



CTP Series Circuit to Packet Platforms

CTPOS Release Notes

Release 5.4

Juniper Networks, Inc.
1194 North Mathilda Avenue
Sunnyvale, CA 94089
USA
408-745-2000
www.juniper.net

Juniper Networks, the Juniper Networks logo, JUNOS, NetScreen, and ScreenOS are registered trademarks of Juniper Networks, Inc. in the United States and other countries. JUNOSe is a trademark of Juniper Networks, Inc. All other trademarks, service marks, registered trademarks, or registered service marks are the property of their respective owners.

Products made or sold by Juniper Networks (including the ERX-310, ERX-705, ERX-710, ERX-1410, ERX-1440, M5, M7i, M10, M10i, M20, M40, M40e, M160, M320, and T320 routers, T640 routing node, and the JUNOS, JUNOSe, and SDX-300 software) or components thereof might be covered by one or more of the following patents that are owned by or licensed to Juniper Networks: U.S. Patent Nos. 5,473,599, 5,905,725, 5,909,440, 6,192,051, 6,333,650, 6,359,479, 6,406,312, 6,429,706, 6,459,579, 6,493,347, 6,538,518, 6,538,899, 6,552,918, 6,567,902, 6,578,186, and 6,590,785.

Copyright © 2009, Juniper Networks, Inc.
All rights reserved. Printed in USA.

CTPOS Release Notes Release 5.4
Writing: Diane Florio, Bill Lemons
Editing: Fran Mues
Illustration: John Borelli

Revision History
July 2009

The information in this document is current as of the date listed in the revision history.

Juniper Networks assumes no responsibility for any inaccuracies in this document. Juniper Networks reserves the right to change, modify, transfer or FCC Notice

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

Software License

The terms and conditions for using this software are described in the software license contained in the acknowledgment to your purchase order or, to the extent applicable, to any reseller agreement or end-user purchase agreement executed between you and Juniper Networks. By using this software, you indicate that you understand and agree to be bound by those terms and conditions.

Generally speaking, the software license restricts the manner in which you are permitted to use the software and may contain prohibitions against certain uses. The software license may state conditions under which the license is automatically terminated. You should consult the license for further details.

For complete product documentation, please see the Juniper Networks Web site at www.juniper.net/techpubs.

END USER LICENSE AGREEMENT

READ THIS END USER LICENSE AGREEMENT ("AGREEMENT") BEFORE DOWNLOADING, INSTALLING, OR USING THE SOFTWARE. BY DOWNLOADING, INSTALLING, OR USING THE SOFTWARE OR OTHERWISE EXPRESSING YOUR AGREEMENT TO THE TERMS CONTAINED HEREIN, YOU (AS CUSTOMER OR IF YOU ARE NOT THE CUSTOMER, AS A REPRESENTATIVE/AGENT AUTHORIZED TO BIND THE CUSTOMER) CONSENT TO BE BOUND BY THIS AGREEMENT. IF YOU DO NOT OR CANNOT AGREE TO THE TERMS CONTAINED HEREIN, THEN (A) DO NOT DOWNLOAD, INSTALL, OR USE THE SOFTWARE, AND (B) YOU MAY CONTACT JUNIPER NETWORKS REGARDING LICENSE TERMS.

1. The Parties. The parties to this Agreement are (i) Juniper Networks, Inc. (if the Customer's principal office is located in the Americas) or Juniper Networks (Cayman) Limited (if the Customer's principal office is located outside the Americas) (such applicable entity being referred to herein as "Juniper"), and (ii) the person or organization that originally purchased from Juniper or an authorized Juniper reseller the applicable license(s) for use of the Software ("Customer") (collectively, the "Parties").

2. The Software. In this Agreement, "Software" means the program modules and features of the Juniper or Juniper-supplied software, for which Customer has paid the applicable license or support fees to Juniper or an authorized Juniper reseller, or which was embedded by Juniper in equipment which Customer purchased from Juniper or an authorized Juniper reseller. "Software" also includes updates, upgrades and new releases of such software. "Embedded Software" means Software which Juniper has embedded in or loaded onto the Juniper equipment and any updates, upgrades, additions or replacements which are subsequently embedded in or loaded onto the equipment.

