Release Notes for Cisco MWR 2941 Mobile Wireless Edge Router for Cisco IOS Release 12.2(33)MRA

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These release notes are for the Cisco MWR Mobile Wireless Edge Router for Cisco IOS Release 12.2(33)MRA. These release notes are updated as needed to describe new features, memory requirements, hardware support, software platform deferrals, and changes to the microcode.

For a list of the software caveats that apply to Cisco IOS Release 12.2(33)MRA, see the "Caveats in Cisco IOS Release 12.2(33)MRA" section on page 13.

To review all Cisco MWR 2900-DC release notes, including *Release Notes for Cisco MWR 2941 Mobile Wireless Edge Router for Cisco IOS Release 12.2(33)MRA,* go to:

http://www.cisco.com/en/US/products/ps9395/prod_release_notes_list.html

To review release notes for the Cisco IOS Software Release 12.2SR, go to:

http://www.cisco.com/en/US/products/ps6922/prod_release_notes_list.html

Contents

This document contains the following sections:

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Introduction

The Cisco MWR 2941 Mobile Wireless Router is a cell-site access platform specifically designed to aggregate and transport mixed-generation radio access network (RAN) traffic. The router is used at the cell site edge as a part of a 2G, 3G, or 4G radio access network (RAN). The Cisco MWR 2941 includes the following models:

- Cisco MWR 2941-DC
- Cisco MWR 2941-DC-A

The Cisco MWR 2941 router helps enable a variety of RAN solutions by extending IP connectivity to devices using Global System for Mobile Communications (GSM), General Packet Radio Service (GPRS), Node Bs using HSPA or LTE, base transceiver stations (BTSs) using Enhanced Data Rates for GSM Evolution (EDGE), Code Division Multiple Access (CDMA), CDMA-2000, EVDO, or WiMAX, and other cell-site equipment. It transparently and efficiently transports cell-site voice, data, and signaling traffic over IP using traditional T1 and E1 circuits, as well as alternative backhaul networks such as Carrier Ethernet and DSL, Ethernet in the First Mile (EFM), and WiMAX. It also supports standards-based Internet Engineering Task Force (IETF) Internet protocols over the RAN transport network, including those standardized at the Third-Generation Partnership Project (3GPP) for IP RAN transport. Custom designed for the cell site, the Cisco MWR 2941 features a small form factor, extended operating temperature, and cell-site DC input voltages.

Note The Cisco MWR 2941-DC and 2941-DC-A support the same features with the exception of commands related to the 1PPS, 10Mhz, 2.048Mhz, and 1.544Mhz timing ports included on the 2941-DC-A. For more information about these features, see Clocking and Timing Features, page 6.

System Requirements

Table 1 lists the supported system configurations for the Cisco MWR 2941:

Platform	Cisco IOS Software Release
Cisco MWR 2941-DC	12.4(20)MR1
Cisco MWR 2941-DC	12.2(33)MRA
Cisco MWR-2941-DC-A	12.2(33)MRA

Memory Requirements

Table 1 lists the required memory for using this software.

Table 1 Cisco IOS Release 12.2(33)MRA Memory Requirements

Platform	Feature Set	Software Image	Recommended Flash Memory	Recommended DRAM Memory	Runs From
Cisco MWR 2941 Mobile Wireless Edge Router	RAN Optimization	mwr2941-adviprank9-mz.122-33.MRA.bin	128 MB	512 MB	RAM
Cisco MWR 2941 Mobile Wireless Edge Router	RAN Optimization	mwr2941-advipran-mz.122-33.MRA.bin	128 MB	512 MB	RAM

Determining the Software Version

To determine the image and version of Cisco IOS software running on your Cisco MWR 2941 router, log in to the router and enter the **show version** EXEC command:

```
router> show version
Cisco IOS Software, 2900 Software (MWR2900-ADVIPRANK9-M), Version 12.2(33)MRA, RELEASE
SOFTWARE (fc1)
```

Upgrading to a New Software Release

Release 12.2(33)MRA does not support the following features that were supported in Release 12.4(20)MR1:

- GSM Abis optimization
- IP Header Compression (IPHC)
- Reduced HWIC support—Release 12.2(33)MRA does not support the HWIC-1GE-SFP, HWIC-D-9ESW, HWIC-4SHDSL, HWIC-1ADSL, and HWIC-1 ADSL-I HWICs.
- GRE offload

For general information about upgrading to a new software release, refer to the *Software Installation and Upgrade Procedures* at:

http://www.cisco.com/en/US/products/hw/routers/ps259/products_tech_note09186a00801fc986.shtml

New and Changed Information

The following sections list the new hardware and software features supported by the Cisco MWR 2941 router.

