosen from 1 choice
usb-storage: device ignored
```

- **Dongle identified logically as GSM modem:**

```
option 1-1:1.0: GSM modem (1-port) converter detected
usb 1-1: GSM modem (1-port) converter now attached to ttyUSB0
Timeout command for <AT>. Dropping it.
Timeout occured for AT
Timeout command for <AT>. Dropping it.
Timeout occured for AT
Timeout command for <AT>. Dropping it.
Timeout occured for AT
usb 1-1: USB disconnect, address 2
option 1-1:1.0: device disconnected
option1 ttyUSB0: GSM modem (1-port) converter now disconnected from
ttyUSB0
Network Registration: failed to send AT+COPS
usb 1-1: new high speed USB device using ifxusb_hcd and address 3
,;¼X,;¼X€r€n”<6>usb 1-1: configuration #1 chosen from 1 choice
usb-storage: device ignored
option 1-1:1.0: GSM modem (1-port) converter detected
usb 1-1: GSM modem (1-port) converter now attached to ttyUSB0
usb-storage: device ignored
option 1-1:1.1: GSM modem (1-port) converter detected
usb 1-1: GSM modem (1-port) converter now attached to ttyUSB1
usb-storage: device ignored
option 1-1:1.2: GSM modem (1-port) converter detected
usb 1-1: GSM modem (1-port) converter now attached to ttyUSB2
usb-storage: device ignored
option 1-1:1.3: GSM modem (1-port) converter detected
usb 1-1: GSM modem (1-port) converter now attached to ttyUSB3
```

- **Script (comgt) runs to connect the physical interface (gsm0).**

```
uievent_gsm_wan_cb:496: 496, from=2, to=3, dev->name=gsm0
Failed to build AND_CSQ AT command
Failed sending Dongle info AT command 11
 *** CONNECTED ***
uievent_gsm_wan_cb:496: 496, from=3, to=4, dev->name=gsm0
uievent_gsm_wan_cb:496: 496, from=4, to=5, dev->name=gsm0
```

- **After the physical device (gsm0) is connected and the PPP device is connected:**

```
uievent_broadband_wan_cb:365: params: evt(2) dev(ppp400) from(2) to(3)
uievent_handle_logical_dev:310: params: evt(2) dev(ppp400) from(2) to(3)
led_mode(0)
uievent_gsm_wan_cb:496: 496, from=5, to=6, dev->name=gsm0
uievent_gsm_wan_cb:526: set BB red on
device is external dev_bottom(gsm0)
uievent_broadband_wan_cb:365: params: evt(2) dev(ppp400) from(3) to(4)
uievent_handle_logical_dev:310: params: evt(2) dev(ppp400) from(3) to(4)
led_mode(0)
uievent_broadband_wan_cb:365: params: evt(2) dev(ppp400) from(4) to(5)
uievent_handle_logical_dev:310: params: evt(2) dev(ppp400) from(4) to(5)
led_mode(0)
uievent_broadband_wan_cb:365: params: evt(2) dev(ppp400) from(5) to(6)
uievent_handle_logical_dev:310: params: evt(2) dev(ppp400) from(5) to(6)
led_mode(0)
is_other_wan_devices_in_state:234: self_dev->name=ppp400 led_mode(1)
op(2) state(6)
uievent_handle_logical_dev:356: set BB green on, dev_top->state=6
```

## 4.2 Getting the Vendor ID and Product ID from 3G Dongle

This procedure describes how to obtain the Vendor ID and Product ID from the 3G dongle using CLI:

```
(CLI): system shell
(shell): cat /proc/bus/usb/devices
```

The following is an example of CLI output. The Vendor ID and Product ID are marked in **bold**.

```
/ # cat /proc/bus/usb/devices

T:  Bus=02 Lev=00 Prnt=00 Port=00 Cnt=00 Dev#=  1 Spd=480 MxCh= 1
B:  Alloc=  0/800 us ( 0%), #Int=  0, #Iso=  0
D:  Ver= 2.00 Cls=09(hub  ) Sub=00 Prot=01 MxPS=64 #Cfgs=  1
P:  Vendor=0000 ProdID=0000 Rev= 2.06
S:  Manufacturer=Linux 2.6.21.5 ifxusb_hcd_2
S:  Product=IFX USB Controller
S:  SerialNumber=ifxusb_hcd_2
C:* #Ifs= 1 Cfg#= 1 Atr=e0 MxPwr=  0mA
I:* If#= 0 Alt= 0 #EPs= 1 Cls=09(hub  ) Sub=00 Prot=00 Driver=hub
E:  Ad=81(I) Atr=03(Int.) MxPS=   4 Ivl=256ms

