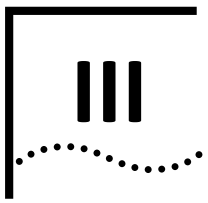


INITIAL CONFIGURATION

Chapter 5 QuadPAC IP Configuration

Chapter 6 QuadPAC Parameter Configuration

5 QUADPAC IP CONFIGURATION

About This Chapter

This chapter includes:

- Factory Default Settings
- QuadPAC IP Configuration Procedure
- Resetting the QuadPAC to Factory Default IP Settings

Factory Default Settings

The QuadPAC is factory-configured with default settings. This chapter describes how to change the settings such that they are appropriate for the operator's network.

Table 17 lists the default factory settings.

Table 17 QuadPAC Factory Default IP Settings

IP Configuration Setting	Value
DO-BTS IP address	10.10.10.60
Gateway IP address	10.10.10.1
RNC IP address	10.10.10.50
PDSN IP address (optional)	10.10.10.110

QuadPAC IP Configuration Procedure

Re-configuring the IP addresses from the default settings should be done on the QuadPAC DO-BTS and on the CPU module (where the RNC exists).

Changing the DO-BTS IP address is done by using the iCell Boot Configuration tool. The iCell Boot Configuration tool is a Graphical User Interface (GUI) that allows the IP configuration to be changed either during the first initialization, after a factory reset (see Resetting the QuadPAC to Factory Default IP Settings), or at any time when changes to the IP addresses are required.

Changing the RNC IP address is done by using a Linux shell (command-line) interface that is accessible using Secure Shell (SSH).

This section includes:

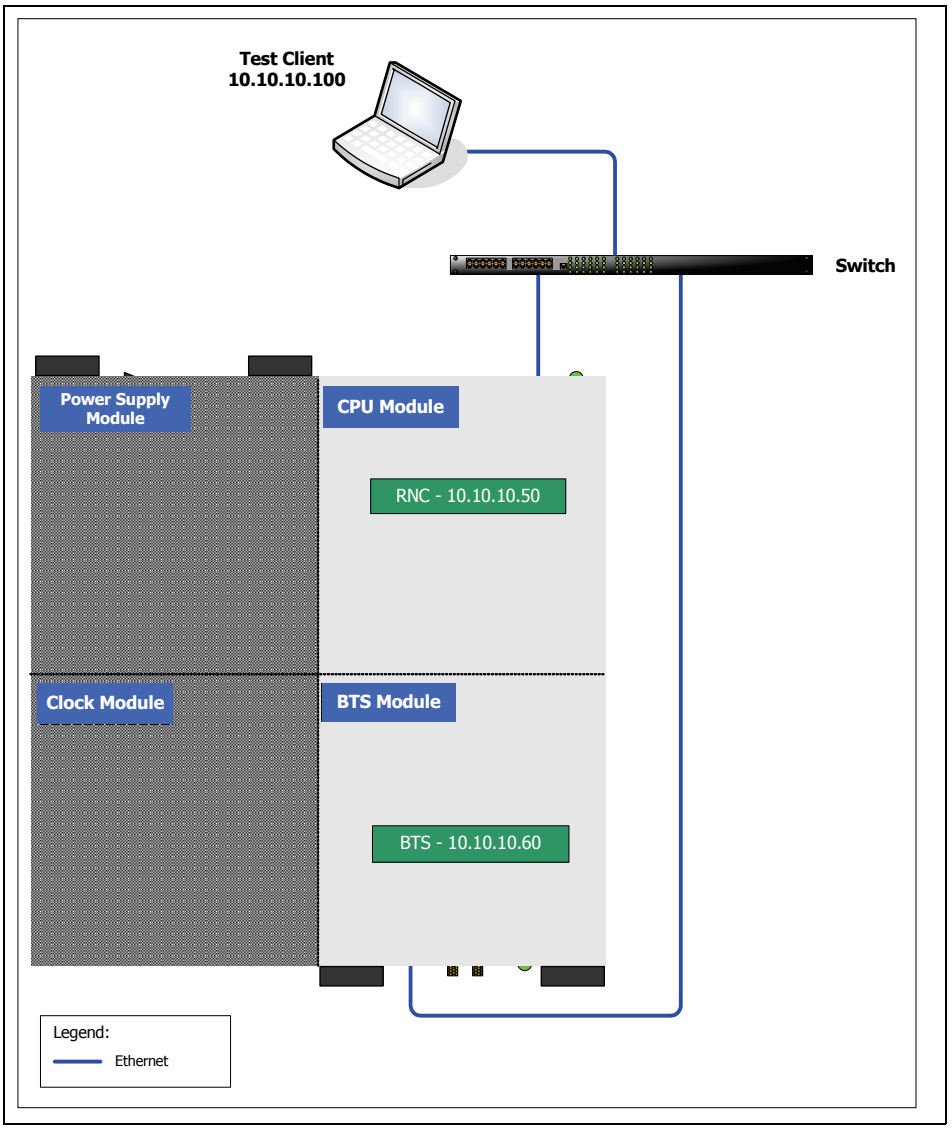
- Connecting the Test Client
- Performing a Default Ping Test
- Changing the DO-BTS IP Configuration
- Changing the RNC IP Configuration

Connecting the Test Client

Connect an Ethernet cable from the test client to the QuadPAC.

Figure 23 shows a diagram of the connection.

Figure 23 Connecting Test Client from QuadPAC



Performing a Default Ping Test

Before beginning the configuration process, ping each of the network elements in the QuadPAC using the default IP addresses listed in Table 17.

The workstation used to configure the QuadPAC must be able to reach the 10.10.10.100 network.

To perform the ping test:

1 From the workstation, launch a command line interface.

2 Ping the RNC: **`ping <RNC IP address>`**

3 Ping the DO-BTS: **`ping <DO-BTS IP address>`**

Changing the DO-BTS IP Configuration

To change the DO-BTS IP settings:

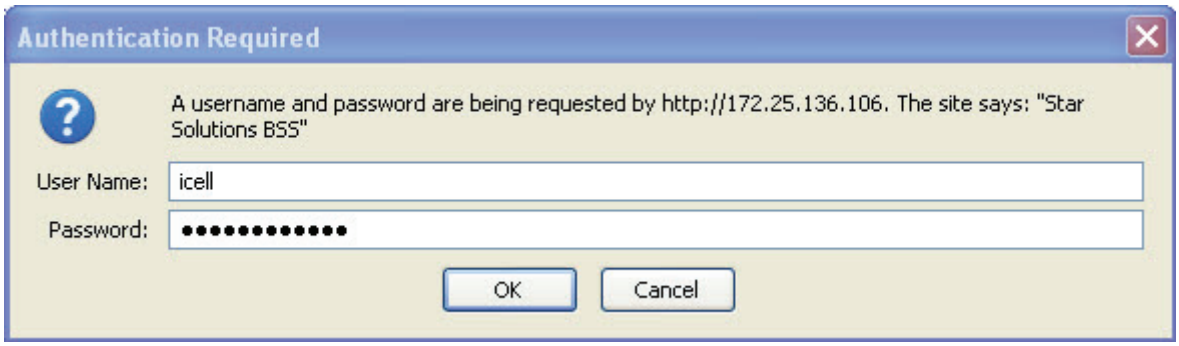
1 Connect to the BootChange configuration page:

a Open a web browser.

b Enter the DO-BTS IP address in the address bar.

The login screen is displayed as shown in Figure 24.

Figure 24 Login Screen

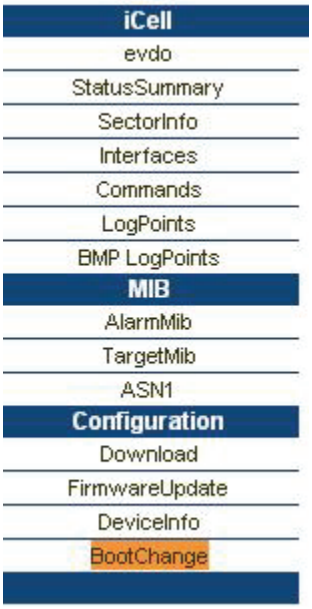


c Log in as **`icell`**, using **`<default password>`** password.

Contact Stat Solutions engineering support for default password information.

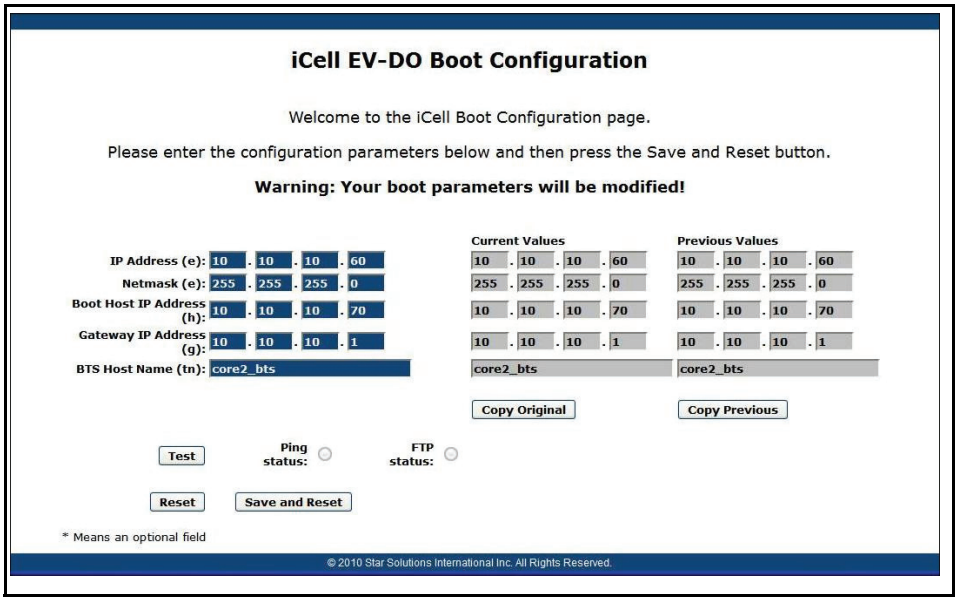
d Once logged in, select the **BootChange** option in the menu in the left pane, as shown in Figure 25.

Figure 25 BootChange Option in Sidebar Menu



A page similar to the one shown in Figure 26 is displayed.

Figure 26 Default QuadPAC BootChange Configuration Page

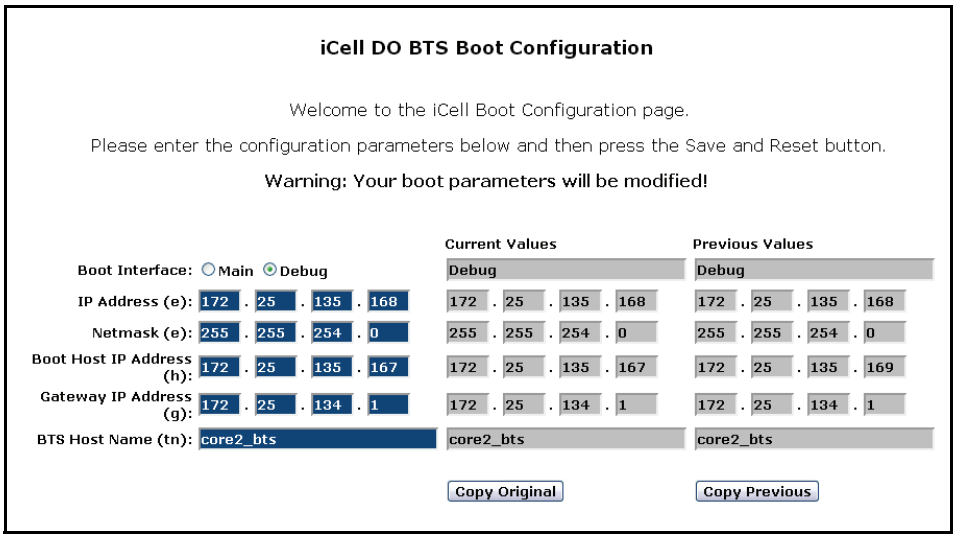


2 Enter the correct configuration parameters for the new network in the left-hand column of the Boot Configuration page. Table 18 lists and describes the configuration parameters. Figure 27 shows an example of a modified Boot Configuration page.

