Viewing Alarm Details

In many instances, a page will have an **Alarm Status** column, which indicates whether an alarm is active. If an alarm is active, there will be a **Minor** or **Major** link (as shown in Figure 19) that you click to open a dialog that defines the active alarm. The background color of the **Alarm Status** cell also indicates the alarm level.

U	Unit Information	Unit Configu > View DART	ration Unit Up s [hostDvt1 1]	grades			
E	DART Number	DART Name	Band T	уре	Passband	Alarm Status	
1		host1900_1	PCS FullBand12		PCS_1930-1995	Clear	
2	!	host700_2	700 UpperC SGI	SuperDART	UC700 746-756	Minor	— Alarm detail link
5	;	host850_5	850 Classic			X lear	
	Refresh			DART Unde	r Drive Fault Minc		Alarm details

Figure 19. Alarm Link

For information on the Alarm indicator in the System Tree, see "System Tree" on page 41.

Sorting Tables

You can change the order of a table's contents by applying an alphanumeric sort on a column (see Figure 20). To toggle a column by ascending or descending order, click in the column heading.



Figure 20. Sorting Tables in the GUI

FOLLOWING THE PROCEDURES IN THIS DOCUMENT

This section tells you how to use this document to use the FlexWave Prism EMS to configure and manage Prism devices.

Starting a Procedure

All procedures in this document assume that you have already logged in to the EMS as described in "Access the EMS" on page 57.

Modifying Parameters

In general, the procedures in this document end by having you click **OK** or **Apply** to accept changes or input.

When an operation completes, an **Operation completed** message displays, such as the one shown in Figure 21. If an error message displays, follow the screen prompts.

You can click **Refresh** to update the data being shown.

Unit Information Unit	Configuration Unit Upgrades							
Unit Configuration > Edit Properties [Building4 1]								
Information: Operation completed.								
Edit Host Properties								
Name	Building4							
10 MHz Reference Clock	Internal 💌							
System Card Output Clock	10 MHz							
Notes (Max 256 chars)	Host is in Building 🔺 4 data cabinet. 💌							
Apply Refresh	Reset all units to factory defaults							

Figure 21. Operation Completed Message

Selecting Menu Items

In the Prism user documentation, when a procedure requires that you select a sequence of menu items, a right-angle symbol separate the items. For example, in the following graphic, "click **Users** > **Manage Users**" indicates that in the System Menu bar you select **Users**, and then in the **Users** list, select **Manage Users**.

 To access the Manage Users page, in the System Menu bar, click Users > Manage Users.

USING THE HELP EMBEDDED IN THE GUI

The following sections tell you how top access and use the embedded Prism Help module.

Accessing Help

In the Orientation Links, click Help > Contents.

System Information	System Configu	ration Alarms SI	pecial Features Upgr	ades Users H	elp	Welcome, admin Home Loqout
☐ mhost 1	6 8	Unit Information	Unit Configuration	Unit Upgrad	Contents About	
mhost 1-7		Name Unit Type Alarm Temperature	mhost Prism Host Minor 29.0C			
		Notes (Max 256 chars)		4		
		Apply Refresh				
Selected Unit:						
Selected Ollic.						
	Copyrig	ght© 2011 ADC Teleco	ommunications, Inc. Ai	ll Rights Reserve	d.	

Prism Help is context sensitive, which means that the Help topic that opens will pertain to the current view in the EMS View Frame. In the following example, the Help Topic for the **Get Information** page has opened.

🗿 Get Information - Microsoft Internet Explorer provi	ded by ADC						_O×
Ele Edit View Favorites Tools Help							
🔾 Back 🔹 🕥 🕗 💌 😰 🐔 🔎 Search 😏	🎖 Favorites 🈓	i 🖾 📲 🚳 👘					
Address C:\Data\01_ePublisher Pro Projects\Spectrum7.1	Output/WebWorks Help 5.0	0\InterReachSpectrum_7.1\w	whelp\wwhimplijsl/html/wwhelp.h	k m	• 🔁 👳	Convert	• 🔁 Select
Contents Index Search Favorites	\$ ^ Y						89
Using the Prism EMS Use the EMS Graphical User Interface System Tree System Tree lenses Using the Prisme Elements Unit Identification Using the Prisme Elements Sorting Tables Gradiowing the Procedures in this Document Using the Help tembedded in the GUI Total Framework The Help tembedded in the GUI Total Framework Thermation Constraints Accessing System Reports Constraints Alarms Users Users Users Contacting the System and Units Special Fatures Contacting ADC	System Information : Get Info The Get I and down To acces Informati The Get I - Type - Down NOTE:	Get Information formation page allope load nine individual reg s the Get Information on. Information page has I list—allows you to sel load button—downloa The gray and white s accessing the reques report in the GUI.	is you to view system in ports. agge, in the System Me the following elements: act which report you wan ds selected report to an tatus bar at the top of th ted report. You de not no	formation on one p nu bar, click Syste nt to view. attached PC. See e page indicates th seed to select Downi	iage. You ca m Informati <u>"Downloads</u> at the EMS is load to see t	n also view on > Get ng a Report he	
۲ <u>ــــــــــــــــــــــــــــــــــــ</u>						🛃 My Com	puter //

Navigating Help

The Help Module is designed like a book to make it easy to navigate.

Using the Contents Tab

The default view opens with the **Contents** navigation tool open. In the following example, you can see where the **Get Information** topic falls within the order of contents.

- Click on any of the Contents links to go to the specified topic.
- Click on the book icons to open/close the chapters.



You can also use the **Show in Contents** button to show where a topic falls within the book hierarchy:



Using the Orientation Links and Buttons

You can use the interactive orientation links in the topic header. These links show where the topic falls within a chapter. Click on the links in the topic header to move back one step in the book hierarchy.

You can also use the Page Up button, Page Down button, Print button, and Bookmark button to bookmark a topic.



Using the Index Tab

Click Index to open the Index panel.



At the top of the **Index** panel is the alpha-numeric orientation tool. In this example, the letter \mathbf{D} is selected, which results in only those indexed words that start with

"D" to display, in alphabetic order. Click on any of the links to go to the topic that has the indexed term in it.

To move up/down or left/right to change the orientation of the text in the Index panel, use the navigation arrows.

Using the Search Tab

1 Click Search to open the Search panel.

Contents Index Search Favorites	¢∧∨ Ø
Contents Index Search avorites passband Gol Rank Title 100. Configure DART Links 20. Configure Host Reverse Gain 20. Configure Host Reverse Input Power Levels 20. Using the Linked DARTS Delay Table 20. Viewing the Linked PARTS Peport 20. Viewing the Host RF Report 20. Viewing the Remote RF Report 20. Viewing the Remote RF Report 20. Viewing DARTS 3. Set the Forward and Reverse Delays 3. Viewing DARTS 6. Major Alarms—Host Unit DARTs 6. Major Alarms—Host Unit DARTs 6. Major Alarms—Host Unit DARTs 6. View Alarm History 6. View Alarm History	System Information : Get Information Get Information The Get Information page allows you to view system information on one page. You can also view and download nine individual reports. To access the Get Information page, in the System Menu bar, click System Information > Get Information. The Get Information page has the following elements: Type list—allows you to select which report you want to view. Download button—downloads selected report to an attached PC. See "Downloading a Report". NOTE: The gray and white status bar at the top of the page indicates that the EMS is
G. Major Alarms—Host Unit DARTs G. Major Alarms—Host Unit DARTs View Alarm History G. View Current Alarms Viewing the Alarms Report	 Download button—downloads selected report to an attached PC. See "Downloading a Report". NOTE: The gray and white status bar at the top of the page indicates that the EMS is accessing the requested report. You do not need to select Download to see the report in the GUI.

- 2 At the top of the **Search** panel is a text box in which you enter the term for which you want to search. In this example the user is searching for the word "passband."
- **3** To activate the search, click the Go button.

The **Search** panel is populated with links to the topics that contain the word "passband" and are ordered from top down in order of probability of which topic will contain the topic for which you are searching.

Intentionally Blank Page

INITIAL FLEXWAVE PRISM SYSTEM SETUP

Topics

Minimum EMS System Requirements 56
Access the FMS
Set Session Timeout
Set Date and Time
Set Network Connections 63
Configure Basic Host Unit Properties
Label the PRU/URU
Label the Host Optical Ports
Label PRU/URU Optical Ports
Configure DART Links
Classic DART Models
800 APAC iDEN Classic DART
800 SMR Classic DART75
900 SMR Classic
2100 AWS Classic DART76
Cellular Classic DART77
PCS Classic DART77
SuperDART Models
700 Lower ABC SuperDART79
700 UpperC SuperDART
2100 AWS SuperDART
EGSM 900 SuperDART
GSM 1800 SuperDART80
PCS SuperDART80
UMTS SuperDART80
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Using the Linked DARTs Delay Table83
Filtering the Linked DARTs Delay Table84
Configure Host Forward Gain85
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Configure Remote Forward Gain91
Configure Reverse Input Power Levels94

The steps provided in this chapter configure a basic Prism system that includes:

- one Host Unit (Host)
- at least one Prism Remote Unit (PRU).

MINIMUM EMS SYSTEM REQUIREMENTS

The computer that you use to remotely access the EMS must meet the following minimum requirements:

- Windows 2000 or Windows XP operating system
- Internet Explorer version 7.x or FireFox 3.6
- Network Interface Card (NIC)
- Ethernet cable with RJ-45 connectors.

The EMS database can also be accessed remotely using an SNMP manager. In this case, the user interface varies depending on the SNMP manager, but the underlying parameters, parameter values, and alarms are the same as in the standard EMS interface.

ACCESS THE EMS

- NOTE: In the default configuration, the Craft port has a DHCP server that assigns an IP address to the computer that is connected. You should therefore have your network interface configured for DHCP, or configured with a static IP address in the same subnet, where the default is 192.168.0.1/24.
- **1** To allow the EMS popup and alarm screens to function correctly, do one of the following:
 - Disable the popup blocker for your web browser.
 - Enter the system IP address in the web browser's trusted sites list.
- **2** Use an Ethernet CAT 5 cable (straight or crossover) with RJ-45 connectors to connect a laptop to the Craft port of the Host.
- **3** Connect your computer and start a web browser.
- In the web browser URL box, enter the following IP address:
 192.168.0.1



77073-075

- 5 When the Welcome to ADC FlexWave Prism & URH and ADC InterReach Spectrum window opens:
 - a In the **User Name** box, type the user name provided by ADC or by the Network Administrator. The default user name is **admin**.
 - **b** In the **Password** box, type the password provided by ADC or by the Network Administrator. The default password is **adc123**.

Once installation is complete, users can be added and passwords can be changed. For further information, see "Users" on page 203.

Å
Welcome to
ADC FlexWave [®] Prism & URH and ADC InterReach Spectrum
Embedded Web Server
User Name
Password
Log in
Copyright© 2011 ADC Telecommunications, Inc. All Rights Reserved.
· · · · · · · · · · · · · · · · · · ·

- 6 Click Log in to open the default page, which comprises the elements listed below.
 - The System Tree will be populated with installed devices, but no device will be selected.
 - In the EMS View Frame, the default page displays when the Host is selected in the System Tree.

System Information System Co	Configuration Alarms	Special Features Upgrades Users	Welcome, admin A Home Logout
	4 0 Unit Information Name Unit Type Alarm Temperature Notes (Max 256 chars) Apply Refres	n Unit Configuration Unit Upgrade UNKNOWN_HOSTNAME Prism Host Clear 26.8C	

SET SESSION TIMEOUT

- NOTE: This feature is accessible only by a user logged in to the EMS as the admin user.
- 1 To access the Set Session Timeout page, in the System Menu bar, click Special Features > Set Session Timeout.
- 2 In the **Session Idle Time** box, enter in minutes how long the EMS session can be idle before a forced log out occurs; the value must be between **10** and **60** minutes. The default is **30** minutes.