New Hardware Features in Release 12.2(33)MRA

Software Release 12.2(33)MRA introduces support for the MWR-2941-DC-A.

Note Software Release 12.4(20)MR1 does not support the MWR-2941-DC-A. For more information about compatibility, see System Requirements.

New Software Features in Release 12.2(33)MRA

The following sections describe the features supported in Release 12.2(33)MRA.

- Carrier Ethernet features—Release 12.2(33)MRA introduces support for the following Carrier Ethernet features.
  - Resilient Ethernet Protocol (REP)—REP is a Cisco proprietary protocol that provides an alternative to Spanning Tree Protocol (STP) to control network loops, handle link failures, and improve convergence time. REP controls a group of ports connected in a segment, ensures that the segment does not create any bridging loops, and responds to link failures within the segment. REP provides a basis for constructing more complex networks and supports VLAN load balancing.
  - Ethernet Operations, Administration, and Maintenance (OAM)—Ethernet OAM is a protocol for installing, monitoring, and troubleshooting Ethernet networks to increase management capability within the context of the overall Ethernet infrastructure. Release 12.2(33)MRA includes support for IEEE 802.1ag Connectivity Fault Management (CFM) draft version 1.0, Ethernet Local Management Interface (E-LMI), and IEEE 802.3ah Ethernet OAM discovery, link monitoring, remote fault detection, and remote loopback.
- Hybrid PTP Clocking—Release 12.2(33)MRA supports a hybrid clocking mode that uses clock frequency obtained from the synchronous Ethernet port while using phase (ToD or 1PPS) obtained using PTP.
- Network Clock Quality Selection using REP—Release 12.2(33)MRA provides an alternative to the Ethernet Synchronization Message Channel (ESMC) utilizing REP ring topology changes to trigger network clock quality selection.

Note Release 12.2(33)MRA does not support the G.8264 standard.

- Timing port commands—Release 12.2(33)MRA supports the following commands for the 1PPS, 10Mhz, 2.048Mhz, and 1.544Mhz timing ports that are included on the 2941-DC-A.

Note The following commands are only supported on the Cisco MWR 2941-DC-A as the Cisco MWR 2941-DC does not have these timing ports.

  - **ptp input**—Enables PTP input clocking using the 1.544Mhz, 2.048Mhz, or 10Mhz timing interface or time of day messages using the 1PPS interface.
  - **ptp output**—Enables PTP output clocking using the 1.544Mhz, 2.048Mhz, or 10Mhz timing interface or time of day messages using the 1PPS interface.
  - **network-clock-select**—This command is modified to include timing sources using the 10Mhz, 2.048Mhz, or 1.544Mhz.
  - **ptp tod**—Configures the time of day message format used by the 1PPS interface.
  - **ptp update-calendar**—Configures the router to periodically update the system calendar to match the PTP clock.
- Hot Standby Master Clock—Allows the Cisco MWR 2941 to measure recovered clock quality from two PTP master clocks and switch dynamically between them without entering holdover mode. To configure a hot standby master clock, configure two **ptp clock source** statements on a VLAN interface.
- Slave mode transparent clock termination—Allows the Cisco MWR 2941 to use the correction field in PTP clocking messages to recover accurate clock.

Note Release 12.2(33)MRA does not formally support transparent clocking as it does not set the correction field in PTP clocking messages.

- Slave mode unicast delay-request while in PTP multicast mode—Enables the router to send PTP Delay_Req messages in unicast fashion while in PTP multicast slave mode. This setting eliminates unnecessary traffic generated by multicast messages that are dropped by all recipients except one.
- Bidirectional Failure Detection (BFD) support for static routes
- Increased VLAN capacity—This release allows you to configure up to 255 VLANs on the Cisco MWR 2941.

Supported Software Features in Release 12.2(33)MRA

The following software features were introduced in previous software releases for the Cisco MWR 2941 and are supported in 12.2(33)MRA.

Routing Features

- BGP routing
- IS–IS routing
- Open Shortest Path First (OSPF) routing
- Bidirectional Failure Detection (BFD) support for BGP, IS–IS, and OSPF routing protocols

- Generic Routing Encapsulation (GRE)—GRE is a tunneling protocol developed by Cisco that can encapsulate a wide variety of protocol packet types inside IP tunnels, creating a virtual point-to-point link to Cisco routers at remote points over an IP internetwork. GRE tunneling allows you to transport a pseudowire over an IP backhaul network when MPLS routing is not available between a cell site (BTS or Node-B) and an aggregation point (BSC or RNC).
- Multiprotocol Label Switching (MPLS)
- Label Distribution Protocol (LDP)

Clocking and Timing Features

- Clocking features—Cisco IOS Release 12.2(33)MRA supports the following clocking features:
  - Precision Time Protocol (PTP)—Clocking and clock recovery based on the IEEE 1588-2008 standard; allows the Cisco MWR 2941 router to receive clocking from another PTP-enabled device or provide clocking to a PTP-enabled device.

