Adtran Operating System
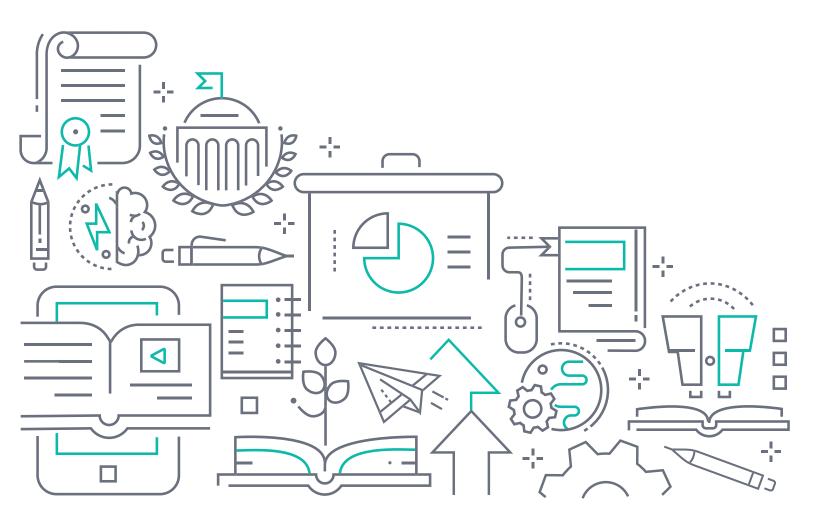
R14.2.1.HA Release Notes

Release Notes

To the Holder of this Document

The contents of this manual are current as of the date of publication. Adtran reserves the right to change the contents without prior notice.

Trademark Information

"Adtran" and the Adtran logo are registered trademarks of Adtran, Inc. Brand names and product names included in this document are trademarks, registered trademarks, or trade names of their respective holders.

Disclaimer of Liability

The information or statements given in this document concerning the suitability, capacity, or performance of the mentioned hardware or software products are given "as is", and any liability arising in connection with such hardware or software products shall be governed by Adtran's standard terms and conditions of sale unless otherwise set forth in a separately negotiated written agreement with Adtran that specifically applies to such hardware or software products.

To the fullest extent allowed by applicable law, in no event shall Adtran be liable for errors in this document for any damages, including but not limited to special, indirect, incidental or consequential, or any losses, such as but not limited to loss of profit, revenue, business interruption, business opportunity or data, that may arise from the use of this document or the information in it.

Be advised that certain security risks are inherent in the use of any telecommunications or networking equipment, including but not limited to, toll fraud, Denial of Service (DoS) attacks, loss or theft of data, and the unauthorized or illegal use of said equipment. ADTRAN OFFERS NO WARRANTIES, EITHER EXPRESSED OR IMPLIED, REGARDING THE PREVENTION, DETECTION, OR DETERRENCE OF TOLL FRAUD, NETWORKING ATTACKS, OR UNAUTHORIZED, ILLEGAL, OR IMPROPER USE OF ADTRAN EQUIPMENT OR SOFTWARE. THEREFORE, ADTRAN IS NOT LIABLE FOR ANY LOSSES OR DAMAGES RESULTING FROM SUCH FRAUD, ATTACK, OR IMPROPER USE, INCLUDING, BUT NOT LIMITED TO, HUMAN AND DATA PRIVACY, INTELLECTUAL PROPERTY, MATERIAL ASSETS, FINANCIAL RESOURCES, LABOR AND LEGAL COSTS. Ultimately, the responsibility for securing your telecommunication and networking equipment rests with you, and you are encouraged to review documentation regarding available security measures, their configuration and implementation, and to test such features as is necessary for your network.

Adtran

901 Explorer Boulevard
P.O. Box 140000
Huntsville, AL 35814-4000
Phone: (256) 963-8000

Copyright © 2023 Adtran, Inc.
All Rights Reserved.

Table of Contents

1. Introduction

AOS version R14.2.1.HA is a maintenance release that addresses bug fixes and customer issues that were uncovered in previous code releases.

