SRX210 Services Gateway 3G ExpressCard
Quick Start

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
- The Junos OS documentation at http://www.juniper.net/techpubs/software/junos-srx/index.html

Overview of 3G Connectivity on SRX Series Services Gateways
The SRX210 Services Gateway has a built-in 3G ExpressCard slot (wireless modem card). You can use the 3G ExpressCard 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 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 Downlink Packet Access (HSDPA) ExpressCard
- Sierra Wireless AirCard GSM High-Speed Uplink Packet Access (HSUPA) 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 following instructions to install the 3G ExpressCard in the SRX210 Services Gateway. See the following illustration for details on the location of the 3G ExpressCard slot on the device’s back panel.

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SRX210 Services Gateway Back Panel

<table>
<thead>
<tr>
<th>Callout</th>
<th>Description</th>
<th>Callout</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Power supply point</td>
<td>4</td>
<td>Lock for security cable</td>
</tr>
<tr>
<td>2</td>
<td>Cable tie holder</td>
<td>5</td>
<td>ExpressCard slot</td>
</tr>
<tr>
<td>3</td>
<td>Grounding point</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Task 1: Before You Begin
Before you begin, do the following:

1. Install your SRX210 Services Gateway 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 a CDMA service provider (Verizon or Sprint). To access the ESN on the 3G ExpressCard:
   
