Intel® Express 500 Series Switches
Errata [FW2.70_ERRATA]

12/15/2000

Unable to upgrade firmware from a TFTP server using Intel® Device View

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches.

- **Observation:** Intel® Device View's Firmware Upgrade Wizard cannot upgrade firmware if the TFTP server is running and its root directory is not the firmware directory.

- **Consequence:** The firmware in the switch remains unchanged. If it is a stand-alone switch, no packets are lost and there is no reduction in performance. If it is a switch in a stack, there may be a loss of connectivity or performance because the firmware versions within the stack are different.

- **Workaround:** Do not run the TFTP server while using the Firmware Upgrade Wizard. If the TFTP server is running, ensure that the TFTP server directory contains the file with the same name (that is, es5x0_2.70) as the CD-ROM; that file will then be uploaded by the Wizard and the switch's firmware will be upgraded.

Moving Stacking Cables in a running Switch Stack may cause connectivity issues with one or more Gigabit Modules

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches.

- **Observation:** In a stack of switches containing 1000SX or 1000SX Advanced Modules, the stack may stop forwarding traffic to-and-from the Gigabit port if stacking cables are moved between the Matrix Module ports or a new switch is added to the stack while running.

- **Consequence:** Traffic stops on the Gigabit port until the switch stack is rebooted.

- **Workaround:** Reboot stack after changing and moving stacking cables or adding switches to the switch stack.

Traffic is not re-routed when a Stacking Cable is disconnected from a 1000SX Module or a 1000SX Advanced Module (in a Stack with Link Aggregation)

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches.

- **Observation:** A stack of three switches: two switches have a 1000SX Module or a 1000SX Advanced Module installed, the third has a Matrix Module and the two 1000SX ports are link aggregated. When the Stacking Cable is disconnected from the 1000Base SX port of a 1000SX Advanced Module (or fails), the traffic on the Stack Interface Module port (of that module) will only transmit traffic -- never receive.

- **Consequence:** Users connected to the 10/100Mbps ports will not experience any problems. Of the users connected to the 1000Base SX ports on the modules, approximately 50% of them will lose contact with servers.

- **Workarounds:**
  For all switches: Replace the cable and, if necessary, reboot the switch.
  For 520T, 550T and 550F switches: Follow the instructions in the User Guide in the section 'Cabling to a Matrix Module in a stack of switches with redundancy'. A PDF version of this User Guide is available at:
  http://support.intel.com/support/express/switches/500/manual.htm

Untagged frames (between 1519 and 1522 bytes) are forwarded on the gigabit port

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches.

- **Observation:** This is seen in two situations:
  1. If an invalid untagged packet of length 1522 bytes (including a 4-byte Cyclic Redundancy Checksum) is transmitted from a 10/100Mbps front port, that packet will be forwarded as is, including on the 1000SX Advanced Module. If the same untagged packet is transmitted from the gigabit port on a tagging-enabled 1000SX Advanced module, the packet is tagged and received by other devices as an invalid tagged packet with 1526 bytes in length.
  2. When an untagged frame of length 1519 to 1522 bytes is received by the gigabit port of a 1000SX Advanced Module, the frame is forwarded to the 10/100Mbps front port(s). This happens whether the tagging feature in the 1000SX Advanced Module is enabled or disabled.

- **Consequence:** According to the IEEE 802.1Q standard, this frame should not be forwarded and should be dropped and counted as a 'long'.

- **Workaround:** None. These 'longs' are only transmitted from faulty equipment and are not registered or dropped by this product, but there is a strong possibility that other devices in the network will drop these frames.

Port Mirroring not saved to flash

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches

- **Observation:** In the Device Setup configuration, Port Mirroring settings will not be saved to flash and will thus be lost when switch is rebooted. This is because port mirroring is regarded as a temporary troubleshooting tool.

- **Consequence:** When a switch is rebooted, any port mirroring configuration will not be retained.

