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LTE Mini-PIM and Antenna Installation Guide

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About This Guide

Use this guide to install and configure the LTE Mini-Physical Interface Module (Mini-PIM) to provide wireless WAN support on SRX300 Series and SRX550M devices.

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PART

Overview

CHAPTER 1

LTE Mini-Physical Interface Module (Mini-PIM)

IN THIS CHAPTER

LTE Mini-Physical Interface Module

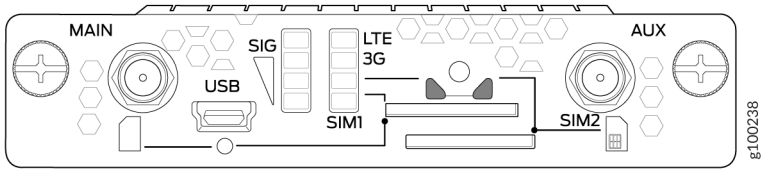
The LTE Mini-Physical Interface Module (Mini-PIM) provides wireless WAN support on the SRX300 Series and SRX550 High Memory Services Gateways. The Mini-PIM contains an integrated modem and operates over 3G and 4G networks. The Mini-PIM supports up to two SIM cards and can be installed in any of the Mini-PIM slots on the services gateways.

The Mini-PIM supports the following features:

- Automatic switchover between service providers through dual SIMs
- Storage support for multiple service provider and access point name (APN) profiles
- LTE carrier aggregation
- SIM lock and unlock capability
- Always-on, dial-on-demand, and backup modes
- Over-the-Air upgrade for modem firmware

Figure 1 on page 3 shows the front panel of the LTE Mini-PIM.

Figure 1: LTE Mini-PIM Front Panel



The LTE Mini-PIM ships with a SIM slot cover as shown in Figure 2 on page 3.

Figure 2: LTE Mini-PIM Front Panel (with the SIM Slot Cover)

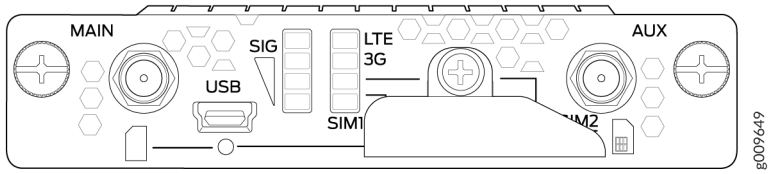


Table 1 on page 3 lists the components on the front panel of the Mini-PIM.

Table 1: LTE Mini-PIM Front Panel Components

Component	Description
Antenna connectors	Two SubMiniature version A (SMA) connectors.
Mini-USB port	Mini-USB Type-B port for monitoring and troubleshooting.
SIM slots	Two slots, **SIM1** and **SIM2**, for inserting the SIM cards. The LTE Mini-PIM supports mini, micro, and nano SIMs. The mini-SIM can be inserted directly in the SIM slot. To insert micro and nano SIMs, use the SIM adapters supplied with the Mini-PIM. The Mini-PIM is shipped with two SIM adapters. **CAUTION**: SIM cards are not hot-swappable. You must power off the services gateway before removing or inserting a SIM card.
LEDs	Indicate the status at a glance. For details on the LED indications, see *LTE Mini-Physical Interface Module LEDs*.

CAUTION: The LTE Mini-PIM is not hot-swappable. You must power off the services gateway before removing or installing the Mini-PIM.

The LTE Mini-PIM supports two multi-band swivel-mount dipole antennas, which can be rotated 360 °. You can rotate the antennas and select the angle at which the signal strength is high. Table 2 on page 4 lists the specifications for the antenna.

Table 2: Specifications for the LTE Mini-PIM Antenna

Specification	Value
Part number	EDA-2010-4G0R2-A2 (Vendor: MAG.LAYERS)
Operating frequency range	• 704~960 MHz • 1710~2700 MHz
Voltage Standing Wave Ratio (VSWR)	5 (maximum)
Impedance	50 ohm
Radiation	Omnidirectional
Peak gain	• 2.45 dBi (704~960 MHz) • 4.51 dBi (1710~2700 MHz)
Input power	1 W
Polarization	Linear, vertical
Operating temperature	–4° F (–20° C) to 149° F (65° C)
Connector type	SMA

Table 2: Specifications for the LTE Mini-PIM Antenna *(Continued)*

Specification	Value
Length	203 mm

The antenna is connected to the services gateway through the magnetic antenna base. Table 3 on page 5 lists the specifications for the antenna base.

Table 3: Antenna Base Specifications

Specification	Value
Part number	BS-05SF-174-3M-0102 (Vendor: Chang Hong)
Cable length	3 m
Connector type	SMA
Dimensions (H x W x L)	29.50 mm x 73 mm x 73 mm

Table 4 on page 5 provides a summary of the different models of the Mini-PIM.

