

SRX210 Services Gateway 3G ExpressCard



Use the instructions in this guide to help you install the SRX210 Services Gateway 3G ExpressCard. For details, see the *SRX210 Services Gateway Hardware Guide* at <http://www.juniper.net/techpubs/a057.html> and the JUNOS Software documentation at <http://www.juniper.net/techpubs/software/junos-srx/index.html>.

OVERVIEW OF 3G CONNECTIVITY ON SRX SERVICES GATEWAYS

The SRX210 Services Gateway has a built-in 3G ExpressCard slot. You can use a 3G ExpressCard (wireless modem card) sold through Juniper Networks for wireless data connectivity to 3G networks. Support for the 3G ExpressCard extends the already rich set of WAN connectivity options available on the SRX210 Services Gateway. The SRX210 Services Gateway supports a wireless interface as a backup for primary interfaces such as Gigabit Ethernet and Fast Ethernet. You can also use the 3G interface as the primary interface.

3G CONNECTIVITY ON GSM AND CDMA EXPRESSCARDS

Juniper Networks supports 3G ExpressCards that you can insert into the ExpressCard slot in the SRX210 Services Gateway. When the SRX210 Services Gateway is equipped with a 3G ExpressCard and used in a branch office, the device can provide dial-out services to PC users and forward IP traffic to the service provider's cellular network. Juniper Networks supports the following 3G ExpressCards:

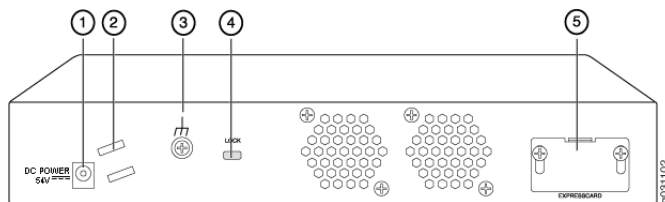
- Sierra Wireless AirCard Global System for Mobile Communications (GSM) High-Speed Packet Access (HSDPA) ExpressCard
- Sierra Wireless AirCard Code-Division Multiple Access (CDMA) 1xEvolution-Data Optimized (EV-DO) rev. A ExpressCard

GSM and CDMA are competing digital cellular phone technologies. CDMA is used by the Verizon and Sprint service providers. There are several GSM technology users worldwide.

Note: The SRX210 Services Gateway supports only certain Sierra Wireless Inc. ExpressCards, which are supplied by Juniper Networks and orderable from the Juniper Price List. For details on the models supported, see the SRX210 Services Gateway Hardware Guide.

INSTALLING THE 3G EXPRESSCARD IN THE SRX210 SERVICES GATEWAY EXPRESSCARD SLOT

Use the instructions below to install the 3G ExpressCard in the SRX210 Services Gateway. See the figure below for details on the location of the 3G ExpressCard slot on the SRX210 Services Gateway back panel.



SRX210 Services Gateway Back Panel

1. Power supply point	2. Cable tie holder
3. Grounding point	4. Lock
5. 3G ExpressCard slot	

Step 1: Before you begin

Before you begin, do the following:

1. Install your SRX210 device and establish basic connectivity. For more information, see the *SRX210 Services Gateway Hardware Guide*.
2. Establish an account with a cellular network service provider. Contact your service provider for more information on creating an account.
 - For CDMA/EV-DO 3G ExpressCards, use the Electronic Serial Number (ESN) available on the card to create an account with CDMA service providers (Verizon and Sprint). To access the ESN number on the 3G ExpressCard:
show modem wireless interface cl-0/0/8 firmware
 - For HSPA (GSM/UMTS) 3G ExpressCards, a SIM card should be obtained from the service provider and inserted into the SIM slot of the 3G ExpressCard.

Step 2: Install the 3G ExpressCard:

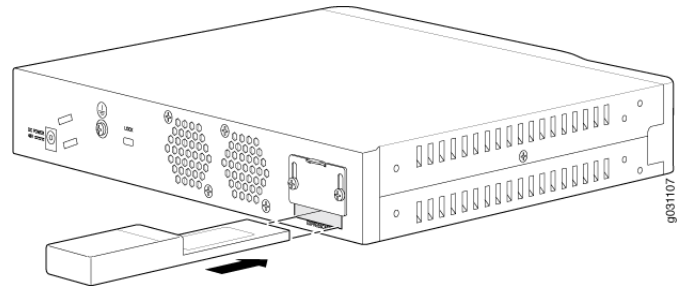
To install the 3G ExpressCard in the ExpressCard slot on the SRX210 device:

