CHAPTER 1

CiscoView Wireless

Overview of CiscoView Wireless

CiscoView Wireless (CV) is an SNMP-based device management software application with which you can configure and monitor information for Cisco Internetworking Products.

CiscoView Wireless runs in two distinct modes:

- Stand-alone
- Client/server

About the Stand-Alone Version

The stand-alone version of CiscoView Wireless is a Windows application. All components of CiscoView Wireless and its support software are on the same system and communicate directly with the managed devices.

CiscoWorks for Windows (CWW5.0) suite includes the stand-alone version of CiscoView Wireless.

For detailed information on CWW 5.0, refer to the *Cisco Works Windows 5.0* documentation, or go to:

http://www.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cwfw/cw_5_0_1/index.htm

About the Client/Server Version

CiscoView Wireless runs as a client applet within a browser. The server component of the client server is called CD One. A CiscoView Wireless client can talk to a managed device by using the server. The client/server version is available for two different operating systems:

- Solaris
- Microsoft Windows NT.

Because the CiscoView Wireless client runs within a browser, you can run the client on Solaris and Microsoft Windows operating platforms.

For documentation on *CD One 3rd Edition* and CiscoView Wireless client that runs on CD One, go to:

http://www.cisco.com/univercd/cc/td/doc/product/rtrmgmt/cw2000/cw2000_d

Note *CiscoView Wireless Quick Reference Guide* describes only the client/server version of CiscoView Wireless that runs on the Solaris operating system.

Overview of System Components

The CiscoView Wireless CD contains the client/server version of CiscoView Wireless and these components:

- CD One for the Solaris workstation
- CiscoView Wireless device packages that contain wireless feature support for:
  - Headend – uBR7200 for Cisco uBR7200 series universal broadband routers
  - Subscriber unit – Rtr3600 for Cisco 3600 series routers, Rtr2600 for Cisco 2600 series routers

The following software components are in the following locations:

- The CD One software is in the root directory of the CD.
- CiscoView Wireless device packages are in the directory /CV_packages/.

Software components required but not included in the CiscoView Wireless CD are:

- Solaris patches
- Browsers for CiscoView Wireless clients.

CiscoView Wireless Package Upgrade

The CiscoView Wireless CD contains the CiscoView Wireless packages with support for point-to-multipoint wireless feature set. These packages will be updated as problems are solved and new features are added. You can download the updated packages from:
ftp://ftp.cisco.com/cisco/netmgmt/ciscoview/5.0/packages

or

http://www.cisco.com/cgi-in/Software/CiscoView/cv5devices.cgi

About Point-to-Multipoint (P2MP) Radio Line Card Support

In an operational system, a wireless link is established between a point-to-multipoint (P2MP) radio line card in a Cisco uBR7200 series universal broadband router at one end and a complementary P2MP radio line card in a Cisco 26*xx* or a 36*xx* series router at the other end. CiscoView Wireless supports the P2MP line card on the following three platforms:

- Cisco uBR7200 series universal broadband routers
- Cisco 26*xx* series routers
- Cisco 36*xx* series routers

The P2MP radio line card supports two views:

- Physical
- Logical

As a radio line card starts a wireless interface, you can see the physical appearance of the radio line card and its real-time status in the physical view. The wireless line card also starts one over-the-air downstream channel and multiple over-the-air upstream channels, which appear in the logical view as tangible connectors.

These connectors look and behave like physical connectors and provide access to the characteristics of downstream and upstream channels supported by the line card. You can switch between the physical and logical views by using menus associated with the line card.

For example, Figure 1 shows the physical view for a Cisco uBR7200 series router with two P2MP radio line cards in slots 2 and 3. Each line card has:

- External clock references.
- Input: Shows whether an external clock reference is connected to the line card.
- Output: Shows whether the line card is acting as a clock reference.
- The monitor and power feed panel (PFP) connectors for the main and diversity antenna.
- The various LEDs on the line card.