Table 4: LTE Mini-PIM Models

Model	Mode	Operating Region	Frequency Band
SRX-MP-LTE-AE	• LTE • HSPA+	• North America • European Union	For LTE: • Bands 1 through 5, 7, 8, 12, 13, 20, 25, 26, 29, 30, and 41 For 3G (HSPA+): • Bands 1 through 5, and 8

Table 4: LTE Mini-PIM Models *(Continued)*

Model	Mode	Operating Region	Frequency Band
SRX-MP-LTE-AA	• LTE • HSPA+	• Asia • Australia	For LTE: • Bands 1,3, 5, 7, 8, 18, 19, 21, 28, 38, 39, 40, and 41 For 3G (HSPA+): • Bands 1, 5, 6, 8, 9, and 19

The Mini-PIM can be configured in three modes:

- Always-on—The Mini-PIM connects to the 3G/4G network after booting. The connection is always maintained, as long as there are no network or connectivity problems.
- Dial-on-demand—The Mini-PIM initiates a connection when it receives traffic.
- Backup—The Mini-PIM connects to the 3G/4G network when the primary connection fails.

The LTE Mini-PIM supports the following wireless standards:

- FCC Part 2
- FCC Part 22
- FCC Part 24, Part 27 and Part 90
- RSS 129 and RSS 133, RSS 130, RSS 199, and RSS 139
- RSS 132 and RSS 133
- EN 301 511 GSM
- EN 301 908-1
- EN 301 908-2
- The Certification and Engineering Bureau of Industry Canada (IC)
- Radio Equipment (RE) Directive of the European Union
- GCF
- CTIA-PTCRB

LTE Mini-Physical Interface Module LEDs

Figure 3 on page 7 shows the LEDs on the LTE Mini-PIM.

Figure 3: LTE Mini-PIM LEDs

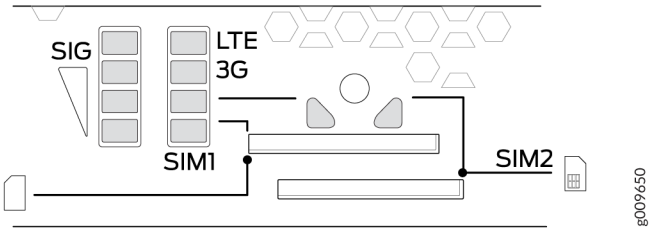


Table 5 on page 7 lists the LEDs on the LTE Mini-PIM and their indications.

Table 5: LTE Mini-PIM LED States

LED	Description
SIG (Received Signal Strength Indicator)	Solid green (one bar)—Low signal strength (<= –99 dBm).
	Solid green (two bars)—Low signal strength (from –98 dBm to –87 dBm).
	Solid green (three bars)—Low signal strength (from –86 dBm to –76 dBm).
	Solid green (four bars)—High signal strength (>= –75 dBm).
	Unlit—No signal
3G	Solid green—3G connection is established.
	Blinking green—Connecting to a 3G network.

Table 5: LTE Mini-PIM LED States *(Continued)*

LED	Description
LTE	Solid green—LTE connection is established.
	Blinking green—Connecting to an LTE network.
SIM1	Solid green—SIM1 is active.
SIM2	Solid green—SIM2 is active.

NOTE: If all the LEDs are blinking, it indicates that firmware updates are in progress. Do not power off the services gateway before the updates complete.

LTE Mini-Physical Interface Module Hardware Specifications

Table 6 on page 8 provides the hardware specifications for the LTE Mini-PIM.

Table 6: LTE Mini-PIM Hardware Specifications

Description	Value
Dimensions (H x W x L)	0.80 in. x 3.75 in. x 5.9 in. (2.0 cm x 9.5 cm x 14.5 cm)
Weight	0.23 lb (0.106 kg)
Connector type	SMA
Form factor	Mini-PIM
Environmental operating temperature	32° F through 104° F (0° C through 40° C)

Table 6: LTE Mini-PIM Hardware Specifications *(Continued)*

Description	Value
Storage temperature	-40° F through 158° F (-40° C through 70° C)
Relative humidity	5% to 90% noncondensing

2

PART

Installation

CHAPTER 2

LTE Mini-PIM Installation and Configuration

IN THIS CHAPTER

Installing the LTE Mini-PIM in a SRX Series Services Gateway

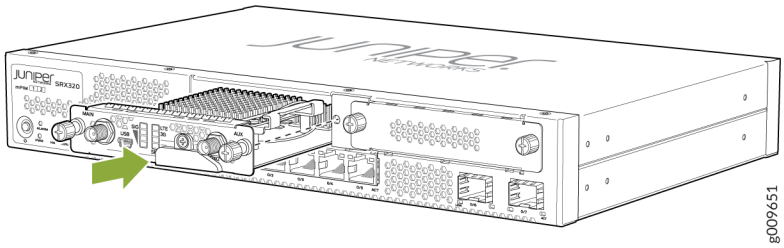
To install the LTE Mini-PIM in a services gateway:

NOTE: You can install only one Mini-PIM in a services gateway. The Mini-PIM can be installed in any of the Mini-PIM slots on the services gateway.