3. License Grant. Subject to payment of the applicable fees and the limitations and restrictions set forth herein, Juniper grants to Customer a non-exclusive and non-transferable license, without right to sublicense, to use the Software, in executable form only, subject to the following use restrictions:

- a. Customer shall use Embedded Software solely as embedded in, and for execution on, Juniper equipment originally purchased by Customer from Juniper or an authorized Juniper reseller.
- b. Customer shall use the Software on a single hardware chassis having a single processing unit, or as many chassis or processing units for which Customer has paid the applicable license fees; provided, however, with respect to the Steel-Belted Radius or Odyssey Access Client software only, Customer shall use such Software on a single computer containing a single physical random access memory space and containing any number of processors. Use of the Steel-Belted Radius or IMS AAA software on multiple computers or virtual machines (e.g., Solaris zones) requires multiple licenses, regardless of whether such computers or virtualizations are physically contained on a single chassis.
- c. Product purchase documents, paper or electronic user documentation, and/or the particular licenses purchased by Customer may specify limits to Customer's use of the Software. Such limits may restrict use to a maximum number of seats, registered endpoints, concurrent users, sessions, calls, connections, subscribers, clusters, nodes, realms, devices, links, ports or transactions, or require the purchase of separate licenses to use particular features, functionalities, services, applications, operations, or capabilities, or provide throughput, performance, configuration, bandwidth, interface, processing, temporal, or geographical limits. In addition, such limits may restrict the use of the Software to managing certain kinds of networks or require the Software to be used only in conjunction with other specific Software. Customer's use of the Software shall be subject to all such limitations and purchase of all applicable licenses.

d. For any trial copy of the Software, Customer's right to use the Software expires 30 days after download, installation or use of the Software. Customer may operate the Software after the 30-day trial period only if Customer pays for a license to do so. Customer may not extend or create an additional trial period by re-installing the Software after the 30-day trial period.

e. The Global Enterprise Edition of the Steel-Belted Radius software may be used by Customer only to manage access to Customer's enterprise network. Specifically, service provider customers are expressly prohibited from using the Global Enterprise Edition of the Steel-Belted Radius software to support any commercial network access services.

The foregoing license is not transferable or assignable by Customer. No license is granted herein to any user who did not originally purchase the applicable license(s) for the Software from Juniper or an authorized Juniper reseller.

4. Use Prohibitions. Notwithstanding the foregoing, the license provided herein does not permit the Customer to, and Customer agrees not to and shall not: (a) modify, unbundle, reverse engineer, or create derivative works based on the Software; (b) make unauthorized copies of the Software (except as necessary for backup purposes); (c) rent, sell, transfer, or grant any rights in and to any copy of the Software, in any form, to any third party; (d) remove any proprietary notices, labels, or marks on or in any copy of the Software or any product in which the Software is embedded; (e) distribute any copy of the Software to any third party, including as may be embedded in Juniper equipment sold in the secondhand market; (f) use any 'locked' or key-restricted feature, function, service, application, operation, or capability without first purchasing the applicable license(s) and obtaining a valid key from Juniper, even if such feature, function, service, application, operation, or capability is enabled without a key; (g) distribute any key for the Software provided by Juniper to any third party; (h) use the Software in any manner that extends or is broader than the uses purchased by Customer from Juniper or an authorized Juniper reseller; (i) use Embedded Software on non-Juniper equipment; (j) use Embedded Software (or make it available for use) on Juniper equipment that the Customer did not originally purchase from Juniper or an authorized Juniper reseller; (k) disclose the results of testing or benchmarking of the Software to any third party without the prior written consent of Juniper; or (l) use the Software in any manner other than as expressly provided herein.

5. Audit. Customer shall maintain accurate records as necessary to verify compliance with this Agreement. Upon request by Juniper, Customer shall furnish such records to Juniper and certify its compliance with this Agreement.

6. Confidentiality. The Parties agree that aspects of the Software and associated documentation are the confidential property of Juniper. As such, Customer shall exercise all reasonable commercial efforts to maintain the Software and associated documentation in confidence, which at a minimum includes restricting access to the Software to Customer employees and contractors having a need to use the Software for Customer's internal business purposes.

7. Ownership. Juniper and Juniper's licensors, respectively, retain ownership of all right, title, and interest (including copyright) in and to the Software, associated documentation, and all copies of the Software. Nothing in this Agreement constitutes a transfer or conveyance of any right, title, or interest in the Software or associated documentation, or a sale of the Software, associated documentation, or copies of the Software.