Special Features > Set Session Timeout						
Session Idle Time	45 (minutes)					

3 Click **Apply**. Once the system executes the command, an **Operation completed** message displays.

Special Features > Set Session Timeout								
Information: Operation completed.								
Session Idle Time 45 (minutes)								
Apply Refresh								

SET DATE AND TIME

The following rules apply to the system time and date:

- The supported date and time range is from 1 January 2005 00:00:00 (12 AM) to 31 December 2037 23:59:59 (11:59:59 PM), where January is 1 and December is 12.
- Time zone and day light savings are not supported.
- All PRUs synchronize time with the managing Host at the time the connected PRU is discovered. The date and time on the PRUs then synchronize to the Host and do not drift.
- If the system date or time is changed while a PRU is out of communication with the Host (for example, loss of power or scheduled maintenance), once communication is reestablished it will take up to 10 minutes for the PRU to display the updated date or time.
- If the difference between the set time and the present time is greater than the session time out setting, the user will be logged out. For example, if the **Session Idle Time** is set to 10 minutes, and the time set in this procedure is 11:10 AM but it is actually 11:30 AM, there is a 20 minute difference, which triggers the **Session Idle Time** and the user will be logged out.
- NOTE: It can take up to 17 minutes before the updated time or date to take effect in connected Remote Units.
- NOTE: You can set the date and time at any time independent from one another. For example, to change the time for daylight savings, open the System Date and Time page, click on the hour shown in the System Time box, increase or decrease the hour by one, and then click Apply.

Do the following to set the date and time:

1 To access the **Set Date and Time** page, in the System Menu bar, click **System Configuration** > **Set Date and Time**.



2 To change the date, click the ... icon after the Date (YYYY/MM/DD) box.

System Configuration	i > Se	et D	ate	an	niT b	ne			
Current Date And Time:	2	011	/02	/12	13:	30:	44		
Date(YYYY/MM/DD)	201	1/02	/12						Icon to op
Time (HH:MM:SS)		<	Fet	•	201	1 -	>	6	Calendar
		Su	Мо	Tu	We	Th	Fr	Sa	
Apply Refresh	5	30	31	1	2	з	4	5	
	6	6	7	8	9	10	11	12	
	7	13	14	15	16	17	18	19	
	8	20	21	22	23	24	25	26	
	9	27	28	1	2	3	4	5	
	10		7	8	9	10	11	12	
			1	С	lose				

- **3** In the **Calendar** that opens, do the following:
 - **a** In the Month list, select the month.
 - **b** If necessary, use the right arrow to adjust the year higher.
 - **c** In the calendar, select the date.
 - d Click Close.

- **4** In the **Time (HH:MM:SS)** box, enter the system time in the 24-hour clock HH:MM:SS format (for example, to set the system time to 5:19:56 PM, you would enter **17:19:56**).
- **5** In the **Set Date and Time** page, verify the date and time showing in the **System Date** and **System Time** fields.
- 6 Click Apply. Once the system executes the command, an Operation completed message displays.

System Configuration	> Set Date and Time							
Information: Date and time has been set.								
Current Date And Time:	2011/02/12 13:30:45							
Date(YYYY/MM/DD)	2011/02/12							
Time (HH:MM:SS)	13:30:45							
Apply Refresh								

SET NETWORK CONNECTIONS

- **1** To access the **Set Network Connections** page, in the System Menu bar, click **System Configuration** > **Set Network Connections**.
- 2 Use the **Networking Mode** list to specify the mode under which IP addresses are assigned to the Host Craft and Network ports. A single IP address defines the system. This IP address is assigned to the Host either statically or by the DHCP server on the NOC. No user setting/IP configuration is required for the PRUs—IP addresses for connected PRUs are auto assigned.
 - **DHCP**—this mode indicates that the Host is a DHCP client and expects an IP address to be assigned by an external DHCP server through a network Ethernet connector. The Host Craft port has a DHCP server that can be used to communicate with the Host directly, and from which you can access the EMS.
 - **Static**—the default mode for the **Craft Port**, with a default IP address of 192.168.0.1. The **Static Networking Mode** allows you to set an IP address for the Host and connected Remote Units that do not change unless you manually change them.
- **3** If you change a port to **Static Networking Mode**, the address fields are enabled. Otherwise you cannot change the network addresses. If you set a port to **Static Networking Mode**, then do the following:
 - a In the IP Address box, enter a new IP address for the system, in the format of xxx.xxx.xxx.
 - **b** In the **Subnet Mask** box, enter a new Subnet Mask address for the system, in the format of **xxx.xxx.xxx**.
 - c In the **Gateway** box, enter a new Gateway address for the system, in the format of **xxx.xxx.xxx**.

Port	Mode	IP Address	Subnet Mask	Gateway
Craft Port	Static 💌	192.168.0.1	255.255.255.0	
Network Por	t DHCP 💌	155.226.36.30	255.255.255.0	155.226.36.240

4 Click Apply. Once the system executes the command, an Operation completed message displays.

CONFIGURE BASIC HOST UNIT PROPERTIES

- **1** In the System Tree, click on the Host icon.
- 2 In the Unit Menu bar, click **Unit Configuration** > **Edit Properties**, to open the **Unit Configuration** > **Edit Properties** page.

System Information System Configu	ration Alarms SpecialFeatures Upgrades Users Help	Welcome, admin <u>A</u> Home Logout	
	Unit Information Unit Configuration Unit Upgrades 🗲		— Unit Menu bar
	Name Edit Properties Unit Type Configure Optical Ports Alarm Clear DART Configuration Temperature Reboot Notes (Hax 256 chars)		 Unit Configuration > Edit Properties
	Apply Refresh		

- **3** In the **Name** box, enter an identifying name for the Host. The **Name** must start with an alphabetical character, contain between 5 and 40 characters (alphanumeric or underscore only), and contain no spaces.
- 4 (Optional) The SeRF board on each Host and Remote contains the clock for that unit. At the Remote, the reference is a clock derived from the Host clock. The 10 MHz Reference Clock default is Internal. You can change the 10 MHz Reference Clock setting to External, which allows you to frequency lock the clock to an external 10 MHz reference.
- CAUTION! When using the 10 MHz external reference clock, the signal must be connected to the Host before enabling the clock in the software. If an external 10MHz reference clock is selected for operation, but is not present or outside of the frequency range of 10MHz +/- 5ppm, communication between the Host and Remote over the optical fiber will fail.
- 5 In the System Card Output Clock list, select one of the following:
 - 10 MHz to set the Host as the System Card Output Clock.
 - **Off** to disable the System Card Output Clock. Unless your system requires the 10 MHz output, it is best to leave the **System Card Output Clock** disabled, as this setting saves power and lowers emissions.
 - **30.72 MHz** is not applicable to a Prism system and should not be selected.

6 (Optional) Use the **Notes** box to enter notes specific to this Host. You can enter up to 256 characters; all keyboard characters can be used.

Unit Configuration > E	dit Properties [UNKNOWN_HOSTNAME 1]
Edit Host Properties –	
Name	SciencesBldg1
10 MHz Reference Clock	Internal 💌
System Card Output Clock	10 MHz 💌
Notes (Max 256 chars)	Science Building 1, A Basement
Apply Refresh	Reset all units to factory defaults

7 Click Apply. Once the system executes the command, an Operation completed message displays.

Unit Information Un	it Configuration Unit Upgrades	
Unit Configuration > E	Edit Properties [SciencesBldg1 1]	New Host Unit name displays
Information: Operatior - Edit Host Properties -	n completed.	Information message
Name	SciencesBldg1	
10 MHz Reference Clock	Internal 💌	
System Card Output Clock	10 MHz 💌	
Notes (Max 256 cha rs)	Science Building 1, A Basement	
Apply Refresh	Reset all units to factory defaults	

LABEL THE PRU/URU

- **1** In the System Tree, click the icon of the PRU/URU whose properties you want to change.
- 2 In the Unit Menu bar, click Unit Configuration > Edit Properties, to open the Unit Configuration > Edit Properties page for the selected PRU/URU.
- **3** In the **Name** box, enter an identifying name for the PRU/URU. The **Name** must start with an alphabetical character, contain between 5 and 40 characters (alphanumeric or underscore only), and contain no spaces.
- 4 Leave the **Capacity** setting as is.
- CAUTION! The Capacity setting pertains to the PRU/URU Remote SeRF Interface (RSI) board and the number of RF groups available to the Remote Unit. This parameter is set during manufacturing and should be changed only when the RSI board has been replaced. See "Set the Capacity for a New Remote Unit RSI Board" on page 162.
- **5** (Optional) Use the **Notes** box to enter notes specific to the selected PRU/URU. You can enter up to 256 characters; all keyboard characters can be used.

Unit Information Un	it Configuration Unit Upgrades					
Unit Configuration > Edit Properties [SciencesBldg1 1-1]						
Edit Remote Properties						
Name	LawrenceLab					
Capacity	4 💌					
Notes (Max 256 cha rs)	Centennial and A Grizzly Peak					
Apply Refresh	Clear Configuration					

- 6 Click Apply. Once the system executes the command, an Operation completed message displays.
- 7 Repeat this process for each PRU/URU in the system.

LABEL THE HOST OPTICAL PORTS

CAUTION! If fibers must be moved or reconfigured at any time during installation or setup, follow the steps in "Moving or Reconfiguring Fibers" on page 122.

There can be up to eight Host SeRF optical ports that correspond to the eight physical ports on the Host. In this section, you should label the Host SeRF Optical ports to provide for easier off-site management.



- 1 In the System Tree, click on a Host icon.
- 2 In the Unit Menu bar, click Unit Configuration > Configure Optical Ports, to open the Unit Configuration > Configure Optical Ports page.

Unit Information Unit Configuration Unit Upgrades								
Unit Configuration > Configure Optical Ports [SciencesBldg1 1]								
SFP	SFP Name	In/Out	Optics	Wavelength	Tx Power	Rx Power	Remote	Alarm
1	UNKNOWN_SFPNAME	Out	Long Range	1310	2.8	-16.0	LawrenceLab	Clear
Apply Refr	esh							

- **3** In the **SFP Name** box, enter a label for the selected Optics port. The **SFP Name** must start with an alphabetical character, contain 5 to 32 characters (alphanumeric or underscore only), and contain no spaces. The default **SFP Name** is **UNKNOWN_SFPNAME**.
- 4 Click Apply. Once the system executes the command, an Operation completed message displays.

Unit Information	nit Information Unit Configuration Unit Upgrades							
Unit Configuration	Init Configuration > Configure Optical Ports [SciencesBldg1 1]							
Information: Ope	ration completed.							
SFP Number	SFP Name	In/Out	Optics Type	Wavelength (nm)	Tx Power (dBm)	Rx Power (dBm)	Remote Name	Alarm Status
1	Astronomy1	Out	Long Range	1310	2.8	-16.1	LawrenceLab	Clear
Apply Refres	h							

The **Configure Optical Ports** table provides the following information.

- **SFP Number**—system assigned number (from **1** to **8**) for the Optical ports
- SFP Name—see Step 3 on page 68.
- In/Out—used for cascading, which is not supported in this release. The Host will therefore always be set as Out (indicates that the forward link for the connected SFP is going away from the Host) and the SFPs for all Remote Units will always be set as In.
- Optics Type
 - LongRange—26 dB
 - IntermediateRange—18 dB)
- Wavelength (nm)—number displayed is the wavelength transmitted through this port:
 - Non-duplex and WDM configurations
 - 1550 nm fwd
 - 1310 nm rev
 - CWDM configurations can be one of eight wavelengths:
 - 1470 nm 1550 nm
 - 1490 nm 1570 nm
 - 1510 nm 1590 nm
 - 1530 nm 1610 nm

- **Tx Power (dBm)**—launch power level in dBm of forward path signal.
 - LongRange (LR)
 - minimum is -2 dBm
 - maximum is 3 dBm.
 - IntermediateRange (IR)
 - minimum is -5 dBm
 - maximum is 0 dBm.
- **Rx Power (dBm)**—receive power level in dBm of reverse path signal, which incorporates the launch power of the Remote Unit SFP plus all optical losses (insertion losses, fiber cable loss, and so forth).
 - LongRange (LR)
 - minimum is -27 dBm
 - maximum is -9 dBm.
 - IntermediateRange (IR)
 - minimum is -18 dBm
 - maximum is 0 dBm.
- Remote Name or Host Name—when a Host Unit is selected in the System Tree, the Configure Optical Ports table provides a column for Remote Name, which is name of the Remote Unit connected to this Optics port. When a Remote Unit is selected in the System Tree, the Configure Optical Ports table provides a column for the Host Name, which is the name of the Host connected to this Optics port.
- Alarm Status—whether an alarm is active. If an alarm is active, there will be a Minor or Major link that you click to open a dialog that defines the active alarm, as described in "Viewing Alarm Details" on page 45. The background color of the Alarm Status cell also indicates the alarm level (see "Alarm Color Codes" on page 44).