1. Attach an electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to the grounding point on the back of the services gateway.
2. Power off the services gateway by briefly pressing the **Power** button on the front panel. Wait for the **Power** LED to turn off before proceeding. Disconnect the services gateway from the power source.
3. Remove the blank Mini-PIM installed on the services gateway:
   a. Loosen the screws on the faceplate of the blank Mini-PIM.
   b. Grasp the screws on each side and remove the blank Mini-PIM.
4. Remove the LTE Mini-PIM from the electrostatic bag.
5. Grasp the screws on each side of the Mini-PIM faceplate and align the notches in the connector at the rear of the Mini-PIM with the notches in the Mini-PIM slot in the services gateway.

   ⚠ **CAUTION**: Slide the Mini-PIM straight into the slot to avoid damaging the components on the Mini-PIM.
6. Slide the Mini-PIM in until it lodges firmly in the services gateway. See Figure 4 on page 12.

Figure 4: Installing the LTE Mini-PIM

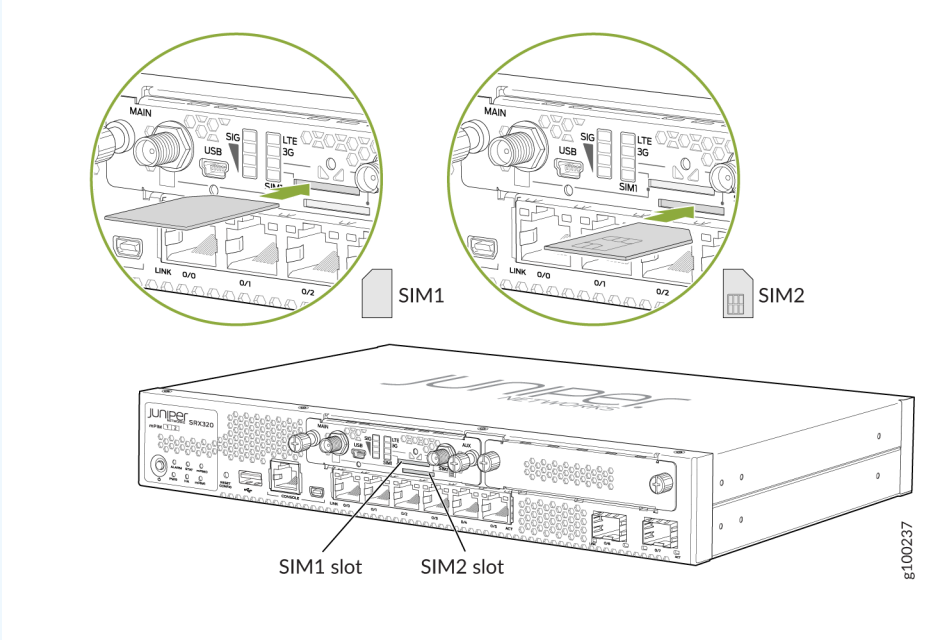


7. Using a 1/8-in. (3-mm) flat-blade (–) screwdriver, tighten the screws on each side of the Mini-PIM faceplate.
8. Remove the SIM slot cover. Insert the SIM card into the SIM slot, **SIM 1**.

   You can use the other slot, **SIM 2**, for installing a secondary or backup SIM.

NOTE: When you insert SIM cards into the respective slots, make sure to orient the cards correctly. Insert SIM1 into its slot with the connector side (SIM card chip) facing down and the notch on the left. Insert SIM2 into its slot with the connector side facing up and the notch on the right. See Figure 5 on page 12.

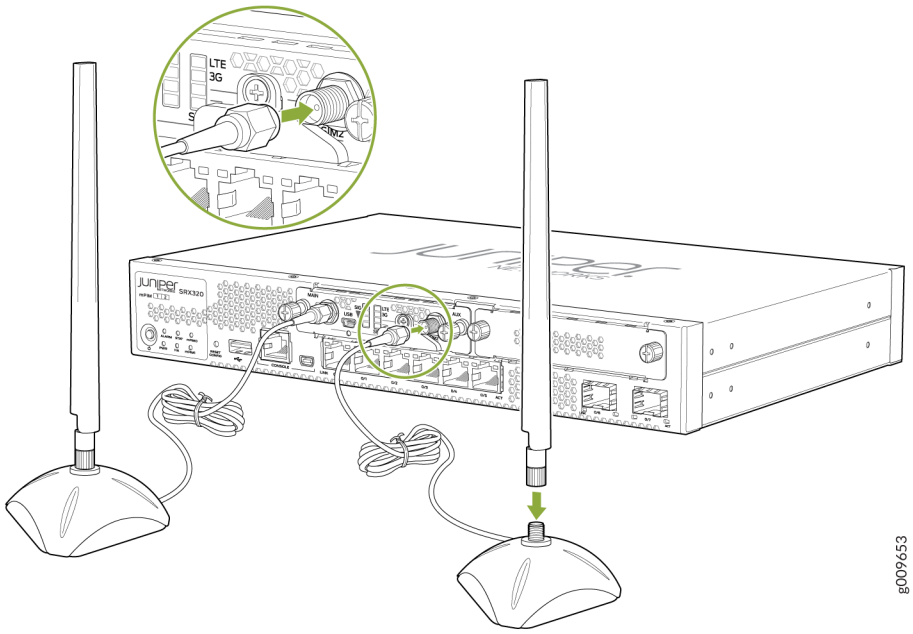
Figure 5: Inserting the SIM Card



To remove a SIM card from its slot, press the edge of the card projecting out of the slot.