This release is generally available code. Results obtained during internal testing have been evaluated and the code has been determined to be ready for general availability. Caveats discovered during testing but not addressed in this build are listed in "Errata" on page 8.

Configuration guides, white papers, data sheets, and other documentation can be found on Adtran's Support Forum, https://supportforums.adtran.com. The contents of these release notes will focus on the platforms listed in "System Notes" on page 12. Additional information specific to AOS is outlined in "System Notes" on page 12.

2. Supported Platforms

Table 1 lists the platforms that are supported in AOS version R14.2.1.HA. To confirm the Boot ROM version of the Adtran unit, Telnet or console to the unit and issue the **show version** command. In the command output, the Boot ROM version will be listed as **Boot ROM version XX.XX.XX**. If you require a Boot ROM upgrade, please contact Adtran Technical Support support@adtran.com or 888-423-8726) for assistance.

Table 1. Supported Platforms

Platform	Standard Feature Pack	Enhanced Feature Pack	SBC Feature Pack	Minimum Boot ROM
NetVanta 3140	✓	✓	✓	R11.5.0
NetVanta 3148	✓	✓	✓	R11.3.0.B3
NetVanta 3200/3205 (3rd Gen.)	✓	✓		17.02.01.00
NetVanta 3305 (2nd Gen.)	✓	✓		04.02.00
NetVanta 3430	✓	✓		13.03.SB
NetVanta 3430 (2nd Gen.)	✓	✓	✓	17.05.01.00
NetVanta 3448	✓	✓	✓	13.03.SB
NetVanta 3450	✓	✓		17.06.01.00
NetVanta 3458	✓	✓		17.06.01.00
NetVanta 4148	✓	✓	✓	R11.3.0.B3
NetVanta 4305 (2nd Gen.)	✓	✓		08.01.00
NetVanta 4430	✓	✓	✓	17.04.01.00
NetVanta 4660		✓	✓	R10.10.0.B5
NetVanta 5660		✓	✓	R11.4.1.B2
NetVanta 6250		✓	✓	R10.9.0
NetVanta 6310/6330		✓	✓	A3.01.B2
NetVanta 6360		✓	✓	R11.2.0
Total Access 900 Series (3rd Gen)		✓		R13.7.0.B1
Total Access 900e Series (3rd Gen.)		✓	✓	R10.9.0

3. Features and Enhancements

General Features in 14.2.1.HA

There are no features introduced in AOS R14.2.1.HA.

General Features in 14.2.1

There are no features introduced in AOS R14.2.1.

General Features in 14.2.0

This section highlights the major features, commands, and behavioral changes for all products running AOS version R14.2.0.

- AD-241683   Enhanced the egress QoS map counters to only look at the Layer 3 header and payload for the byte counters. This change aligns the egress QoS map counters with the ingress QoS map counters.

- AD-241579   Added support for newer revisions of the NetVanta 3140 hardware.

Voice Features in 14.2.0

This section highlights the major voice features, commands, and behavioral changes for all products running AOS version R14.2.0.

- AOS-43668   Added the **rtcp multiplexing** command to allow RTCP to be enabled without enabling RTCP multiplexing.

4. Fixes

General Bug Fixes in 14.2.1.HA

This section highlights major bug fixes for all products running AOS version R14.2.1.HA.

- AOS-43939   Fixed an issue in which the AOS GUI was not functioning correctly and all left-menu sidebar navigation and configuration options were missing, as were relevant system information and other items.

General Bug Fixes in 14.2.1

This section highlights major bug fixes for all products running AOS version R14.2.1.

- AOS-43854   Upgraded to Prototype 1.5.1.2 to address CVE-2008-7220 in the GUI.

- AOS-43830   Fixed an issue in which the current date was displayed for previous day 24-hour intervals on the interface PM counters.

- AOS-43807   Fixed an issue in which a reboot could occur on the NetVanta 3148 and 4148 if Voice Quality Monitoring (VQM) was enabled.