LABEL PRU/URU OPTICAL PORTS

- 1 In the System Tree, click on a PRU/URU icon.
- 2 In the Unit Menu bar, click Unit Configuration > Configure Optical Ports, to open the Unit Configuration > Configure Optical Ports page.
- **3** In the **SFP Name** box, enter a label for the selected Optics port. The **SFP Name** must start with an alphabetical character, contain between 5 and 32 characters (alphanumeric or underscore only), and contain no spaces. The default **SFP Name** is **UNKNOWN_SFPNAME**.

Unit Configu	Jnit Configuration > Configure Optical Ports [SciencesBldg1 1-1]							
Information: Operation completed.								
SFP Number	SFP Name	In/Out	Optics Type	Wavelength (nm)	Tx Power (dBm)	Rx Power (dBm)	Host Name	Alarm Status
1	Astronomy1_PRU	In	Long Range	1310	3.6	-15.2	SciencesBldg1	<u>Major</u>
Apply Re	efresh							

- **4** Click **Apply**. Once the system executes the command, an **Operation completed** message displays.
- 5 Repeat this process for each PRU/URU in the system.

The **Configure Optical Ports** table provides the same information as what is shown for a Host Unit—see "Label the Host Optical Ports" on page 67.

CONFIGURE DART LINKS

"Linking" establishes an association in software between a particular Host DART and a particular Remote DART, enabling the two DARTs to act as an operational unit in providing one RF band. There are four pre-requisites to this procedure:

- The Host DART and Remote DART must be connected through the optical fiber and be communicating with each other.
- To link the Remote Unit DARTs to the DARTs in a Host Unit, the DARTs must be the same type e (such as, Cellular to Cellular).
- SuperDARTs and Classic DARTS do not operate with each other. Link a SuperDART to a SuperDART and a Classic DART to a Classic DART.
- There must be a sufficient number of fiber timeslots available in order to accommodate the requested passband (for example, PCS A band requires 3 timeslots).

In the **Configure DART Links** page, all Remote DARTs are listed that have the same band as the selected Host DART. A link is established by selecting a Remote DART to be paired with the Host DART, and then clicking the **Linked** box. To provide for an RF Simulcast, a Single Host DART can be linked to up to eight Remote DARTs.

Do the following to establish DART links:

1 To access the **Configure DART Links** page, in the System Menu bar, click **System Configuration** > **Configure DART Links**.

System Conf	iguration > Configu	ure DAI	RT Links										
-Configure B	ands												
Host Parame	eters												
	DARI	г			DART	lame	Pass	band	Frequency(MHz)	C	Diversity	Input Source	
Select				•					Passband Link Start FWD1 REV1 FWD2 REV2	Stop Non 	Diversity 💌	BTS 💌	
Remote Para	ameters DART [DARTIN	lame	Linke	d								
Apply Re	efresh												
-Linked DART	ſs												
Filter View None Contains Filter													
	Host						Remote					Common	
DART Id	DART Name	SFP Id	SFP Name	Id	Name	SFP Id	SFP Name	DAR1 Id	DART Name	Timeslots	Passband	Frequency(MHz)	Diversit
5 U	NKNOWN_DARTNAME	1	Astronomy1	SciencesBld 1-1	g1 LawrenceLab	1	Astronomy1_PRL	1	UNKNOWN_DARTNAME	1-4	Cellular A2ABA1B1	850 Classic_869-894	Non Diversity

NOTE: For information on the Linked DARTs table at the bottom of the Configure DART Links page, see "Viewing the Linked DARTs Report" on page 105.

You use the **Configure Bands** panel to configure the Host for DART linking, and the **Remote Parameters** panel to configure the Remote Unit.

- 2 In the **Host Parameters** panel, set the following parameters:
 - **a** In the **DART** list, select the Host DART that you want to link to the Remote Unit DART.
 - **b** In the **DART Name** box, enter a name for the DART, which must start with an alphabetical character, contain between 5 and 32 characters (alphanumeric or underscore only), and contain no spaces.
 - c Use the **Passband** column to set the passband for the selected DART.
 - If you are configuring a Classic DART, then refer to the passband selection table in the corresponding section:
 - "800 APAC iDEN Classic DART" on page 75
 - "800 SMR Classic DART" on page 75
 - "900 SMR Classic" on page 76
 - "2100 AWS Classic DART" on page 76
 - "Cellular Classic DART" on page 77
 - "PCS Classic DART" on page 77

The following figure shows the passband selections for the 2100 AWS Classic DART, which are described in "2100 AWS Classic DART" on page 76.

System Configuration > (Configu	re DART Links					5
Configure Bands							
Host Parameters					() 5
	DART			DART Name		Passband	Frequency(MK
2-UNKNOWN_DARTNA	2-UNKNOWN_DARTNAME-2100 AWS Classic		ASTR	NY1_Floor4		AWS AB	Passband Link Stars AB FWD1 211 REV1 1710
Remote Id	DART	DART Name		Linked		AWS BC	
Select						AWS BCD AWS BCDE AWS BCDEF	
Apply Refresh						AWSC AWSCD	2
Linked DARTs							
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Same and the second		Sandar Sanad Sanad		and a surface second second	

- If you are configuring a SuperDART, in the **Passband** column, click on the Configure link, and then in the passband selection window that opens, set the passband according to the rules specified for each SuperDART type:
  - "700 Lower ABC SuperDART" on page 79
  - "700 UpperC SuperDART" on page 79
  - "2100 AWS SuperDART" on page 79
  - "EGSM 900 SuperDART" on page 79
  - "GSM 1800 SuperDART" on page 80
  - "PCS SuperDART" on page 80
  - "UMTS SuperDART" on page 80

The following figure shows the passband selections for a PCS SuperDART, which are described in "PCS SuperDART" on page 80.

O PCS Bands							
🗖 FullBand							
		F         C2         C1         FG         FH           F C3         C4         C5         FH         FH					
C Frequencies							
F۱	WD1 1965 _ 1975	MHz					
RE	<b>EV1</b> 1885 - 1895	MHz					
FV	ND2	MHz					
RE	EV2	MHz					
	OK Refresh Ca	ancel					

The **Frequency** table provides a read-only tabular view of forward and reverse paths.

- In the Diversity list, select whether the DART is to be configured as Diversity or Non Diversity. For a diversity application, one DART will be configured Non Diversity for the primary FWD/REV path signal and the other DART will be configured Diversity. This selection therefore determines whether the DART Module being configured will carry the primary or secondary REV (uplink) RF path.
- For dual DART configurations, such as dual-pcs, smr800/smr900 and dual-aws, both DARTs must have **DART Diversity Status** set to **Non Diversity**.
- In the **Input Source** list, select whether the Wireless Operator input will be from the **BDA** or **BTS**. **Input Source** determines whether System Test uses external RF (**BTS**) or internal RF (**BDA**) to test the forward path. However, this release does not support internal tone generation. Consequently, setting the **Input Source** as either **BDA** or **BTS** assumes an external RF signal. Default is **BTS**.

- 3 In the **Remote Parameters** table, set the following parameters:
  - **a** In the **Remote Id** list, select the Remote Unit whose DART you are linking to the Host DART.
  - **b** In the **DART** list, select the Remote Unit DART that you are linking.
  - **c** In the **DART Name** box, enter a name for the DART, which must start with an alphabetical character, contain between 5 and 32 characters (alphanumeric or underscore only), and contain no spaces.
  - d Select the Linked box.

Remote Parameters			
Remote Id	DART	DART Name	Linked
1-SciencesBldg11-1	7-UNKNOWN_DARTNAME-2100 AWS Classic 💌	Grizzly4	
Apply Refresh			
-Linked DARTs			
	and a sub-	and the second second second	man

4 Click **Apply**. The **Linked DARTS** table at the bottom of the page updates with the new link.

Apr	Apply Refresh													
-Linł	·Linked DARTs-													
Filt	er					1								
View	/ Non	e 🗾 d	ontain	IS		Filter								
		Host						Remote					Common	
	DART Id	DART Name	SFP Id	SFP Name	Id	Name	SFP Id	SFP Name	DART Id	DART Name	Timeslots	Passband	Frequency(MHz)	Diversity
2		ASTRNY1_Floor4	1	Astronomy1	SciencesBldg1 1-1	LawrenceLab	1	Astronomy1_PRU	7	Grizzly4	5-8	AWS ABC	2100 AWS Classic_2110-2135	Non Diversity
5		UNKNOWN_DARTNAME	1	Astronomy1	SciencesBldg1 1-1	LawrenceLab	1	Astronomy1_PRU	1	UNKNOWN_DARTNAME	1-4	Cellular A2ABA1B1	850 Classic_869-894	Non Diversity

**5** Repeat Step through Step 4 for each Host and PRU/URU DART pairing.

NOTE: Each link takes approximately 1 minute to establish.

## **Classic DART Models**

The following sections describe the Prism Classic DART options.

#### 800 APAC iDEN Classic DART

Table 13 lists the passband selections for 800 APAC iDEN Classic DARTs.

Table 13.	800 APAC iDEN Classic DART Passband Selection
Table 13.	800 APAC iDEN Classic DART Passband Selection

Name	Downlink Frequency Range (MHz)	Uplink Frequency Range (MHz)		
800 APAC iDEN	851 - 870	806 - 825		

The 800 APAC iDEN DART also supports the SMR Low and SMR Low Wide passbands. The 800 APAC iDEN Classic DART can be linked to a DART of the same type and to an 800 SMR Classic DART (as long as the passband is either SMR Low or SMR Low Wide). Table 14 specifies supported linking between 800 SMR Classic DARTs and 800 APAC iDEN Classic DARTs.

 Table 14.
 Linking 800 SMR Classic DARTs and 800 APAC iDEN Classic DARTs

Host DART	PRU/URU DART	Passbands
800APAC	800APAC	low, wide, apac
800APAC	800SMR	low, wide
800SMR	800APAC	low, wide
800SMR	800smr	low, wide

#### 800 SMR Classic DART

Table 15 lists the passband selections for 800 SMR Classic DARTs.

I able 15.         800 SMR Classic DART Passband Selection	Table 15.	800 SMR Classic DART Passband Select	ions
------------------------------------------------------------	-----------	--------------------------------------	------

Name	Downlink Frequency Range (MHz)	Uplink Frequency Range (MHz)		
SMR Low	862 - 869	817 - 824		
SMR Low Wide	851 - 869	806 - 824		

#### 900 SMR Classic

Table 16 lists the passband selections for 900 SMR Classic DARTs.

Name	Downlink Frequency Range (MHz)	Uplink Frequency Range (MHz)		
SMR High	935 - 940	896 - 901		
SMR High/Paging	935 - 941	896 - 902		

 Table 16.
 900 SMR Classic DART Passband Selections

NOTE: When installed in a PRU, the 900 SMR Remote Classic DART supports only the SMR High passband.

#### 2100 AWS Classic DART

Table 17 lists the passband selections for 2100 AWS Classic DARTs.

Name	Downlink Frequency Range (MHz)	Uplink Frequency Range (MHz)
А	2110 - 2120	1710 - 1720
A+B	2110 - 2130	1710 - 1730
A+B+C	2110 - 2135	1710 - 1735
A+B+C+D	2110 - 2140	1710 - 1740
A+B+C+D+E	2110 - 2145	1710 - 1745
В	2120 - 2130	1720 - 1730
B+C	2120 - 2135	1720 - 1735
B+C+D	2120 - 2140	1720 - 1740
B+C+D+E	2120 - 2145	1720 - 1745
B+C+D+E+F	2120 - 2155	1720 - 1755
С	2130 - 2135	1730 - 1735
C+D	2130 - 2140	1730 - 1740
C+D+E	2130 - 2145	1730 - 1745
C+D+E+F	2130 - 2155	1730 - 1755
D	2135 - 2140	1735 - 1740
D+E	2135 - 2145	1735 - 1745
D+E+F	2135 - 2155	1735 - 1755
E	2140 - 2145	1740 - 1745
E+F	2140 - 2155	1740 - 1755
F	2145 - 2155	1745 - 1755

 Table 17.
 2100 AWS Classic DART Passband Selection

#### **Cellular Classic DART**

Table 18 lists the passband selections for Cellular Classic DARTs.