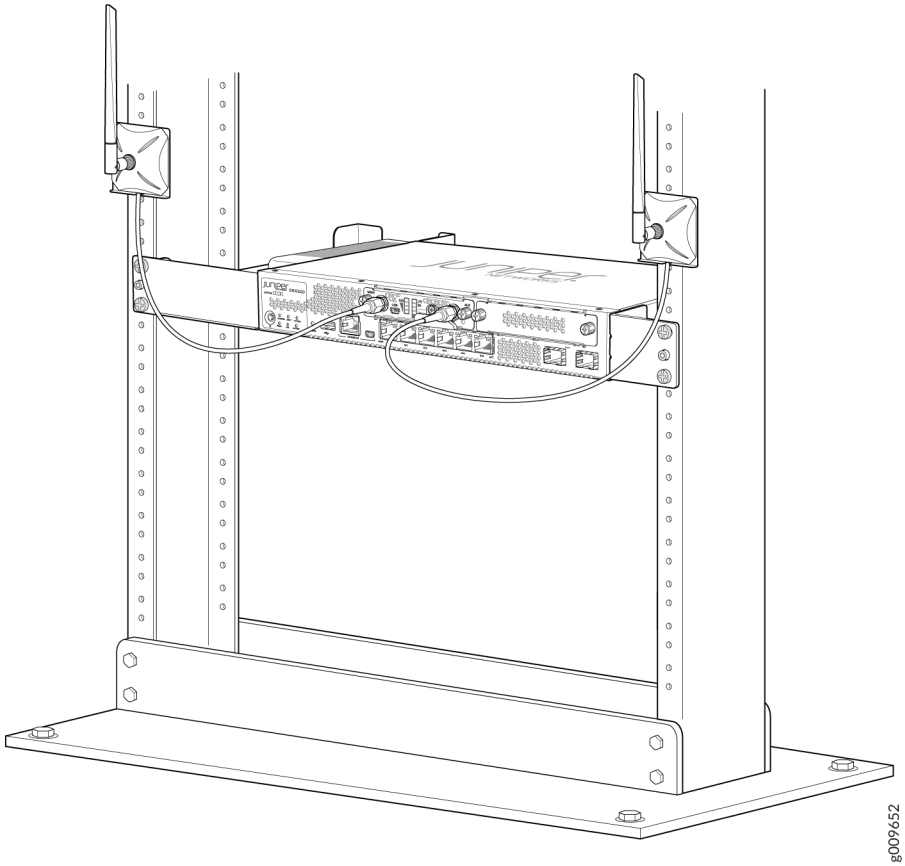
9. Replace the cover over the SIM slots.
10. Attach the antennas to the antenna base. Connect the cables from each antenna base to the SMA connectors on the Mini-PIM. See Figure 6 on page 13.

Figure 6: Attaching the Antennas



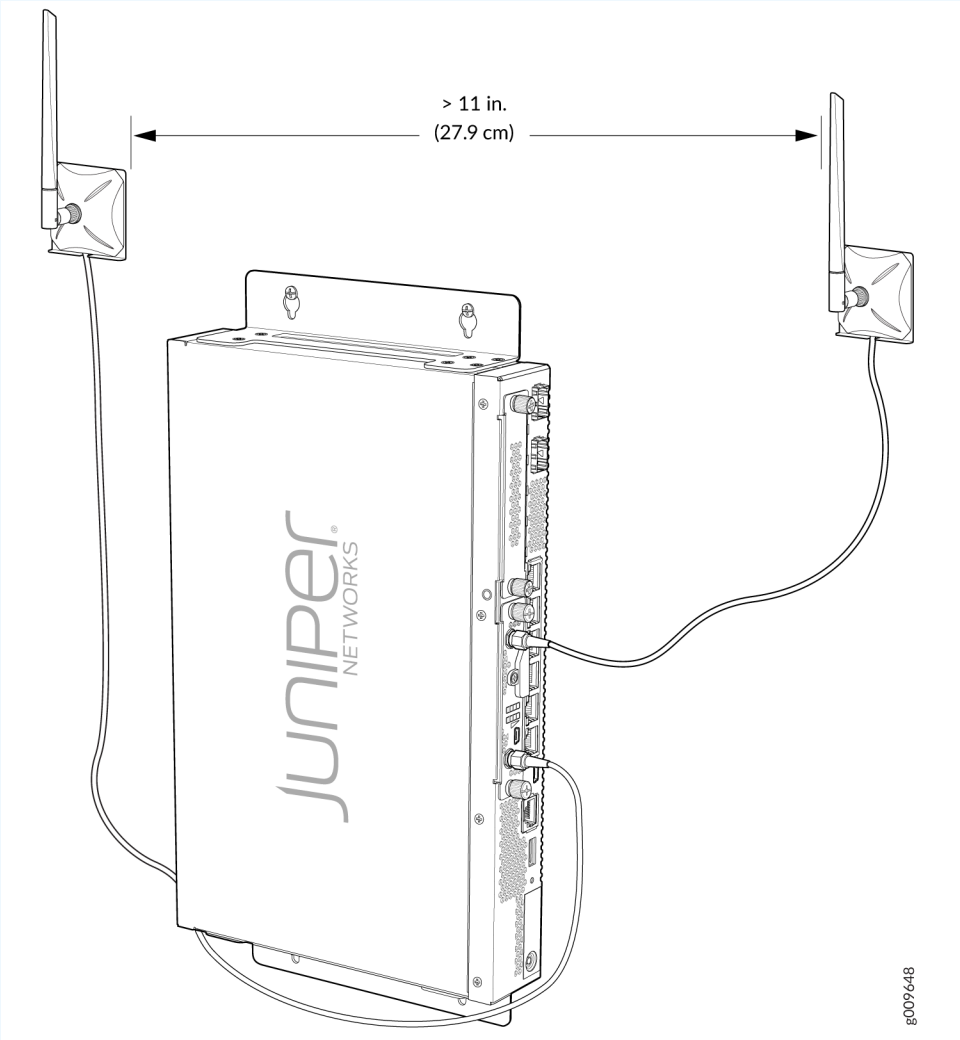
The antenna base is magnetic and can be attached to the rack directly, if the rack is metallic. Else, you can mount the antenna base on the rack using the mounting brackets. See Figure 7 on page 14.