Table 18 Boot Configuration Parameters

Parameter	Description
Boot Interface	Represents the physical ETH interface of the QuadPAC DO-BTS. ■ Main – Main ETH interface ■ Debug – not applicable for the QuadPAC
IP Address	DO-BTS IP address
Netmask	QuadPAC subnet MASK
Boot Host IP Address	IP address of the server where the DO-BTS configuration files are located (usually the same IP as the RNC server).
Gateway IP Address	QuadPAC Gateway IP address
DO-BTS Host Name	Name of the DO-BTS configuration file. Also use as the header as it appears on the DO-BTS HTTP page.
Test button	The **Test** button allows the user to test the connectivity between the DO-BTS and the RNC before committing any changes.

Figure 27 Example of a Modified QuadPAC Boot Configuration Page

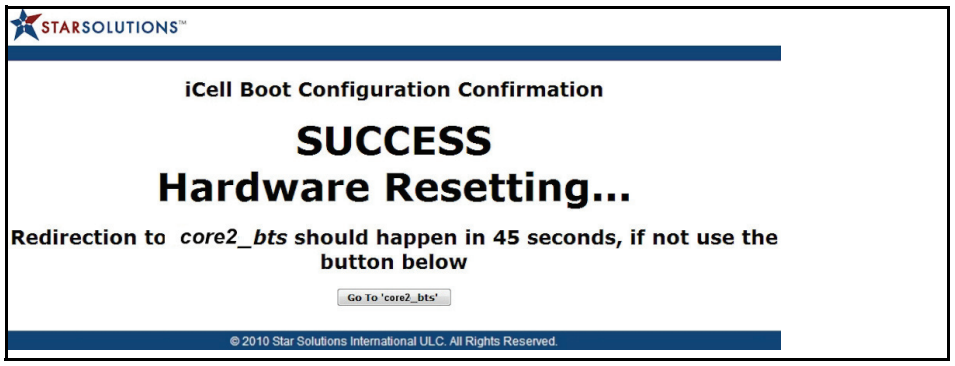


*If required, the **Revert** button resets the values in the left-hand column to the original values in the right-hand column.*

3 Click the **Save and Reset** button.

4 The system validates the new settings. If the validations pass, a page similar to the one shown in Figure 28 is displayed.

Figure 28 Boot Configuration Confirmation Page



5 Redirection to the iCell HTTP configuration page should occur in about 45 seconds. If the redirection does not occur automatically, click the **Go To ...** button.

Changing the RNC IP Configuration

To change the RNC IP setting:

1 Access the RNC command line interface:

   a Open an SSH session using the RNC IP address on the default TCP port of 22.

   b Log in as the **root** user.

2 Edit the RNC interface setting:

   a Change to the **network-scripts** directory using the following command:

   ```
   cd /etc/sysconfig/network-scripts
   ```

   b Create a backup of the existing configuration file using the following command:

   ```
   cp ifcfg-eth0 ifcfg-eth0.bak
   ```

   c Edit the **ifcfg-eth0** file (using the **vi** tool) and replace the default IP addresses with the addresses that are valid for your network.

Figure 29 Example of modified ifcfg-eth0 file

```
DEVICE=eth0
ONBOOT=yes
BOOTPROTO=none
IPADDR=199.18.17.10
NETMASK=255.255.255.0
NETWORK=199.18.17.0
BROADCAST=199.18.17.255
GATEWAY=199.18.17.1
TYPE=Ethernet
USERCTL=no
PEERDNS=no
```

3 Edit the RNC system-config setting:

   a Change to the **sysconfig** directory using the following command:

```
cd  /etc/sysconfig
```

b Create a backup of the existing network configuration file using the following command:

```
cp network network.bak
```

c Edit the `network` file (using the `vi` tool) and replace the default host name and gateway with the information that is valid for your network.

Figure 30 Example of modified network file

```
HOSTNAME=RNC_homeland
GATEWAY=199.18.17.1
```

4 Edit the RNC hosts file:

a Change to the `etc` directory using the following command:

```
cd  /etc
```

b Edit the **`hosts`** file (using the **`vi`** tool) and replace the default host names and IP address with the information that is valid for your network.

Figure 31 Example of modified hosts file

```
127.0.0.1 localhost.localdomain localhost
199.18.17.10       RNC_homeland
199.18.17.20       BTS_homeland
```

5 Reboot the RNC using the following command:

```
reboot
```

6 Wait for the RNC to restart. The test client will be disconnected from the RNC when the RNC reboots.

7 Ping the new RNC IP address and log in again to validate the changes.

Resetting the QuadPAC to Factory Default IP Settings

The QuadPAC can be reset to factory default IP settings, in case the IP address of the QuadPAC is not accessible by the user.

To reset the QuadPAC to the factory default IP settings:

1 Ensure that the QuadPAC is powered on.

2 Identify the **Reset** button on the QuadPAC box. See Figure 22 for the location of the **Reset** button.

3 Press and Hold the **Reset** button for 20 seconds

The QuadPAC IP settings should now be set to the factory default IP settings. See Table 17 for the factory default values.

Caution:
*Do not attempt to press the **Reset** button during QuadPAC powerup.*

6 QUADPAC PARAMETER CONFIGURATION

About This Chapter

This chapter describes the configuration changes required for deployment of the QuadPAC.

The configuration changes described here cover the RNC and DO-BTS and assume that the QuadPAC is integrated with a core network.

Network planning information is required to configure the QuadPAC*. See* Engineering Planning Requirements *on* page 27,

This chapter includes:

- Connecting to the RNC Element Manager
- Modifying the RNC MIB
- Restarting the RNC
- Checking the RNC status
- Connecting to the DO-BTS Element Manager
- Modifying the DO-BTS MIB
- Restarting the DO-BTS
- Checking the DO-BTS status

Connecting to the RNC Element Manager

The RNC uses the Common Element Manger (CEM) for configuration changes. The CEM console is a web-based configuration tool capable of running on any Windows or UNIX workstation supporting Java 1.5+ and either the Microsoft Internet Explorer, Mozilla Firefox or Google Chrome Internet browser.

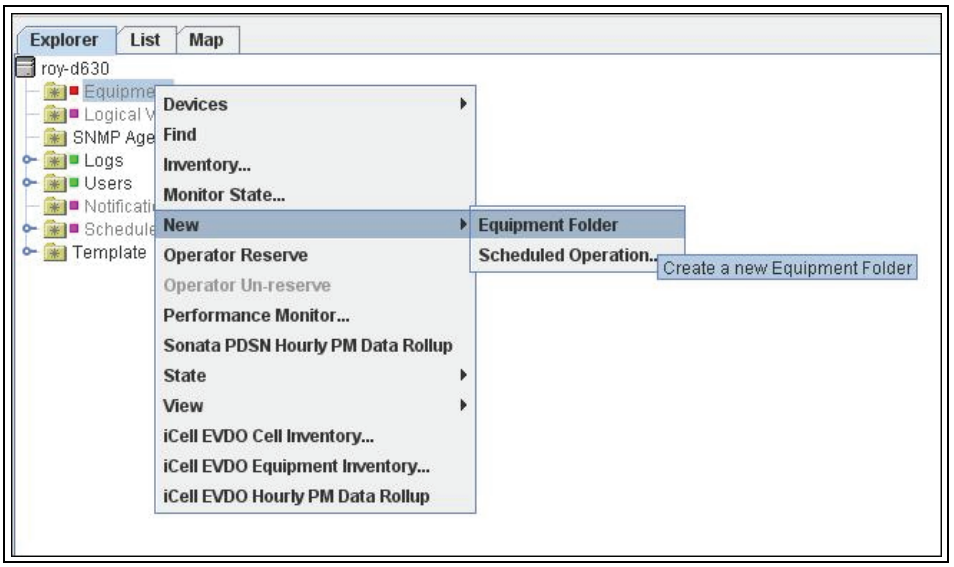
For information on the CEM, see the ***Common Element Manager User Guide****.*

This guide provides screen captures as examples. These examples contain sample data. This data may vary from the actual data on an installed system.

To connect to the RNC Element Manager:

1. Launch the CEM. See Launching the CEM in Appendix B.
2. Create a new Equipment folder:
   a. In the CEM Explorer tree, right-click **Equipment**.
   b. Select **New| Equipment Folder** from the menu that appears. See Figure 32.

Figure 32 Creating a New Equipment Folder



c In the New dialog window, enter the label selected for the Equipment folder and click OK. See Figure 33.

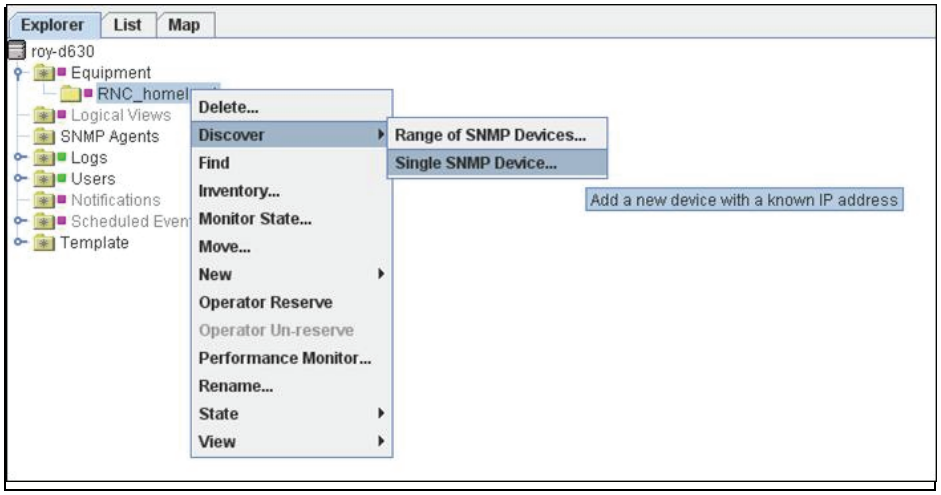
Figure 33 Labelling a New RNC Equipment Folder

The new device folder appears as a sub-folder under the Equipment root folder.

3 Discover the RNC:

a In the CEM Explorer tree, right-click on the new folder created and select **Discover| Single SNMP** Device.... See Figure 34.

Figure 34 Using the Discover Tool



b In the New Device dialog box enter the RNC IP address in the Host Name/IP Address and ensure that the SNMP Version is set to v2c. See Figure 35.

Figure 35 New Device Dialog Box Example

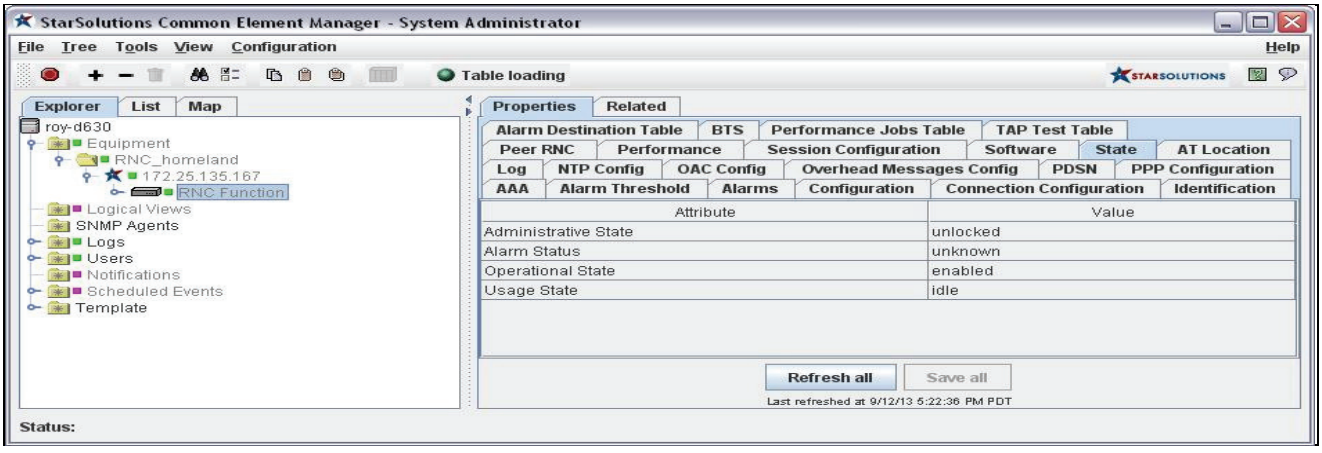
c Click OK.