    This feature includes a variety of new global commands: **ptp domain**, **ptp mode**, **ptp priority1**, and **ptp priority2**; the following interface commands: **ptp announce**, **ptp clock-destination**, **ptp clock-source**, **ptp delay-req**, **ptp enable**, **ptp master**, **ptp slave**, and **ptp sync**; and the following show commands: **show ptp clock**, **show ptp foreign-master-record**, **show ptp parent**, **show ptp port**, and **show ptp time-property**.
  - Adaptive Clock Recovery (ACR)—Pseudowire-based Timing over Packet (TOP) that allows the MWR 2941 to use in-band or out-of-band clocking on a virtual or regular TDM pseudowire interface. ACR allows the Cisco MWR 2941 to recover clocking from the headers of a packet stream and is compliant with the G.823 and G.824 standards. You can use the **recovered-clock slave** command to configure out-of-band clock recovery and the **recovered-clock recovered adaptive** command to configure adaptive clock recovery.
  - Synchronous Ethernet—Allows the network to transport frequency and time information over Ethernet. You can use the **network-clock-select** command to configure synchronous Ethernet.

Note The RTM module is not required to use Synchronous Ethernet.

  - BITS Clocking
- PTP redundancy—This release supports PTP redundancy using multicast as defined in the IEEE 1588-2008 standard. This feature allows the Cisco MWR 2941 to use multicast routing to establish redundant paths between an external PTP client and one or more PTP multicast master clocks.

Note The Cisco MWR 2941 does not offer general support for multicast.

Pseudowire Features

- PWE3 Circuit Emulation over PSN (Packet Switched Network)—Allows you to create pseudowires (PWs) that emulate unstructured and structured T1s and E1s over an MPLS infrastructure, down to NxDS0 circuits. The Cisco MWR 2941 supports the following PWE3 standards:
  - Structure-agnostic TDM over Packet (SAToP)—Encapsulates TDM bit-streams (T1, E1, T3, E3) as PWs over PSNs; the feature is compliant with RFC 4553.
  - Structure-aware TDM Circuit Emulation Service over Packet-Switched Network (CESoPSN)—Encapsulates structured (NxDS0) TDM signals as PWs over PSNs; the feature is compliant with RFC 5086.

  - Transportation of Service Using ATM over MPLS—Uses an Asynchronous Transfer Mode (ATM) PW to carry cells over an MPLS network; the feature is compliant with RFCs 4717 and 4816.
  - Transportation of Service Using Ethernet over MPLS—This release supports EoMPLS pseudowires for VLANs.

VPN Features

- Layer 3 VPNs— Layer 3 VPNs provide an alternative to traditional VPNs that is easier to manage and expand than conventional VPNs through use of layer 3 communication protocols and a peer architecture.
- VPN Routing and Forwarding (VRF) Lite for OSPF

MLPPP Features

- Distributed Multilink Point-to-Point Protocol (dMLPPP)—dMLPPP allows you to combine T1 or E1 connections into a bundle that has the combined bandwidth of all of the connections in the bundle, providing improved capacity and CPU utilization over MLPPP.The dMLPPP offload feature improves the performance for traffic in dMLPPP applications such as PWE3 over MLPPP and IP over MLPPP by shifting processing of this traffic from the main CPU to the network processor. dMLPPP also uses interleaving to improve processing of delay-sensitive packets.The MWR 2941 supports dMLPPP for up to 16 T1/E1 links per MLPPP bundle and up to 12 bundles per router.
- Multiclass MLPPP—The MWR 2941 implementation of dMLPPP also supports Multiclass MLPPP. Multiclass MLPPP is an extension to MLPPP functionality that allows you to divide traffic passing over a multilink bundle into several independently sequenced streams or classes. Each multiclass MLPPP class has a unique sequence number, and the receiving network peer processes each stream independently. The multiclass MLPPP standard is defined in RFC 2686.
- Larger MTU size—This release includes support for MTU sizes of up to 4470 bytes on switched virtual interfaces (SVIs). The default MTU size is 1500 bytes, and the maximum MTU size supported over MLPPP links is 1536 bytes.

Note The Cisco MWR 2941 does not support some PPP and MLPPP options because the bundle is offloaded to the network processor. For more information, see Limitations and Restrictions or the *Cisco MWR 2941-DC Mobile Wireless Edge Router Software Configuration Guide, Release* 12.2(33)MRA.