Figure 1-1 Headend Physical View

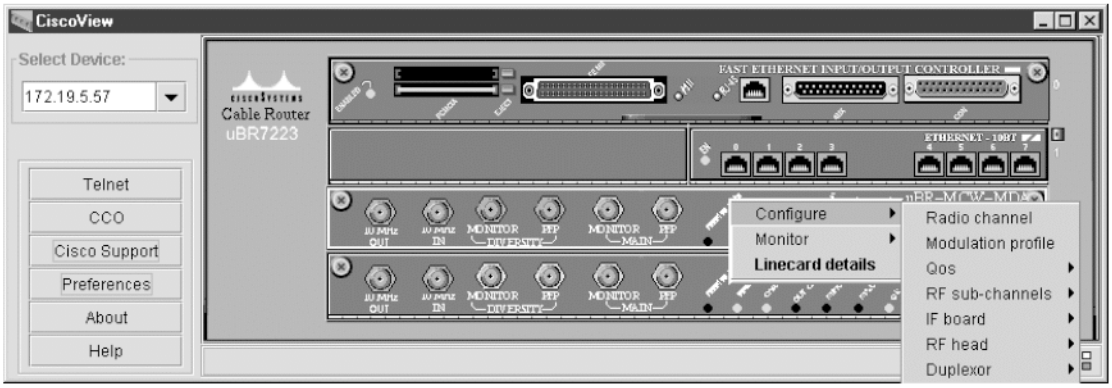
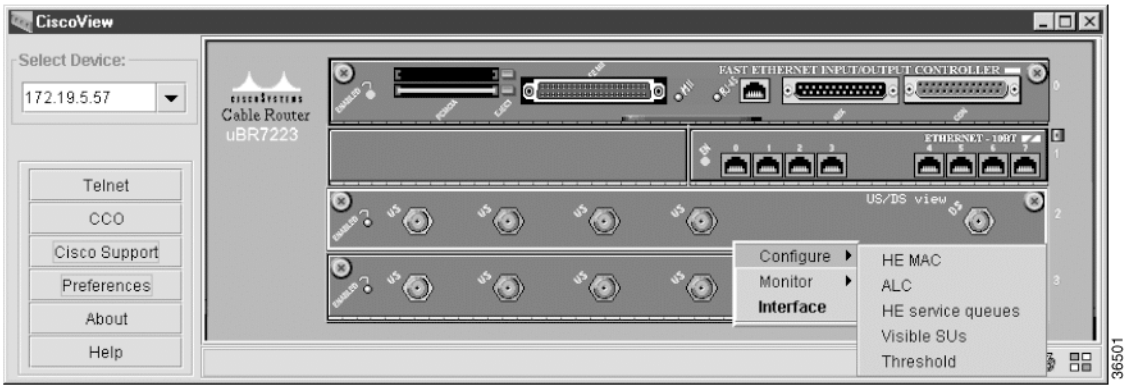


Figure 2 shows the logical view of the P2MP headend line card in the Cisco uBR7200 router and shows the downstream and upstream channels supported by the line card.

Figure 1-2 Headend Logical View



About Headend P2MP Line Cards

Table 2 shows the supported feature set for the wireless point-to-multipoint headend line card.

Table 1-1 Headend Supported Feature Set

Element	Feature	Description	Navigational path
Radio Frequency (RF)	Revision Information	Assembly and board revision information	Physical view: Configure>RF Head>Main RF>Hardware details or Right click on the main connector.
	Configuration	Antenna Diversity, CableLoss, and so on.	Physical view: Configure>Radio Channel
	Config param state	Information about min/max frequency, RF oscillator, supply voltage, temp status, and so on	Physical view: Configure>RF Head>Main RF>Status Or Right-click on the main connector.
	Statistics Histograms Timelines Snapshots Thresholds	Control, summary, and graph	Physical view: Monitor>Radio Signal Attributes> You can create specification, graph and summary by using the specification table option.
	Diagnostics	Self Test Loopback at various RF points	Physical view: Configure>Radio Channel
Intermediate Frequency (IF)	Revision info	Assembly and board revision information	Physical view: Configure>IF board>Hardware details
	Config params state	Tx/Rx Osc state and input/output frequency	Physical view: Configure>IF board>Status
	Diagnostics	Loopback at various IF points	Physical view: Configure>Radio Channel
Duplexer	Config information	Passband Min/Max frequency and insertion loss	Physical view: Configure> Duplexer>Main/Diversity
Light emitting diode (LED)	Config and status	Transmitdata, receivedata, out-of-service, major-alarm, minor-alarm, carrier, interface enable	Available on the physical view