The Device Discovery progress dialog box opens and shows the IP address and sysObjectID of each discovered device. See Figure 36.

Figure 36 Device Discovery Dialog Box

The RNC has now been discovered in the CEM Explorer tree. See Figure 37.

Figure 37 RNC Node Discovery



Modifying the RNC MIB

Table 19 lists the key RNC parameters required for successful integration of the QuadPAC and to make the first call.

In the RNC Element Manager, use the paths listed in the table to navigate to each parameter. Change the parameter configuration based on the network planning information.

To make the parameter configuration changes, lock the RNC elements (see Locking the RNC and Interfaces). When the changes have been completed, unlock the RNC elements (see Unlocking the RNC elements), then save and restart the QuadPAC RNC.

The RNC needs to be administratively locked in order to change the parameters.

Table 19 RNC Configuration Parameters

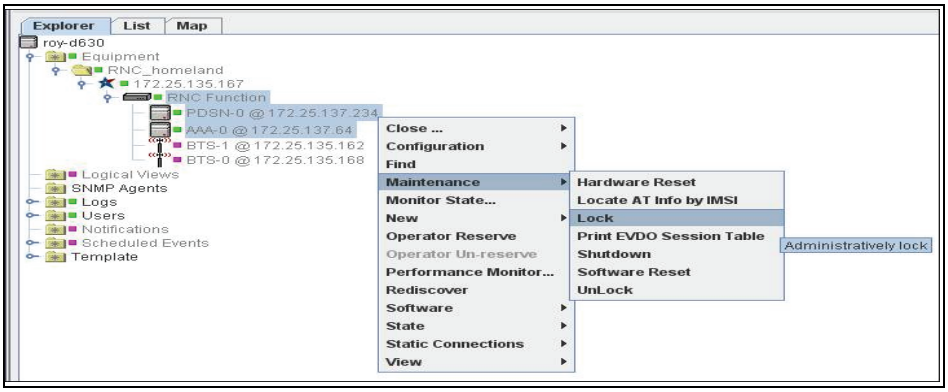
Parameter	Path	Description
identification		
RNC Identifier	RNC Function | Identification	ID of this RNC within the RAN. Must be unique among all RNCs within the same UATI subnet.
Network Identification	RNC Function | Identification	Radio Access Network Identifier.
Packet Zone Identifier	RNC Function | Identification	Packet Zone Identifier.
System Identifier	RNC Function | Identification	Operator System Identifier.
UATI Color Code	RNC Function | Identification	Color code of the uatiSubnet for this RAN.
UATI Subnet Mask	RNC Function | Identification	Number of bits in the uatiSubnet that represent the network.
UATI04	RNC Function | Identification	UATI[127:24] of the UATI.
PDSN Interfaces		
Ip	RNC Function -> PDSN Interface	IP Address of the PDSN.
Port	RNC Function -> PDSN Interface	Port to communicate with the PDSN.
Shared Secret	RNC Function -> PDSN Interface	Shared secret used with the PDSN for authentication.
Spi	RNC Function -> PDSN Interface	Security Parameter Index used with the PDSN for authentication.
AAA Interfaces		
IP	RNC Function -> AAA Interface	IP Address of the AAA server.
Port	RNC Function -> AAA Interface	Port to communicate with the AAA server.
Shared Secret	RNC Function -> AAA Interface	Shared secret used with the AAA for authentication.
Timing		
Server IP1	RNC Function -> NTP Config	IP Address of NTP server. Set this value to the EVDO DO-BTS IP address.
Alarms		
IP	RNC Function-> Alarms Destination Table	IP Address of the CEM where alarms will be sent.

Locking the RNC and Interfaces

To lock the RNC elements:

1. In the CEM Explorer tree, select **RNC Function**, **PDSN** and **AAA interfaces** (hold down the **Ctrl** key to do a multiple selection.)
2. Right-click and select **Maintenance | Lock**. This will administratively lock the RNC and its network interfaces. See Figure 38.

Figure 38 Locking the RNC and Interfaces



3. Wait for the background jobs to finish, then click **Close**. See Figure 39.

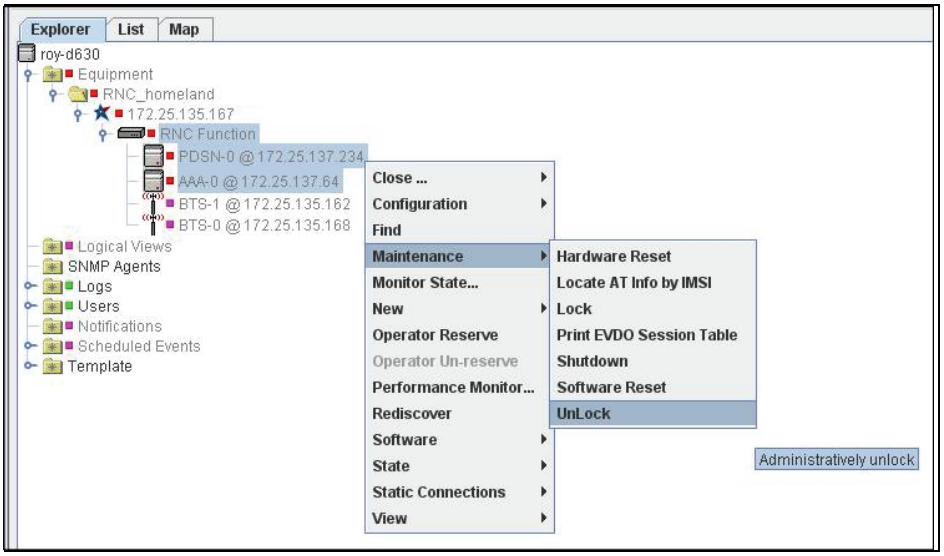
Figure 39 Locking the RNC - Dialog Box

Unlocking the RNC elements

To Unlock the RNC elements:

1. In the CEM Explorer tree, select **RNC Function**, **PDSN** and **AAA interfaces** (hold down the **Ctrl** key to do a multiple selection.)
2. Right-click on the selection, then select **Maintenance | UnLock**. This action will administratively unlock the RNC and its network interfaces. See Figure 40.

Figure 40 Unlocking the RNC and Interfaces



3 Wait for the background jobs to finish, then click **Close**. See Figure 41.

Figure 41 Unlocking the RNC Elements Dialog Box

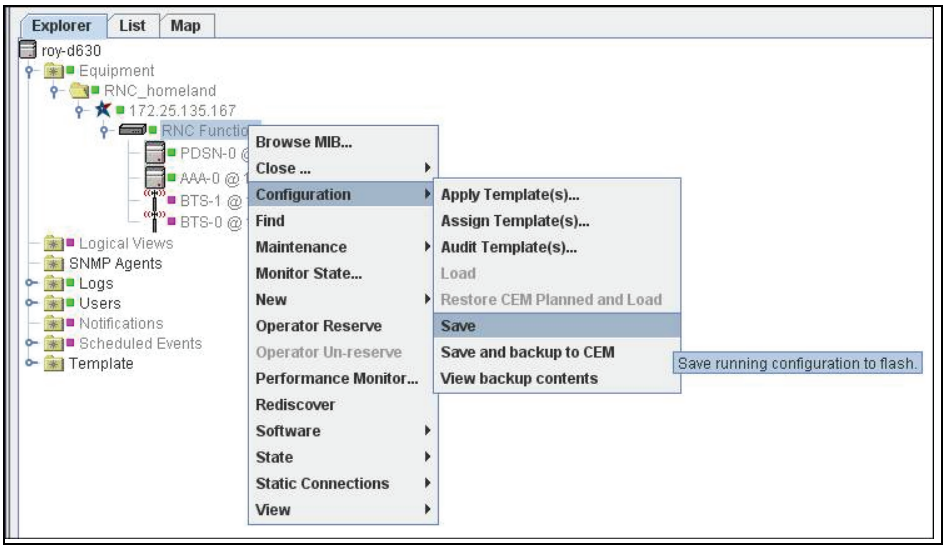
Saving the RNC Configuration

Save the configuration changes before restarting the RNC element.

To save the RNC configuration:

1 In the CEM Explorer tree, right-click on **RNC Function** and select **Configuration | Save**. See Figure 42.

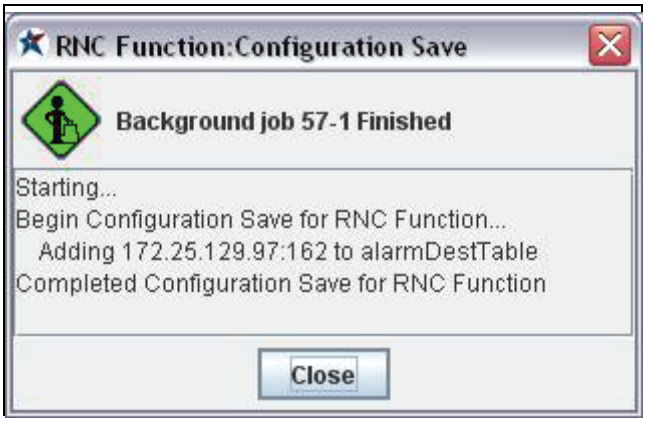
Figure 42 Saving the RNC Configuration



2 Select Yes on the pop-up menu, then wait for the background jobs to finish. Then click **Close**. See Figure 43 and Figure 40.

Figure 43 Saving the RNC Configuration Pop-up Menu

Figure 44 Saving the RNC configuration dialog box



<Need to provide screen capture>

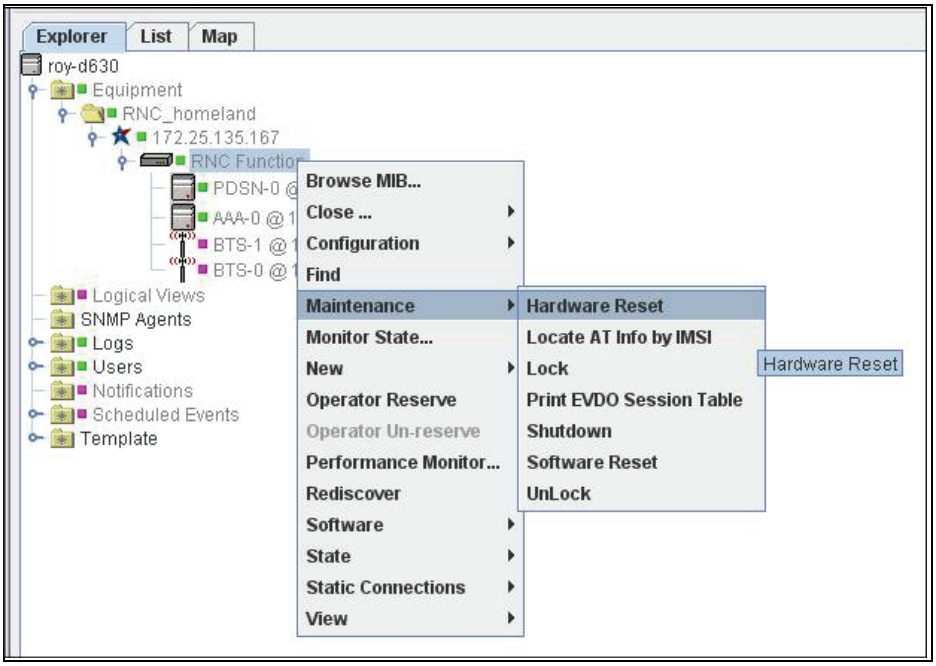
Restarting the RNC

The configuration changes only take effect after the element has been restarted

To restart the RNC element:

1 In the CEM Explorer tree, right-click on **RNC Function** and select **Maintenance | Hardware Reset**. See Figure 45.

Figure 45 Restarting the RNC Element



2 Wait for the background jobs to finish and click Close. See Figure 46.

Figure 46 Restarting the RNC Element Dialog Box

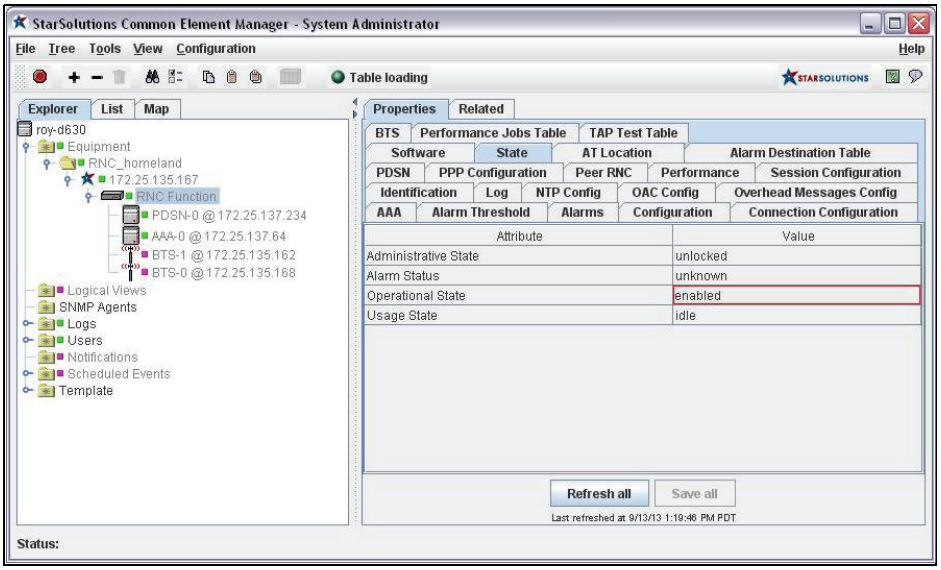
Checking the RNC status

Verifying the status of the QuadPAC RNC element can be done using either the CEM or the HTTP summary page.

To check the RNC Status using the CEM:

1. In the CEM Explorer tree, select **RNC Function**.
2. Navigate to the **State** tab. See Figure 47.
3. Verify that the **Operational State** parameter is set to enabled.

Figure 47 Checking the RNC Status using the CEM



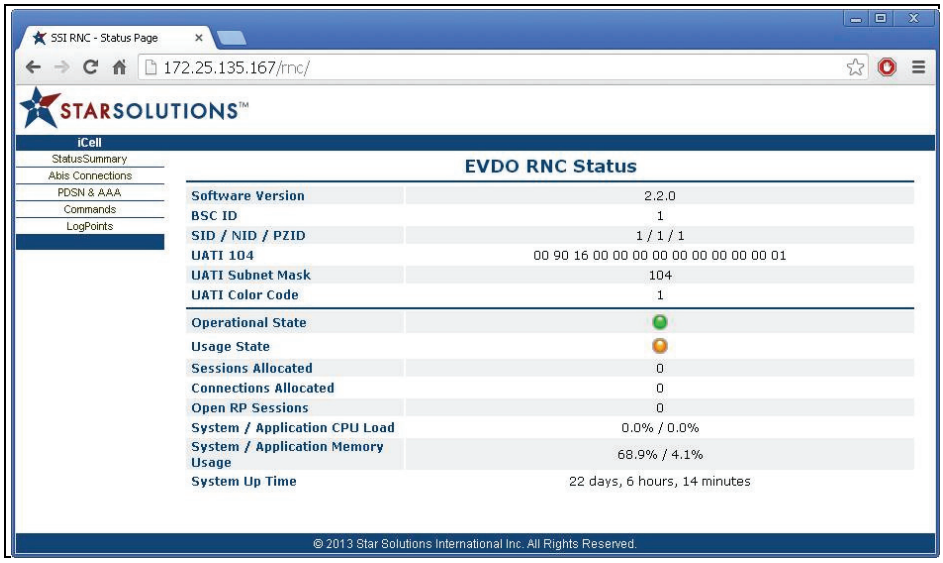
To check the RNC Status using HTTP summary page:

1. Open a web browser.
2. Enter the RNC IP address in the address bar in the following format:

   `http://<rnc ip address/rnc/`

   See Figure 48.
3. Check the listed statuses to confirm they are as expected.
4. When checking the statuses, red means off, amber means starting or not in use, and green means operational.

Figure 48 Checking the RNC Status from the HTTP Summary Page



Connecting to the DO-BTS Element Manager

Starting with the iCell-EVDO software release 3.0, the DO-BTS Element Manager supports an HTTP web-based configuration tool capable of configuring the QuadPAC DO-BTS from any Windows or UNIX workstation that supports Internet Explorer, Mozilla Firefox or Google Chrome Internet browsers.

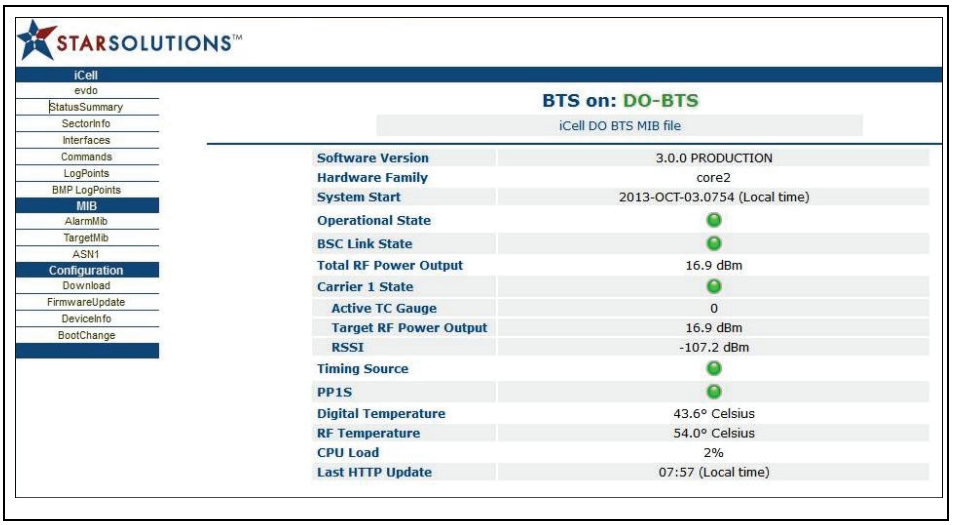
The Element Manager can be accessed after the QuadPAC has been installed and powered on.

To connect to the DO-BTS Element Manager:

1. Open a web browser.
2. Enter the DO-BTS IP address in the address bar.
3. Log in as `icell`, using the <default password> password.

The DO-BTS Element Manager interface is shown in Figure 49.

Figure 49 DO-BTS Element Manager Interface



Modifying the DO-BTS MIB

Table 20 lists the key DO-BTS parameters required for successful integration of the QuadPAC and to make the first call.

In the DO-BTS Element Manager, use the paths listed in the table to navigate to each parameter. Change the parameter configuration based on the network planning information.

Table 20 DO-BTS Configuration Parameters

Parameter	Path	Description
identification		
countryCode	evdo / bts / systemInfo	Mobile Country Code (MCC)
colorCode	evdo / bts / systemInfo	Color code of the uatiSubnet. The DO-BTS color code value must match the UATI Color Code value in the RNC.
subnetMask	evdo / bts / systemInfo	Number of bits in the uatiSubnet that represent the network.
uati104	evdo / bts / systemInfo	UAT[127:24] of the UATI
sectorId	evdo / bts / sectorInfo / sectorinfoTable	128-bit Sector Id
Interfaces		
bscAddress	evdo / interfaces / aBis / bscListTable	IP Address of the RNC connected to the DO-BTS.
sntpServerIp	evdo / interfaces / sntp	IP address of the SNTP server. 0.0.0.0 if using QuadPAC GPS Module.
Timing		
gpsModuleType	evdo / hw / gpsPeripheral	GPS Module type. ■ Ublox - if using QuadPAC Module ■ None - if using QuadPAC Oscillator Module
core2MsbSetPpsTimingSource	evdo / hw / core2 / core2MsbConfiguration	PP1S source. ■ msbGps - if using QuadPAC GPS Module ■ msbExternalPps - if using QuadPAC Oscillator Module
Pilot Database		
carrierFreq	evdo / bts / cellInfo / carrierInfoTable	CDMA channel frequency.
sectorPnOffset	evdo / bts / sectorInfo / sectorInfoTable	Pilot PN sequence offset for the sector.

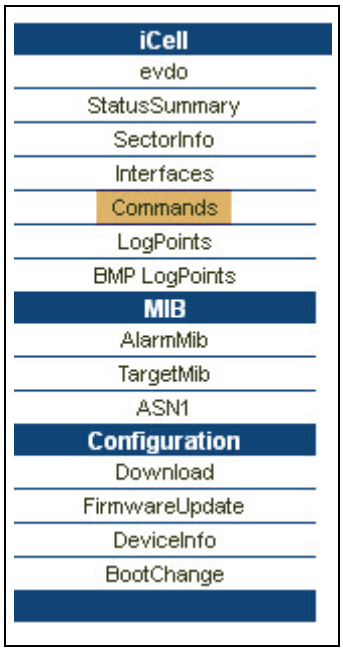
The configuration changes must be saved. The changes only take effect after the DO-BTS has been restarted.

Saving the DO-BTS Configuration

To save the DO-BTS configuration:

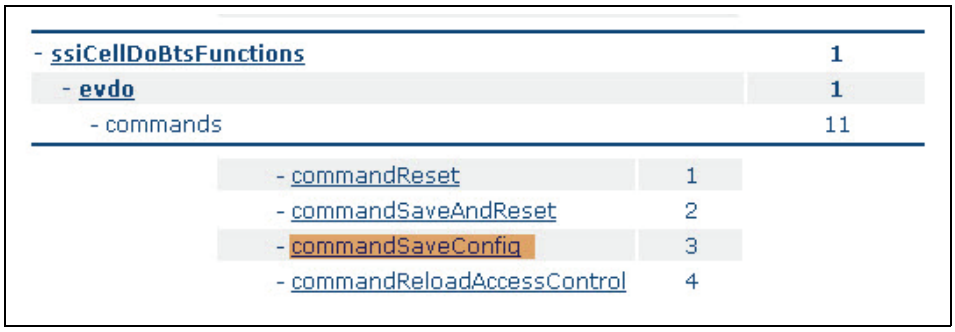
1 On the DO-BTS Element Manager iCell menu, click **Commands** as shown in Figure 50.

Figure 50 Commands Option on DO-BTS iCell Menu



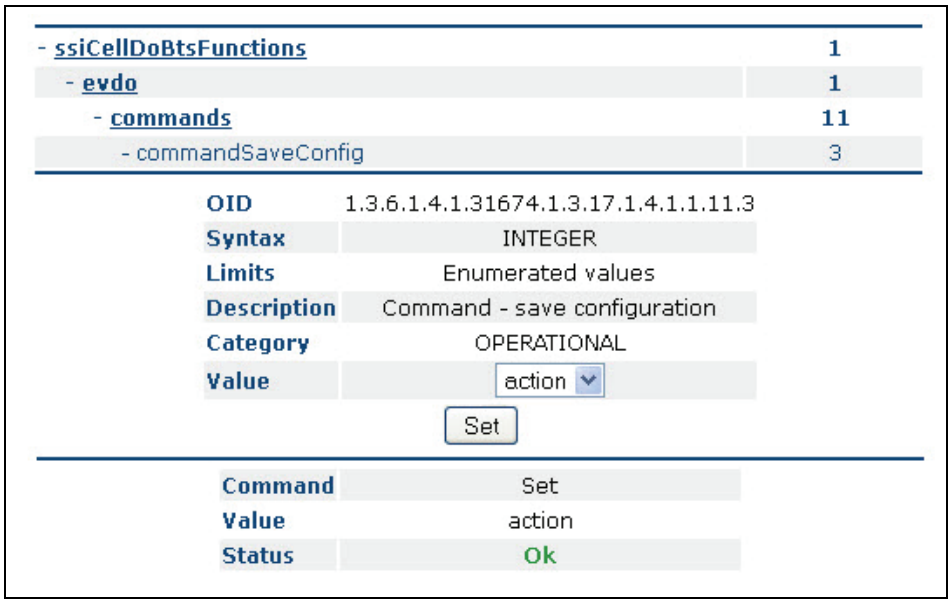
2 Select the commandSaveConfig options from the list of commands as shown in Figure 51.