Figure 7: Mounting the Antennas on a Rack



NOTE: For SRX320 Services Gateways, which can be mounted on a wall, the antennas can be mounted as shown in Figure 8 on page 15.

Figure 8: Mounting the Antennas on a Wall



11. Power on the services gateway.

NOTE: When a services gateway, with the LTE Mini-PIM installed and SIM card inserted, is powered on for the first time, it might take up to 10 minutes for the Mini-PIM to upgrade the modem firmware for the local LTE carrier.

RELATED DOCUMENTATION

Configuring the LTE Mini-PIM | 16

Configuring the LTE Mini-PIM on SRX Series Devices

IN THIS SECTION

Configuring the LTE Mini-PIM

To configure the Mini-PIM:

NOTE: If a services gateway with factory-default settings is powered on with the LTE Mini-PIM installed in slot 1, the dialer interface is triggered to dial automatically. This functionality is applicable only if the Mini-PIM is installed in slot 1. If the Mini-PIM is installed in any other slot, then you will need to manually configure the cl-*slot-number*/0/0 interface to be associated with the dialer interface.

1. Configure the dialer pool:

   ```
   user@host# set interfaces cl-slot-number/0/0 dialer-options pool number priority number
   ```

2. Configure the profile:

   ```
   user@host# request modem wireless create-profile profile-id profile-id access-point-name l3vpn.corp
   authentication-method chap sip-user-id user@myvpn.net sip-password password
   ```

3. Activate the SIM:

   ```
   user@host# set interfaces cl-slot-number/0/0 act-sim sim-slot-number
   ```

   NOTE: Only one SIM card can be active at a time. If you have installed a secondary SIM card, it will be automatically activated when the signal strength for the primary SIM card is low.

4. Select the profile and configure the radio access type for the SIM card:

   ```
   user@host# set interfaces cl-slot-number/0/0 cellular-options sim sim-slot-number select-profile profile-id
   profile-id

   user@host# set interfaces cl-slot-number/0/0 cellular-options sim sim-slot-number radio-access automatic
   ```

NOTE: If a SIM card is installed in the second slot, then select the profile and configure the radio access type for the secondary SIM card as well.

5. Configure the dialer interface:

   - Always-On mode:

     ```
     user@host# set interfaces dl0 unit 0 family inet negotiate-address

     user@host# set interfaces dl0 unit 0 family inet6 negotiate-address

     user@host# set interfaces dl0 unit 0 dialer-options pool dialer-pool-number

     user@host# set interfaces dl0 unit 0 dialer-options dial-string dial-number

     user@host# set interfaces dl0 unit 0 dialer-options always-on
     ```

   - Dial-on-Demand mode:

     ```
     user@host# set interfaces dl0 unit 0 family inet negotiate-address

     user@host# set interfaces dl0 unit 0 family inet filter dialer dialer-filter-name

     user@host# set interfaces dl0 unit 0 dialer-options pool dialer-pool-number

     user@host# set interfaces dl0 unit 0 dialer-options dial-string dial-number
     ```

   - Backup mode:

     ```
     user@host# set interfaces <interface-name> unit 0 backup-options interface dl0.0

     user@host# set interfaces dl0 unit 0 dialer-options dial-string dial-number
     ```

6. Commit the configuration:

   ```
   user@host# commit
   ```

SEE ALSO

Upgrading the Mini-PIM Firmware Using the CLI | 25

Upgrading the Modem Firmware by Using OTA Upgrade | 27

Configuring a Static Route on the Dialer Interface

A static route enables the dialer interface to forward packets to a specific destination other than the default route. Static routes are manually configured and entered into the routing table. You can configure a static route on the dialer interface by using the `set interfaces dl0 unit 0 dialer-options route` *destination-ip-address* command.