Table 1-1 Headend Supported Feature Set (continued)

Element	Feature	Description	Navigational path
Upstream	Configuration	Configuration for a single upstream channel	Physical view: Configure>RF Sub-Channels>Upstream Logical view: Click on the US port for a menu. Configure>Upstream Channel
	Modulation profile	Describes modulation profile for an interval usage code for one or more upstream channels	Physical View: Configure>Modulation Profile To create a new modification profile menu, use the modulation profile table. Logical view: Click on the US port for a menu. Configure>Modulation profile
	Signal Quality	Describes the quality of upstream channels in terms of codeword errors, SINR, and so on	Logical view: Click on the US port for a menu. Configure>Signal quality
Downstream	Configuration	Configuration for a single downstream channel	Physical view: Configure>RFsub-Channels> Downstream or Logical view: Click on the DS port for a menu. Configure> Downstream Channel
Media Access Control (MAC)	Configuration	Describes attributes of each media access control (MAC) interface	Logical view: Configure>HE MAC
	Status	Status for a single MAC layer	Logical view: Monitor>HE MAC status
Subscriber Units	Status Reset SU	Status information for each subscriber unit in the system	Logical view: Configure>Visible SUs Logical view: Click on the US port for a menu. Configure>Visible SUs
Service	Profile	Describes attributes of a single class of service	Physical view: Configure>Qos>Qos details

Table 1-1 Headend Supported Feature Set (continued)

Element	Feature	Description	Navigational path
	Scheduler	Attributes for each upstream MAC scheduler (QOS) used to control subscriber registration Rate limiting attributes for each upstream/downstream scheduler supporting QOS	Logical view: Configure>Qos (Su-Registration) Logical view: Configure>Qos (Bandwidth-control)
	Queues	Describes the attributes of a single upstream bandwidth service queue	Logical view: Configure>HE services queue Logical view: Configure>Request Q>Details

About Subscriber Unit P2MP Line Cards

Table 3 shows the supported feature set for the wireless point-to-multipoint headend line card.

Table 1-2 Subscriber Unit Supported Feature Set

Element	Feature	Description	Navigational Path
RF	Revision information	Assembly and board revision information	Physical view: Configure>RF Head>Main RF>Hardware details or Right click on the Main connector.
	Configuration	NumRxAnt, Cable loss, TxMuteDuration, and so on	Physical view: Configure>Radio Channel
	Configuration parameter and state	Information about min/max freq, RF Osc/supply/temp status, and so on	Physical view: Configure>RF Head>Main RF> Status OR Right click on the Main connector.
	Statistics Histograms Timelines Snapshots Thresholds	Control, summary, and data tables	Physical view: Monitor> Radio Signal Attributes Logical View: Click on the DS port for a menu. Monitor>Radio Signal Attributes

Table 1-2 Subscriber Unit Supported Feature Set (continued)

Element	Feature	Description	Navigational Path
	Diagnostics	Loopback at various RF points	Physical view: Configure>Radio Channel
IF	Revision information	Assembly and board revision information	Physical view: Configure>IF board>Hardware details
	Configuration parameter and state	Tx/Rx Osc state, input/output frequency	Physical view: Configure>IF board> Status
	Diagnostics	Loopback at various IF points	Physical view: Configure>Radio Channel
Duplexer	Configuration information	Passband min/max frequency and insertion loss	Physical view: Configure> Duplexer> Main/Diversity
LED	Configuration and status	Tx:tranmitdata Rx:recievedata OS:outofservice MA:majoralarm, MI:minoralaram, CR:carrier EN:interfaceEnable indication	Available on the physical view.
Upstream	Configuration	Configuration for a single upstream channel	Physical view: Configure>Upstream Channels Logical view: Click on the US port for a menu. Configure> Upstream
	Service Queues	Describes the attributes of a single upstream bandwidth service queue	Logical view: Configure>Service queues
Downstream	Configuration	Configuration for a single downstream channel	Physical view: Configure>Downstream Channels Logical view: Right click on the DS port for a menu. Configure>Downstream
	Signal quality	Describes physical sublayer (PHY) quality for a downstream channel	Logical view: Right click on the DS port for a menu. Configure>Signal Quality Monitor>Radio link metrics