Name	Downlink Frequency Range (MHz)	Uplink Frequency Range (MHz)
A'' + A	869 - 880	824 - 835
А	870 - 880	825 - 835
A'' + A + A'	869 - 891.5	824 - 846.5
A'	890 - 891.5	845 - 846.5
В	880 - 890	835 - 845
B'	891.5 - 894	846.5 - 849
B + B'	880 - 894	835 - 849
A'' + A + B + A' + B'	869 - 894	824 - 849
A + B	870 - 890	825 - 845

 Table 18.
 Cellular Classic DART Passband Selections

NOTE: The Cellular Classic Remote DART supports the same passbands as the Cellular Classic Host DART. However, the LNA or Duplexer installed in the Remote Unit can restrain which passbands are supported.

#### **PCS Classic DART**

Table 19 lists the passband selections for PCS Classic DARTs.

Passband	Downlink Frequency Range (MHz)	Uplink Frequency Range (MHz)	Passband	Downlink Frequency Range (MHz)	Uplink Frequency Range (MHz)
A1	1930 - 1935	1850 - 1855	E+F+C2	1965 - 1982.5	1885 - 1902.5
A2	1935 - 1940	1855 - 1860	C1+G + H	1982.5 - 2000	1902.5 - 1920
A3	1940 - 1945	1860 - 1865	A+D	1930 - 1950	1850 - 1870
B1	1950 - 1955	1870 - 1875	A2+A3+D+B1	1935 - 1955	1855 - 1875
B2	1955 - 1960	1875 - 1880	A3+D+B1+B2	1940 - 1960	1860 - 1880
B3	1960 - 1965	1880 - 1885	D+B	1945 - 1965	1865 - 1885
C3	1975 - 1980	1895 - 1900	B+E	1950 - 1970	1870 - 1890
C4	1980 - 1985	1900 - 1905	B2+B3+E+F	1955 - 1975	1875 - 1895
C5	1985 - 1990	1905 - 1910	B3+E+F+C3	1960 - 1980	1880 - 1900
D	1945 - 1950	1865 - 1870	E+F+C3+C4	1965 - 1985	1885 - 1905
E	1965 - 1970	1885 - 1890	F+C	1970 - 1990	1890 - 1910
F	1970 - 1975	1890 - 1895	C+G	1975 - 1995	1895 - 1915
G	1990 - 1995	1910 - 1915	C4+C5+G + H	1980 - 2000	1900 - 1920
Н	1995 - 2000	1915 - 1920	B3+E+F+C2	1960 - 1982.5	1880 - 1902.5
C2	1975 - 1982.5	1895 - 1902.5	A+D+B1	1930 - 1955	1850 - 1875
C1	1982.5 - 1990	1902.5 - 1910	A2+A3+D+B1+B2	1935 - 1960	1855 - 1880

 Table 19.
 PCS Classic DART Passband Selections

Passband	Downlink Frequency Range (MHz)	Uplink Frequency Range (MHz)	Passband	Downlink Frequency Range (MHz)	Uplink Frequency Range (MHz)
A1+A2	1930 - 1940	1850 - 1860	A3+D+B	1940 - 1965	1860 - 1885
A2+A3	1935 - 1945	1855 - 1865	D+B+E	1945 - 1970	1865 - 1890
A3+D	1940 - 1950	1860 - 1870	B+E+F	1950 - 1975	1870 - 1895
D+B1	1945 - 1955	1865 - 1875	B2+B3+E+F+C3	1955 - 1980	1875 - 1900
B1+B2	1950 - 1960	1870 - 1880	B3+E+F+C3+C4	1960 - 1985	1880 - 1905
B2+B3	1955 - 1965	1875 - 1885	E+F+C	1965 - 1990	1885 - 1910
B3+E	1960 - 1970	1880 - 1890	F+C+G	1970 - 1995	1890 - 1915
E+F	1965 - 1975	1885 - 1895	C+G + H	1975 - 2000	1895 - 1920
F+C3	1970 - 1980	1890 - 1900	B2+B3+E+F+C2	1955 - 1982.5	1875 - 1902.5
C3+C4	1975 - 1985	1895 - 1905	A+D+B1+B2	1930 - 1960	1850 - 1880
C4+C5	1980 - 1990	1900 - 1910	A2+A3+D+B	1935 - 1965	1855 - 1885
C5+G	1985 - 1995	1905 - 1915	A3+D+B+E	1940 - 1970	1860 - 1890
G + H	1990 - 2000	1910 - 1920	D+B+E+F	1945 - 1975	1865 - 1895
F+C2	1970 - 1982.5	1890 - 1902.5	B+E+F+C3	1950 - 1980	1870 - 1900
C1+G	1982.5 - 1995	1902.5 - 1915	B2+B3+E+F+C3+C4	1955 - 1985	1875 - 1905
А	1930 - 1945	1850 - 1865	B3+E+F+C	1960 - 1990	1880 - 1910
A2+A3+D	1935 - 1950	1855 - 1870	E+F+C+G	1965 - 1995	1885 - 1915
A3+D+B1	1940 - 1955	1860 - 1875	F+C+G + H	1970 - 2000	1890 - 1920
D+B1+B2	1945 - 1960	1865 - 1880	A+D+B	1930 - 1965	1850 - 1885
В	1950 - 1965	1870 - 1885	A2+A3+D+B+E	1935 - 1970	1855 - 1890
B2+B3+E	1955 - 1970	1875 - 1890	A3+D+B+E+F	1940 - 1975	1860 - 1895
B3+E+F	1960 - 1975	1880 - 1895	D+B+E+F+C3	1945 - 1980	1865 - 1900
E+F+C3	1965 - 1980	1885 - 1900	B+E+F+C3+C4	1950 - 1985	1870 - 1905
F+C3+C4	1970 - 1985	1890 - 1905	B2+B3+E+F+C	1955 - 1990	1875 - 1910
С	1975 - 1990	1895 - 1910	B3+E+F+C+G	1960 - 1995	1880 - 1915
C4+C5 +G	1980 - 1995	1900 - 1915	E+F+C+G + H	1965 - 2000	1885 - 1920
C5+G + H	1985 - 2000	1905 - 1920			

 Table 19.
 PCS Classic DART Passband Selections

## SuperDART Models

The following sections describe the Prism SuperDART options.

#### 700 Lower ABC SuperDART

The 700 Lower ABC SuperDART supports the following subbands: A, B, C. Table 20 lists the passband selections for 700 Lower ABC SuperDARTs.

Name	Downlink Frequency Range (MHz)	Uplink Frequency Range (MHz)
А	728 - 734	698 - 704
В	734 - 740	704 - 710
С	740 - 746	710 - 716

 Table 20.
 700 Lower ABC SuperDART Passband Selection

#### 700 UpperC SuperDART

The 700 UpperC SuperDART supports the following passband: Upper C. Table 21 lists the passband selections for 700 ABC SuperDARTs.

 Table 21.
 700 UpperC SuperDART Passband Selection

Name	Downlink Frequency Range (MHz)	Uplink Frequency Range (MHz)
UpperC	746 - 756	776 - 786

#### 2100 AWS SuperDART

You can select any number of the subbands based on the limitations specified below.

- The 2100 AWS SuperDART supports the following passbands: A, B, C, D, E, F.
- You can select up to two non-contiguous sets of subbands, but there must be at least a 5 MHz gap between the bands.
- The Start and Stop frequencies are in the range of 2110MHz 2155MHz.

#### EGSM 900 SuperDART

The EGSM 900 SuperDART supports the selection of a Start and Stop frequency for the passband in the range of 925MHz - 960MHz.

#### GSM 1800 SuperDART

You can select a Start and Stop frequency for the passband in the frequency range of 1805 MHz - 1880 Mhz.

#### PCS SuperDART

PCS SuperDARTs support the following subbands: A, B, C, D, E, F, G, H, A1, A2, A3, B1, B2, B3, C1, C2, C3, C4, C5.

You can select any number of the subbands based on the limitations specified below:

- The subband A cannot be chosen in conjunction with A1, A2, or A3.
- The subband B cannot be chosen in conjunction with B1, B2, or B3.
- The subband C cannot be chosen in conjunction with C1, C2, C3, C4, or C5.
- The subbands C1 and C2 cannot be chosen in conjunction with the subbands C, C3, C4, or C5.
- The subbands C3, C4, and C5 cannot be chosen in conjunction with the subbands C, C1, or C2.
- Up to two non-contiguous sets of subbands can be selected, and there must be more than a 5 MHz gap between the bands.

The PCS SuperDART supports the following Start and Stop frequencies:

- The PCS RF SuperDART supports the selection of a Start and Stop frequency for the passband as listed in Table 19.
- The PCS RF SuperDART Start and Stop frequencies are in the range of 1930MHz 2000MHz.

#### UMTS SuperDART

You can select a Start and Stop frequency for the passband in the frequency range of 2110 MHz - 2170 MHz.

## **DART Start and Stop Frequencies**

Host SuperDARTs support the selection of a Start and Stop frequency for the passband or for the selection of subbands (up to two start-stop frequency pairs may be selected as long as the two pairs are at least 5 MHz apart and one is limited to 39 MHz and the other is limited to 25 MHz).

NOTE: Start/Stop frequencies and subbands may not be used at the same time.

Table 22 lists the supported start-stop frequency ranges for SuperDARTs.

Frequency Range (MHz)	Timeslots
6	1
12	2
18	3
25	4
39	6
45	8
75	12

 Table 22.
 Supported SuperDART Stop/Start Frequency Ranges

## SET THE FORWARD AND REVERSE DELAYS

- NOTE: The system comes up with a default delay. Once linking is complete, the system will calculate the actual delay. The initial parameters that are set may therefore be out of range. If necessary, correct the delay within the available range.
- NOTE: If part of a simulcast, ensure that all links in the simulcast are set to the same delay value.
- **NOTE:** For information on the Linked DARTs Delay table at the bottom of the page, see "Using the Linked DARTs Delay Table" on page 83.
- **1** To access the **Configure Delay** page, in the System Menu bar, click **System Configuration** > **Configure Delay**.
- 2 In the **Remote Parameters** table, do the following:
  - **a** In the **Remote Id** list, select the Remote Unit for which you want to configure the delay settings.
  - **b** In the **DART** list, select the DART for which you want to configure the delay settings. Only those DARTS that have been linked will be available in the **DART** list. The following information is populated in the **Remote Parameters** table, which corresponds to the Remote Unit and DART that you have selected.
    - Forward Delay ( $\mu s)-$  the Forward Range in microseconds available for the selected DART
    - Forward Delay Range ( $\mu s)-$  the Forward Delay Range in microseconds for the selected DART
    - Reverse Delay ( $\mu s)-$  the Reverse Delay in microseconds available for the selected DART
    - Reverse Delay Range ( $\mu s)-$  the Reverse Delay Range in microseconds for the selected DART
    - Passband—type of passband provided by the DART
  - c If necessary, change the Forward Delay and the Reverse Delay:
    - Forward Delay ( $\mu$ s) box—enter the actual delay in microseconds that will be applied to the RF forward path signal. The Forward Delay Range ( $\mu$ s) field displays valid settings for the Forward Delay.
    - **Reverse Delay** ( $\mu$ s) box—enter the actual delay in microseconds that will be applied to the RF reverse path signal. The **Reverse Delay Range** ( $\mu$ s) field displays valid settings for the **Reverse Delay**.

System Configuration > (	Configure Delay					
Remote Parameters						
Remote Id	DART	Forward Delay (µs)	Forward Delay Range (µs)	Reverse Delay (µs)	Reverse Delay Range (µs)	Passband
1-SciencesBldg1 1-1	7-Grizzly4-2100 AWS Classic 🔽	7	7-94	8	8-95	AWS ABC
Apply Refresh						
Linked DARTs Delay-				مىرى ئىي	and the second	

- **3** Click **Apply**. The **Operation complete** message displays, and the **Remote Parameters** table clears so you can set the delay for another DART.
- 4 Repeat Step 2 through Step 3 for each DART.