After you configure a static route, make sure that the route appears in the routing table of the device by using the `show route` command. Note that the static route appears in the routing table only after the LTE Mini-PIM is connected to the network.

Sample output:

```
user@host> show route
inet.0: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both
0.0.0.0/0          *[Access-internal/12] 4d 03:23:52, metric2 0
                    >  to 10.14.5.137 via dl0.0
10.22.22.22/32 *[Access-internal/12] 00:01:03, metric2 0
                    >  to 10.14.5.137 via dl0.0
```

Verify the Status of the LTE Mini-PIM

Table 7 on page 19 lists the commands that you can use to verify and monitor the status of the LTE Mini-PIM.

Table 7: Commands to Verify and Monitor the Status of the LTE Mini-PIM

Command	Purpose

show modem wireless profiles cl-*slot-number*/0/0 slot *sim-slot-number*	Displays the profiles configured on the LTE Mini-PIM.
	
	Sample:
	
	root@host> show modem wireless profiles cl-3/0/0
	slot 1|no-more
	Profile details
	  Max profiles: 16
	  Default profile Id: 1
	
	Profile 1: Inactive
	  Valid: TRUE
	  Access point name (APN): airtelgprs.com
	  Authentication: None
	  IP Version: IPV4V6
	Profile 2: Invalid
	Profile 3: Invalid
	Profile 4: Invalid
	Profile 5: Invalid
	Profile 6: Invalid
	Profile 7: Invalid
	Profile 8: Invalid
	Profile 9: Invalid
	Profile 10: Invalid
	Profile 11: Invalid
	Profile 12: Invalid
	Profile 13: Invalid
	Profile 14: Invalid
	Profile 15: ACTIVE
	  Valid: TRUE
	  Access point name (APN): airtelgprs.com
	  Authentication: None
	  IP Version: IPV4V6
	Profile 16: Invalid

Table 7: Commands to Verify and Monitor the Status of the LTE Mini-PIM *(Continued)*

Command	Purpose
show modem wireless network cl-*slot-number*/0/0	Displays the status of the modem and the status of the network connection for the LTE Mini-PIM. Sample: root@host> show modem wireless network cl-4/0/0 LTE Connection details Connected time: 26640 IP: 100.113.6.83 Gateway: 100.113.6.84 DNS: 117.96.122.48 IPv6: 2401:4900:2502:7c9b:e2f6:2dff:fec4:6ae3 Gatewayv6: 2401:4900:2502:7c9b:20dd:68ff:fe9d:e1ae DNSv6: 2401:4900:50:9:: Input bps: 0 Output bps: 0 Bytes Received: 16226 Bytes Transferred: 14556 Packets Received: 146 Packets Transferred: 154 Wireless Modem Network Info Current Modem Status: Connected Current Service Status: Normal Current Service Type: PS Current Service Mode: LTE Current Band: B1 Network: airtel Mobile Country Code (MCC): 404 Mobile Network Code (MNC): 45 Location Area Code (LAC): 65534 Routing Area Code (RAC): 0 Cell Identification: 181967135 Access Point Name (APN): airtelgprs.com Public Land Mobile Network (PLMN): INDairtel Physical Cell ID (PCI): 157 International Mobile Subscriber Identification (IMSI): 404450624363369 International Mobile Equipment Identification (IMEI/MEID): 359074062523271 Integrate Circuit Card Identity (ICCID): 8991000905691589263 Reference Signal Receiving Power (RSRP): -83

Table 7: Commands to Verify and Monitor the Status of the LTE Mini-PIM *(Continued)*

Command	Purpose
	Reference Signal Receiving Quality (RSRQ): -6 Signal to Interference-plus-Noise Ratio (SiNR): 0 Signal Noise Ratio (SNR): 24 Energy per Chip to Interference (ECIO): 0

Table 7: Commands to Verify and Monitor the Status of the LTE Mini-PIM *(Continued)*

Command	Purpose

`show interfaces dl0.0`	Displays the configuration for the dialer interface.
	