- AOS-43726   Fixed an issue in which the **ping** command had a hard-coded MTU of **1280** for IPv6 pings. That limit has been removed and the interface MTU is now honored.

- AOS-43659   Fixed an issue in which slow transfer rates were seen when transferring files to the unit via SCP using the AOS SCP server.

Voice Specific Bug Fixes in 14.2.1

This section highlights voice specific bug fixes in AOS version R14.2.1.

- AOS-43931   Fixed an issue in which a reboot could occur if VQM was enabled.

- AOS-43882   Fixed an issue in which the time-to-live (TTL) value for DNS SRV records was overwritten by the TTL of A records with the same name. This issue could result in the SRV record not being refreshed before expiration, in which case, the record would drop out of the host table.

- AOS-43856   Fixed an issue in which SIP access classes were not applied to SIP TLS sockets.

- AOS-43837   Fixed an issue in which party B was dropped and party C was placed on hold if a transfer of B to C failed. The correct behavior is for B to remain on hold and for C to be dropped. Additionally, an issue was fixed in which dial tone followed by fast busy was played once party A went off hook after the failed transfer. The correct behavior is for party A to be connected to the party on hold (party B) when going off hook after the failed transfer.

General Bug Fixes in 14.2.0

This section highlights major bug fixes for all products running AOS version R14.2.0.

- AOS-43803   Fixed an issue in which ICMP pings would fail across a VPN and slow throughput could occur on connections without VPN whenever NAT was employed.

- AOS-43654   Fixed an issue in which, on NetVanta 4660 devices, SHDSL ports could report unusual performance monitoring values at 24-hour intervals.

- AOS-43660   Fixed an issue in which the output of the **show ip policy-class host-session** command did not align with the output of the **show ip policy-stats** command.

- AOS-43501   Fixed an issue on the NetVanta 3148 and 4148 in which exceptions could occur if the unit was accessed via HTTPS while VPN tunnels were active.

- AOS-43493   Fixed an issue in which a 404 error was returned when attempting to navigate to the **Storm Control** page in the GUI of a NetVanta 3148 or 4148.

- AOS-43489   Fixed an issue in which the PPP client replied with a LCP Configure-Nak for Challenge Authentication Protocol (CHAP) when CHAP wasn't proposed in the received LCP Configure Request.

- AOS-43463   Fixed an issue in which the ICMPv6 Router Solicitation interval was not **4** seconds as required by RFC 4861.

- AOS-43295   Fixed an issue in which the interface would come not back up until traffic was stopped on a NetVanta 4660 if the port went down while traffic was flowing through it.

- AOS-43264   Fixed an issue in which some QoS map entries were omitted in the adGenAOSQoSMapSeqNum and adGenAOSQoSMapEntrySetName OIDs depending on the order in which the QoS maps were configured.

Carrier Ethernet Specific Bug Fixes in 14.2.0

This section highlights Carrier Ethernet bug fixes in AOS version R14.2.0.

- AOS-43672   Fixed an issue in which the EVC state was reported as **not active** on the first UNI if ELMI was enabled on two UNIs. Additionally, if ELMI was disabled on the second UNI, any changes to the EVC state for the first UNI were not reflected.

- AOS-43351   Fixed an issue in which the ELMI bundling type could not be explicitly configured.

- AOS-43281   Fixed an issue in which a reboot could occur while configuring 200 EVCs on a NetVanta 4660.

Voice Specific Bug Fixes in 14.2.0

This section highlights voice specific bug fixes in AOS version R14.2.0.

- **AOS-43736**   Fixed an issue in which it may not have been possible to break dial tone after a call in which there were multiple reINVITEs that changed the SDP.

- **AOS-43731**   Fixed an issue in which TLS certificate identity validation was run against the IP address when not enabled if the SIP server was configured as a FQDN whose DNS SRV record pointed to hostnames with uppercase characters.

- **AOS-43678**   Fixed an issue in which the FXS port could get stuck in an unusable state until the unit was rebooted if a reINVITE was received immediately after completing a transfer.