T1/E1 Features

- Channel-Associated Signaling (CAS)—This release supports CAS signaling, a form of in-band digital signaling for T1 and E1 connections. CAS transmits signaling information inside each DS0 channel rather than in a separate channel and can also be described as robbed bit signaling. The Cisco MWR 2941 supports CAS for SAToP and CESoPSN pseudowires and is compliant with the ITU G.704 standard for CRC-4 and non-CRC-4 formats and the ANSI T1.403 standard for SF and ESF frame formats.

ATM Features

- Inverse Multiplexing for ATM (IMA)—This feature allows you to connect one or more interfaces to an ATM network using Inverse Multiplexing ATM (IMA). You can define IMA groups that can contain up to 8 bundles, with up to 24 links per bundle.

- ATM—This release includes ATM support with AAL0 and AAL5 encapsulation, F4 and F5 OAM (Operation, Administration, and Maintenance) monitoring, and Virtual Path (VP) shaping.
- ATM cell switching
- ATM Class of Service (CoS) commands—Release 12.2(33)MRA supports the following ATM CoS commands:
  - **ubr+**—Allows you to configure an unspecified bit rate (UBR) quality of service (QoS) and specify the output peak cell rate and output minimum guaranteed cell rate for an ATM permanent virtual circuit (PVC), PVC range, switched virtual circuit (SVC), virtual circuit (VC) class, or VC bundle member.
  - **vbr-nrt**—Allows you to configure the variable bit rate-nonreal time (VBR-NRT) quality of service (QoS) and specify output peak cell rate (PCR), output sustainable cell rate (SCR), and output maximum burst cell size for an ATM permanent virtual circuit (PVC), PVC range, switched virtual circuit (SVC), VC class, or VC bundle member.
  - **vbr-rt**—Allows you to configure the real-time variable bit rate (VBR) for VoATM voice connections.

LAN Features

- IEEE 802.1d Ethernet Switching
- IEEE 802.1q VLANS
- VLAN Trunking Protocol (VTP)
- Per-VLAN Spanning Tree (PVST)+
- Flexlink—Backup switchport interfaces using the **switchport backup interface** command.
- Dynamic Trunking Protocol (DTP)

QoS Features

- Quality of Service (QoS) support—This release includes support for QoS features on some interfaces. For more information, see the *Cisco MWR 2941-DC Mobile Wireless Edge Router Software Configuration Guide, Release 12.2(33)MRA*.

Network Management Features

- Cisco Networking Services (CNS)—CNS is a collection of services that can provide remote configuration of Cisco IOS networking devices and remote execution of some command-line interface (CLI) commands. CNS allows a Cisco MWR 2941 deployed and powered on in the field to automatically download its configuration. The Cisco MWR 2941 supports CNS on all Gigabit Ethernet interfaces except HWIC interface module interfaces.

Limitations and Restrictions

Caution The Cisco MWR 2941 router does not support online insertion and removal (OIR) of WAN interface cards. Any attempt to perform OIR on a card in a powered-on router might cause damage to the card.

Cisco IOS Release 12.2(33)MRA for the Cisco MWR 2941 router has the following limitations and restrictions:

- GSM Abis optimization not supported—Release 12.2(33)MRA does not support GSM Abis optimization feature that was supported in Release 12.4(20)MR1.
- Reduced HWIC support—Release 12.2(33)MRA does not support the HWIC-1GE-SFP, HWIC-D-9ESW, HWIC-4SHDSL, HWIC-1ADSL, and HWIC-1ADSL-I HWICs that were supported in Release 12.4(20)MR1.
- GRE offload not supported— Release 12.2(33)MRA does not support the GRE offload feature that was supported in Release 12.4(20)MR1.
- UMTS Iub Optimization not supported—Release 12.2(33)MRA does not support UMTS Iub optimization.
- L2TP not supported—The MWR 2941 currently does not support L2TP.
- Multicast used for PTP redundancy only—This release provides support for multicast in order to establish PTP redundancy; the Cisco MWR 2941 does not support multicast for other uses.
- Out-of-band master mode not supported—This release does not support out-of-band master mode for Timing over Packet/adaptive clock recovery. If your network design requires out-of-band master clocking, you can use the CEoPs SPA on the 7600 router for this purpose.
- ACR out-of-band payload limitation—The MWR 2941 only supports the payload-size values 486 (625 packets per second) or 243 (1250 packets per second) for out-of-band clock recovery.
- T1 SAToP is not supported on the HWIC-4T1/E1.
- Limited OAM support—ATM OAM (Operation, Administration, and Maintenance) is not supported on the short haul side of the Cisco MWR 2941.
- The Cisco MWR 2941 does not support the **mpls traffic-eng tunnels** command at the global or interface level.
- QoS Limitations—The Cisco MWR 2941 provides limited QoS support. For more information, see the *Cisco MWR 2941-DC Mobile Wireless Edge Router Software Configuration Guide, Release 12.2(33)MRA*.
- The Cisco MWR 2941 does not support the following options on offloaded dMLPPP bundles:
  - **ppp multilink idle-link**
  - **ppp multilink queue depth**
  - **ppp multilink fragment maximum**
  - **ppp multilink slippage**
  - **ppp timeout multilink lost-fragment**

Note If you have a bundle that requires the use of these options, contact Cisco support for assistance.