Table 1-2 Subscriber Unit Supported Feature Set (continued)

Element	Feature	Description	Navigational Path
Media Access Control (MAC)	Configuration	Describes attributes of each MAC interface	Logical view: Configure>Mac Info
	Status	Status for a single MAC layer	Logical view: Monitor>Mac Status>Status Objects Monitor>Mac Status>Status Counters

About Advanced Radio Signal Analysis

With CiscoView Wireless, you can configure and monitor radio signal parameters in various ways. You can change the following signal attributes:

Common to both headends and subscriber units:

- Signal to interference noise ratio (SINR) for the main and diversity antennas
- Timing Offset
- Received power at the main and diversity antennas
- Channel delay spread at the main and diversity antennas
- Specific to headends only
- Ambient noise

Specific to subscriber units only

- Received power delta at the main and diversity antennas
- Total transmit power

CiscoView Wireless provides the following classes of features to configure and monitor radio signal parameters:

- Histograms
- RF Thresholds
- Timelines
- Snapshots

About Real-Time Histograms

A Histogram represents:

- A technique of capturing, processing, and storing radio signal information in an easy to interpret format
- A graphical representation of the captured data

With CiscoView Wireless, you can create histogram specifications on the managed device. Once the specification is created, the managed device captures the signal information. Then, you can set up the histogram to capture data for a long period of time for a single upstream or for one subscriber unit that is registered with the headend. CiscoView Wireless can then graph the collected data in a periodic manner.

Figure 1-3 Histogram Specification Table

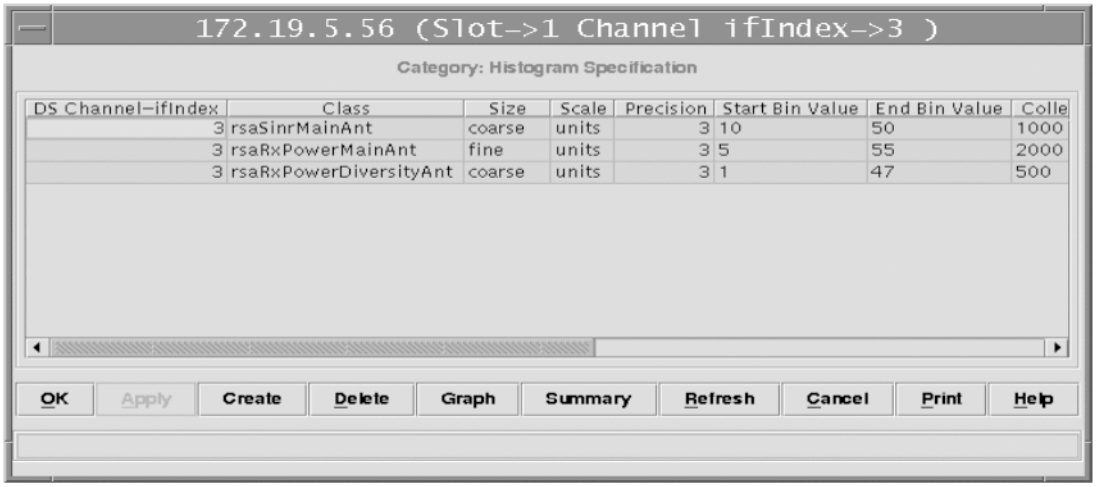
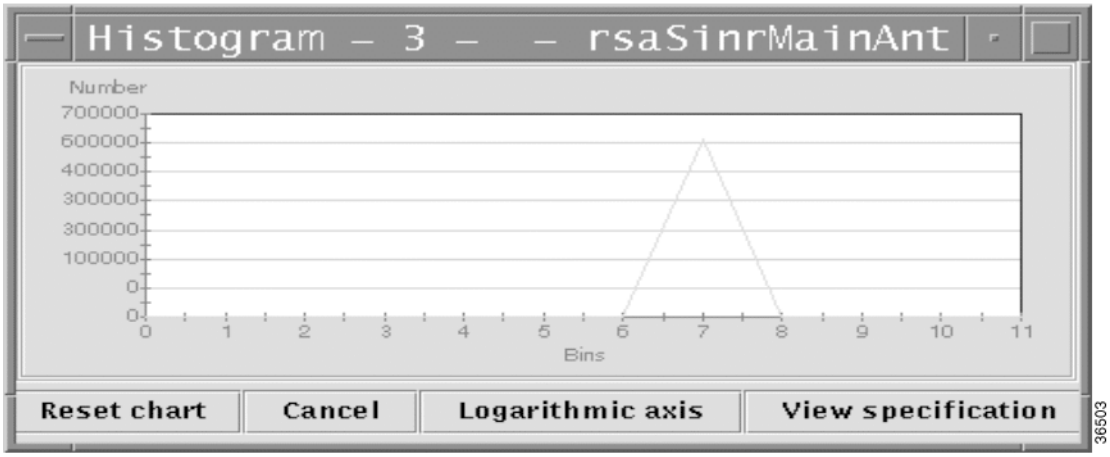