- **AOS-43673**   Fixed an issue in which a lockup could occur while processing locally terminated SIP traffic.

- **AOS-43653**   Fixed an issue in which changes to the voice trunk configuration resulted in a SUBSCRIBE being sent without a To tag after a successful registration refresh when using RFC 3680 event package subscriptions.

- **AOS-43650**   Fixed an issue in which RTP was not properly sent or received in certain MGCP call flows.

- **AOS-43522**   Fixed an issue in which TLS connections were established and then torn down after every outbound transaction after a WAN failover event when using **client-only** mode for SIP over TLS.

- **AOS-43503**   Fixed an issue in which a new initial SUBSCRIBE request was not generated upon receipt of a 481 response to a SUBSCRIBE request to refresh the subscription.

- **AOS-43486**   Fixed an issue in which PRACK processing failed when using SIP header passthrough.

- **AOS-43472**   Fixed an issue in which the **sip-header-passthrough both** command was intermittently added to the configuration of SIP voice trunks after a hard reboot.

- **AOS-43465**   Fixed an issue in which anchored RTP may have been sent with a source port of **0** in the UDP header. This issue was introduced in R13.12.0.

- **AOS-43282**   Fixed an issue on the NetVanta 6250 and Total Access 900/900e (3rd Generation) in which, in rare cases, no dial tone was present after hanging up a call and then going off-hook.

- **AOS-43192**   Fixed an issue in which SIP resources were leaked when storing the authentication nonce for reuse. Once all resources had been consumed, the device was unable to send REGISTER requests.

- **AOS-43180**   Fixed an issue in which the SIP TLS session was not cleared by the SIP stack when the firewall removed the policy session for an idle established inbound SIP TLS connection when using SIP TLS in **client-server** mode with the firewall enabled. Over time, this may have resulted in all 24 available SIP TLS connections being consumed, preventing the unit from initiating or accepting new SIP TLS connections until it was rebooted.

5. Errata

General Errata

The following is a list of errata that still exist in all products running AOS version R14.2.1.HA.

- **AOS-43800**   Traffic shaping on VLAN interfaces is not supported on the NetVanta 3148 and 4148.
- **AOS-255105**

- **AOS-43655**   When configured for 10BASE-T on an Ethernet interface, if the link is UP and then the speed on the link partner is changed to something other than 10BASE-T, the interface operational status does not change to DOWN.

■ AOS-43222   An SNMP walk may be unable to return some input or output QoS policies assigned to interfaces if multiple interfaces have both input and output QoS policies assigned.

■ AOS-42891   On the NetVanta 3148 and 4148, the output of **show power inline** lists 12 gigabit-switchports instead of 8.

■ AOS-42633   A reboot may occur when running line rate traffic on the NetVanta 3148 and 4148 through an interface that has an access-policy assigned that contains discard entries.

■ AOS-42583   On the Total Access 900 Third Generation, a remote payload loopback initiated from the DSX interface (**t1 0/2**) does not function properly.

■ AOS-42582   On the Total Access 900 Third Generation, the Network (**t1 0/1**) and DSX (**t1 0/2**) interfaces transmit B8ZS coded signals when configured for AMI coding.

■ AOS-42208   The sequence number in the TCP RST generated by the firewall when clearing a policy-session entry does not comply with RFC 793. This issue occurs when clearing a policy-session entry manually via the CLI and during failover if **ip firewall fast-nat-failover** and/or **ip firewall fast-allow-failover** are configured.

■ AOS-41261   Router advertisements for delegated prefixes assigned to a interface do not use the valid lifetime specified in the received IA_PD Prefix option. **Workaround**: Configure **ipv6 nd prefix named-prefix** *<prefix name> <prefix sub-bits>* for each delegated prefix assigned to the interface.

■ AOS-39470   Making any changes in the GUI for an Ethernet interface configured for DHCP causes the DHCP client to perform a DHCP release/renew on that interface when the changes are applied.