	Sample:
	
	`root@host> show interfaces dl0 |no-more`
	`Physical interface: dl0, Enabled, Physical link is Up`
	`  Interface index: 163, SNMP ifIndex: 539`
	`  Type: 27, Link-level type: Ethernet, MTU: 1460`
	`  Device flags   : Present Running`
	`  Interface flags: SNMP-Traps`
	`  Link type      : Full-Duplex`
	`  Link flags     : None`
	`  Current address: e0:f6:2d:c4:6a:e3, Hardware address: e0:f6:2d:c4:6a:e3`
	`  Last flapped   : Never`
	`  Input rate     : 0 bps (0 pps)`
	`  Output rate    : 0 bps (0 pps)`
	
	`  Logical interface dl0.0 (Index 77) (SNMP ifIndex 540)`
	`    Flags: Up SNMP-Traps 0x0 Encapsulation: ENET2`
	`    Dialer:`
	`      State: Active, Dial pool: 1`
	`      Dial strings: 1234`
	`      Subordinate interfaces: cl-3/0/0 (Index 162)`
	`      Activation delay: 0, Deactivation delay: 0`
	`      Initial route check delay: 120`
	`      Redial delay: 120`
	`      Callback wait period: 5`
	`      Load threshold: 0, Load interval: 60`
	`    Input packets : 31`
	`    Output packets: 17`
	`    Security: Zone: untrust`
	`    Allowed host-inbound traffic : bootp bfd bgp dns dvmrp igmp ldp msdp nhrp ospf pgm pim rip router-discovery rsvp sap vrrp dhcp finger ftp tftp ident-reset http https ike netconf ping reverse-telnet reverse-ssh rlogin rpm rsh snmp snmp-trap ssh telnet`
	`    traceroute xnm-clear-text xnm-ssl lsping lsselfping ntp sip r2cp webapi-clear-text webapi-ssl tcp-encap sdwan-appqoe high-availability`
	`    Protocol inet, MTU: 1446`

Table 7: Commands to Verify and Monitor the Status of the LTE Mini-PIM *(Continued)*

Command	Purpose
	Max nh cache: 0, New hold nh limit: 0, Curr nh cnt: 0, Curr new hold cnt: 0, NH drop cnt: 0 Flags: Sendbcast-pkt-to-re, Sample-input, Sample-output, Negotiate-Address Addresses, Flags: Is-Preferred Is-Primary Destination: 100.108.157.240/29, Local: 100.108.157.244, Broadcast: 100.108.157.247
show modem wireless rssi cl-*slot-number*/0/0	Displays the signal strength. Sample: root@host> show modem wireless rssi cl-3/0/0 |no-more Radio statistics Current radio signal strength: -69 dB

Table 7: Commands to Verify and Monitor the Status of the LTE Mini-PIM *(Continued)*

Command	Purpose
show modem wireless firmware cl-*slot-number*/0/0	Displays details of the modem firmware. Sample: root@host> show modem wireless firmware cl-4/0/0 LTE mPIM firmware details Product name: Junos LTE mPIM Serial number: AM09024395 Hardware version: AcceleratedConcepts/Juniper 09 Firmware version: 17.5.520-58494e6016e MAC: e0:f6:2d:c4:6a:e3 System uptime: 30098 seconds Wireless modem firmware details Modem firmware version: 9999999_9904609_SWI9X30C_02.33.03.00_00_GENERIC_002.072_001 Modem Firmware build date: 28/08/2019 Card type: MC7430 Modem manufacturer: Sierra Wireless, Inc Hardware version: 1.0 Power & Temperature: Normal 3335 mV, Normal 29.00 C OTA status State: Disabled New firmware available: No Number of SIM: 2 Slot of active: 1 Status of SIM 1 SIM state: SIM present Modem PIN security status: Disabled SIM status: SIM Okay SIM user operation needed: No Op Retries remaining: 10 Status of SIM 2 SIM state: SIM present Modem PIN security status: Disabled SIM status: SIM Okay SIM user operation needed: No Op Retries remaining: 3

CHAPTER 3

LTE Mini-PIM Firmware Upgrade

IN THIS CHAPTER

Upgrading the Mini-PIM Firmware Using the CLI

To upgrade the firmware on the Mini-PIM, using the CLI:

NOTE: When you upgrade the firmware on the Mini-PIM, the modem firmware is also upgraded.

1. Identify the currently installed firmware (jfirmware) version:

   ```
   user@host > show system firmware
   ```

   NOTE: Ensure that you upgrade the firmware on the Mini-PIM to the latest version.

   The `Current version` field in the output displays the firmware version that is currently installed on the Mini-PIM. If there is a newer version of the firmware at https://www.juniper.net/support/downloads/?p=junos-srx#sw, then proceed to the next step to download the latest firmware.

   ```
   Part             Type           Tag Current   Available Status
                                       version   version
   FPC 1
     PIC 0          MLTE_FW        1   17.2.91             OK
   Routing Engine 0 RE BIOS        0   3.2       3.2       OK
   Routing Engine 0 RE BIOS Backup 1   3.2       3.2       OK
   ```

2. Download the appropriate firmware version from https://www.juniper.net/support/downloads/?p=junos-srx#sw:

```
user@host > request system software add /var/tmp/jfirmware-<version>-signed.tgz
```

> **NOTE**: Ensure that the Junos OS version installed on the device is the same as the firmware version or later. To know the Junos OS version, issue the `show version` command.

