WebSTAR Model DPX110 Cable Modem Software Revision 1.0.4r2 Release Notes and Installation Instructions

Overview

Introduction

This document provides release notes for software revision 1.0.4r2 of the WebSTAR™ Model DPX110 Cable Modem. This document also includes instructions for installing this version of the cable modem software onto the cable modem.

Installing software revision 1.0.4r2 of the WebSTAR Model DPX110 Cable Modem provides the following benefits:

- New customer-friendly features
- Reduced installation time
- Improved overall performance

Audience

This document is written for network administrators, system operators, technicians, and installers of cable modem networks that comply with the Data-Over-Cable Service Interface Specifications (DOCSIS).

Note: Software revision 1.0.4r2 was DOCSIS 1.0 certified on September 27, 2001, by CableLabs in Certification Wave 19.

Overview, Continued

In This Document

This document contains the following topics.

Document Version

This is the third release of this document. The following changes were made to this document since its last release:

- Added a note to the **Audience** section indicating when this software revision received DOCSIS 1.0 certification
- Corrected the default value for the Web Wizard access level

Release Notes

Introduction

This section provides brief descriptions of the new features, enhancements, and changes incorporated into software revision 1.0.4r2 of the WebSTAR Model DPX110 Cable Modem. These release notes are not intended to be comprehensive.

New Features

This release of the WebSTAR Model DPX110 Cable Modem software introduces the following new features:

- Web Wizard — a means of accessing key information about the provisioning and operational status of the cable modem using a generic Web browser. This feature also allows the network administrator to offer multiple levels of access to the Web Wizard. See **Web Wizard Access Levels**, later in this section.
- Cable Modem Access Protection — helps to prevent hackers from accessing the customer premise equipment (CPE). The network operator can activate or de-activate (default) this feature through Simple Network Management Protocol (SNMP) and Type Length Values (TLVs) to make it available or unavailable to the subscriber. If the network operator activates this feature, the subscriber has the following three options for controlling this feature using a browser-based interface:
  - **Enable** prevents any communication from the network to the CPE
  - **Disable** (default) allows all communication from the network to the CPE
  - **Automatic** allows communication from the network to the CPE only if the CPE is communicating with the network. If the CPE has not sent any communications to the network for a user-defined period, the modem automatically prevents any communication from the network to the CPE
- The network administrator can now configure the traffic type through SNMP and TLVs on the Ethernet port as follows:
  - Auto-Negotiation (default; setting **0**)
  - 10-Mbps/Half-duplex (setting **1**)
  - 10-Mbps/Full-duplex (setting **2**)
  - 100-Mbps/Half-duplex (setting **3**)
  - 100-Mbps/Full-duplex (setting **4**)

Hardware Supported

All versions of the WebSTAR Model DPX110 Cable Modem support this release of the cable modem software.

Enhancements/Changes

The following table shows the enhancements and changes incorporated into software revision 1.0.4r2 of the WebSTAR Model DPX110 Cable Modem. This table also shows the Open Systems Interconnection (OSI) layers affected by each enhancement or change.

Note: The enhancements and changes incorporated into this software revision supercede all previous versions of the cable modem software.

Enhancement/Change Description	OSI Layer(s) Affected
New downstream calibration mechanism to improve downstream power level reading accuracy to within ±3 dB after factory calibration. For units that have not been factory calibrated, a default power table is downloaded to provide improved accuracy for downstream power level readings	Physical (PHY)
New algorithm implemented so that counters are no longer set to zero when a cable modem (CM) encounters a media access control (MAC) error. Counters are now set to zero only during a modem reboot. See **New Recovery Process**, later in this section	Media Access Control (MAC)
Added informational items to event log, added a vendor-specific event log, and modified the event table by adopting DOCSIS 1.1 specification	• SNMP • Web • System Log (SYSLOG)
Enhanced the downstream scanning algorithm to minimize the amount of time taken to find downstream signals. Implemented a mechanism to re-acquire the last known cable modem termination system (CMTS) quickly upon restoration of the CMTS to the network	PHY
RSA key increased to 1024-bit **Note:** If you are upgrading for the first time from a version prior to 1.0.4, there may be a momentary delay between the time the image is downloaded and when the modem resumes normal operation. This is an expected part of the process for upgrading the RSA key to 1024 bits	Baseline Privacy Interface (BPI)
Maximum number of connected CPEs increased from 15 to 32	MAC

Enhancement/Change Description	Subsystems Affected
Cable modem now acts as a "bridge" to allow communication between the Ethernet and USB interfaces through the cable modem	Cable Modem-to-Customer-premise-equipment Interface (CMCI)
Enhanced software security so that the filter applied at the CMCI is always obeyed, regardless of whether the MAC address is destined for the cable modem	• MAC • Internet Protocol (IP)
Improved response to SNMP queries when the cable modem is under heavy load	SNMP
Optimized retransmission algorithm during upstream rate shaping	MAC
Enhanced implementation of OSS-ECN99090	SNMP
Improved SysORID syntax	SNMP

New Recovery Process for MAC Errors

The following table summarizes the new recovery processes that the cable modem performs whenever it encounters a MAC error.

