



CHAPTER 3

First-Time Configuration

This chapter contains information with which you should be familiar before you begin to configure your Cisco RAN Service Module for the first time.

Understanding the Cisco RAN Service Module Interfaces

The Cisco RAN Service Module is supported in the Cisco ONS 15454 chassis as one of its interface cards.

The Cisco ONS 15454 SDH shelf assembly has 17 card slots that are numbered sequentially from left to right. Slots 1 – 4 and 14 – 17 are multispeed slots. Slots 5, 6, 12 and 13 are high-speed slots. Slots 7 and 11 are dedicated to TCC-I cards. Slots 8 and 10 are dedicated to cross-connect (XC10G) cards. Slots 3 and 15 can host E1N-14 and DS3i-N-12 cards that are used in 1:N protection. Typically, the Cisco RAN Service Module slides into Slots 5, 6 and 12, 13 and connects directly to the backplane power and communications. Slots 5 and 12 would typically hold the working or active RAN Service Module while Slots 6 and 13 would hold a protect or standby RAN Service Module.

In the Cisco ONS 15454 SDH, the Cisco E1-42 cards are used to connect both the long haul E1 to the remote cell site and also the short haul E1 to the BSCs/RNCs. The Cisco ONS 15454 RAN Service Module transmits and receives E1 data streams (for GSM applications) and OC-3 data streams (for UMTS applications) via the Cross Connect cards. For E1 connections (GSM and/or backhaul), as many as 126 E1 interfaces from multiple E1-42 cards may be groomed by the Cross Connect card to form two STM-1 data streams which are directed to and terminated on the Cisco RAN Service Module. For OC-3 interfaces (Packet of SONET [POS] and/or ATM), as many as eight OC-3 interfaces from multiple OC-3 cards may be groomed by the Cross Connect card to form two STM-4 data streams which are directed to and terminated on the Cisco RAN Service Module as well.

Each Service Module has four 10/100/1000 Ethernet MAC IEEE 802.3 specification (RJ-45) ports). The Cisco ONS 15454 RAN Service Module also includes two RJ-45 ports, one used as a DCE console (labeled Console) and the other used as a debug port (covered with a tab plate),

There are four CPUs on the RAN Service Module card. One of these CPUs serves as a service CPU and the other three CPUs are traffic controller CPUs. Each IOS processor is equipped with one front-side 10/100/1000 Gigabit Ethernet port, four OC-3 Packet over SONET (POS) or STM-1 backplane interfaces and 42 E1 backplane interfaces. The RAN Service Module interacts with the rest of the I/O interface cards in the Cisco ONS 15454 chassis through cross connect cards.

The Cisco RAN Service Module has the following traffic interfaces:

- Four Gigabit Ethernet (GigE) interfaces: These interfaces are numbered GigE 0/0, GigE 1/0, GigE 2/0, and GigE 3/0. Each of these interfaces is assigned to one CPU. Interface GigE 0/0 is used for management traffic. The other GigE interfaces (GigE 1/0, GigE 2/0, and GigE 3/0) are used for backhaul communications. These interfaces do not interact with other I/O cards via the cross-connect, but rather are physical ports available on the faceplate of the RAN Service Module.
- Four POS interfaces: These interfaces are POS 0/0, POS 1/0, POS 2/0, and POS 3/0. Each interface resides on one CPU. Interface POS 0/0 is connected to the service CPU and it may be used for management traffic. The other POS interfaces are used for backhaul communications. These interfaces support HDLC and PPP encapsulation. In CTC, the POS interfaces are listed as STM-1 ports 5-8, and they can be cross-connected to other interface cards.
- Four ATM interfaces: Each CPU is equipped with its own ATM interface. Interface ATM0/0 is attached to the service CPU. And interfaces ATM1/0, ATM2/0, and ATM3/0 are connected to traffic CPUs 1, 2, and 3 respectively. These ATM interfaces are not directly accessible via CTC. They must first be assigned to one of four VC4 ports using an IOS-based cross-connect feature which is configured on the RAN Service Module itself. The 4 VC4 ports are listed as STM-1 ports 1-4 in the CTC card view. The IOS based cross-connect feature is described more fully in the section "Configuring the IOS Based Cross-connect."



Note ATM interfaces on the RAN-SVC module support a maximum MTU of 4064. This differs with some other Cisco devices as well as other vendors equipment. IP equipment directly connected to the RAN-SVC ATM interfaces should set their MTU to 4064 for optimum operation.

- 126 E1/T1 interfaces: There are 42 of these interfaces assigned to each of the three traffic CPUs. The interface correspond to cross connect ports 9 through 134. The E1/T1 interfaces serve as GSM-abis and backhaul (HDLC/PPP) connections. Users can configure up to 80 GSM-abis interfaces and 40 HDLC/PPP interfaces. No fractional E1/T1 is supported on the Cisco RAN Service Module, All time slots must be configured in a channel group.



Note See the *Cisco ONS 15454 SDH Installation and Operations Guide* for proper installation of the RAN Service Module and other Cisco ONS 15454 cards.