## Using the Linked DARTs Delay Table

 _ L	nked DAR	Ts Delay	ver a trade a	/	fter or	and the second second	, , <u>, , , , , , , , , , , , , , , , , </u>	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	**************************************	hand and an and a start and
⊢F Vi	lter w None	💌 con	tains		Filter					
1		Host				Remote				Common
Ŧ	DART Id	DART Name	Id	Name	DART Id	DART Name	Forward Delay (µs)	Reverse Delay (µs)	Passband	Frequency(MHz)
2		ASTRNY1_Floor4	SciencesBldg1 1-1	LawrenceLab	7	Grizzly4	7	8	AWS ABC	2100 AWS Classic_2110-2135
5		UNKNOWN_DARTNAME	SciencesBldg1 1-1	LawrenceLab	1	UNKNOWN_DARTNAME	7	8	Cellular A2ABA1B1	850 Classic_869-894

The Linked DARTs Delay table provides the following information:

- Host columns—identifies the Host in the link
  - DART Id—number of the Host slot in which the DART is installed
  - DART Name—user-defined name for the Host DART
- **Remote** columns—identifies the Remote and its elements
  - Id—Unit ID of PRU/URU based upon layered address; see "Unit Identification" on page 43
  - Name-user-defined label for the PRU/URU
  - **DART Id**—PRU/URU slot number in which the DART is installed
  - DART Name—user-defined name for the Remote DART
  - Forward Delay ( $\mu$ s)—user requested FWD RF path delay in microseconds
  - Reverse Delay (µs)-user requested REV RF path delay in microseconds
- **Common** columns—configuration settings common to the Host and Remote(s)
  - Passband—type of passband provided by the DART.
  - Frequency (MHz)—passband frequency of the DART

## Filtering the Linked DARTs Delay Table

- 1 In the Filter panel View list, select a filter to be applied to the table.
- 2 In the contains box, enter filter criteria.
- 3 Click Filter to apply the filter.

In the following example, the **Linked DARTs Delay** table has been filtered to show only those Host Units with a **DART Id** that contains "2".

Bonnan,	D   مرمہ سرمہ د	ÁRT 🗋 🥡 🗸	áy (µš) j	đŕŵ.,	یا می táh را سر	ST C. Arsers	(h., / Kevers / Dela	(kus	TT- Ad Sand
Select		-							
Apply Refres									
-Linked DARTs De	ay —								
- Filter									
View Host DART	ld _	contains 2		Filte	r				
🛛 🗸 Host					Remote				Common
🗹 DARTID DA	RT Name	Id	Name	DART Id	DART Name	Forward Delay (µs)	Reverse Delay (µs)	Passband	Frequency(MHz)
2 ASTE	NY1_Floor4	SciencesBldg1 1-1	LawrenceLab	7	Grizzly4	7	8	AWS ABC	2100 AWS Classic_2110-2135

## **CONFIGURE HOST FORWARD GAIN**

#### NOTE: Digital power measurements are inaccurate when ALC is active.

Follow these steps to set the Forward Gain value for the Host DART.

1 Determine what the Host DART Forward Gain should be. Use a signal generator and spectrum analyzer to measure the uplink attenuation from the Host to the BTS, and the FWD power at the Host from the BTS to determine unloaded power level.

The Host DART expects signal levels from **-25** to **+5 dBm**. If the fully loaded signal is +5 dBm, then the DART forward gain should be set to **0 dB**, if the fully loaded signal is -25 dBm, then the DART Forward Gain should be set to **31 dB**. The equation is:

DART Forward Gain = 5 - fully Loaded Base Station Signal

CAUTION! If you are setting up the system when no calls are going through, you must allow headroom for a fully loaded forward path. For CDMA protocols, the difference from unloaded to fully loaded is typically 8dB, so if the unloaded signal is -15dBm, then the fully loaded input would be -7 dBm and the Host Forward Gain should be set to 5-(-7) = 12 dB.

The same rules applies for GSM carriers, except that the unloaded to loaded is determined by the equation 10*log10(# RF Channels). So if there are 4 GSM RF Channels, then the loaded forward path is 6 dB above unloaded.

If sufficient headroom is not present, then the LPA can be over-powered causing a Loss Of Service.

- CAUTION! When configured correctly, the Host DART Forward input can handle peaks of 14dB above the BTS signal level. For example, if the fully loaded CDMA carrier is -25dBm, then peaks up to -11 dBm can be handled (CDMA peak to average is typically 10-12 dB). If the peaks exceed the 14 dB of headroom, then Automatic Level Control (ALC) will occur to prevent over-driving the A/D Converter.
- NOTE: In the EMS GUI, the reverse path gain range for Classic DARTs is 5 to 36 dB, which indicates actual reverse path system gain. If you set this gain through the SNMP SET commands, then the gain range is 0 to 31 dB, which maps to the actual GUI/system reverse path gain range of 5 to 36 dB.

- 2 In the EMS, do the following to set the Host Forward Gain parameters:
  - a To access the **Configure Host Forward Gain** page, in the System Menu bar, click **System Configuration** > **Configure Host Forward Gain**.

System Co	nfiguration > Configu	re Host Fo	rward Gain							
Host Para	meters									
1										
	DART		DART Mode	Forward Gain (d	B) Power Lev	vel Mode Peak P	ower (dBm) Av	erage Power (dBm)	Minimum Pow	er (dBm)
Relact			Normal I		Chanchot	3		,		
Ipelect		<u> </u>			Snapshot					
Apply	Reset Max Hold	Refresh								
-Host Forv	vard Gain Settings									
-Filter										
View Non	e 🗾 conta	ains		Filter						
	_									
DART Id	DART Name	DART Mode	Forward Gain (dB)	Power Level Mode	Peak Power (dBm)	Average Power (dBm)	Minimum Powe (dBm)	er Last Max Hold Reset Time	Passband	Frequency(MHz)
2	ASTRNY1_Floor4	Normal	3	Snapshot	-36.2	-48.8	-48.8	NA	AWS ABC	2100 AWS Classic_2110-2135
5	UNKNOWN_DARTNAME	Normal	31	Max Hold	-30.5	-30.7	-30.7	NA	Cellular A2ABA1B1	850 Classic_869-894

- **b** In the **Host Parameters** table **DART** list, select the Host DART that you want to configure. Other information in the **Host Parameters** table is updated to show settings for the selected DART.
- c In the DART Mode list, select one of the following:
  - **Standby**—forces the RF function to be muted in the Host and its linked Remote Unit.
  - **Normal**—allows the system to operate normally (RF function not forced to be muted), assuming all other system components are in proper working order. (Default setting.)
- **d** In the **Fwd Gain (dB)** list, select the Forward Gain value of **0** to **31 dB**, based upon the fully loaded forward path signal level from the Base Station.
- e In the Power Level Mode list, select one of the following:
  - **Snapshot**—provides a "snap-shot" or current RF measurement for the selected Remote Unit DART (default setting).
  - Max Hold—retains the maximum values for peak and peak average, and the minimum values for minimum average since the last Max Hold Reset.
- NOTE: The Power Level Mode is disabled if the:
  - DART Operating mode is set to Standby
  - DART Pass Band (Timeslots) parameter is set to Undefined (default)
  - DART Diversity Status is set to Diversity.

**f** If you set the **Power Level Mode** to **Max Hold**, you can click **Reset Max Hold** to reset the **Max Hold** values. The **Host Forward Gain Settings** table updates with the new settings.

System Configuration > Configure Host Fo	rward Gain					
Host Parameters						
DART	DART Mode	Forward Gain (dB)	Power Level Mode	Peak Power (dBm)	Average Power (dBm)	Minimum Power (dBm)
2-ASTRNY1_Floor4-2100 AWS Classic 💌	Normal 💌	3 💌	Snapshot 💌	-33.3	-45.8	-45.8
Apply Reset Max Hold Refresh						
Host Forward Gain Settings						
	and the second second	and the second s	and a second	And the second s	Manhaman and a surgery and	mun mar mar

The Host Parameters table provides the following information:

- Peak Power (dBm)—shows the highest (peak) power level reached by the Host DART
- Average Power (dBm)—shows the average power level reached by the Host DART
- Minimum Power (dBm)—shows the minimum power level reached by the Host DART
- g Click Apply.
  - Once the system executes the command, an **Operation completed** message displays.
  - The **Host Forward Gain Settings** table at the bottom of the page is updated with the new settings.

System Cor	nfiguration > Configu	ire Host Fo	rward Gain							
Information	· Operation completer	d								
momadon	. Operation completer	u.								
Host Parar	neters									
	DART		DART Mode	Forward Gain (d	B) Power Lev	vel Mode   Peak	Power (dBm) A	verage Power (dBm)	Minimum Pow	er (dBm)
Select		•	Normal 💌	0 💌	Snapshot	•				
			1 1		1					
Apply	Reset Max Hold	Refresh								
- Host Forw	ard Gain Settings									
1.0501.0111	ara oan ootango									
Filter										
View None	e 🗾 conta	ains		Filter						
				_					-	
DART Id	DART Name	DART Mode	Forward Gair (dB)	N Power Level Mode	Peak Power (dBm)	Average Powe (dBm)	· Minimum Pov (dBm)	ver Last Max Hold Reset Time	Passband	Frequency(MHz)
2	ASTRNY1_Floor4	Normal	3	Snapshot	-36.5	-48.8	-48.8	NA	AWS ABC	2100 AWS Classic_2110-2135
5	UNKNOWN_DARTNAME	Normal	31	Max Hold	-30.5	-30.7	-30.7	NA	Cellular A2ABA1B1	850 Classic_869-894
									AZADAIDI	

**h** Repeat Step b on page 86 through Step g for each Host DART.

For information on the Host Forward Gain Settings table, see "Viewing the Host RF Report" on page 108.

## **CONFIGURE HOST REVERSE GAIN**

When setting the **Reverse Gain** value for the Host DART, the following rules must be observed:

- The **Reverse Gain** setting can be used to overcome RF interfacing losses from the Host DART to the BTS/BDA. If you want unity reverse path gain and the losses to the BTS/BDA are 20 dB, then the Reverse Gain should be set to 20 dB.
- Simulcast changes the actual REV gain level by 10log(n) where n = the number of simulcast links. For example, if REV gain is set to 10dB in a 2:1 simulcast configuration, the actual REV gain is only 7dB (10dB - 3dB). If REV gain is set to 20dB in a 4:1 simulcast, the actual gain is 14dB (20dB - 6dB).

Follow these steps to set the Reverse Gain value for the Host DART.

- **1** To access the **Configure Host Reverse Gain** page, in the System Menu bar, click **System Configuration** > **Configure Host Reverse Gain**.
- 2 In the **Host Parameters** table **DART** list, select the Host DART that you want to configure. The **DART Name** column is populated with the user-defined name for the selected DART.
- **3** In the **Reverse Gain Mode** list, select the algorithm that should be used to add attenuation for a simulcast group to prevent clipping because of too strong a signal.
  - Mode 1 (Noise Floor Matching)—optimizes the reverse path dynamic range between simulcast nodes. For Prism/URU, the gains are reduced by 10*log10(N). This is the default for systems running Prism EMS 7.1.
  - Mode 2 (Legacy Prism/URH)—reduces the gain by 20*log10(N). This is the default setting for systems upgraded from 6.0.
- 4 Set the Additive Gain (dB) value to achieve the required gain from the input to the Remote Unit to the output of the Host DART. The range is 0 to 31 dB.

- 5 In the **Gain Mode** list, select one of the following:
  - Normal—no increase to the gain setting.
  - **High**—the gain settings for Classic DARTs increase 2dB with a 1dB improvement in the Noise Figure and the gain setting for SuperDarts increase by 6 dB with a 2dB improvement in the Noise Floor.

System Confi	iguration >	Configure Host Rev	erse Gain							
DA	RT	Reverse Ga	in Mode	Additive Gain (dB)	Calculat	ed Reverse System Gain (dB)	Noise	Floor (dBm/ rbw)	30kHz	Gain Mode
5-cell850 C	Classic 💌	Mode 1 (Noise Flo	or Matching) 💌	0 •	5		-119			Normal 💌
Apply Re	fresh									
-Host Reverse	e Gain Setti	ngs								
Filter View None		contains	F	Filter						
च DART Id	DART Name	Reverse Gain Mode	Additive Gain (dB)	Calculated Reverse Gain (dB)	System	Noise Floor (dBm/30kHz rbw)	Gain Mode	Passband	Freque	ency(MHz)
6 pc	csM	ode 1 (Noise Floor atching)	0	5		-119	Normal	PCS ADB	1900 Clas	sic_1930-1965

- 6 Click Apply. The Host Parameters and Host Reverse Gain Settings tables are updated with the new configuration.
- 7 Repeat Step 2 through Step 6 for each Host DART.