For more information about configuring dMLPPP, see the *Cisco MWR 2941-DC Mobile Wireless Edge Router Software Configuration Guide, Release 12.2(33)MRA*.

- MPLS pseudowire ping not supported—This release does not support the **ping mpls pseudowire** command. We recommend that you use the **ping mpls ipv4** command for operation and maintenance of MPLS connections.
- CAS limitations—The Cisco MWR 2941 implementation of CAS has the following limitations:
  - CAS is not supported on T1 and E1 HWICs.

  - When configuring a CESoPSN pseudowire to use CAS, you must configure the controller to use CAS signalling prior to creating a cem group, tdm group, or channel group. Otherwise the Cisco MWR 2941 rejects the **mode cas** command.
  - CAS is only supported on pseudowire connections between two Cisco MWR 2941 routers; the 7600 router does not currently support CAS.
- PTP only supported on Gigabit Ethernet interfaces—The Cisco MWR 2941 only supports PTP traffic on onboard Gigabit Ethernet interfaces.
- PPPoA not supported—This release does not provide support for PPPoA.
- ADSL not supported—This release does not support ADSL.
- PTP Master clocking not supported—Release 12.2(33)MRA contains commands to configure the Cisco MWR 2941 as a Master clock. These commands are intended for trial use only and are not designed for use in a production network.
- IP Header Compression not supported—Release 12.2(33)MRA does not support IP Header Compression or distributed IP Header Compression.
- BFD interface support limitations—Release 12.2(33)MRA only supports BFD on switched virtual interfaces (SVIs).

Supported Hardware—Cisco MWR 2941-DC Router

The Cisco MWR 2941 supports the following interface cards:

- HWIC-4T1/E1

Note Release 12.2(33)MRA does not support the HWIC-1GE-SFP, HWIC-D-9ESW, HWIC-4SHDSL, HWIC-1ADSL, and HWIC-1ADSL-I HWICs that were supported in Release 12.4(20)MR1.

The Cisco MWR 2941 router supports the following SFP modules:

- CWDM-SFP-1470
- CWDM-SFP-1490
- CWDM-SFP-1510
- CWDM-SFP-1530
- CWDM-SFP-1550
- CWDM-SFP-1570
- CWDM-SFP-1590
- CWDM-SFP-1610
- DWDM-SFP-4612
- DWDM-SFP-4692
- DWDM-SFP-4772
- DWDM-SFP-4851
- DWDM-SFP-5012
- DWDM-SFP-5092
- DWDM-SFP-5172

- DWDM-SFP-5252
- DWDM-SFP-5413
- DWDM-SFP-5494
- DWDM-SFP-5575
- DWDM-SFP-5655
- DWDM-SFP-5817
- DWDM-SFP-5898
- DWDM-SFP-5979
- DWDM-SFP-6061
- GLC-ZX-SM-RGD
- GLC-LX-SM-RGD
- GLC-SX-MM-RGD
- SFP-GE-L
- SFP-GE-S
- SFP-GE-Z

Other hardware interfaces are not supported.

Caution The Cisco MWR 2941 router does not support online insertion and removal (OIR) of WAN interface cards. Any attempt to perform OIR on a card in a powered-on router might cause damage to the card.

For instructions on how to install HWICs and SFPs, see the documentation included with the product. For information about how to configure HWICs and SFPs, see the *Cisco MWR 2941 Mobile Wireless Edge Router Software Configuration Guide, Release 12.2(33)MRA*.

Supported MIBs

The Cisco MWR 2941 router supports the following MIBs:

- CISCO-ACCESS-ENVMON-MIB
- CISCO-CDP-MIB
- CISCO-CONFIG-COPY-MIB
- CISCO-CONFIG-MAN-MIB
- CISCO-ENHANCED-MEMPOOL-MIB
- CISCO-ENTITY-EXT-MIB
- CISCO-ENTITY-FRU-CONTROL-MIB
- CISCO-ENTITY-SENSOR-MIB
- CISCO-ENTITY-VENDORTYPE-OID-MIB
- CISCO-ENVMON-MIB
- CISCO-FLASH-MIB
- CISCO-IETF-PW-MIB
- CISCO-IETF-PW-TC-MIB
- CISCO-IF-EXTENSION-MIB
- CISCO-IMAGE-MIB
- CISCO-MEMORY-POOL-MIB
- CISCO-PROCESS-MIB
- CISCO-PRODUCTS-MIB
- CISCO-RESILIENT-ETHERNET-PROTOCOL-MIB
- CISCO-RTTMON-MIB
- CISCO-SMI
- CISCO-SYSLOG-MIB
- CISCO-TC
- CISCO-VTP-MIB
- ENTITY-MIB
- HCNUM-TC
- IANAifType-MIB
- IF-MIB
- IMA-MIB
- INET-ADDRESS-MIB
- MPLS-VPN-MIB
- OLD-CISCO-CHASSIS-MIB
- OLD-CISCO-INTERFACES-MIB
- OLD-CISCO-SYS-MIB
- OLD-CISCO-TS-MIB
- PerfHist-TC-MIB
- CISCO-TC
- RMON2-MIB
- RMON-MIB
- SNMP-FRAMEWORK-MIB
- SNMP-TARGET-MIB
- SNMPv2-CONF
- SNMPv2-MIB
- SNMPv2-SMI
- SNMPv2-TC

Caveats

This section documents the open and resolved caveats for the Cisco MWR 2941 router running Cisco IOS Release 12.2(33)MRA and later.

Caveats describe unexpected behavior in Cisco IOS software releases. Severity 1 caveats are the most serious caveats, severity 2 caveats are less serious, and severity 3 caveats are the least serious of these three severity levels. Only select severity 3 caveats are listed.

For information on caveats in Cisco IOS Software Releases 12.4T, go to:

http://www.cisco.com/en/US/products/ps6441/prod_release_notes_list.html

Note If you have an account with Cisco.com, you can use the Bug Toolkit to find caveats of any severity for any release. To reach the Bug Toolkit, log in to Cisco.com and click the **Support** tab and select **Support** from the drop-down menu. Under Frequently Used Resources, click **Bug Toolkit**. You must then log in. Another option is to go directly to: http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl.

The following sections document the opened and resolved caveats by Cisco IOS release:

- Caveats in Cisco IOS Release 12.2(33)MRA, page 13
- Troubleshooting, page 17

Caveats in Cisco IOS Release 12.2(33)MRA

The following caveats apply to Cisco IOS Release 12.2(33)MRA.

Open Caveats

This section lists the open caveats in Cisco IOS Release 12.2(33)MRA.

- CSCtc31618

  Description: LDP session over MLPPP stays down even if the congestion over MLPPP clears.

  Conditions: When the user configures static routes to enable LDP for MPLS over MLPPP and the MLPPP path is congested, the LDP session goes down. If congestion clears or there is no congestion, LDP remains down.

  Workaround: Clear the MLPPP interface using the **clear interface multilink** command.

- CSCtc42045

  Description: An Invalid class_index: error displays when you apply service policy on MLPPP.

  Conditions: When you apply no priority to a priority class in a policy, and no service policy, service policy is applied on the mLPPP, an invalid class_index error displays.

  Workaround: Apply a **shutdown/no shutdown** to the MLPPP interface.

- CSCtd29692

  Description: The output clock for an MWR 2941 acting as a 1588 slave may exceed the specified MTIE requirements in ITU-T G.813 transient response (option 2) when switching from one master clock reference to another.

  Conditions: The issue is only observed on MWR 2941s with RTM hardware revision 2.0. You can view the RTM hardware revision by issuing the **show diag** command.

Workaround: None

- CSCtd58271

  Description: When you configure **mpls ldp explicit-null** on the MWR 2941 router, MPLS packets on a PWE3 circuit are not received. The output of the **show mpls l2 vc 1000 detail** shows zero packets received, as in the following example.

```
Router# show mpls l2 vc 1000 det
Local interface: CE0/0 up, line protocol up, CESoPSN Basic up
  Destination address: 1.0.40.1, VC ID: 1000, VC status: up
    Output interface: Vl555, imposed label stack {45 56}
    Preferred path: not configured
    Default path: active
    Next hop: 30.55.55.1
  Create time: 19:39:24, last status change time: 19:38:00
  Signaling protocol: LDP, peer 1.0.40.1:0 up
    MPLS VC labels: local 16, remote 56
    Group ID: local 0, remote 0
    MTU: local 0, remote 0
    Remote interface description: Provider-0
  Sequencing: receive enabled, send enabled
  Sequencing resync disabled
  VC statistics:
    packet totals: receive 0, send 70823102
    byte totals:   receive 0, send 3121119161
    packet drops:  receive 0, seq error 0, send 0
```

  Conditions: Occurs when you configure the **mpls ldp explicit-null** command.

  Workaround: Enter **no mpls ldp explicit-null** to disable the command.