Figure 51 commandSaveConfig Option from List of Commands



3 Click the Set button to save the configuration file as shown in Figure 52

Figure 52 Command Save - Set Button



Restarting the DO-BTS

After saving the configuration, restart the DO-BTS in order to commit the new settings.

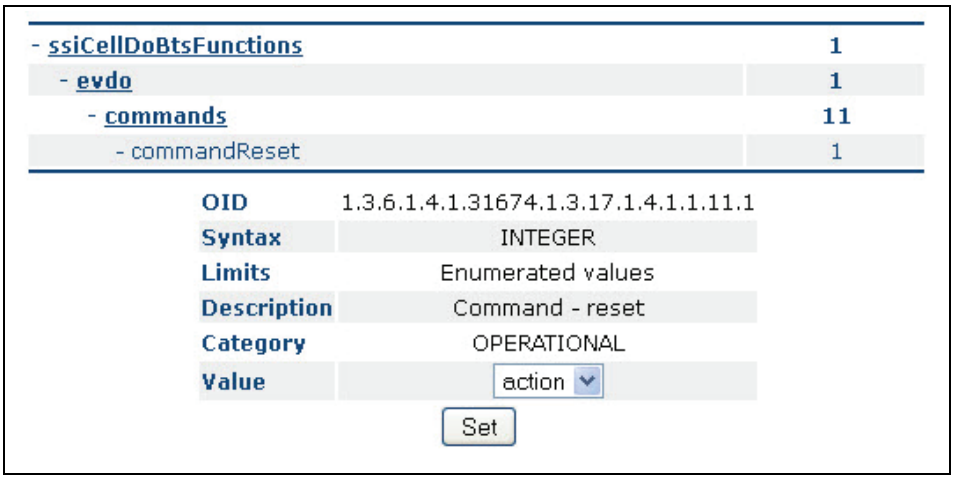
To restart the DO-BTS:

1. On the DO-BTS Element Manager iCell menu, click Commands as shown in Figure 50 (above).
2. Select the commandReset option from the list of commands as shown in Figure 53.

Figure 53 commandReset Option from list of Commands

3. Click the **Set** button to save the configuration file as shown in Figure 54

Figure 54 Command Reset - Set Button



Checking the DO-BTS status

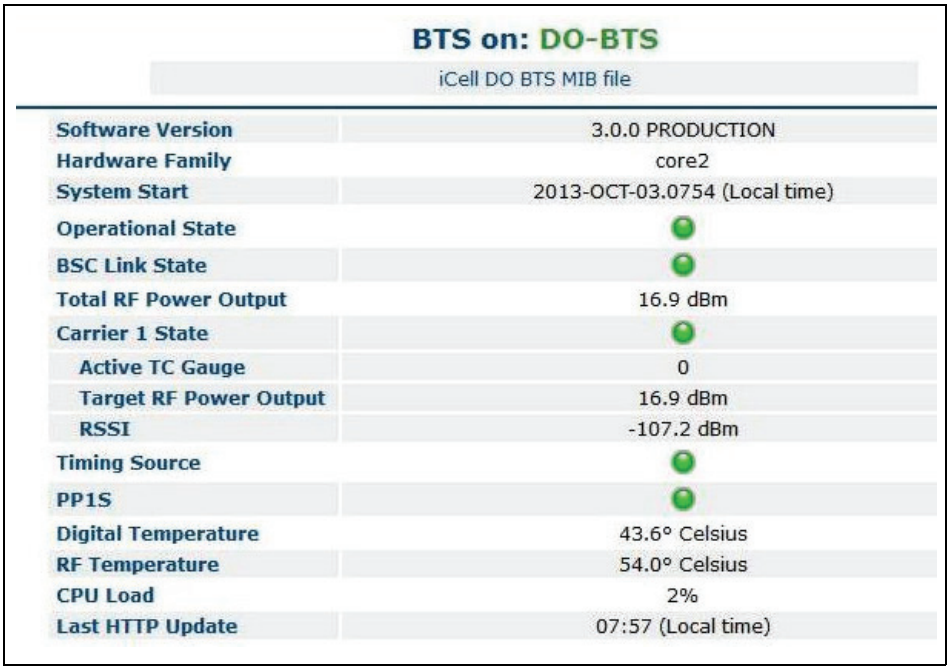
The DO-BTS Element Manager status summary page should be checked to verify the state of the DO-BTS after the restart.

To view the status summary:

1 On the DO-BTS iCell menu, click StatusSummary

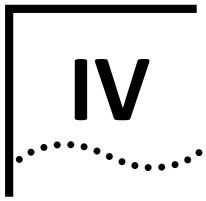
The DO-BTS Status Summary page is shown in Figure 55.

Figure 55 DO-BTS Status Summary Page



2 Check the listed statuses to confirm they are as expected.

When checking the statuses, red means off, amber means starting or not in use, and green means operational.



APPENDICES

Appendix A Regulatory Notices

Appendix C Acronyms and Abbreviations

A

REGULATORY NOTICES

U.S. Regulatory Statement

This device complies with Part 15 of the FCC Rules. Operation of this device is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian Regulatory Statement

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Caution:
Unauthorized modifications or changes not expressly approved by Star Solutions International Inc. could void compliance with regulatory rules, and thereby your authority to use this equipment.

RF Maximum Permissible Exposure (MPE) Exhibit Requirements

FCC Part 1, Section 1.1307 states the following:

- Part 22 Subpart H devices are excluded from routine environmental evaluation when the operating total power level of all channels is less than 1640 Watts EIRP.
- Part 24 Subpart E (Broadband PCS) devices are excluded from routine environmental evaluation when the operating total power level of all channels is less than 3280 Watts EIRP.

No antenna is supplied with this unit. The installer must not exceed the antenna gain limitations related to total power requirements in order to be excluded from routine environmental evaluation.

To comply with the Maximum Permissible Exposure (MPE) requirements for general population that are specified under FCC Part 1 - Section 1.1310 - Table 1, the maximum power density resulting from the composite Effective Isotopic Radiated Power (EIRP) from the antenna connected to this equipment must be limited to the maximum permissible exposure as stated below:

Power density limit for Band Class 0 = f/1500 = 0.58 mW/cm^2

Power density limit for Band Class 1 = 1 mW/cm^2

This value can be achieved by multiple combinations of RF output, antenna gain, and distance from the antenna when energized.

The minimum safe distances from a radiating structure in order to be excluded from routine environmental evaluation are:

- For Band Class 0 (TX: 869–894 MHz RX: 824–849 MHz)
  - d (safe distance) = 4.7 m
- For Band Class 1 (TX: 1930 1990 MHz RX: 1850 1910 MHz)
  - d (safe distance) = 5.1 m

The MPE is expressed as follows:

Power Density Pd (mW/cm^2) = EIRP/[4*Pi*d^2]

Where:

- d = distance from the antenna expressed in cm.
- EIRP expressed in mW = $10^{[TX\ Power\ (dBm)\ +\ Ant\ Gain(dBi)]/10}$
- TX Power (dBm) = 10*log[Tx Power (mW)]

As an example, with the transmitter running at 5 watts output into an antenna with a gain of 10 dBi, the minimum safe distance from the antenna to ensure exposure would be:

- 63 cm to remain below 1 mW/cm2 for the 1900 PCS band, and
- 83 cm to remain below 0.58 mW/cm2 for the 800 Cellular band.

When installing the antenna, the above relationship should be used to ensure the

combination of power, antenna gain, and distance is such that the maximum permissible power density is not exceeded. Different combinations of output power and antenna gain will result in different minimum safe distances.

B

USING THE COMMON ELEMENT MANAGER

About This Appendix

This appendix provides a brief overview of the Common Element Manager. For detailed information about CEM, see the *Common Element Manager User Guide.*

This chapter includes:

- About the Common Element Manager
- Launching the CEM
- Using the CEM Console
- Checking RNC and DO-BTS Status Using CEM

About the Common Element Manager

The RNC element of the QuadPAC is configured using the CEM.

The CEM console is a web-based configuration tool capable of configuring network elements from any Windows or UNIX workstation supporting Microsoft Internet Explorer, or Mozilla Firefox Internet browsers.

Before you use the CEM to configure the QuadPAC, ensure the CEM server is installed.

For installation instructions and more detailed information on CEM, see the Common Element Manager User Guide.

CEM requires Java 1.5, or later, to be installed on your system.

Some of the CEM features described in this chapter are only available once the QuadPAC has been discovered.

For detailed instructions on discovering SNMP devices and other routine CEM setup and operating instructions, refer to the *Common Element Manager User Guide*.

Launching the CEM

Configuring the QuadPAC with the CEM requires logging in to the CEM server.

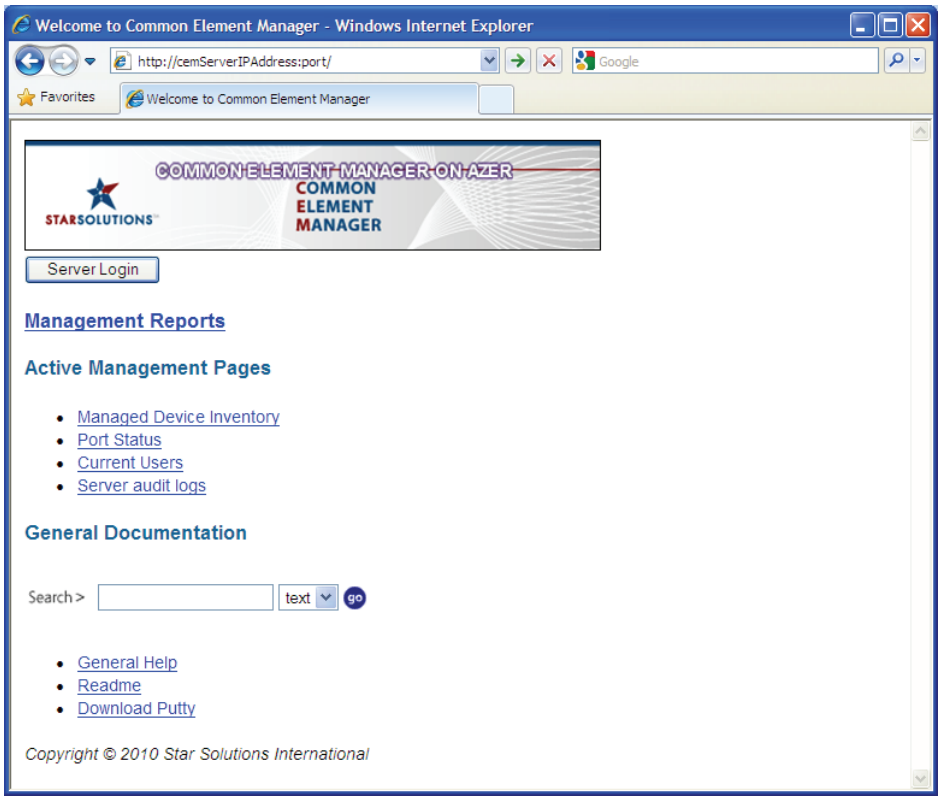
This guide provides screen captures as examples. These examples contain sample data. This data may vary from the actual data on an installed system.

For CEM login information, refer to Star Solutions support engineering documentation.