T:  Bus=02 Lev=01 Prnt=01 Port=00 Cnt=01 Dev#=  2 Spd=480 MxCh= 4
D:  Ver= 2.00 Cls=09(hub  ) Sub=00 Prot=02 MxPS=64 #Cfgs=  1
P:  Vendor=1a40 ProdID=0101 Rev= 1.00
S:  Product=USB 2.0 Hub [MTT]
C:* #Ifs= 1 Cfg#= 1 Atr=e0 MxPwr=100mA
I:  If#= 0 Alt= 0 #EPs= 1 Cls=09(hub  ) Sub=00 Prot=01 Driver=hub
E:  Ad=81(I) Atr=03(Int.) MxPS=   1 Ivl=256ms
I:* If#= 0 Alt= 1 #EPs= 1 Cls=09(hub  ) Sub=00 Prot=02 Driver=hub
E:  Ad=81(I) Atr=03(Int.) MxPS=   1 Ivl=256ms

T:  Bus=01 Lev=00 Prnt=00 Port=00 Cnt=00 Dev#=  1 Spd=480 MxCh= 1
B:  Alloc=  0/800 us ( 0%), #Int=  0, #Iso=  0
D:  Ver= 2.00 Cls=09(hub  ) Sub=00 Prot=01 MxPS=64 #Cfgs=  1
P:  Vendor=0000 ProdID=0000 Rev= 2.06
S:  Manufacturer=Linux 2.6.21.5 ifxusb_hcd_1
S:  Product=IFX USB Controller
S:  SerialNumber=ifxusb_hcd_1
C:* #Ifs= 1 Cfg#= 1 Atr=e0 MxPwr=  0mA
I:* If#= 0 Alt= 0 #EPs= 1 Cls=09(hub  ) Sub=00 Prot=00 Driver=hub
E:  Ad=81(I) Atr=03(Int.) MxPS=   4 Ivl=256ms

T:  Bus=01 Lev=01 Prnt=01 Port=00 Cnt=01 Dev#=  3 Spd=480 MxCh= 0
D:  Ver= 2.00 Cls=00(>ifc ) Sub=00 Prot=00 MxPS=64 #Cfgs=  1
P:  Vendor=12d1 ProdID=1003 Rev= 0.00
S:  Manufacturer=HUAWEI Technology
S:  Product=HUAWEI Mobile
C:* #Ifs= 4 Cfg#= 1 Atr=e0 MxPwr=500mA
I:* If#= 0 Alt= 0 #EPs= 3 Cls=ff(vend.) Sub=ff Prot=ff Driver=option
E:  Ad=81(I) Atr=03(Int.) MxPS=  64 Ivl=2ms
E:  Ad=82(I) Atr=02(Bulk) MxPS= 512 Ivl=0ms
```

```
E:  Ad=01(O) Atr=02(Bulk) MxPS= 512 Ivl=4ms
I:* If#= 1 Alt= 0 #EPs= 2 Cls=ff(vend.) Sub=ff Prot=ff Driver=option
E:  Ad=83(I) Atr=02(Bulk) MxPS= 512 Ivl=0ms
E:  Ad=02(O) Atr=02(Bulk) MxPS= 512 Ivl=4ms
I:* If#= 2 Alt= 0 #EPs= 2 Cls=08(stor.) Sub=06 Prot=50 Driver=option
E:  Ad=84(I) Atr=02(Bulk) MxPS= 512 Ivl=0ms
E:  Ad=03(O) Atr=02(Bulk) MxPS= 512 Ivl=0ms
I:* If#= 3 Alt= 0 #EPs= 2 Cls=08(stor.) Sub=06 Prot=50 Driver=option
E:  Ad=04(O) Atr=02(Bulk) MxPS= 512 Ivl=0ms
E:  Ad=85(I) Atr=02(Bulk) MxPS= 512 Ivl=0ms
```

*** Vendor ID and Product ID for this dongle**

# 5 Viewing Dongle Configuration on Device

Use the *conf print 3g/chips/* command to view the dongle configuration on the device . Information on all configured dongles is displayed (as shown below).

The configuration that is related to the Vendor ID and Product ID obtained in the example of Section 6 on page 21 is marked in **bold** text.