The Host Reverse Gain Settings table has the following columns.

s	ystem ( Host Para	C <b>onfig</b> u ameters-	uration > (	Configure I	Host Reverse	Gain					
		DART		Reverse Ga	in Mode	Additive Gain (dB)	Calc Revers Gai	culated e Syster n (dB)	n (dBm/ rb	Floor 30kHz w)	Gain Mode
ſ	Select		Mod	e 1 (Noise Flo	or Matching) 💌	0 -					Normal 💌
	Apply Host Rev Filter fiew Non	Refresh erse Gair e	n Settings	ains	F	ilter					
	DART Id	DART Name	Reverse Gain Mode	Additive Gain (dB)	Calculated Reverse System Gain (dB)	n (dBm/	Floor 30kHz #)	Gain Mode	Passband	Freque	ncy(MHz)
(		cell_	Mode 1 (Noise Floor Matching)	0	5	-119		Normal	Cellular AA1A2	850 Classi	c_869-891.5
		pcs_	Mode 1 (Noise Floor Matching)	0	5	-119		Normal	PCS ADB	1900 Clas	sic_1930-1965

- **DART Id**—identifies the Host DART by the slot in which it is installed, which can be from 1 through 8.
- **DART Name**—identifies the DART by its user-defined name.
- Reverse Gain Mode—whether the Reverse Gain Mode is Mode 1 (Noise Floor Matching) or Mode 2 (Legacy Prism/URH).
- Additive Gain (dB)—gain from the input to the Remote Unit to the output of the Host DART. The range is 0 to 31 dB
- Calculated Reverse System Gain (dB)—shows the end-to-end gain based on the additive gain, gain mode, and number of Remote Units in the simulcast group.
- Noise Floor (dBm/30kHz rbw)—shows the noise level for the configuration. The noise floor is the measure of the signal created from the sum of all the noise sources.
- Gain Mode—whether the Gain Mode is Normal or High.
- **Passband**—type of passband provided by the DART.
- Frequency (MHz)—passband frequency of the DART.

## **CONFIGURE REMOTE FORWARD GAIN**

**1** To access the **Configure Remote Forward Gain** page, in the System Menu bar, click **System Configuration** > **Configure Remote Forward Gain**.

Remote F	arameters														
Host DAI	Remote Id	Remo	te DART R	temote D	ART Mode LPA Mo	de LP	A Status	Forward	Gain (dB)	RF Po	ower (dB	m) Max	Power (dBm	) VSWR	
	Select	*	Γ	Normal	Normal	-		0 •							
Filter /iew Nor	e 🗾 (	contains		F	ilter	Remot	e							Commor	1
DART Id	DART Name	Id	Name	DART Id	DART Name	DART Mode	Forward Gain (dB	d RF Power (dBm)	Max Power (dBm)	VSWR	LPA Mode	LPA Status	Passband	Frequ	ency(MHz)
	ASTRNY1_Floor4	SciencesBldg1	LawrenceLa	b 7	Grizzly4	Normal	31	-5.2	46	1.7:1	Standby	3-Offline, 4-Offline	AWS ABC	2100 AWS C	lassic_2110-21
		* *													

- 2 In the **Remote Parameters** table, do the following:
  - a Use the Host DART column to identify the connected Host.
  - **b** In the **Remote Id** list, select the Remote Unit for which you want to set the Forward Gain.
  - c In the Remote DART Mode list, set the DART mode:
    - **Standby**—forces the RF function to be muted in the Host and its linked Remote Unit.
    - **Normal**—allows the system to operate normally (RF function not forced to be muted), assuming all other system components are in proper working order. (Default setting.)
  - **d** In the **LPA Mode** list, select **Normal**. A Prism Linear Power Amplifier (LPA) is a high quality broadband RF amplifier used for achieving Prism product-rated power for the Remote Tx forward path spectrum RF. In a dual-LPA system, both LPAs will have the same **LPA Mode** setting.
    - **Standby**—forces the RF function to be muted in the Host and its linked Remote Unit. (Default setting.)
    - **Normal**—allows the system to operate normally (RF function not forced to be muted), assuming all other system components are in proper working order.
- CAUTION! As soon as you set the LPA Operating Mode to Normal, RF transmission will start. Before you set the LPA Operating Mode to Normal, make sure that the antenna has been connected and the system is ready to transmit RF. For information on connecting the antenna, refer to the ADC® FlexWave Prism Remote Unit Installation Guide (ADCP-77-072).

e In the Forward Gain list, select the dB (0 to 31).

The **Forward Gain** is the actual gain, not attenuation, that will be applied to the RF forward path signal (where  $\mathbf{0} = 0$  dB gain,  $\mathbf{1} = 1$  dB gain, and so forth). The **Forward Gain** is based on the EIRP desired at the antenna. You therefore need to know how much cable, insertion, and any other loss (such as splitters) exist between the Remote Unit and the antenna. Set the **Forward Gain** to achieve the required output power level to meet the EIRP of your RF link budget.

Configure the Host DART gain to achieve +5dB so that full scale output can be achieved at the Remote. For further information, refer to the FlexWave Prism commissioning guide.

- **f** Refer to the following read-only fields for further information on the selected PRU/URU:
  - **RF Power (dBm)** column displays the measurement of the RF power for the LPA identified in the LPA Number field.
- NOTE: After a change in the DART Forward Gain, the EMS reflects the change in the RF Power column within 25 seconds, or if the Refresh button is used, within 12 seconds.
  - Max Power (dBm) column displays the maximum LPA power values.
  - **VSWR** column displays the Voltage Standing Wave Ratio (VSWR) for the LPA. An **LPA VSWR Fault** occurs if the VSWR measurement exceeds the threshold, which is 3:1.

System Configuration > C	onfigure Remote Forward	Gain							
Remote Parameters									
Host DART	Remote Id	Remote DART	Remote DART Mode	LPA Mode	LPA Status	Forward Gain (dB)	RF Power (dBm)	Max Power (dBm)	VSWR
2-ASTRNY1_Floor4-2100 AWS Classic	1-SciencesBldg1 1-1	7-Grizzly4-2100 AWS Classic	Normal 💌	Standby 💌	3-Offline, 4-Offline	31 -	-5.2	46	1.7
Apply LPA Reset I Remote Forward Gain Set	Refresh	and the state of the state of the	An		na sasa di dan Alfi		and the second s		~

- 3 Click Apply.
  - Once the system executes the command, an **Operation completed** message displays.
  - The **Remote Forward Gain** table at the bottom of the page is updated with the new settings.

nformatio	n: Operation complete	ed.													
Remote F	arameters														
Host DAF	Remote Id	Remo	te DART R	emote D	ART Mode LPA N	ode	LPA Status	Forward	Gain (dB)	RF Po	wer (dBn	) Max	Power (dBm)	VSWR	
	Select		1	lormal	Norma	•		0 💌							
Remote F	orward Gain Settings														
Remote F Filter View Nor	iorward Gain Settings	ontains		Fil	ter	Perm	ate							Commo	
Remote F Filter /iew Nor	orward Gain Settings e v c Host DART Name	ontains Id	Name	Fil DART Id	ter DART Name	Rem DAF Mod	ote RT Forwar Gain (dt	d RF Power (dBm)	Max Power (dBm)	VSWR	LPA Mode	LPA Status	Passband	Commo	1 ency(MHz)
Remote F Filter /iew Nor	e I constructions	Id SciencesBldg1	Name	Fil DART Id	DART Name Grizzly4	Rem DAF Mod	note RT Forwar Gain (di nal 31	d RF Power (dBm) -5.2	Max Power (dBm) 46	<b>VSWR</b> 1.7:1	LPA Mode Standby ³ 4	LPA Status -Offline,	Passband AWS ABC	Commo Frequ 2100 AWS C	n ency(MHz)

4 Repeat for each PRU/URU DART.

For additional information, refer to the following:

- For information on the **Remote Forward Gain Settings** table, see "Viewing the Remote RF Report" on page 109.
- For information on the LPA Reset button, see "Resetting an LPA" on page 165.

## **CONFIGURE REVERSE INPUT POWER LEVELS**

NOTE: Digital power measurements are inaccurate when ALC is active.

**1** To access the **Configure Reverse Input Power Levels** page, in the System Menu bar, click **System Configuration** > **Configure Reverse Input Power Levels**.

System Confi	guration > C	onfigure Reverse Inpu	it Power Le	vels						
Select Remote	e: All	<ul> <li>Select DA</li> </ul>	RT: All 💌							
▼ Remote Id	Remote Name	Remote DART	Gain Mode	Power Level Mode	Peak Power (dBm)	Average Power (dBm)	Minimum Power (dBm)	Last Max Hold Reset Time	Passband	Frequency(MHz)
SciencesBldg1 1-1	LawrenceLab	1- UNKNOWN_DARTNAME- 850 Classic	Normal 💌	Max Hold 💌	-33.9	-40.1	-53.0	NA	Cellular A2ABA1B1	850 Classic_869-894
SciencesBldg1 1-1	SciencesBldg1 LawrenceLab 7-Grizzly4-2100 AWS Normal Snapshot -84.5 -96.8 -96.8 NA AWS ABC 2100 AWS Classic_2110-213									
Apply Ref	resh Re	eset Max Hold								

The read-Only columns in the table provide the following information:

- Peak Power (dBm)—shows the highest (peak) power level reached by the DART
- Average Power (dBm)—shows the average power level reached by the DART
- Minimum Power (dBm)—shows the minimum power level reached by the DART
- Last Max Hold Reset Time—shows the last time MAX Hold was reset.
- Passband—type of passband provided by the DART
- Frequency (MHz)—passband frequency of the DART
- 2 In the **Select Remote** list, select the PRU/URU that you are configuring. The table at the bottom of the page displays power level values for the selected Remote Unit and its DARTs.
- 3 In the Select DART list, do one of the following:
  - Select a specific DART to configure. If you select a specific DART, the table at the bottom of the page displays power level values for the selected DART.
  - Select **All** to configure all the DARTs the same at the same time. If you select **All**, the table at the bottom of the page displays power level values for the selected Remote Unit and all its DARTs.
- 4 In the Gain Mode list, set the High Gain mode to one of the following:
  - **Normal**—effects the attenuation of the temperature compensation algorithm (default).
  - **High**—does not effect the attenuation of the temperature compensation algorithm.
- NOTE: When a Classic DART is in High Gain mode, the noise floor increases by 1 dBm. When a Super DART is in High Gain mode, the noise floor increases by 4 dBm.

- 5 In the **Power Level Mode** list, select one of the following:
  - **Snapshot**—provides a "snap-shot" or current RF measurement for the selected Remote Unit DART (default setting).
  - Max Hold—retains the maximum values for peak and peak average, and the minimum values for minimum average since the last Max Hold Reset.

**Power Level Mode** is disabled under any of the following conditions:

- if the DART Operating mode is set to Standby
- if the DART Pass Band (Timeslots) parameter is set to Undefined (default)

Syst	em Config	guration > Co	onfigure Reve	erse Input P	ower Levels						
Sele	ect Remote	: 1-Sciences	Bldg1 1-1 💌	Select DART:	7-Grizzly4-2100	) AWS Clas	sic	•			
F	Remote Id	Remote Name	Remote DART	Gain Mode	Power Level Mode	Peak Power (dBm)	Average Power (dBm)	Minimum Power (dBm)	Last Max Hold Reset Time	Passband	Frequency(MHz)
Scie 1-1	ncesBldg1	LawrenceLab	7-Grizzly4- 2100 AWS Classic	High 🔽	Snapshot 💌	-83.9	-96.9	-96.9	NA	AWS ABC	2100 AWS Classic_2110-2135
Ар	oly Refr	resh Re:	set Max Hold		-						

#### 6 Click Apply.

System Confi	guration > C	onfigure Reverse Inpu	t Power Le	vels							
Information: C	Information: Operation completed.										
Select Remote: All Select DART: All											
▼ Remote ▼ Id	Remote Id     Remote Name     Remote DART     Gain Mode     Power Level Mode     Peak Power (dBm)     Average Power (dBm)     Minimum Power (dBm)     Last Max Hold (dBm)       E     Name     Name     Passband     Frequency(MHz)										
SciencesBldg1 1-1	LawrenceLab	1- UNKNOWN_DARTNAME- 850 Classic	Normal 💌	Max Hold 💌	-33.9	-40.1	-53.0	NA	Cellular A2ABA1B1	850 Classic_869-894	
SciencesBldg1 1-1	SciencesBldg1 LawrenceLab 7-Grizzly4-2100 AWS High I Snapshot -81.7 -93.8 -93.8 NA AWS ABC 2100 AWS Classic_2110-2135										
Apply Ref	iciencesBidg1     LawrenceLab     7-Grizzly4-2100 AWS     High     Snapshot     -81.7     -93.8     -93.8     NA     AWS ABC     2100 AWS Classic_2110-213       Apply     Refresh     Reset Max Hold										

# 7 (Optional) If you set the **Power Level Mode** to **Max Hold**, you can click **Reset Max Hold** to reset the **Max Hold** values.