To log in to the CEM server:

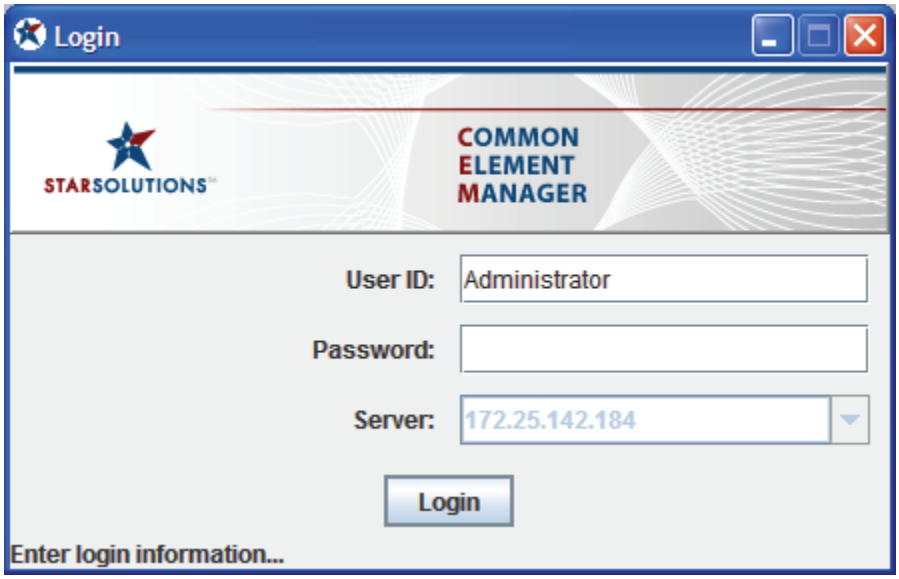
1. Open a web browser.
2. Enter the URL of the CEM server (port 1080 by default). A screen similar to the one in Figure 56 is displayed.

Figure 56 CEM Server Welcome Screen



3. Click on **Server Login**. A screen similar to the one in Figure 57 is displayed.

Figure 57 CEM Server Login Screen



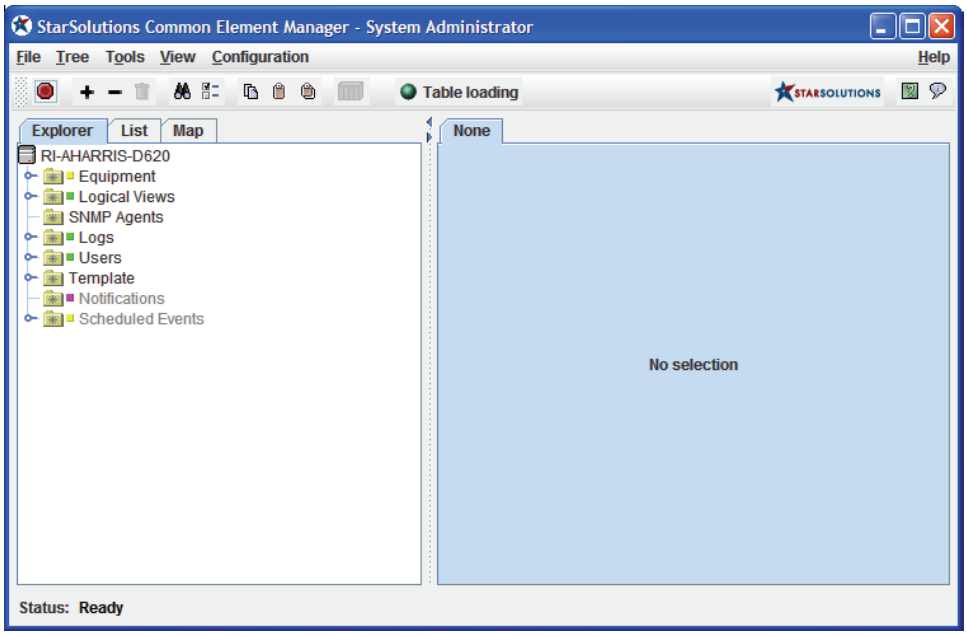
4 Enter the login information provided by Star Solutions and click **Login**. A screen similar to the one in Figure 59 is displayed.

If a screen similar to the one in Figure 58 is displayed, check the 'Always trust content from this publisher' box, then click Run.

Figure 58 Digital Signature Security Warning

The CEM is now ready for use.

Figure 59 CEM Startup Screen



Using the CEM Console

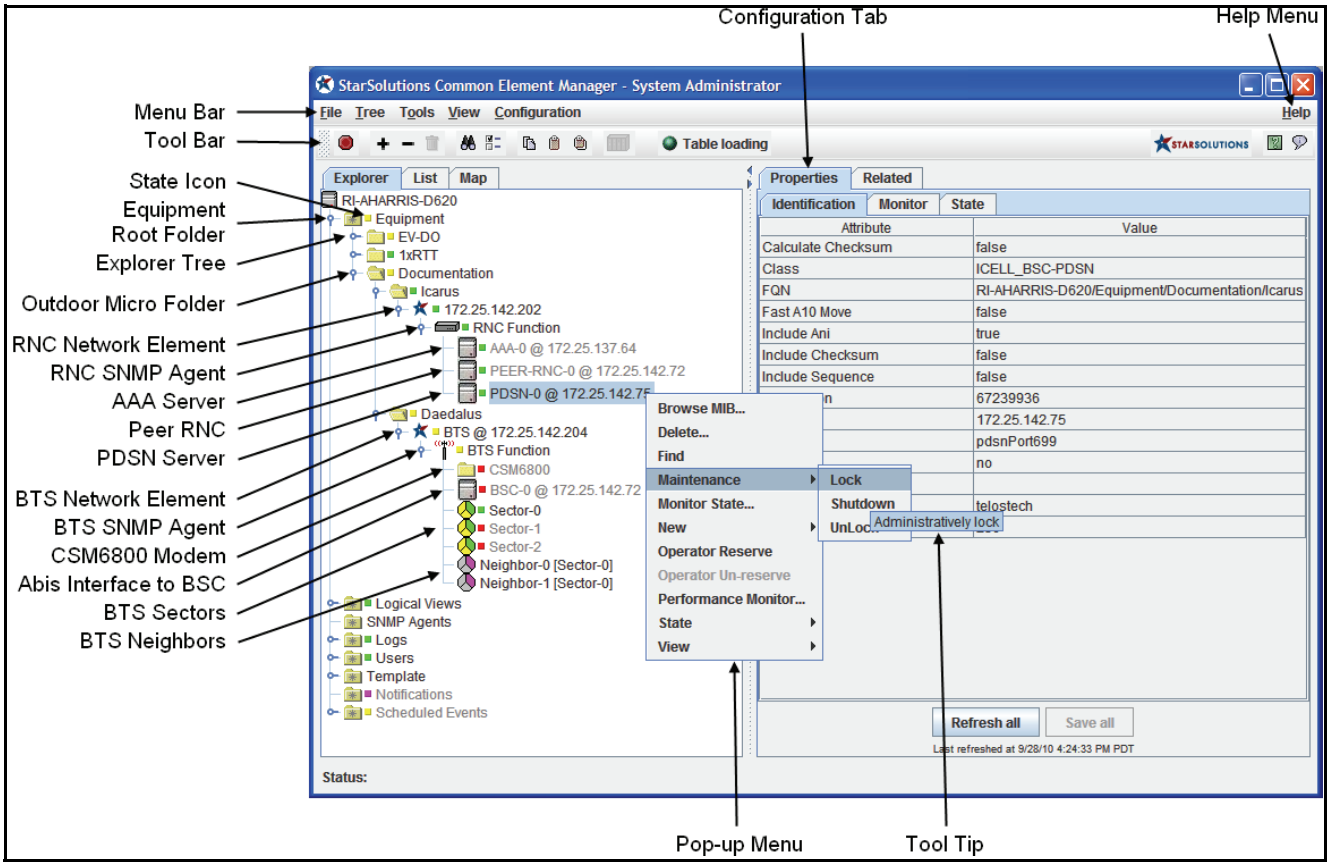
This section describes:

- CEM Console Screen Components
- CEM Help
- Using Configuration Tabs
- Pop-up Menus

CEM Console Screen Components

The CEM console provides a graphical device management environment. As shown in Figure 60, all managed devices, event logs, and users are organized in an explorer tree (Explorer view) in the left-hand pane of the CEM console main window.

Figure 60 CEM Console Screen Components



The Explorer view is the default view for the CEM console. Element properties (MIB objects) are displayed in the right-hand pane of the CEM console main window in configuration tabs (Properties view). See Figure 60.

CEM labels each SNMP device in the left-hand pane of the CEM console main window. By default the name is taken from the sysName MIB (if not blank). If the sysName is not available, CEM uses the reverse DNS lookup for the hostname (if not blank). If neither is available, CEM defaults to the IP address of the device.

CEM Help CEM provides several Help options including:

- Help Menu (See Figure 60.)

  The Help menu on the CEM toolbar allows access to the following information:

  - CEM core and package software information
  - CEM console information
  - CEM Online help access
  - Show Advisor command
  - Copyright information.

- Tool Tips (See Figure 60.)

  Tool tips are available for most commands and functions. To display a tool tip, place the mouse cursor over a node, command, or parameter in CEM and a tool tip appears.

- Help Advisor

  When you start the CEM console, the CEM Advisor window opens. The Advisor window displays status information on a selected device, as well as MIB definitions on a selected property. See Figure 61.

Figure 61 Example of a Help Advisor Screen

For a detailed description of navigating and operating the CEM console, see the Common Element Manager User Guide.

Using Configuration Tabs

The configuration tabs provide top-level information for a specific device. (See Figure 60.) CEM enables the configuration of an individual device or an entire group of devices. To configure an individual device, select a device in the left-hand pane, select a specific tab in the right-hand pane, and then edit the specific property directly.

To navigate to the common configuration tabs for an SNMP device:

1. In the explorer tree, double-click the Equipment root folder. (See Figure 60.)
2. Double-click the appropriate SNMP device folder.
3. Select the SNMP device.

The Properties view changes to show the various configuration tabs for the selected SNMP device.

For more information about SNMP devices in CEM, see the Common Element Manager User Guide.

Figure 62 shows an example of the RNC network element configuration tabs, while Figure 63 shows an example of the RNC Function configuration tabs.