```
MP264> conf print 3g/chips/
(chips
  (0
    (name(ZTE MF636))
    (vendor_id(19d2))
    (product_id(31))
    (data_line(3))
    (control_line(2))
    (audio_line(0))
  )
  (1
    (name(ZTE K3765-Z))
    (vendor_id(19d2))
    (product_id(2002))
    (data_line(4))
    (control_line(2))
    (audio_line(3))
  )
  (2
    (name(ZTE K3806-Z))
    (vendor_id(19d2))
    (product_id(1004))
    (data_line(2))
    (control_line(1))
    (audio_line(3))
  )
  (3
    (name(Huawei E620, Huawei E176G, E180, E1750))
    (vendor_id(12d1))
    (product_id(1001))
    (data_line(1))
    (control_line(3))
    (audio_line(2))
  )
  (4
    (name(Huawei E172))
    (vendor_id(12d1))
    (product_id(1003))
    (data_line(1))
    (control_line(2))
    (audio_line(0))
  )
```

```
(5
  (name(Huawei E1756))
  (vendor_id(12d1))
  (product_id(140c))
  (data_line(1))
  (control_line(4))
  (audio_line(0))
)
(6
  (name(Huawei E1756 Movistar))
  (vendor_id(12d1))
  (product_id(1417))
  (data_line(1))
  (control_line(1))
  (audio_line(0))
)
(7
  (name(Huawei E156))
  (vendor_id(12d1))
  (product_id(1406))
  (data_line(1))
  (control_line(2))
  (audio_line(0))
)
(8
  (name(Huawei K3765))
  (vendor_id(12d1))
  (product_id(1465))
  (data_line(1))
  (control_line(4))
  (audio_line(0))
)
(9
  (name(Vodafone &28;Huawei&29; K3806))
  (vendor_id(12d1))
  (product_id(14ae))
  (data_line(1))
  (control_line(3))
  (audio_line(0))
)
(10
  (name(Vodafone &28;Huawei&29; K3806 Voice))
  (vendor_id(12d1))
  (product_id(14b0))
  (data_line(1))
  (control_line(3))
  (audio_line(4))
)
```

```
  (11
    (name(Vertex Orion))
    (vendor_id(1fe7))
    (product_id(100))
    (data_line(1))
    (control_line(2))
    (audio_line(0))
  )
)
```

**Reader's Notes**

# 6 Troubleshooting

This section specifies the required steps that are needed to troubleshoot a failed 3G dongle connection.

A failed connection is indicated when the **Broadband** LED is off or is lit red. Before starting the troubleshooting process, follow the guidelines described in Section 4 on page 13.

**Table 6-1: Troubleshooting Issues**

| Problem | Indication | Corrective Action |
|---|---|---|
| The dongle is not identified logically as a GSM modem. | The **Broadband** LED is off and no 'GSM' output is displayed in the CLI (as shown in the second bullet in Section 4.1 on page 13). | Provide AudioCodes with the information detailed under Section 0 on page 8. AudioCodes uses this information to develop support for this dongle type. |
| The dongle is identified logically as a GSM modem but doesn't run the script. | The **Broadband** LED is lit red and 'GSM' outputs are displayed in the CLI but no output of the script is displayed (as shown in the third bullet in Section 4.1 on page 13). | Change the Vendor ID and Product ID to match the GSM modem's ones. Follow the steps below:<br>**1.** Obtain the Vendor ID and Product ID of the 3G dongle (see Section 4.2 on page 15).<br>**2.** Verify that the device is configured to support the Vendor ID and Product ID obtained in the previous step (see Section 3 on page 11).<br>**3.** If the Vendor ID and Product ID are not supported by the device:<br>✓ Use the *conf set* commands to manually add an entry for the new dongle under *3g/chips*. For example, in the CLI displayed in Section 5 on page 17, there are 11 entries. To add the 12th entry, use the following parameters:<br>`conf set "3g/chips/12/name" "NEW_DONGLE"`<br>`conf set "3g/chips/12/vendor_id" "<VENDOR_ID>"`<br>`conf set "3g/chips/12/product_id" "<PRODUCT_ID>"`<br>`conf set "3g/chips/12/data_line" "<TBD_DATA_LINE>"`<br>`conf set "3g/chips/12/control_line" "<TBD_CONTROL_LINE>"`<br>`conf set "3g/chips/12/audio_line" "0"`<br>✓ Run the following CLI command:<br>`conf reconf 1`<br>✓ Unplug the dongle and plug it back again. |
| The dongle is identified logically as a GSM modem and the script runs, but fails. | The **Broadband** LED is lit red and the CLI displays an indication of failure; the device may have frozen. | **1.** Change the *data_line* and *control_line* parameters in the **3g/chips** entry. This should be done with the help of AudioCodes support.<br>**2.** If the dongle still doesn't connect to the Internet, send the following information to AudioCodes:<br>✓ The dongle's Vendor ID and Product ID (see Section 4.2 on page 15)<br>✓ The dongle configuration on the device (see Section 3 on page 11)<br>✓ The CLI messages displayed after running the following command (see Section 4.1 on page 13)<br>`print_current_buffer` |

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# Configuration Note

## Connecting a 3G LTE Dongle to MP-26x

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