- CSCtd77552

  Description: In-Band ACR clock recovery failure is caused by using the wrong MPLS label, identified by the following console message:

```
FRI DEC 11 00:11:06 2009: Clock Stream not found. Index: 4294967295  Label: 52  Start
of Payload: 0
```

  Conditions: Occurs when you configure multiple CEM groups and multiple groups (including the group used by the RTM) become active at the same time. The RTM may use the MPLS label supplied by the wrong CEM group.

  Workaround: Disable all CEM groups except the one used by RTM.

- CSCtd79038

  Description: The router returns the following error when you configure the **cns config notify diff interval** command.

```
Router# conf t
Enter configuration commands, one per line.  End with CNTL/Z.
router-2941(config)# cns config notify diff interval 5
router-2941(config)# class-map match-any Voice
router-2941(config-cmap)# match  dscp ef
router-2941(config-cmap)# policy-map in-qos
router-2941(config-pmap)# class Voice
router-2941(config-pmap-c)# set cos 5
class Voice
      ^
% Invalid input detected at '^' marker.
```

  Conditions: This error is observed only when you configure the **cns config notify diff interval** command.

Workaround: Disable the **cns config notify diff interval** command.

- CSCtd83103

  Description: The following symptoms can occur:

  – The MWR 2941 intermittently experiences an unexpected exception after the flash disk is removed. The following log message is observed:

  ```
  Unexpected exception to CPU: vector 200
  ```

  – The console is not responsive and the router cannot boot an image.

  Conditions: Occurs when the flash disk is manually removed or the flash disk is bad.

  Workaround: There is no workaround. To recover from this error, take the following actions:

  1. Power cycle the router.
  2. Verify that router boots the correct image if there is more than one image in flash memory.

  You can also take the following actions to decrease the possibility of encountering this error:

  – Remove the flash disk completely, such that the disk is completely out of the slot.

  – Remove the flash disk within 2 seconds.

  – Do not re-insert the flash disk for at least 2 seconds after removing the disk.

- CSCte26615

  Description: The **show platform hardware rtm** and **show controller rtm** commands do not display the PTP protocol status (ACQUIRING, HOLDOVER, LOCK) in PTP-syncE hybrid mode.

  Conditions: Occurs when the router is configured as a PTP slave device in PTP-synchE hybrid mode. After the initial phase alignment, the hybrid state displays as DONE_ALIGN as long as the syncE clock frequency source is stable, even if the PTP phase connection is lost, such as by shutting the PTP interface or a disrupted connection to the PTP master device.

  Workaround: None.

Resolved Caveats

This section lists resolved caveats from Cisco IOS Release 12.4(20)MR1 or earlier that are resolved in for Cisco IOS Release 12.2(33)MRA.

- CSCta98701

  Description: Ingress QoS packet counters can display an invalid value.

  Conditions: Occurs when dynamically adding or removing class-maps in an ingress QoS policy applied on a Gigabit Ethernet interface.

  Workaround: Issue the **clear counters** command.

- CSCtb89206

  Description: MWR 2941 triggers a software-forced reload indicating WINPATH_2941-2-SYSTEMERR in the console log.

  Conditions: The conditions for this reload are extremely rare and the condition is not reproducible. The reload can occur during periods of low traffic volume with at least one ATM pseudowire configured.

  Workaround: None

- CSCtc09497

  Description: The Cisco MWR 2941-DC returns WP_ERR_WMM_FIFO_GET and WP_ERR_ATMSW_TX_CHANNEL_NEEDS_RX_HANDLE traceback messages when ATM CoS commands are applied to existing Cell Switching ATM PVCs. In addition, the **show controller atm** command displays the following message for some PVCs that were active before ATM CoS commands were applied: `Channel is not created on SAR yet.`

  Conditions: Occurs when the user updates the configuration of a PVC with an ATM CoS configuration, such as by enabling, disabling, or removing an ATM connection.

  Workaround: Remove and restore the PVC configuration.

- CSCtc73643

  Description: Tracebacks can display when you delete and reconfigure an SVI interface.

  Conditions: The issue can occur when you delete and reconfigure an SVI interface configured with the **xconnect** command.

  Workaround: None

- CSCtc79736

  Description: When the VLAN interface MTU size is set to greater than 1600, the router can drop large egress packets.

  Conditions: Occurs when the VLAN interface MTU size is set to greater than 1600.

  Workaround: Set the VLAN interface MTU size smaller or use the default MTU setting of 1500.

- CSCtc97859

  Description: The MWR2941 transmits an ARP request to the ptp-clock source on all configured VLANs. This message can trigger proxy-ARP replies from devices on VLANs on which this ARP request should not be seen.

  Conditions: Occurs when the Cisco MWR 2941 is configured as a 1588 PTP client and the **ptp clock-source** command is configured on a single VLAN.