Figure 62 RNC Network Element Configuration Tabs

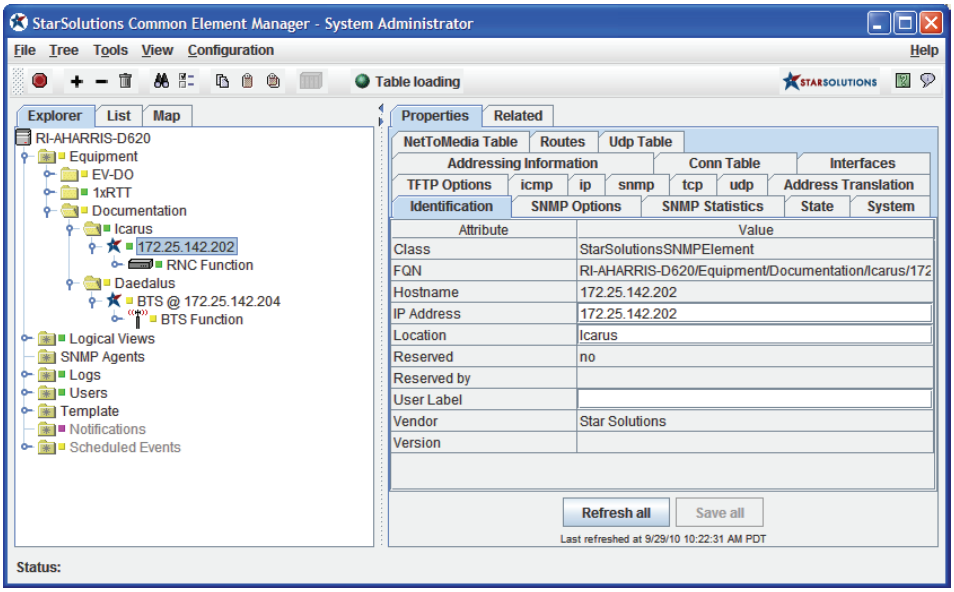


Figure 63 RNC Function Configuration Tabs

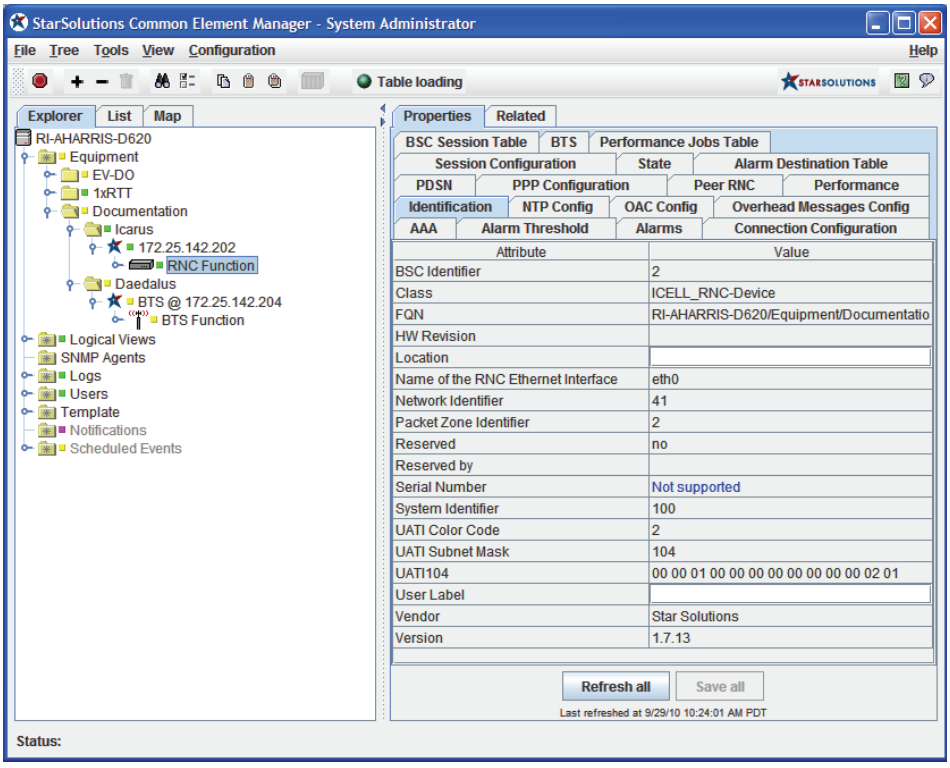


Figure 64 shows an example of the DO-BTS network element configuration tabs, while Figure 65 shows an example of the DO-BTS Function configuration tabs.

Figure 64 DO-BTS Network Element Configuration Tabs

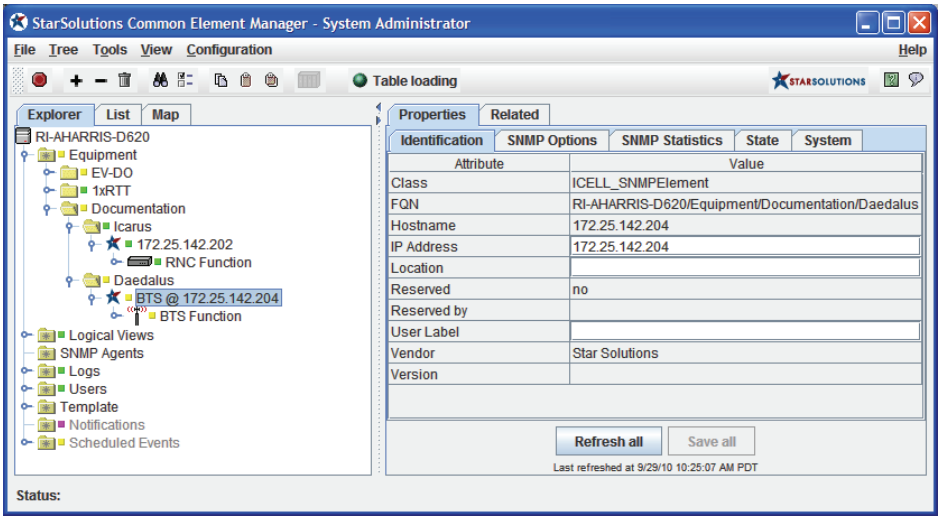
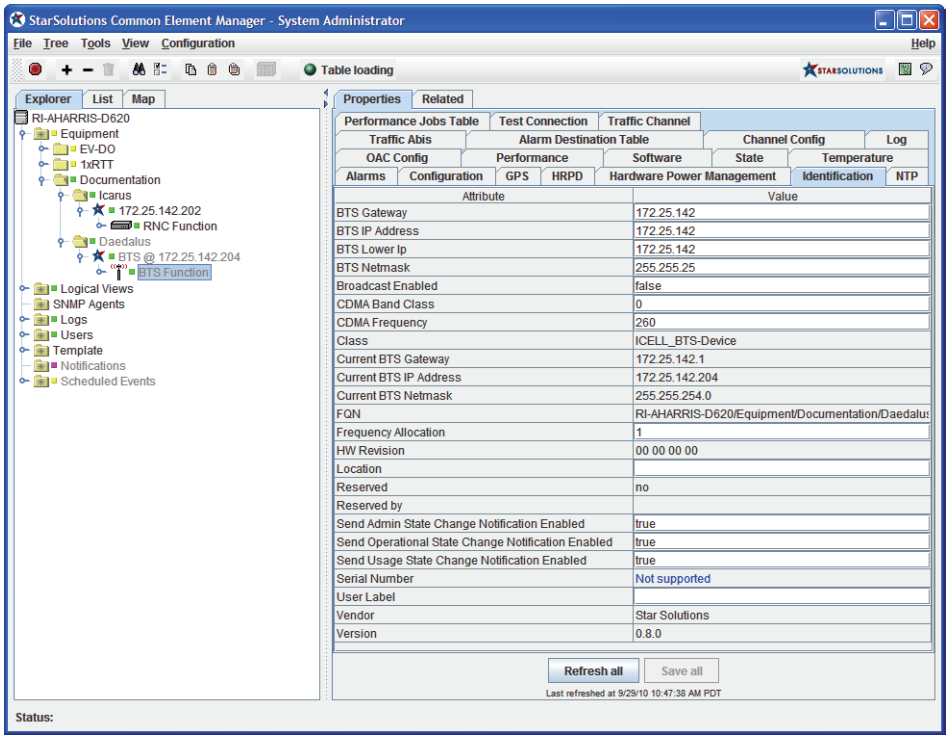


Figure 65 DO-BTS Function Configuration Tabs



Pop-up Menus This section includes:

- RNC Function Pop-up Menu
- DO-BTS Function Pop-up Menu

The majority of CEM commands are provided in pop-up menus accessed by right-clicking an element in the left-hand pane of the CEM console main window. Each pop-up menu is specific to the type of element selected.

The pop-up menu can change based on the state of the equipment. For example, menu items may not appear when the equipment is down and some menu items are disabled/greyed-out when a prerequisite action has not yet been performed.

CEM displays the QuadPAC network elements as sub-elements of the System Name assigned to the QuadPAC.

Additional sub-elements also provide pop-up menus with features similar to those described in this section. Those pop-up menus are not documented in this guide.

RNC Function Pop-up Menu

Figure 66 shows the RNC Function pop-up menu.

Figure 66 RNC Function Pop-Up Menu

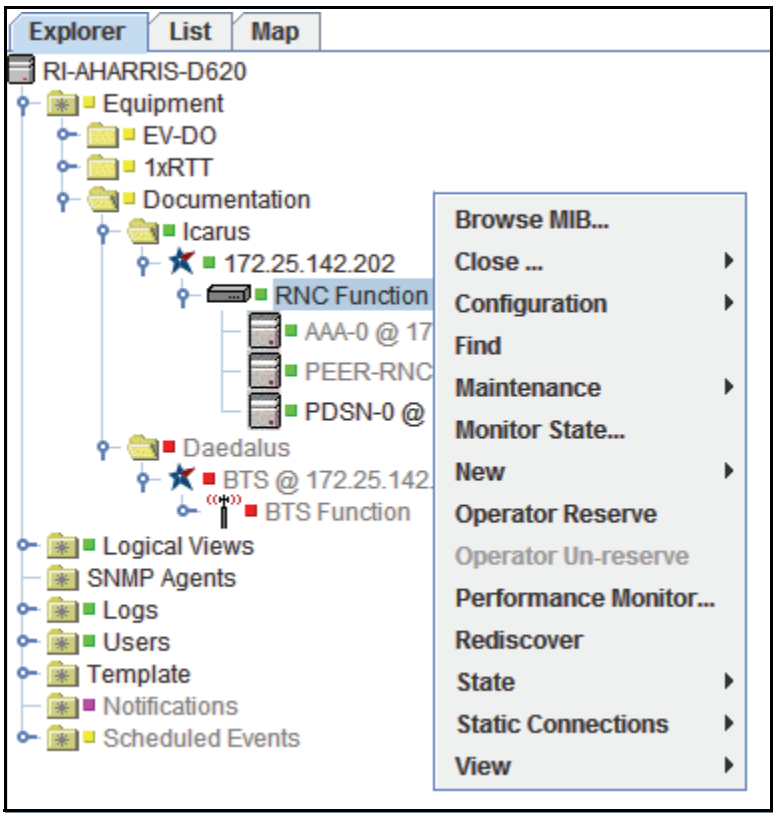


Table 21 lists the RNC Function pop-up menu options.

Table 21 RNC Function Pop-up Menu Options

Menu item	Description
Browse MIB	Use the **Browse MIB** command to access the CEM MIB Browser. Refer to the *Common Element Manager User Guide* for more information.
Close	Use the **Close** command to close the: ■ Connection by IMSI ■ Connection by session ID ■ Session by IMSI ■ Session by session ID. Refer to the *EV-DO Operations and Software Management Guide* for more information.
Configuration	Use the **Configuration** command to save and restore the RNC configuration to a file on the network, or to a CFG file. Refer to the *EV-DO Operations and Software Management Guide* for more information.

Table 21 RNC Function Pop-up Menu Options (continued)

Menu item	Description
Find	Use the **Find** command to search for a string of text that may be part of a CEM Tree Label, Property (field label), or MIB OID. Searches can either include or exclude subtrees. Refer to the *Common Element Manager User Guide* for more information.
Maintenance	Use the **Maintenance** command to lock, unlock, shutdown reset or perform a software reset. Refer to the *EV-DO Operations and Software Management Guide* for more information.
Monitor State	The **Monitor State** command opens the **Monitor State** window. Use this window to monitor the operational state, usage state, or administration state of the currently selected element. Refer to the *Common Element Manager User Guide* and the *EV-DO Operations and Software Management Guide* for more information.
New	Use the **New** command to add a new: ■ AAA interface ■ BSC interface ■ PDSN interface ■ PEER RNC Interface ■ Scheduled operation
Operator Reserve	Use the **Operator Reserve** command to reserve this object and all children, preventing other users from performing operations. Refer to the *Common Element Manager User Guide* for more information.
Operator Un-reserve	Use the **Operator Un-reserve** command to un-reserve this object and all children, allowing other users to perform operations. Refer to the *Common Element Manager User Guide* for more information.
Performance Monitor	The **Performance Monitor** command opens the performance monitor window, which allows the operator to view information on configured performance parameters in real-time. Refer to the *Common Element Manager User Guide* for more information.
Rediscover	Use the **Rediscover** command to rediscover devices after changes to IP addresses Refer to the *Common Element Manager User Guide* for more information.

Table 21 RNC Function Pop-up Menu Options (continued)

Menu item	Description
State	Use the **State** command to update CEM with the current operational state, usage state, or administration state of the selected element and any of its children. Refer to the *Common Element Manager User Guide* and the *EV-DO Operations and Software Management Guide* for more information.
Static Connections	Use the **Static Connections** command to edit connections to the Macro RAN. Refer to the *Common Element Manager User Guide* for more information.
View	Use the **View** command to launch the CEM Event Viewer for monitoring all log records. Refer to the *Common Element Manager User Guide* for more information.

DO-BTS Function Pop-up Menu

Figure 67 shows the DO-BTS Function pop-up menu.