Figure 1-4 The SINR Histogram



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Creating a Histogram

With CiscoView Wireless, you can retrieve the captured histogram data (from the managed device) at regular intervals and store them in a database at the server. You can retrieve and view the stored data at a later date

Step 1 Click on the **Create** option in the histogram specification table.

Step 2 Select the **Persistent** option in the histogram specification. The Histogram specification appears in the Histogram History. [Chassis>Histogram History>This device/All devices].

For each entry in the Histogram History Table, there is a data file in binary format on the server at the location <CD One install directory>/CSCOpx/www/classpath/devpkg_P2MP where the histogram values are updated as specified by update rate parameter.

Step 3 To stop the collection of histograms permanently, click **Stop Collection**.

Step 4 To convert the data in the binary file to ASCII format, select the histogram specification from the histogram history table, and click **Bin to ASCII**.

Step 5 To graph the saved data, select a specification from the Histogram History Table and click **Graph**.

About RF Thresholds

With CiscoView Wireless, you can establish thresholds on radio signal parameters. A threshold is defined as a transition relative to a specified value. The different types of transitions are:

- UpChange
- DownChange
- HighThreshold
- LowThreshold
- UpLimit
- LowLimit

When a threshold is crossed, the managed device generates a trap. You can associate a threshold with a timeline, and when the threshold is crossed, the timeline is captured.

About Timelines

Timelines represent:

- A technique of capturing and storing a limited set of sampled raw radio signal information.
- A graphical representation of the captured data.

You can create timeline specifications on the managed device. Once the specification is created, the managed device captures the signal information. Once captured, the data must be cleared by another clear request before you can initiate another capture. You can capture the data under two conditions:

- If an RF threshold is not associated with the timeline specification, then the data is captured as soon as the create request is sent to the managed device.
- If an RF threshold is associated with the timeline specification, then the data is captured when the threshold is crossed.

You can create timeline specifications on the managed device for the radio signal attributes and graph the data captured by a timeline specification.

About Snapshots

Snapshots represent:

- A technique of capturing and storing radio signal data that has undergone various levels of signal processing. The critical difference between a timeline and a snapshot is that a snapshot can be set up to monitor up to four simultaneous attributes.
- A graphical representation of the captured data.

You can create snapshot specifications on the managed device. Once the specification is created, the managed device captures the signal information. Once the data is captured, it must be cleared by another clear request before you can initiate another capture. You can also graph the data captured by a snapshot specification.