■ AOS-37915   A few legacy cellular interface commands were incorrectly removed when USB LTE support was added. The removed commands include:

   ♦ **snmp trap cellular**

   ♦ **snmp trap link-status**

   ♦ **snmp trap threshold-ecio**

   ♦ **snmp trap threshold-rssi**

■ AOS-37542   The NetVanta 3140 with Novatel USB 551L will dribble a small amount of lost frames with packets smaller than 512 bytes. The loss occurs in the modem. This issue is to document that the Novatel USB 551L modem will drop a small percentage (<1%) of packets. We also found these same drops occur when the 551L is connected to a laptop.

■ AOS-36297   Assigning the IP address 192.168.190.1 to a NetVanta 160 from an AOS controller prevents it from pulling a full configuration from the AOS controller.

■ AOS-30561   If a track is configured to monitor the line protocol of an interface configured for 802.1q, the track will never go into a passing state even the interface is up. This issue does not affect the NetVanta 4660, 5660, or 6360. Workaround: Track the line protocol of the subinterface.

■ AOS-25916   In some command sets, the **exit** command is not visible even though it still functions properly.

■ AOS-20612   Speed and duplex settings are displayed with on MEF Ethernet interfaces in **show running-config verbose** command output, even though those options are not valid and cannot be configured for that type of interface.

■ AOS-19531   In the VQM RTP Monitoring menu, the refresh button refreshes the displayed graphic, but it also duplicates information in the lower part of the menu. In addition, when the cursor hovers over a data point, multiple instances of the same data display.

■ AOS-19492   In the VQM RTP Monitoring menu, the Source IPs and Interfaces menus have invisible data points that appear and display data when the cursor hovers over them. The invisible data point information duplicates a visible data point and can usually be found hidden above the visible data point.

■ AOS-18479   On the NetVanta 3430, the setup wizard in the GUI can freeze with a **Please Wait** message.

- **AOS-14421**   The output of **show qos map interface** *<interface>* shows **ce-vlan-id** instead of **vlan-id** and **ce-vlan-pri** instead of **cos** on products other than the NetVanta 4660.

- **AOS-12266**   On a NetVanta 4430, information for an inserted SFP does not display correctly.

- **AOS-10823**   Ethernet interfaces in third generation Total Access 900e units are not visible in the Data > IP Interfaces GUI menu. These interfaces are visible and can be configured from the System > Physical Interfaces menu instead.

- **AOS-8519**   The Total Access 900e (third generation) and NetVanta 6250 send a cold start SNMP trap on reload instead of a warm start trap.

- **AOS-5741**   On very rare occasions, port T1 3/3 on an Octal T1 NIM can stop negotiating LCP when it is part of an MLPPP bundle. Rebooting the device will restore the interface.

- **AOS-5584**   On the NetVanta 6310 or 6330, if a SHDSL circuit with a detected bad splice retrains to a different line rate, the distance of the bad splice will display incorrectly.

- **AOS-5580**   On the NetVanta 6310 or 6330, if the top level ATM interface on a SHDSL ATM NIM2 module is disabled and re-enabled, the ATM circuit will no longer be able to pass traffic. The Adtran unit must be rebooted to correct the problem.

- **AOS-5577**   When using a T1/E1 EFM NIM2 in the NetVanta 6310 or 6330, the EFM counters do not increment as traffic passes through the device.

- **AOS-5552**   Removing a USB modem from the USB NIM while active could cause the AOS device to reboot. Shutting down the demand interface being used by the modem prior to removing the modem will prevent this reboot.

- **AOS-1780**   Event messages indicating a firmware upgrade was attempted may appear in the AOS event log for NetVanta 160 APs that are not being upgraded.

- **AOS-1653**   Having more than two entries in a Network Monitor ICMP probe test list will display **Tracked by: Nothing** in the **show probe** command output. This is merely a display error; the probes still function correctly.

- **AOS-1124**   VQM may show a loopback interface in the GUI when a loopback interface is not configured.

- **IN-25468**   The **called-number** command on a demand interface does not function properly.

- **IN-24433**   When using XAUTH with a VPN client, an AOS device requests CHAP authentication from the client but does not send a CHAP challenge payload. This can cause issues with VPN clients that expect to receive this payload.