3. Ensure that the latest firmware version is downloaded to the Mini-PIM by verifying the `Available version` field. The `Available version` field should list the latest firmware version that was downloaded in Step 2.

```
user@host > show system firmware
```

```
Part             Type           Tag Current   Available Status
                                    version   version
FPC 1
  PIC 0          MLTE_FW        1   17.2.91   17.5.517      OK
Routing Engine 0 RE BIOS        0   3.2       3.2       OK
Routing Engine 0 RE BIOS Backup 1   3.2       3.2       OK
```

4. Upgrade the firmware on the device:

```
user@host > request system firmware upgrade pic fpc-slot <fpc-slot-number>
```

```
Part          Type           Tag Current          Available         Status
                                   version           version
FPC 1
PIC 0         MLTE_FW        1   17.2.91             17.5.517            OK
Perform indicated firmware upgrade ? [yes,no] (no) yes

Firmware upgrade initiated, use "show system firmware" to monitor status.
```

5. Verify that the firmware is upgraded successfully. The status should show `OK`.

```
user@host > show system firmware
Part               Type           Tag Current     Available     Status
                                      version     version
FPC 1
PIC 0              MLTE_FW          1   17.2.91   17.5.517     UPGRADED
                                                               SUCCESSFULLY
Routing Engine 0 RE BIOS            0   3.0         3.6              OK
Routing Engine 0 RE BIOS Backup     1   3.0         3.6              OK
```

```
user@host > show system firmware
Part                Type           Tag Current     Available     Status
                                       version      version
FPC 1
PIC 0             MLTE_FW           1   17.5.517   17.5.517            OK
Routing Engine 0 RE BIOS            0   3.0         3.6                OK
Routing Engine 0 RE BIOS Backup     1   3.0         3.6                OK
```

6. Reboot the device after the firmware is upgraded. Note that if you issue the `show system firmware` command after the reboot, the `Current Version` field shows the latest firmware version and the `Available Version` field shows zero(0).

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Upgrading the Modem Firmware by Using OTA Upgrade

Over-the-air (OTA) firmware upgrade enables automatic and timely upgrade of modem firmware when new firmware versions are available. The OTA upgrade can be enabled or disabled on the 4G/LTE Mini-PIM. OTA upgrade is disabled by default.

1. Enable OTA upgrade status on the LTE Mini-PIM:

   `user@host > request modem wireless fota enable cl-`*`slot number`*`/0/0`

2. Initiate the firmware upgrade:

   `user@host > request modem wireless upgrade cl-`*`slot number`*`/0/0`

3. Verify the firmware upgrade status:

   `user@host > show modem wireless firmware cl-`*`slot number`*`/0/0`

```
LTE mPIM firmware details
  Product name: Junos LTE mPIM
  Serial number: AG50071852
  Hardware version: AcceleratedConcepts/sprite
  Firmware version: 17.4.3
  MAC: 00:00:5e:00:53:61
  System uptime: 3430 seconds
Wireless modem firmware details
```

```
  Modem firmware version: 9999999_9904609_SWI9X30C_02.23.00.00_00_GENERIC_002.018_000
  Modem Firmware build date: 22/10/2016
  Card type: MC7430
  Modem manufacturer: Sierra Wireless, Inc
  Hardware version: 1.0
  Power & Temperature: Normal 3343 mV, Normal 30.00 C
OTA status
  State: Enabled
  New firmware available: No
Number of SIM: 2
Slot of active: 2
Status of SIM 1
  SIM state: SIM present
  Modem PIN security status: Disabled
  SIM status: SIM Okay
  SIM user operation needed: No Op
  Retries remaining: 3
Status of SIM 2
  SIM state: SIM present
  Modem PIN security status: Disabled
  SIM status: SIM Okay
  SIM user operation needed: No Op
  Retries remaining: 3
```

4. Check the LTE Mini-PIM connection status:

   user@host > show modem wireless network cl-*slot number*/0/0

```
root> show modem wireless network cl-1/0/0
LTE Connection details
  Connected time: 147
  IP: 172.16.52.4
  Gateway: 172.16.52.5
  DNS: 123.123.123.123
  Input bps: 0
  Output bps: 0
  Bytes Received: 1308
  Bytes Transferred: 1164
  Packets Received: 10
  Packets Transferred: 10
Wireless Modem Network Info
  Current Modem Status: Connected
  Current Service Status: Normal
```

```
Current Service Type: PS
Current Service Mode: LTE
Current Band: B3
Network: UNICOM
Mobile Country Code (MCC): 460
Mobile Network Code (MNC): 1
Location Area Code (LAC): 65534
Routing Area Code (RAC): 0
Cell Identification: 4865903
Access Point Name (APN): ctnet
Public Land Mobile Network (PLMN): CHN-UNICOM
Physical Cell ID (PCI): 333
International Mobile Subscriber Identification (IMSI): ****************
International Mobile Equipment Identification (IMEI/MEID): ****************
Integrate Circuit Card Identity (ICCID): 89860114721100697502
Reference Signal Receiving Power (RSRP): -97
Reference Signal Receiving Quality (RSRQ): -16
Signal to Interference-plus-Noise Ratio (SiNR): 0
Signal Noise Ratio (SNR): 0
Energy per Chip to Interference (ECIO): 0
```

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