1. Ensure that the device is powered off.
 2. Insert the 3G wireless ExpressCard into the ExpressCard slot. Align the 3G ExpressCard as follows:
 - Ensure that the 3G ExpressCard is parallel with the surface on which the SRX210 Services Gateway is placed.
 - Ensure that the center of the 3G ExpressCard is aligned with the center of the ExpressCard slot on the SRX210 Services Gateway.
 - The 3G ExpressCard is designed to fit tightly in the slot. You will encounter two points of resistance while inserting the 3G ExpressCard into the slot. Use firm pressure as you insert the card.
- Note: Hot insertion and removal of the 3G ExpressCard is not supported.*



- You will encounter the first point of resistance when you begin to insert the 3G ExpressCard. After you align the 3G ExpressCard, lift it slightly and use firm pressure to slide it into the slot.
 - When you have partially inserted the 3G ExpressCard, you will encounter the second point of resistance. Use additional pressure to finish inserting the 3G ExpressCard into the slot.
- Power on the device. The ExpressCard LED on the front panel of the device indicates the status of the 3G ExpressCard interface.

The figure below shows how the 3G ExpressCard is inserted into the SRX210 Services Gateway.



Step 3: Check the 3G ExpressCard status:

To check the status of the 3G ExpressCard:

```
user@host> show modem wireless interface cl-0/0/8
user@host> show interfaces terse
```

Step 4: Configure the 3G ExpressCard:

To configure and activate the 3G ExpressCard:

- Configure a dialer interface.
- Configure the 3G ExpressCard interface.
- Configure security zones and policies, as required, to allow traffic through the WAN link.

Note: The dialer interface (d10.0) should be put into the relevant security zone.

- Configure one of the dialer trigger mechanisms.

Step 5: Activate 3G ExpressCard options:

Task	CLI	J-Web
CDMA ExpressCards		
You can activate CDMA ExpressCards from the JUNOS CLI by running the following commands or by J-Web configuration. You can enable the CDMA ExpressCard to connect to the service provider's cellular network.		
To activate the CDMA ExpressCard	<pre>user@host> request modem wireless activate</pre>	
Select the type of card activation	<pre>user@host> request modem wireless activate iota cl-0/0/8</pre> <pre>user@host> request modem wireless activate manual cl-0/0/8 msl <MSL> mdn <MDN> imsi <IMSI> sid <SID> nid <NID> sip-user-id <SIP_ID> sip-password <SIP_PASSWORD></pre> <pre>user@host> request modem wireless activate otasp cl-0/0/8 dial-string <calling number></pre>	<p>IOTA—Internet-based over air provisioning.</p> <p>Manual Activation—Requires manual entry of the required information.</p> <p>OTASP—Over the air service provisioning.</p> <p>Click Activate. Enter information required for card activation when prompted, if you have selected Manual Activation or OTASP. Click OK.</p>
GSM ExpressCards		
You can unlock the SIM card inserted into the GSM ExpressCard from the JUNOS CLI by running the following commands. If the SIM is locked, you need to unlock it before making a call.		
To unlock the GSM SIM	<pre>user@host> request modem wireless gsm sim-unlock cl-0/0/8 pin</pre>	
To unlock the SIM automatically on reboot	<pre>user@host# set interfaces cl-0/0/8 cellular-options gsm-options sim-unlock-code</pre>	

Note: J-Web does not currently support configuration of GSM ExpressCards.

Step 6: Connect the External Antenna

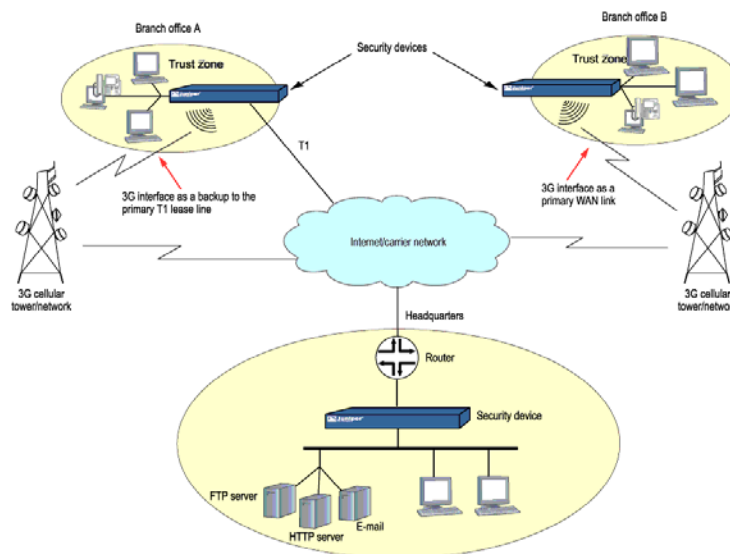
The supplied multi-band external antenna allows superior reception of wireless signals and reduces possible radio frequency noise generated by electrical/electronic components around the SRX210 device. The antenna has a magnetic mount, so it must be placed far away from radio frequency noise sources including network components.