8. Warranty, Limitation of Liability, Disclaimer of Warranty. The warranty applicable to the Software shall be as set forth in the warranty statement that accompanies the Software (the "Warranty Statement"). Nothing in this Agreement shall give rise to any obligation to support the Software. Support services may be purchased separately. Any such support shall be governed by a separate, written support services agreement. TO THE MAXIMUM EXTENT PERMITTED BY LAW, JUNIPER SHALL NOT BE LIABLE FOR ANY LOST PROFITS, LOSS OF DATA, OR COSTS OR PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, OR FOR ANY SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THIS AGREEMENT, THE SOFTWARE, OR ANY JUNIPER OR JUNIPER-SUPPLIED SOFTWARE. IN NO EVENT SHALL JUNIPER BE LIABLE FOR DAMAGES ARISING FROM UNAUTHORIZED OR IMPROPER USE OF ANY JUNIPER OR JUNIPER-SUPPLIED SOFTWARE. EXCEPT AS EXPRESSLY PROVIDED IN THE WARRANTY STATEMENT TO THE EXTENT PERMITTED BY LAW, JUNIPER DISCLAIMS ANY AND ALL WARRANTIES IN AND TO THE SOFTWARE (WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE), INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT. IN NO EVENT DOES JUNIPER WARRANT THAT THE SOFTWARE, OR ANY EQUIPMENT OR NETWORK RUNNING THE SOFTWARE, WILL OPERATE WITHOUT ERROR OR INTERRUPTION, OR WILL BE FREE OF VULNERABILITY TO INTRUSION OR ATTACK. In no event shall Juniper's or its suppliers' or licensors' liability to Customer, whether in contract, tort (including negligence), breach of warranty, or otherwise, exceed the price paid by Customer for the Software that gave rise to the claim, or if the Software is embedded in another Juniper product, the price paid by Customer for such other product. Customer acknowledges and agrees that Juniper has set its prices and entered into this Agreement in reliance upon the disclaimers of warranty and the limitations of liability set forth herein, that the same reflect an allocation of risk between the Parties (including the risk that a contract remedy may fail of its essential purpose and cause consequential loss), and that the same form an essential basis of the bargain between the Parties.

9. Termination. Any breach of this Agreement or failure by Customer to pay any applicable fees due shall result in automatic termination of the license granted herein. Upon such termination, Customer shall destroy or return to Juniper all copies of the Software and related documentation in Customer's possession or control.

10. Taxes. All license fees payable under this agreement are exclusive of tax. Customer shall be responsible for paying Taxes arising from the purchase of the license, or importation or use of the Software. If applicable, valid exemption documentation for each taxing jurisdiction shall be provided to Juniper prior to invoicing, and Customer shall promptly notify Juniper if their exemption is revoked or modified. All payments made by Customer shall be net of any applicable withholding tax. Customer will provide reasonable assistance to Juniper in connection with such withholding taxes by promptly: providing Juniper with valid tax receipts and other required documentation showing Customer's payment of any withholding taxes; completing appropriate applications that would reduce the amount of withholding tax to be paid; and notifying and assisting Juniper in any audit or tax proceeding related to transactions hereunder. Customer shall comply with all applicable tax laws and regulations, and Customer will promptly pay or reimburse Juniper for all costs and damages related to any liability incurred by Juniper as a result of Customer's non-compliance or delay with its responsibilities herein. Customer's obligations under this Section shall survive termination or expiration of this Agreement.

11. Export. Customer agrees to comply with all applicable export laws and restrictions and regulations of any United States and any applicable foreign agency or authority, and not to export or re-export the Software or any direct product thereof in violation of any such restrictions, laws or regulations, or without all necessary approvals. Customer shall be liable for any such violations. The version of the Software supplied to Customer may contain encryption or other capabilities restricting Customer's ability to export the Software without an export license.

12. Commercial Computer Software. The Software is "commercial computer software" and is provided with restricted rights. Use, duplication, or disclosure by the United States government is subject to restrictions set forth in this Agreement and as provided in DFARS 227.7201 through 227.7202-4, FAR 12.212, FAR 27.405(b)(2), FAR 52.227-19, or FAR 52.227-14(ALT III) as applicable.