  Workaround: No workaround

- CSCtd02352

  Description: The Cisco MWR 2941 router can crash during CEM interface configuration when the number of dejitter buffers requested exceeds the available number of buffers in the shared pool.

  Conditions: The Cisco MWR 2941 router has a shared pool of buffers that are used for CEM dejitter buffers. You can use the **show platform hardware winpath iw qnodes | include Local Free Buffer Count** command to display the number of available buffers in the shared pool.

  ```
  Router# show platform hardware winpath iw qnodes | include Local Free Buffer Count
  Local Free Buffer Count: 4096
  ```

  Each CEM interface creates dejitter buffers from this shared pool. For example, the following configuration takes 65 buffers from the shared pool:

  ```
  interface CEM 0/0
  cem 0
  dejitter 64
  ```

  Each CEM interface will deplete the shared pool of buffers. When the number of requested dejitter buffers for a CEM interface configuration exceeds the number of buffers available in the shared pool, the router can crash.

Workaround: Use the **show platform hardware winpath iw qnodes | include Local Free Buffer Count** command to ensure that the CEM configuration does not exceed the number of buffers available in the shared pool.

- CSCtd14234

  Description: The ATM pseudowire VC remains UP on the router when the Shorthaul IMA interface is down due to an alarm condition.

  Conditions: Occurs when the shorthaul IMA interface has an AIS or LOS alarm condition.

  Workaround: Apply a **shutdown/no shutdown** to the IMA interface.

- CSCtd44830

  Description: The console may display an WP_ERR_CH_NOT_DISABLED error when shutting down a multilink bundle.

  Conditions: This problem can occur when the output hold queue is explicitly configured to be greater than 256 and there is congestion on the bundle causing packets to be queued by the outbound channel.

  Workaround: Use the default output hold queue value or configure the output hold queue to be less than or equal to 256. The interface command to configure the output hold queue is **hold-queue 256 output**.

- CSCtd44864

  Description: Under certain conditions, IS-IS adjacencies are not formed on an SVI interface.

  Conditions: The issue occurs on Cisco IOS Release 12.2(33)MRA when IS-IS is configured on an SVI interface with MTU set to 4470 bytes.

  Workaround: Set the interface MTU size to the default 1500 bytes.

- CSCtd47439

  Description: Under certain conditions, the MWR 2941 may experience a software reload upon enabling link noise monitor on a controller.

  Conditions: This issue only occurs upon enabling link noise monitor on an HWIC controller.

  Workaround: Do not configure link noise monitor on an HWIC controller.

- CSCtd58232

  Description: The PTP protocol times out and the PTP slave device cannot lock to the PTP master device.

  Conditions: Can occur when unicast PTP master or mixed mode ptp slave performs multiple ARP requests back-to-back, usually after the 2941 reboots when multiple PTP peers begin PTP negotiation with the 2941.

  Workaround: Restart the failing PTP peer(s) one at a time, in order to avoid simultaneous ARP requests by 2941.

Troubleshooting

The following sections describe troubleshooting commands you can use with the Cisco MWR 2941.

Collecting Data for Router Issues

To collect data for reporting router issues, issue the following command:

- **show tech-support**—Displays general information about the router if it reports a problem.

Collecting Data for ROMmon Issues

To collect data for ROMmon issues, issue the following command while in EXEC mode:

- **show rom-monitor**—Displays currently selected ROM monitor.

Note If you contact Cisco support for assistance, we recommend that you provide any crashinfo files stored in flash memory. For more information about crashinfo files, see http://www.cisco.com/en/US/products/hw/routers/ps167/products_tech_note09186a00800a6743.shtml.

Related Documentation

Related documents for implementing the Cisco MWR 2941 mobile wireless edge router are available on Cisco.com

To access the related documentation on Cisco.com, go to:

http://www.cisco.com/en/US/products/ps9395/tsd_products_support_series_home.html

Documents related to the Cisco MWR 2941-DC mobile wireless edge router include the following guides:

- Cisco MWR 2941 Mobile Wireless Edge Router documents
  - *Cisco MWR 2941 Mobile Wireless Edge Router Hardware Installation Guide*
  - *Cisco MWR 2941 Mobile Wireless Edge Router Software Configuration Guide, Release 12.2(33)MRA*
  - *Regulatory Compliance and Safety Information for the Cisco MWR 2941 Mobile Wireless Edge Routers*
- Release Notes—*Release Notes for Cisco MWR 2941 Mobile Wireless Edge Router for Cisco IOS Release 12.2(33)MRA*
- Cisco Interface Cards Installation Guides
  - *Quick Start Guide: Interface Cards*
  - Cisco Interface Cards Installation Guide

Services and Support

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New* in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Release Notes for Cisco MWR 2941 Mobile Wireless Edge Router for Cisco IOS Release 12.2(33)MRA