   ```
   user@host > 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.

Task 2: Install the 3G ExpressCard
To install the 3G ExpressCard on the SRX210 Services Gateway:

1. Ensure that the device is powered off.

2. Insert the 3G ExpressCard into the ExpressCard slot. Align the 3G ExpressCard as follows:
   - Ensure that the 3G ExpressCard is parallel with the surface on which the services gateway is placed.
   - Ensure that the center of the 3G ExpressCard is aligned with the center of the ExpressCard slot on the 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:** The 3G ExpressCard is not hot-swappable.

As you attempt to insert the 3G ExpressCard into the ExpressCard slot, you will immediately encounter the first point of resistance. 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.

3. Power on the device. The ExpressCard LED on the front panel of the device indicates the status of the 3G ExpressCard interface.

The illustration below depicts the insertion of the 3G ExpressCard into the SRX210 Services Gateway.

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**Task 3: Check the 3G ExpressCard Status**

Use the following CLI commands to check the status of the 3G ExpressCard:

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

**Task 4: Configure the 3G ExpressCard**

To configure the 3G ExpressCard:

1. Configure a dialer interface.
2. Configure the 3G ExpressCard interface.
3. Configure security zones and policies, as required, to allow traffic through the WAN link.
4. The dialer interface (dl0.0) should be placed into the relevant security zone.
5. Configure one of the dialer trigger mechanisms.

**Task 5: Activate the 3G ExpressCard Options: CDMA ExpressCard**

You can activate CDMA ExpressCards using the Junos CLI or J-Web interface. You can enable the CDMA ExpressCard to connect to the service provider’s cellular network.

**To activate the CDMA ExpressCard (CLI Procedure)**

1. Enter the command:
   
   ```
   user@host> request modem wireless activate
   ```

2. Enter one of the following options:
   
   ```
   user@host> request modem wireless activate iota cl-0/0/8
   user@host> request modem wireless activate manual cl-0/0/8 msl msl
   msl imsi imsi sid sid nid nid sip-user-id sip_id sip-password sip_password
   user@host> request modem wireless activate otasp cl-0/0/8 dial-string
   ```

**To activate the CDMA ExpressCard (J-Web Procedure)**

1. In the J-Web user interface, select **Configure>Interfaces**.
2. Click the `cl-0/0/0` interface name. The 3G Interface Configuration page appears.
3. Select one of the following options:
   
   ```
   IOTA—Internet-based over air provisioning.
   Manual Activation—Requires manual entry of the required information.
   OTASP—Over the air service provisioning.
   ```
4. Click **Activate**.
5. Enter the information required for card activation when prompted, if you have selected **Manual Activation** or **OTASP**.
6. Click **OK**.

**GSM ExpressCard**

You can lock or unlock the SIM card inserted into the GSM ExpressCard from the Junos CLI by using the following commands. If the SIM is locked, you need to unlock it before you can make a call.

1. To lock the GSM SIM:
   
   ```
   user@host> request modem wireless gsm sim-lock pin xxxx enable cl-0/0/8
   ```

**NOTE:** Once the SIM lock is enabled, you can view the status of the SIM card with the CLI command `show modem wireless interface cl-0/0/8`. The output displays the PIN security status as **Modem PIN security status: Enabled**.

When the SRX210 Services Gateway is rebooted, the SIM is locked and must be unlocked with the given PIN.

2. To unlock the GSM SIM:
   
   ```
   user@host> request modem wireless gsm sim-unlock cl-0/0/8 pin
   ```

3. To unlock the SIM automatically on reboot:
   
   ```
   [Edit]
   user@host# set interfaces cl-0/0/8 cellular-options gsm-options sim-unlock-code
   ```

When you attempt to unlock the SIM, if you enter a wrong PIN three times in a row, the SIM enters the PIN Unlock Key (PUK) state. You must obtain the PUK code from your service provider to unblock it with the CLI.

4. To recover the SIM from the PUK state:
Task 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 Services Gateway. 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

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.

Task 1: Configure the Dialer Interface and 3G ExpressCard Interface

To configure the dialer interface:

- [Edit]
  user@host# set interfaces dl0 description 3g-wireless encapsulation ppp unit 0 dialer-options pool 1 dial-string 14691
- [Edit]
  user@host# set interfaces dl0 unit 0 family inet inet negotiate-address

To configure the dialer pool for the 3G ExpressCard interface:

- [Edit]
  user@host# set interfaces cl-0/0/8 dialer-options pool 1 priority 25

To configure modem options for the 3G ExpressCard interface:

- [Edit]
  user@host# set interfaces cl-0/0/8 modem-options init-command-string ATE0

To configure modem options for the 3G ExpressCard interface:

- [Edit]
  user@host# set interfaces cl-0/0/8 cellular-options gsm-options select-profile profile-id 1-16

NOTE: The CDMA ExpressCard should be activated before it is inserted into the SRX210 Services Gateway. The SRX210 Services Gateway support for ExpressCard activation is not available in Junos OS Release 10.2.
To configure a Challenge Handshake Authentication Protocol (CHAP) access profile on the dialer interface:

- [Edit]
  user@host# set interfaces dl0.0 ppp-options chap default-chap-secret password
- [Edit]
  user@host# set interfaces dl0.0 ppp-options chap local-name username
- [Edit]
  user@host# set interfaces dl0.0 ppp-options chap passive

Task 3: Configure an Option to Trigger 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:
    [Edit]
    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:
    [Edit]
    user@host# set interfaces dl0 unit 0 dialer-options watch-list 200.200.201.1/32

  - To route traffic to the dialer interface so that the dialer filter can match on traffic:
    [Edit]
    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:
    [Edit]
    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:
    [Edit]
    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 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 kits within the package.

Q: Is there a license associated with using 3G options?
A: No. A license is not required to use 3G functionality. 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. To ensure compatibility, however, we recommend that you check with your carrier to verify that their technology supports the 3G ExpressCard.

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.

Q: How do I return the ExpressCard to Juniper Networks for repair or replacement?
A: If the ExpressCard needs to be replaced, Juniper Networks will replace it with an equivalent ExpressCard. Any service and activation charges required to reconnect the card to the 3G service will be the customer’s responsibility.

You can contact JTAC 24 hours a day, 7 days a week, using any of the following methods:

- On the Web: Using the Case Manager link at http://www.juniper.net/support/
- By telephone:
  - From the USA and Canada: 1-888-314-JTAC
  - From all other locations: 1-408-745-9500

Contacting Juniper Networks

For technical support, see www.juniper.net/support/requesting-support.html.