13. Interface Information. To the extent required by applicable law, and at Customer's written request, Juniper shall provide Customer with the interface information needed to achieve interoperability between the Software and another independently created program, on payment of applicable fee, if any. Customer shall observe strict obligations of confidentiality with respect to such information and shall use such information in compliance with any applicable terms and conditions upon which Juniper makes such information available.

14. Third Party Software. Any licensor of Juniper whose software is embedded in the Software and any supplier of Juniper whose products or technology are embedded in (or services are accessed by) the Software shall be a third party beneficiary with respect to this Agreement, and such licensor or vendor shall have the right to enforce this Agreement in its own name as if it were Juniper. In addition, certain third party software may be provided with the Software and is subject to the accompanying license(s), if any, of its respective owner(s). To the extent portions of the Software are distributed under and subject to open source licenses obligating Juniper to make the source code for such portions publicly available (such as the GNU General Public License

("GPL") or the GNU Library General Public License ("LGPL"). Juniper will make such source code portions (including Juniper modifications, as appropriate) available upon request for a period of up to three years from the date of distribution. Such request can be made in writing to Juniper Networks, Inc., 1194 N. Mathilda Ave., Sunnyvale, CA 94089, ATTN: General Counsel. You may obtain a copy of the GPL at <http://www.gnu.org/licenses/gpl.html>, and a copy of the LGPL at <http://www.gnu.org/licenses/lgpl.html>.

15. Miscellaneous. This Agreement shall be governed by the laws of the State of California without reference to its conflicts of laws principles. The provisions of the U.N. Convention for the International Sale of Goods shall not apply to this Agreement. For any disputes arising under this Agreement, the Parties hereby consent to the personal and exclusive jurisdiction of, and venue in, the state and federal courts within Santa Clara County, California. This Agreement constitutes the entire and sole agreement between Juniper and the Customer with respect to the Software, and supersedes all prior and contemporaneous agreements relating to the Software, whether oral or written (including any inconsistent terms contained in a purchase order), except that the terms of a separate written agreement executed by an authorized Juniper representative and Customer shall govern to the extent such terms are inconsistent or conflict with terms contained herein. No modification to this Agreement nor any waiver of any rights hereunder shall be effective unless expressly assented to in writing by the party to be charged. If any portion of this Agreement is held invalid, the Parties agree that such invalidity shall not affect the validity of the remainder of this Agreement. This Agreement and associated documentation has been written in the English language, and the Parties agree that the English version will govern. (For Canada: Les parties aux présentés confirment leur volonté que cette convention de même que tous les documents y compris tout avis qui s'y rattache, soient rédigés en langue anglaise. (Translation: The parties confirm that this Agreement and all related documentation is and will be in the English language)).

CTPOS Release 5.4

Release Overview

These *Release Notes* accompany Release 5.4 of the CTPOS Circuit Emulation software. They describe the enhancements as well as known issues with the software. CTPOS runs on all Juniper Networks® CTP 1000 Series and 2000 Series platforms. CTPView 3.4 or later is required for this release.

If the information in these *Release Notes* differs from the information found in the published documentation set, follow these *Release Notes*. These *Release Notes* include the following sections:

- Release Overview on page 1
- Required Files on page 1
- Upgrade Notes on page 2
- New Features and Enhancements on page 2
- Known Issues on page 3
- Known Issues on page 3
- Bugs Fixed on page 4

You can also find these release notes on the Juniper Networks Technical Publications CTP documentation Web page, at <http://www.juniper.net/techpubs/hardware/ctp/>.

Required Files

- *acorn_429_090604_fpga_2000_ser_v72_t1e1_vEA_18_batch.tgz* – FPGA Upgrade Archive
- *acorn_429_090604_winmon_2000_t1e1_v28.tgz* – Winmon Upgrade Archive
- *acorn_429_090722.tgz* – Main Upgrade Archive
- *flash_5.4R1.img* – full image file

Upgrade Notes

All systems must be running 5.3R1 before you install 5.4R1. For information about upgrading your system manually to 5.3R1, see the 5.3R1 Release Notes. Version 3.4 of the CTPView Management Appliance will automatically perform all necessary intermediate upgrades when you move from an older release of CTPOS to the current release.

New Features and Enhancements

This section describes features and enhancements new to this release.

Support for JITC Mode

You can now configure a system to meet the login and forwarding requirements of JITC certification when the system is first powered on as part of the firstboot process. When enabled, you can specify a `management interface`, limit the IP addresses allowed to access the system, and prevent unwanted transit traffic between active Ethernet interfaces.