- **IN-23571**   If a USB modem is physically disconnected from a USB WWAN NIM while active NIM is active, the demand interface being used by the modem will not automatically shut down. The demand interface should be disabled before removing the modem to prevent this issue.

- **IN-22458**   On the NetVanta 6310/6330, with FFE enabled, passing traffic from the Ethernet 0/1 interface out an Ethernet NIM2 can cause the Ethernet 0/1 interface to fail. The interface is recovered with a reboot. Disabling FFE on the Ethernet 0/1 interface prevents the issue.

- **IN-18952**   The **vap-reference** command will not replicate VLAN IDs for an AP unless 802.1q encapsulation has been manually enabled on the AP expecting to receive the replicated configuration.

- **IN-18180**   Updating PRL values on a Sprint NetVanta 3G NIM may not function properly.

- **IN-11385**   EAP Identity Responses from a wireless client that do not contain an Identity field can result in the NetVanta 150 creating a malformed RADIUS packet.

- **IN-11377**   NetVanta 150s may not properly handle immediate Access-Accept responses to Access-Request messages.

- IN-10479 The name of a deleted IPv4 ACL cannot be used to name a new IPv6 ACL.

- IN-1020 When a switchport on a NetVanta 3458 is configured for **port-security**, it does not receive BPDUs. If multiple connections between the NetVanta 3458 and another switch are made, a switching loop could occur because both ports will automatically enter a forwarding state even though the Spanning Tree protocol should cause one port to enter a blocking state.

- IA-13463 The output of the command **show ethernet cfm mep local** may show an incorrect maintenance association for a MEPID if multiple maintenance associations are configured on the unit.

Carrier Ethernet Specific Errata

The following is a list of Carrier Ethernet specific errata that exist in products running AOS version R14.2.1.HA.

- AOS-43342 EVC loopback functionality does not work if the UNI interface is down and no SFP is inserted.

- AOS-43266 Y.1721 Ethernet Continuity Check (ETH-CC) frames may not be sent at the configured interval if NTP is not configured or synchronized.

- AOS-43265 On the NetVanta 4660, a small percentage of frames may be discarded if NTP is not configured or synchronized.

- AOS-41517 The Invalid CE VLAN ID counter does not function on the GigabitEthernet 0/1 interface on the NetVanta 4660, 5660, and 6360 because GigabitEthernet 0/1 is not intended for use as a UNI interface on these platforms.

- AOS-22021 The **efm-group** interface type option is missing from the **tunnel source** command on Tunnel interfaces.

Voice Specific Errata

The following is a list of voice specific errata that exist in products running AOS version R14.2.1.HA.

- AOS-43872 In some cases, a call can be abandoned with no feedback to the caller if a server rollover occurrs and SIP-validated failover is enabled.

- AOS-41155 If a voice trunk is removed while calls are active, a reboot may occur.

- AOS-37978 Enabling the SIP stack on a device allocates numerous resources. If this resource allocation fails, the device will reboot. Multiple sockets must be available and local SIP ports, typically UDP and TCP 5060, must be available as well, otherwise the resource allocation will fail and the device will reboot.

- AOS-31081 When using the SIP proxy with media anchoring, VQM reports incorrect information for LocalURI, RemoteURI, and LocalCaller if a reINVITE that modifies the SDP is received from the called party during a call.

- AOS-28378 The **clear sip tls session** command does not function.

- AOS-24657 Issuing the command **clear voice call active** with active MGCP calls may result in a reboot.

- AOS-22835 If **sip tls** is configured while **sip** is disabled, **no sip tls** must be issued before **sip** can be enabled, otherwise the following error will be displayed: %Error: Failed to modify SIP Access-class with new VRF.

- AOS-22597 If a CA profile is removed while SIP TLS calls using that profile are active, BYE messages will not be sent for any of the active calls.

- AOS-22547 The ERL tool is not functional on the NetVanta 6360.