MAC Error	Recovery Process
InvalidRegistrationResponse	Find next downstream and docsIfCmStatusInvalidRegistrationResponses increment.
Registration Response Authentication Fail	Find next downstream.
Registration Request Retry Three Times	Re-lock current downstream.
T1 Time-Out	Find next downstream and docsIfCmStatusT1Timeouts increment.
T2 Time-Out	• **Cable Modem Bootup Stage:** Find next upstream and docsIfCmStatusT2Timeouts increment. • **Upstream Channel Override (UCC):** Re-lock current downstream and docsIfCmStatusT2Timeouts increment.
T4 Time-Out	• **Before RNG_RESP Success:** Find next upstream and docsIfCmStatusT4Timeouts increment. • **After RNG_RESP Success:** Re-lock current downstream and docsIfCmStatusT4Timeouts increment.
RangingAborted	• **Before initial RNG_RESP Success:** Find next upstream and docsIfCmStatusRangingAborteds increment. • **After initial RNG_RESP Success:** Re-lock current downstream and docsIfCmStatusRangingAborteds increment.
Ranging Request Retry 16 Times	• **Before RNG_RESP Success:** Find next upstream. • **After RNG_RESP Success:** Re-lock current downstream.
Config File Error	Find next downstream.

Web Wizard Access Levels

The following table describes the three levels of Web Wizard access that the network administrator can provide to users. The Web Wizard allows the user to view key information about the provisioning and operational status of the cable modem.

Access Level	Description
0 — No CPE Access After Registration (default)	After the cable modem finishes the registration process and has a network IP address, only the network administrator, or devices with the appropriate IP address and subnet configuration, can access the Web Wizard. Otherwise, the CPE does not have any access to the Web Wizard. **Note:** The network operator can enable and disable the Cable Modem Access Protection feature, but cannot affect or override the user's CPE settings for that feature.
1 — Restricted Access After Registration	Allows the CPE to access only the System page of the Web Wizard using the original default IP address of 192.168.100.1. No other pages are accessible at this level of access, even if the user has knowledge of the URLs associated with hidden or expert user pages. Level 1 allows access to the following basic information about the cable modem: • Model Number • Serial Number • MAC Address • Hardware Revision • Software Revision • Operational Status If the modem supports the Cable Modem Access Protection feature, and if the network operator enables that feature, this access level allows the CPE to use the Web Wizard to control Cable Modem Access Protection.
2 — Open Access After Registration	Allows the CPE, using the original default IP address of 192.168.100.1, to have the same level of access to the Web Wizard after registration as it did before registration.

Installation Prerequisites

Introduction

This section provides information on requirements that must be met before you install software revision 1.0.4r2 of the WebSTAR Model DPX110 Cable Modem.

SNMP Manager

This release of the cable modem software requires an SNMP v1 or v2c manager. Cisco recommends that you load the SNMP manager with the management information bases (MIBs) shown in the following table.

MIB Name	Version
Bridge MIB CM and CMTS	RFC-1493
MIB for SNMPv2 CM and CMTS	RFC-1907
SNMPv2 MIB for the Internet Protocol using SMIv2 CM and CMTS	RFC-2011
SNMPv2 MIB for the User Datagram Protocol using SMIv2 CM and CMTS	RFC-2013
The Interface Group MIB using SMIv2 CM and CMTS	RFC-2233
Ethernet Interface MIB CM and CMTS	RFC-2665
DOCSIS Cable Device MIB CM and CMTS	RFC-2669
Radio Frequency (RF) Interface MIB CM and CMTS	RFC-2670

To invoke some of the new features in this release of the cable modem software, the SNMP manager must have the appropriate Cisco vendor-specific MIB values loaded, in addition to the MIBs shown in this table. If the Cisco vendor-specific MIB values are not loaded, the new cable modem features assume their factory default values. For more information, contact Cisco Services..

Installation

Introduction

This section provides two processes you can use to install software revision 1.0.4r2 of the WebSTAR Model DPX110 Cable Modem. You can download the new cable modem software through the SNMP manager or through a configuration file.

Environment Setup

You can configure the cable modem to enable or disable certain features. Make sure that you have configured the cable modem properly for your environment.

SNMP Process

Download the new cable modem software through the SNMP manager by using the docsDevSoftware MIB objects to complete the following steps.

1. Set the docsDevSwServer object to the IP address of the downloading server.
2. Set the docsDevSwFilename object to the file that you wish to download (including the path).
3. Set the docsDevSwAdminStatus object to **1** (upgradeFromMgt).

   Result: When the software has downloaded, the cable modem reboots itself and re-acquires communication.

   Note: If you have trouble downloading the software, make sure your Trivial File Transfer Protocol (TFTP) server is configured correctly.

Configuration File Process

Use a configuration file to download the new cable modem software automatically by completing the following steps.

1. Create or modify a configuration file so that it contains the software (SW) download file name and the IP address of the TFTP server.
2. Reboot the cable modem.

   Result: The cable modem downloads the new software, reboots again, and then re-acquires communication.

For Information

If You Have Questions

If you have technical questions, call Cisco Services for assistance. Follow the menu options to speak with a service engineer.

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