Ability to Monitor and Control CTP Database Changes

The CTP database control feature monitors CTP configuration changes by other users and notifies you when they occur. The CTP node must be running CTPOS 5.4R1 or later.

When you submit a configuration, the CTP database is checked for changes from the database that was in use. If changes are detected, the system gives you the option to overwrite the CTP database with the new one you are submitting, or to abort the submission.

Support for Network Node Reference (NetRef)

CTP supports the network node reference (NetRef) feature to provide clocking to a CTP node over a network. The CTP node must be running CTPOS 5.4R1 or later. When a node is configured for NetRef slave operation, the remote address must be configured to that of the master. Also, the NetRef master must be configured with the address of the NetRef slave. You can configure a NetRef master to send data packets to up to 10 NetRef secondaries. The IP address of the secondaries are configured in the NetRef menu. When a node is configured for NetRef adaptive bundle operation, you must specify the bundle number.

For adaptive bundle operation, the bundle must be configured for adaptive clocking and must be activated after NetRef has been configured. NetRef adaptive bundle operation starts only when activation of the bundle is configured for use. Disabling the bundle disables NetRef. If you want to use the bundle, but not for NetRef, disable the bundle, turn off NetRef adaptive bundle operation, and then reenables the bundle. Messages have been added to the menu to warn about this behavior.

Support for TDC

You can now configure time domain correlation (TDC) between circuits with autobaud capability on each circuit for CTP bundles.

For a TDC circuit, the higher speed circuit must be on an even-numbered port for a serial CTP2000 IM. The port should be configured for encoding TDM, with the TDC function selected. The TDM rate you use will depend on the speed of the slower circuit. The minimum ratio of high:low speed circuits is 8:1, and the TDM rate for this ratio must be 16.

For the slower circuit, if the high-speed circuit is port N, then the slower port must be N + 1. Configure this port for a clock configuration of "TDM TDC." There is no bundle configuration for this port, so leave the remote IP address set to the default or change it to something benign.

Support for PLAR

CTP supports private-line automatic ringdown (PLAR) for Voice FXS ports attached to a VCOMP bundle. The CTP node must be running CTPOS 5.4R1 or later.

Support for the Advanced Option for Data Inversion

The advanced option for data inversion is now supported.

Support for Graph Capabilities

Graph capabilities on CESoPSN and VCOMP bundles is now supported.

Limiting SSH Access

You can now limit SSH access to allow only SSH access to CTP from CTPView.

Support for Port Mirroring

You can now configure port mirroring for voice (digital and analog).

Support for IPv6

IPv6 support for SAToP, CESoPSN, and VCOMP bundle types is now available.

Known Issues

When Switching Between Encoding Options, Reset Clocking to Default

When changing the encoding method, always change the clocking back to the default. [PR/451972]

BIT Errors When Using Serial Ports for Non-IRIG Data with Terminal Timing

When you use the serial ports of a CTP2000-IM-8P-IRIG module for non-IRIG data with terminal timing (TT), the circuit will experience BIT errors. [PR/455536]

Bugs Fixed

DTE and Clocking Displays Not Correct

Messages generated by the software when configure clocking in the signaling configuration now apply to both DCE and DTE mode. Previously, the messages applied only to DCE mode. In addition, signaling configurations that you customize are now displayed when you issue a bundle query. Default configurations are not displayed when you issue a bundle query. [PR/442261: This issue has been resolved.]

MIB Support Added for SNMP Traps

MIB support has been added for SNMP traps so that trap object IDs (OIDs) and descriptions are now included in the main CTP MIB text file. [PR/423013: This issue has been resolved.]

SNMP Problems with VCOMP Bundles

SNMP problems with configured VCOMP bundles in the CTP MIB have been resolved. [PR/420663: This issue has been resolved.]

AutoBaud Port Speed Issue in Release 5.2R3

In Release 5.2R3, the port speed displayed when you are configuring an AutoBaud circuit was incorrect. This issue has been fixed. [PR/442015: This issue has been resolved.]

SNMPv3 passwords that Include a Dash (-) Do Not Work

Issue occurring when using a password that contained dashes (-) when adding SNMPv3 users has been fixed. [PR/449120: This issue has been resolved.]