- AOS-21735 On the NetVanta 6360, if the onboard FXO port is configured to receive digits, a 500 ms delay is required after answering before receiving the first DTMF digit.

- AOS-20871   Receiving an initial INVITE with both audio and T.38 SDP will result in the call being placed on hold.

- AOS-10594   In AOS R10.4.0 and higher, modem-passthrough will fail to send a reINVITE to G.711 if the endpoint is configured with a codec-list that does not contain G.711.

- AOS-10216   The command **ip mgcp qos dscp** *<value>* will not take effect until either **ip mgcp** is disabled and then re-enabled or the AOS device is reset.

- AOS-7738   When the SIP server monitor clears the primary SIP server from a delayed state due to a failure of the secondary SIP server, there will be a 60-second delay until a SIP registration is attempted to the primary SIP server. This delay will not occur if the SIP server monitor is clearing the secondary SIP server from a delayed state due to a failure of the primary SIP server.

- AOS-6995   On the Total Access 900e (third generation) and NetVanta 6250, SIP must be enabled in the running configuration whenever MGCP is used for voice.

- AOS-1136   If an Adtran unit is configured with single call appearance mode, forwarded calls on a PRI trunk will fail.

- AOS-1120   When using media anchoring, receiving a 183 Session Progress after a previous 183 on hairpinned calls can result in no early media if the SDP in the second 183 differs from the first.

- AOS-1115   Echo cancellation is not enabled on three-way calls when using the local conferencing feature.

- AOS-1036   With the Adtran unit set for **voice flashhook mode transparent**, the conference originator must wait for the third-party to answer before executing the flashhook to initiate the conference.

- IA-14499   The Total Access 900e Series (second generation) cannot properly handle more than 40 simultaneous E&M RBS calls. More than 40 simultaneously active calls could result in no dial tone or no audio on the last 8 channels.

- IA-8850   On the NetVanta 6310/6330 Series, if a SIP trunk is trying to register a large number of users and the registration fails, activating **debug sip trunk-registration** will cause the Telnet and console connection to become unresponsive. A reboot clears the condition.

6. System Notes

Beginning with AOS version 17.09.01, the syntax of certain commands was modified from previous AOS versions by either removing or adding the **ip** keyword. In general, when the **ip** keyword appears in a command, it signifies that the command is only applicable to IPv4 functionality. As more features introduce IPv6 support, the **ipv6** keyword is added to signify the command is only applicable to IPv6 functionality. The **ip** keyword has been removed from several commands to signify that the command has both IPv4 and IPv6 functionality.

Due to this syntax change, downgrading a unit configured in AOS version R14.2.1.HA to a previous AOS version, could cause service disruption because the new syntax might not be recognized by the previous version. Upgrading a unit from an older AOS version to AOS version R14.2.1.HA will cause no service disruption because both the old and the new syntaxes are accepted. For more information on specific commands, refer to the *AOS Command Reference Guide* available at https://supportcommunity.adtran.com.

It is recommended that your browser's cache be cleared before viewing the GUI after an upgrade.

MGCP is not supported on the NetVanta 6360.

As of R11.8.0, a valid SBC call capacity license is required for SIP B2BUA functionality on the following products:

- NetVanta 6250
- NetVanta 6360
- Total Access 900e (third generation)

7. Upgrade Instructions

Upgrading Adtran products to the latest version of AOS firmware is explained in detail in the configuration guide *Upgrading Firmware in AOS*, available at https://supportcommunity.adtran.com.

8. Warranty and Contact Information

Warranty information can be found online by visiting www.adtran.com/warranty-terms.

To contact Adtran, choose one of the following methods:

Department	Contact Information	
Customer Care	From within the U.S.:	(888) 4ADTRAN ((888)-423-8726)
	From outside the U.S.:	+1 (256) 963-8716
Technical Support	Support Community:	www.supportcommunity.adtran.com
	Product Support:	www.adtran.com/support
Training	Email:	*training@adtran.com*
	ADTRAN University:	www.adtran.com/training
Sales	For pricing and availability:	1 (800) 827-0807