System Confi	guration > C	onfigure Reverse Inpu	t Power Le	vels						
Information: C	)peration cor	npleted.								
Select Remote	e: All	▼ Select DA	RT: All 🔻							
▼ Remote Id	Remote Name	Remote DART	Gain Mode	Power Level Mode	Peak Power (dBm)	Average Power (dBm)	Minimum Power (dBm)	Last Max Hold Reset Time	Passband	Frequency(MHz)
SciencesBldg1 1-1	LawrenceLab	1- UNKNOWN_DARTNAME- 850 Classic	Normal 💌	Max Hold 💌	-33.9	-40.1	-53.0	NA	Cellular A2ABA1B1	850 Classic_869-894
SciencesBldg1 1-1	LawrenceLab	7-Grizzly4-2100 AWS Classic	High	Snapshot 💌	-81.4	-93.8	-93.8	NA	AWS ABC	2100 AWS Classic_2110-2135
Apply Ref	iresh Re	eset Max Hold								

# PART III

# SYSTEM MANAGEMENT

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## **SYSTEM INFORMATION**

#### Topics

Get Information	
Accessing System Reports	
Viewing the Software/Firmware Report	
Viewing the Hardware Inventory Report	
Viewing the Network Report	
Viewing the Linked DARTs Report	
Viewing the Delay Report	
Viewing the Fiber Report	
Viewing the Host RF Report	
Viewing the Remote RF Report	
Viewing the Alarms Report	
IFEU + RAU Report	
Viewing the All Report	
Downloading a Report	
Get Optics Information	
Get Logs	

This section tells you how to get and manage system information.

Page

## **GET INFORMATION**

The **Get Information** page allows you to view system information on one page. You can also view and download nine individual reports.

To access the **Get Information** page, in the System Menu bar, click **System Information** > **Get Information**.

The following graphic shows the default page in which **Type** is set to **System Inventory**.

The **Get Information** page has the following elements:

- Type list—allows you to select which report you want to view.
- **Download** button—downloads selected report to an attached PC. See "Downloading a Report" on page 113.
- NOTE: The gray and white status bar at the top of the page indicates that the EMS is accessing the requested report. You do not need to select Download to see the report in the GUI.

System Informat	ion > Get Info	ormation							
		77							
-Reports									
Type Network Download									
<u>Software/Firmw</u>	are ———								
🔄 Module Type	Name	Unit Id	Version	Upgrade Status					
Host	SciencesBldg1	SciencesBldg1 1	7.1.0.1	Normal operation					
PRU	LawrenceLab	SciencesBldg1 1-1	7.1.0.1	Normal operation					
Refresh									

#### Accessing System Reports

You use the **Type** list in the **Reports** panel to select the type of report that you want to download. The following sections describe the reports that you can view and download.

#### Viewing the Software/Firmware Report

To access the **Software/Firmware** report, in the System Menu bar, click **System** Information > Get Information, and then in the **Reports** panel **Type** list, select **Software/Firmware**. (This is the default setting.)

Reports       Download         Type       Software/Firmware       Download         Software/Firmware       Download         Software/Firmware       Ounit Id       Yersion       Upgrade State         Module Type       Name       Unit Id       Yersion       Upgrade State         Host       SciencesBldg1       SciencesBldg1 1       7.1.0.4dev5       Normal operation         PRU       LawrenceLab       SciencesBldg1 1-1       7.1.0.4dev5       Normal operation         Refresh       SciencesBldg1 1-1       7.1.0.4dev5       Normal operation	
Type       Software/Firmware       Download         Software/Firmware       Image: Software/Firmware       Image: Software/Firmware         Module Type       Name       Unit Id       Version       Upgrade State         Host       SciencesBldg1       SciencesBldg1 1       7.1.0.4dev5       Normal operation         PRU       LawrenceLab       SciencesBldg1 1-1       7.1.0.4dev5       Normal operation         Refresh       Image: Software State       SciencesBldg1 1-1       SciencesBldg1 1-1       SciencesBldg1 1-1	
Software/Firmware         Module Type       Name       Unit Id       Version       Upgrade State         Host       SciencesBldg1       SciencesBldg1 1       7.1.0.4dev5       Normal operation         PRU       LawrenceLab       SciencesBldg1 1-1       7.1.0.4dev5       Normal operation	
Software/Firmware       Wersion       Upgrade State         Module Type       Name       Unit Id       Version       Upgrade State         Host       SciencesBldg1       SciencesBldg1 1       7.1.0.4dev5       Normal operation         PRU       LawrenceLab       SciencesBldg1 1-1       7.1.0.4dev5       Normal operation         Refresh       Image: Normal operation       Image: Normal operation       Image: Normal operation       Image: Normal operation	
Module Type         Name         Unit Id         Version         Upgrade Stat           Host         SciencesBldg1         SciencesBldg1 1         7.1.0.4dev5         Normal operation           PRU         LawrenceLab         SciencesBldg1 1-1         7.1.0.4dev5         Normal operation	
Host       SciencesBldg1       SciencesBldg1 1       7.1.0.4dev5       Normal operation         PRU       LawrenceLab       SciencesBldg1 1-1       7.1.0.4dev5       Normal operation         Refresh       Image: SciencesBldg1 1-1       7.1.0.4dev5       Normal operation	us
PRU LawrenceLab SciencesBldg1 1-1 7.1.0.4dev5 Normal operati Refresh	on
Refresh	on

The **Software/Firmware** table provides the following information:

- Module Type—type of unit (Host, PRU, or URU).
- Name—user-assigned name for the unit.
- Unit Id—identifies the unit within the system; see "Unit Identification" on page 43.
- Version—version of installed software/firmware.
- **Upgrade Status**—the following states can be seen. However, with the exception of **Normal operation** and **Upgraded**, the states occur very quickly during the corresponding action and are rarely viewed.
  - Normal operation
  - Upgrading
  - Upgrading reboot
  - Committing
  - Aborting
  - Recovering
  - Upgraded.

#### Viewing the Hardware Inventory Report

To access the **Hardware Inventory** report for the Host and Remote Unit(s), in the System Menu bar, click **System Information** > **Get Information**, and then in the **Reports** panel **Type** list, select **Hardware Inventory**.

System Information > Get	Inf	ormation							
-Reports									
lype He	ardw	are Inventor	<u> </u>	Download					
Hardware Inventory									
Scie	ence	sBldg1 1(1	55.226.	45.16)Backp	lane II				
Module Type	Id	Date Code	Hardw	are Version	Serial	Number	Part N	umber	
DART-ASTRNY1_Floor4	2	34/2008	21		224894	186	143321	2	
DART-UNKNOWN_DARTNAME	1	47/2008	11		225364	536	144808	0	
DART-UNKNOWN_DARTNAME	4	23/2009	11		225858	576	146507	0	
DART-UNKNOWN_DARTNAME	5	48/2007	0		000030	21	141068	9	
DART-UNKNOWN_DARTNAME	6	08/2010	21		TR2208	YW	144807	3	
SeRF-I	NA	28/2008	21		224992	774	143378	0	
System Card-I	NA	33/2008	31		225014	558	139715	6	
Sci	enc	esBldg1 1-1	: Lawre	enceLab (169	9.254.4	8.104)			
Module Type	Id	Date Co	ode	Hardware V	ersion	Serial N	umber	Part N	umbe
DART-Grizzly4	7	17/2010		11		TR220AC	Н	145632	Э
DART-UNKNOWN_DARTNAME	1	24/2008		11		22486806	52	143241	Э
DART-UNKNOWN_DARTNAME	3	08/2009		11		22555842	29	146187	7
LNA/Duplexor	1	50/2008		10		8308A00	22	143303	3
LNA/Duplexor	3	24/2009		20		8309A00	SD	146023:	3
LNA/Duplexor	7	08/2010		20		8310A006	5L	146024:	1
Power Detector	1	50/2008		10		8308A00(	Q2	143303	8
Power Detector	2	24/2009		20		8309A00	SD	146023:	3
Power Detector	4	08/2010		20		8310A006	5L	146024:	1
RDI	1	46/2008		3		01699900	)3	143560	Э
RDI	2	13/2009		21		22562899	90	143560	Э
RDI	4	12/2010		11		TR2209H	_	167384:	3
RSI	NA	51/2008		4		01721700	)5	143560	5
SeRF-I	NA	40/2008		11		22531149	95	145276	3
			LF	PA					
Module Number	Id	Software V	ersion	Hardware V	ersion	Serial N	umber	Descr	iptio
LPA1900040SG01	1	V1.12		A0		0121		URH1.9/	/20W
LPA1900040SG01	2	V1.13		A0		0682		URH1.9/	/20W
LPA1900040SG01	4	V1.12		A0		1467		URH1.9	/20W
NA	3	NA		NA		NA		NA/NA	

The **Hardware Inventory** page has separate tables for each Host and Remote Unit in the system. For each Remote Unit listed, there is also a corresponding LPA table. Each unit is identified by name and IP address in a title bar at the top of the table. Each table provides the following information:

- **Module Type**—identifies the module by type, such as System Card, DART, SeRF (not used in the LPA table).
- Module Number (LPA table only)—identifies the LPA.
- Id—applicable to the DARTs and LPAs only; for further information see "RF Module Capabilities and GUI Representation" on page 21.

/	{4' - [/]		11 ~~_
RSI	NA	51/2008	4
SeRF-I	NA	40/2008	11 🦿
	~	LI	PA
Module Number	Id	Software Version	Hardwai
LPA1900040SG01	1	V1.12	A0
LPA1900040SG01	2	V1.13	A0 🔨
LPA1900040SG01	4	V1.12	A0
NA	3	NA	NA 🕗
Defrech ment		5 m	

- Date Code—date code for the module.
- Hardware Version—release version number for the module.
- Serial Number—serial number for the module assigned during manufacturing.
- **Part Number**—Part Number for the module assigned during manufacturing (not applicable to the LPA).
- **Description** (LPA only)—band type of LPA/LPA power in Watts.

50× ^ _ / ~ /	[~	^۲ ۵۱۶۶۲ کړو	ใจอองชอาว
008	11	225311495	1452763
LF	PA		
ware Version	Hardware Version	Serial Number	Description
2	A0	0121	URH1.9/20W
3	A0	0682	URH1.9/20W
2	A0	1467	URH1.9/20W
	NA	NA	NA/NA

#### Viewing the Network Report

To access the **Network** report, in the System Menu bar, click **System Information** > **Get Information**, and then in the **Reports** panel **Type** list, select **Network**.

System Informat	ion > Get In	formation										
Reports												
Type Network Download												
- Network Statisti	cs											
🔽 🛛 Unit Id	Port	<b>Rx Bytes</b>	Rx Packets	<b>Rx FCS Errors</b>	Tx Bytes	Tx Packets						
SciencesBldg1 1	Switch Port	138056431	799619	0	138056431	9354						
SciencesBldg1 1	Craft Port	0	0	0	0	9						
SciencesBldg1 1	Network Port	138049318	8051	0	138049318	8096						
SciencesBldg1 1-1	Switch Port	135967546	790672	0	365209	1267						
Refresh												

The Network Statistics table provides the following information:

- Unit Id—identifies the unit within the system; see "Unit Identification" on page 43.
- **Port**—identifies the port
  - Host ports can be any of the following:
    - Network Port
    - Craft Port
    - Switch Port
  - Remote Unit port is indicated only as a Switch Port
- NOTE: A Switch Port is the CPU's connection to the Ethernet switch that in turn communicates to the fibers. This shows how much traffic the unit is generating and consuming.
- **Rx Bytes**—count of Receive Bytes.
- Rx Packets—count of Receive Packets.
- **RX FCS Errors**—count of Receive FCS Errors.
- **Tx Bytes**—count of Transmit Bytes.
- **Tx Packets**—count of Transmit Packets.