To connect the external antenna:

1. Connect the end of the external antenna cable to the antenna port of the 3G ExpressCard.
2. Push the connector firmly until it is secure. The antenna is now ready to be used.

CONFIGURING THE 3G EXPRESSCARD AS A FAILOVER/BACKUP LINK

Use the instructions below to configure the 3G ExpressCard as a failover/backup link. The figure below illustrates a basic setup for 3G connectivity for two branch offices. Branch Office A has a T1 leased line as the primary WAN link and a 3G connection as the failover link. Branch Office B uses the 3G connection as the primary WAN link.



Step 1: Configure the dialer interface and 3G ExpressCard interface with the following commands:

- To configure the dialer interface:


```
user@host# set interfaces d10 description 3g-wireless encapsulation ppp <unit 0> dialer-options <pool 1> dial-string <14691>
```

```
user@host# set interfaces d10 <unit 0> family <inet> negotiate-address
```
- To configure the dialer pool for the 3G ExpressCard interface:


```
user@host# set interfaces cl-0/0/8 dialer-options <pool 1> priority <25>
```
- To configure modem options for the 3G ExpressCard interface:


```
user@host# set interfaces cl-0/0/8 modem-options init-command-string ATE0
```
- To configure a GSM profile for the 3G ExpressCard interface:


```
user@host> request modem wireless gsm create-profile profile-id <1-16> sip-user-id <username> sip-password <password> access-point-name <apn.name> authentication-method <pap/chap>
```
- To designate the GSM profile you configured as the active profile:


```
user@host# set interfaces cl-0/0/8 cellular-options gsm-options select-profile profile-id <1-16>
```

Step 2: Check for authentication from the service provider and configure one of the two following options:

- To configure Password Authentication Profile (PAP) on the dialer interface:


```
user@host# set interfaces d10.0 ppp-options <pap> default-password <password>
```

```
user@host# set interfaces d10.0 ppp-options <pap> local-name <username>
```

```
user@host# set interfaces d10.0 ppp-options <pap> passive
```



Note: The CDMA card should be pre-activated before insertion into the SRX210 device. SRX210 Services Gateway support for card activation is not available in JUNOS Software Release 9.6.

- To configure a Challenge Handshake Authentication Protocol (CHAP) access profile on the dialer interface


```
user@host# set interfaces dl0.0 ppp-options <chap> default-chap-secret <password>
user@host# set interfaces dl0.0 ppp-options <chap> local-name <username>
user@host# set interfaces dl0.0 ppp-options <chap> passive
```

Step 3: Configure one of three options for triggering a call using the 3G wireless network:

There are three methods for configuring the dialer interface to trigger a call using the 3G wireless network:

- Backup WAN connection:

To configure a dialer interface as a backup WAN connection:

```
user@host# set interfaces ge-0/0/0.0 <unit 0> backup-options interface dl0
```
- Watch list:

To create a watch list to dial when specific routes are not in the inet.0 route table:

```
user@host# set interfaces dl0 unit 0 dialer-options watch-list <200.200.201.1/32>
```

To route traffic to the dialer interface so the dialer filter can match on traffic:

```
user@host# set routing-options static route <0.0.0.0/0> qualified-next-hop <dl0.0> preference <200>
```
- Dialer filter:

To create a dialer filter to allow specific traffic to trigger a 3G call:

```
user@host# set firewall family inet dialer-filter corporate-traffic-only term <term1> from source-address <30.30.90.0/24> destination-address <20.20.20.0/24>
```

To associate the dialer filter with a dialer interface:

```
user@host# set interfaces dl0 <unit 0> family <inet> filter dialer <corporate-traffic-only>
```

FREQUENTLY ASKED QUESTIONS

Q: It is difficult to insert the ExpressCard into the SRX210 device's slot. Is that normal behavior?

A: Yes. The design allows for sufficient metallic contact for grounding purposes. See *Step 1: Installing the 3G ExpressCard on page 1* in this guide for the installation procedure.

Q: Is an antenna required? How much does it cost?

A: The required antenna is packaged with the ExpressCard in the SRX210 Services Gateway 3G ExpressCard kit at no additional charge. The antenna will have a magnetic mount with ceiling and wall mount kit options within the package.

Q: Is there a license associated with using 3G options?

A: No. A license is not required to use 3G. You can purchase the 3G ExpressCard from Juniper Networks.

Q: My country doesn't have UMTS/3G enabled yet, only GPRS/EDGE. Can I still use the 3G Solution?

A: Yes. 3G ExpressCards automatically fall back to carrier-supported technology. Verify the carrier's supported technology with the ExpressCard that Juniper Networks supports to ensure compatibility.

Q: Will a wireless carrier need to certify a solution (SRX210 + ExpressCard) before a customer can use it?

A: Solution certification depends on the carrier. In the USA, most service providers will need to certify the platform before customers use the platform in their 3G network. Juniper Networks will work with service providers where certification is necessary.

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