Figure 67 DO-BTS SNMP Agent Pop-Up Menu

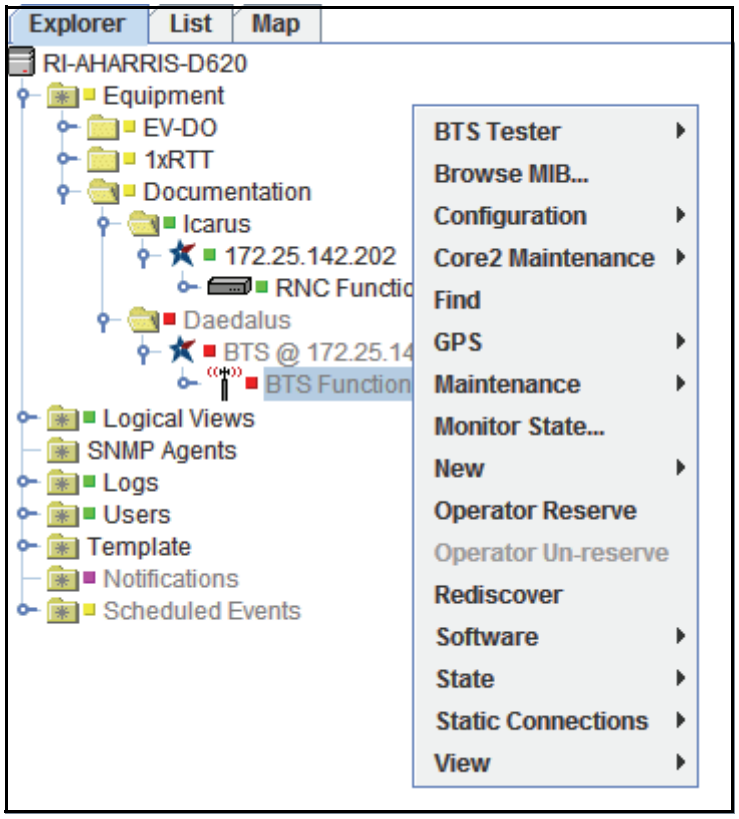


Table 22 lists the DO-BTS Function pop-up menu options.

Table 22 DO-BTS Function Pop-Up Menu Options

Menu item	Description
BTS Tester	Use the **BTS Tester** command to verify the DO-BTS hardware is functioning correctly.
Browse MIB	Use the **Browse MIB** command to access the CEM MIB Browser. Refer to the Common Element Manager *User Guide* for more information.
Configuration	Use the **Configuration** command to save and restore the RNC configuration to a file on the network, or to a CFG file. Refer to the *EV-DO Operations and Software Management Guide* for more information.
Core2 Maintenance	Use the **Core2 Maintenance** command to reset and update the MSB, MXF, and RCM applications and bootloaders.
Find	Use the **Find** command to search for a string of text that may be part of a CEM Tree Label, Property (field label), or MIB OID. Searches can either include or exclude subtrees. Refer to the *Common Element Manager User Guide* for more information.
GPS	Use the **GPS** command to configure and set the GPS. Refer to the *EV-DO Operations and Software Management Guide* for more information.
Maintenance	Use the **Maintenance** command to lock, unlock, shutdown or perform a software reset. Refer to the *EV-DO Operations and Software Management Guide* for more information.
Monitor State	The **Monitor State** command opens the **Monitor State** window. Use this window to monitor the operational state, usage state, or administration state of the currently selected element. Refer to the *EV-DO Operations and Software Management Guide* for more information.
New	Use the **New** command to add a new: ■ Interface to a BSC/RNC ■ Neighbor ■ Scheduled operation
Operator Reserve	Use the **Operator Reserve** command to reserve this object and all children, preventing other users from performing operations. Refer to the *Common Element Manager User Guide* for more information.
Operator Un-reserve	Use the **Operator Un-reserve** command to un-reserve this object and all children, allowing other users to perform operations. Refer to the *Common Element Manager User Guide* for more information.

Table 22 DO-BTS Function Pop-Up Menu Options (continued)

Menu item	Description
Rediscover	Use the **Rediscover** command to rediscover devices after changes to IP addresses. Refer to the *Common Element Manager User Guide* for more information.
Software	The **Software** command allows the operator to either Install CEM Planned, or Revert to Standby. Refer to the *EV-DO Operations and Software Management Guide* for more information.
State	Use the **State** command to update CEM with the current operational state, usage state, or administration state of the selected element and any of its children. Refer to the *EV-DO Operations and Software Management Guide* and the *Common Element Manager User Guide* for more information.
Static Connections	Use the **Static Connections** command to edit connections to the Macro RAN. Refer to the *Common Element Manager User Guide* for more information.
View	Use the **View** command to launch the CEM Event Viewer for monitoring all log records. Refer to the *Common Element Manager User Guide* for more information.

Checking RNC and DO-BTS Status Using CEM

Use the CEM to check the status of the RNC and DO-BTS applications. Optionally, use the command line to check the status of the RNC.

This section contains:

- Updating the Status Manually
- Viewing the State Icons
- Checking the State Tab

Updating the Status Manually

While status is typically updated automatically, you can update the status manually to ensure the information is as current as possible. The closer the node is to the root, the longer it takes the status to update.

To get the up-to-date status of a node:

1. Right-click any node that includes a state icon.
2. Click **State** | **Update**.

Viewing the State Icons

Next to each element in the explorer tree, the state of each element is indicated by a single colored square, or state icon. The Operational State icon is the default state icon displayed in the explorer tree. Figure 60 shows an example.

The element status propagates to the top level of the element hierarchy in the explorer tree. For example, a yellow state icon means that an element in the present folder or the sub-folder below it has at least one element or device in the red state. The operational state is updated in an operator-defined interval, or on demand.

To view the administrative, operational, and usage states using the state icons in the explorer tree:

1. In the CEM explorer tree, click on the node to be viewed**.**
2. View the Operational State icon beside the node. (See Table 23 for color definitions.)

Figure 68 CEM Console Screen Components

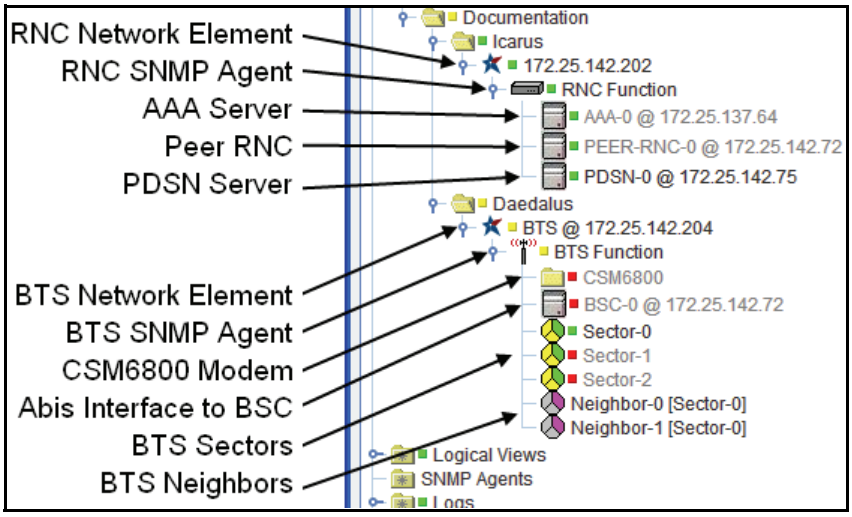


Table 23 lists the three status types and the default color for each type of icon.

Table 23 State Icon Color Definitions

State Type	Icon States	Default Icon Colors
Administrative State	Locked	Red
	Unlocked	Green
	Shutting down	Yellow
Operational State	Enabled	Green
	Disabled	Red
	Degraded	Yellow

Table 23 State Icon Color Definitions

State Type	Icon States	Default Icon Colors
Usage State	Idle	Gray
	Active	Green
	Busy	Yellow

Changing the State Icon State-Type Display

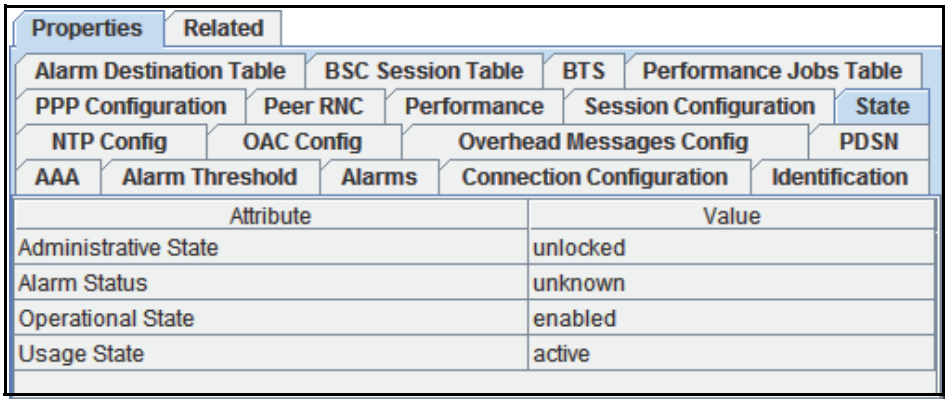
To change the state-type that the State icons display:

1. Select **Tools** | **User Options**.
2. Click the **State ICONs** tab.
3. For *Select State ICON to show in tree view*, select administrativeState, operationalState, usageState, or alarmStatus.
4. Click **OK** to apply the change.

Checking the State Tab

CEM displays administrative, operational, and usage states for each network element on its State tab. The states are determined based on the usage of each element and all its associated sub-elements, including devices and users. See Figure 69 for an example.

Figure 69 Example of the RNC State Tab



View the administrative, operational, and usage states using the State tab:

1. In the CEM explorer tree, click on the node to be viewed**.**
2. In the **Properties** view in the right-hand pane, select the **State** tab.
3. View the **Administrative State**, **Operational State**, and **Usage State** fields. (See Table 24 for state deceptions.)

Table 24 lists the three state types available for most elements.

Table 24 State Types

State Type	Definition	Valid Values
Administrative State	Indicates the desired operational state.	■ locked ■ unlocked ■ shuttingdown
Operational State	Indicates the current operational state. 'unknown' means that CEM cannot determine the current operational state.	■ enabled ■ disabled ■ degraded
Usage State	Indicates how busy the resource is.	■ idle ■ active ■ busy

*The **Alarm Status** attribute is also displayed in the State properties tab. This attribute is not discussed in this document. For information about the **Alarm Status** attribute, see the EV-DO Fault Management Guide.*

C

Acronyms and Abbreviations

Acronyms and Abbreviations

This appendix defines acronyms, abbreviations, and terminology that may be used in this guide.

Table 25 List of Acronyms

Acronym	Definition
1xRTT	CDMA2000 1X (IS-2000)
2G	Second-generation
3G	Third-generation
AC	Alternating Current
ANSI	American National Standards Institute
BSC	Base Station Controller
BSS	Base Station Subsystem
BTS	Base Transceiver Station
CDMA	Code Division Multiple Access
Clk	Clock
DC	Direct Current
DSS	Digital subsystem
EIRP	Effective Isotopic Radiated Power
ESD	Electrostatic Discharge
EV-DO	Evolution-Data Optimized
FA	Frequency Allocation
FCC	Federal Communications Commission
GND	Ground
GPS	Global Positioning System
GUI	Graphical User Interface
HA	Home Agent
HLR	Home Location Register
HTTP	Hypertext Transfer Protocol
iBus	Internal Bus
IOS	Internetwork Operating System
IP	Internet Protocol
IP-RAN	Internet Protocol-Radio Access Network
MIB	Management Information Base
MPE	Maximum Permissible Exposure

Table 25 List of Acronyms (continued)

Acronym	Definition
MNC	Mobile Network Code
MSC	Mobile Switching Center
OMC	Operation and Management Center
PCM	Pulse Code Modulation
PDSN	Packet Data Serving Node
PSTN	Public Switched Telephone Network
RAN	Radio Access Network
RF	Radio Frequency
RFS	RF Subsystem
RJ-45	Registered Jack - 45
RNC	Radio Network Controller
RxD	Receive Diversity
RxM	Receive Main
SMA	SubMiniature version A [connector]
TCM	Timing Control Module
TCP	Transmission Control Protocol
TDM	Time Division Multiplexed
ToD	Time of Day
Tx	Transmit
UTC	Coordinated Universal Time

Copyright © 2013 **Star Solutions International Inc.**

120-4600 Jacombs Road

Richmond, British Columbia V6V 3B1 Canada

www.starsolutions.com

Part Number D02698GS Rev A1