#### Viewing the Linked DARTs Report

To access the Linked DARTs report, in the System Menu bar, click System Information > Get Information, and then in the **Reports** panel Type list, select Link.

Sys	tem Info	ormation > Get Infor	mation											
R€	ports —													
Ту	ype Link Download													
	nked DAR	275												
	into a brin	Host						Remote					Common	
	DART Id	DART Name	SFP Id	SFP Name	Id	Name	SFP Id	SFP Name	DART Id	DART Name	Timeslots	Passband	Frequency(MHz)	Diversity
2		ASTRNY1_Floor4	1	Astronomy1	SciencesBldg1 1-1	LawrenceLab	1	Astronomy1_PRU	7	Grizzly4	5-8	AWS ABC	2100 AWS Classic_2110-2135	Non Diversity
5		UNKNOWN_DARTNAME	1	Astronomy1	SciencesBldg1 1-1	LawrenceLab	1	Astronomy1_PRU	1	UNKNOWN_DARTNAME	1-4	Cellular A2ABA1B1	850 Classic_869-894	Non Diversity
R	efresh													

The Linked DARTs table provides the following information:

- Host columns—identifies the Host and its elements
  - **DART Id**—number of the Host slot in which the DART is installed
  - DART Name-user-defined name for the Host DART
  - SFP Id—port number of physical optical port where Host-Remote optical fiber is connected on the Host.
  - SFP Name—user-defined name for the Optics port.
- **Remote** columns—identifies the Remote and its elements
  - Id—Unit ID of PRU/URU based upon layered address; see "Unit Identification" on page 43
  - Name-user-defined label for the PRU/URU
  - SFP Id—identification (Id) of Remote side SFP connected toward the Host DART (can be from 1 through 8)
  - SFP Name—user-defined name for the Optics port
  - **DART Id**—PRU/URU slot number in which the DART is installed
  - **DART Name**—user-defined name for the Remote DART
  - Timeslots—number of timeslots assigned to the link.
- **Common** columns—identify configuration settings that are common to the Host and connected Remote(s)
  - **Passband**—type of passband provided by the DART
  - Frequency—passband frequency of the DART
  - **Diversity**—whether DART is configured as **Diversity** or **Non Diversity**. For this release, this will always be **Non Diversity**.

#### Viewing the Delay Report

To access the Linked DARTs Delay report, in the System Menu bar, click System Information > Get Information, and then in the Reports panel Type list, select Delay.

•	System In	formation > Get Infor	mation										
	Reports -												
-	Type Delay Download												
l													
ŀ	Linked DA	RTs Delay Host				Remote				Common			
	⊐ DART Id	DART Name	Id	Name	DART Id	DART Name	Forward Delay (µs)	Reverse Delay (µs)	Passband	Frequency(MHz)			
	2	ASTRNY1_Floor4	SciencesBldg1 1- 1	LawrenceLab	7	Grizzly4	7	8	AWS ABC	2100 AWS Classic_2110-2135			
	5	UNKNOWN_DARTNAME	SciencesBldg1 1- 1	LawrenceLab	1	UNKNOWN_DARTNAME	7	8	Cellular A2ABA1B1	850 Classic_869-894			
	5 Refresh	UNKNOWN_DARTNAME	SciencesBldg1 1- 1	LawrenceLab	1	UNKNOWN_DARTNAME	7	8	Cellular A2ABA1B1	850 Classic_869-894			

The Linked DARTs Delay table provides the following information:

- Host columns—identifies the Host in the link
  - DART Id—number of the Host slot in which the DART is installed
  - DART Name—user-defined name for the Host DART.
- **Remote** columns—identifies the Remote and its elements
  - Id—Unit ID of PRU/URU based upon layered address; see "Unit Identification" on page 43
  - Name—user-defined label for the PRU/URU
  - **DART Id**—PRU/URU slot number in which the DART is installed
  - DART Name—user-defined name for the Remote DART
  - Forward Delay (μs)—user requested FWD RF path delay in microseconds
  - **Reverse Delay**  $(\mu s)$ —user requested REV RF path delay in microseconds.
- **Common** columns—identify configuration settings that are common to the Host and connected Remote(s)
  - Passband—type of passband provided by the DART
  - Frequency (MHz)—passband frequency of the DART.

#### Viewing the Fiber Report

To access the Fiber Optics report, in the System Menu bar, click System Information > Get Information, and then in the Reports panel Type list, select Fiber.

System Inf	ormation > G	iet Informa	ition										
-Reports-													
Туре	Type Fiber Download												
– Fiber Opti													
Unit ▼ Type	Unit Name	SFP Number	SFP Name	Optics Type	Wavelength (nm)	Tx Power (dBm)	Rx Power (dBm)	Remote Name	Alarm Status				
Host	SciencesBldg1	1	Astronomy1	Long Range	1310	2.8	-16.0	LawrenceLab	Clear				
Remote	LawrenceLab	1	Astronomy1_PRU	Long Range	1310	3.6	-15.2	SciencesBldg1	<u>Major</u>				
Refresh													

The Fiber Optics table provides the following information:

- Unit Type—what the unit is, such as Host or Remote.
- Unit Name—Unit ID of the unit based upon layered address; see "Unit Identification" on page 43.
- SFP Number—Optical port number, from 1 to 8.
- SFP Name—name assigned to the Optical port; default SFP Name is UNKNOWN_SFPNAME.
- Optics Type
  - LongRange—26 dB
  - IntermediateRange-18 dB).
- Wavelength (nm)—wave length transmitted through this port:
  - Non-duplex and WDM configurations: 1550 nm fwd, 1310 nm rev
  - CWDM configurations can be one of eight wavelengths: 1470 nm, 1490 nm, 1510 nm, 1530 nm, 1550 nm, 1570 nm, 1590 nm, and 1610 nm.
- **Tx Power (dBm)**—launch power level in dBm of forward path signal. The minimum FWD launch power is -2 dBm, and the maximum is 3 dBm.
- **Rx Power (dBm)**—receive power level in dBm of reverse path signal, which incorporates the launch power of the Remote Unit SFP plus all optical losses (insertion losses, fiber cable loss, and so forth).
- Remote Name—name of the Remote connected to this Optical port.
- Alarm Status—whether an alarm is active. If an alarm is active, there will be a Minor or Major link that you click to open a dialog that defines the active alarm, as described in "Viewing Alarm Details" on page 45. The background color of the Alarm Status cell also indicates the alarm level (see "Alarm Color Codes" on page 44).

#### Viewing the Host RF Report

To access the Host Forward Gain Settings report, in the System Menu bar, click System Information > Get Information, and then in the Reports panel Type list, select Host RF.

System I	nformation > Get Info	ormatio	ו									
-Reports Type	-Reports Type Host RF Download											
DART	DART Name	DART Mode	Forward Gain (dB)	Power Level Mode	Peak Power (dBm)	Average Power (dBm)	Minimum Power (dBm)	Last Max Hold Reset Time	Passband	Frequency(MHz)		
2	ASTRNY1_Floor4	Normal	3	Snapshot	-36.3	-48.8	-48.8	NA	AWS ABC	2100 AWS Classic_2110-2135		
5	UNKNOWN_DARTNAME	Normal	31	Max Hold	-30.5	-30.7	-30.7	NA	Cellular A2ABA1B1	850 Classic_869-894		
Refresh												

The Host Forward Gain Settings table provides the following information.

- **DART Id**—number of the Host slot in which the DART is installed
- DART Name—user-defined name for the Host DART
- DART Mode—identifies the RF function
  - Standby—RF function is muted in the Host and its linked Remote Unit.
  - Normal—RF function not forced to be muted, allows the system to operate normally
- Fwd Gain (db)—Forward Gain in decibels assigned to the DART
- **Power Level Mode**—Host DART Input Power Level Mode:
  - Snapshot—provides a "snap-shot" or current RF measurement for the selected Remote DART (default setting).
  - Max Hold—retains the maximum values for peak and peak average, and the minimum values for minimum average since the last Max Hold Reset.
- NOTE: The Power Level Mode is disabled if the:
  - DART Operating mode is set to Standby
  - DART Pass Band (Timeslots) parameter is set to Undefined (default)
  - DART Diversity Status is set to Diversity.
- Peak Power (dBm)—highest level of power experienced on the DART Forward link.
- Average Power (dBm)—average power experienced on the DART Forward link.
- Minimum Power (dBm)—average minimum power experienced on the DART Forward link.
- Last Max Hold Reset Time—time that Max Hold was last reset.
- **Passband**—type of passband provided by the DART.
- Frequency (MHz)—passband frequency of the DART

#### Viewing the Remote RF Report

To access the **Remote Forward Gain Settings** report, in the System Menu bar, click **System** Information > Get Information, and then in the **Reports** panel Type list, select **Remote RF**.

System I	nformation > Get Info	ormation												
Reports														
Туре	rype Remote RF Download													
Remote	Pomete Foru and Cain Settings													
	Host				R	Host Remote								Common
⊡ DART Id	DART Name	Id	Name	DART Id	DART Name	DART Mode	Forward Gain (dB)	RF Power (dBm)	Max Power (dBm)	VSWR	LPA Mode	LPA Status	Passband	Frequency(MHz)
DART Id	DART Name ASTRNY1_Floor4	Id SciencesBldg1 1-1	Name LawrenceLab	DART Id	DART Name	DART Mode	Forward Gain (dB) 31	RF Power (dBm)	Max Power (dBm) 46	<b>VSWR</b> 1.7:1	LPA Mode Standby	LPA Status 3-Offline, 4-Offline	<b>Passband</b> AWS ABC	Frequency(MHz)
DART Id 2 5	DART Name ASTRNY1_Floor4 UNKNOWN_DARTNAME	Id SciencesBldg1 1-1 SciencesBldg1 1-1	Name LawrenceLab LawrenceLab	DART Id 7	DART Name Grizzly4 UNKNOWN_DARTNAME	DART Mode Normal	Forward Gain (dB) 31 31	<b>RF</b> <b>Power</b> (dBm) -5.2 39.2	Max Power (dBm) 46 43	<b>VSWR</b> 1.7:1 1.5:1	LPA Mode Standby Normal	LPA Status 3-Offline, 4-Offline	Passband AWS ABC Cellular A2ABA1B1	Frequency(MHz)           2100 AWS Classic_2110-2135           850 Classic_869-894

The **Remote Forward Gain Settings** table provides the following information:

- Host columns—identifies the Host in the link
  - DART Id—number assigned by the EMS to the Host DART for identification purposes
  - DART Name—user-defined name for the DART.
- **Remote** columns—identifies the Remote and its elements
  - DART Id—Unit ID of PRU/URU based upon layered address; see "Unit Identification" on page 43
  - DART Name—user-defined label for the PRU/URU
  - DART Mode—how RF functions on that DART
    - **Standby**—forces the RF function to be muted in the Host and its linked Remote.
    - **Normal**—allows the system to operate normally (RF function not forced to be muted), assuming all other system components are in proper working order. (Default setting.)
  - Forward Gain (db)—actual gain, not attenuation, applied to the RF forward path signal (where 0 = 0 dB gain, 1 = 1 dB gain, and so forth)
  - **RF Power (dBm)**—estimated power level based upon input level and gain.
  - Max Power (dBm)—the maximum LPA power values
  - VSWR—the Voltage Standing Wave Ratio (VSWR) for the LPA. An LPA VSWR Fault occurs if the VSWR measurement exceeds the threshold, which is 3:1.
  - LPA Mode—the LPA Mode, which can be Normal or Standby
  - LPA Status—the LPA status. In case of dual LPA, it will indicate the value for both LPAs as either 1-Offline or 2-Operating.
- Passband—type of passband provided by the DART
- Frequency (MHz)—passband frequency of the DART