- **Workaround:** None.

ATM Link Status is not updated in Standalone Mode

- **Products affected:** Intel® Express 510T, 520T, 550T or 550F Switch containing an ATM module.

- **Observation:** When an ATM Module is used in standalone mode (not in a stack), the Link Status of the ATM Module as reported in Intel® Device View does not reflect the link status on the module.

- **Consequence:** The Link Status of the ATM Module shown in Intel® Device View is not reliable.

- **Workaround:** To view the actual link status, refer to the link status LED on the module.

Routing between VLANs using Distance Vector Multicast Routing Protocol (DVMRP)

- **Products affected:** Intel® Express 550T and 550F Routing Switches.

- **Observation:** The switch accepts a route report from a neighboring device without receiving a DVMRP probe from that neighbor. DVMRP requires neighboring devices to send DVMRP probes before they send route reports to the switch. If no DVMRP probe is received, the switch normally discards the route report.

- **Consequence:** It is unlikely that there will be any problems if no DVMRP probe is received.

- **Workaround:** None.

Routing between VLANs using IGMP and DVMRP

- **Products affected:** Intel® Express 550T and 550F Routing Switches.

- **Observation:** IGMP/DVMRP packets with an illegal checksum are not ignored by the switch. This is unlikely to occur since these packets can only come from a device with a faulty protocol implementation.

- **Consequence:** If the packet is a route report, for example, information in the network tables report may be corrupted. This is not a problem that should cause you any concern.

- **Workaround:** None.

Validation Checks on IP Packets

- **Products affected:** Intel® Express 550T and 550F Routing Switches.

- **Observation:** The switch does not complete all the checks to validate the addresses (source and destination) in IP packets and, therefore, does not discard some packets. For example, if the routing table contains the following network: 10.1.0.0/255.255.0.0, the following packets are not discarded:

  - Source address with all zeros or all ones in the host part: 10.1.0.0 or 10.1.255.255

  - Destination address with all zeros in the host part: 10.1.0.0

- **Consequence:** This will not cause any problems in the switch or the network -- the switch just forwards the packet as if it was valid.

- **Workaround:** None needed.

Stack Interface Port Policies in VLAN Setup

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches

- **Observation:** The stack interface policy counts as six policies in the VLAN configuration.

- **Consequence:** This will reduce the maximum number of additional policies (for example, MAC address policies) in one VLAN from 200 to 194. This may affect configurations with a large number of MAC address policies or IP address policies.

- **Workaround:** In a switch stack containing a Matrix Module, the Stack Interface policy should be deleted to allow up to 200 policies per VLAN. In a "back-to-back" configuration (two switches connected directly through Stack Interface Modules), the policy cannot be removed.

Spanning Tree Protocol (STP) learning

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches

- **Observation:** During STP learning, none of the stations are learned on a port -- they are only learned in the forwarding state. This is not compliant with IEEE 802.1d.

- **Consequence:** The first frame will be dropped after the Spanning Tree protocol enters the forwarding state.

- **Workaround:** Enable forwarding of learned packets (because packets will then be forwarded at the same time as they are learned).

IGMP pruning on multiple switches

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches

- **Observation:** Two switches (A and B) are directly connected to each other and both have Internet Group Message Protocol pruning (for IP Multicast) enabled. If a Transmitting device is connected to Switch A and a Receiving device is connected to

Switch B, the IGMP report and IGMP leave packets are only forwarded to VLAN ports that have been auto detected as IP multicast router ports.

- **Consequence:** The Receiving device will not receive any data from the Transmitting device.

- **Workaround:** There are three possible solutions:

    1. Connect the Transmit and Receive devices to the same switch.

    2. Connect the Receive device to the switch, connect the switch directly to an auto detected, IP multicast router and then connect the Transmit device to the router.

    3. Disable IGMP pruning on one of the switches.

Use of Local Management for configuration

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches

- **Observation:** The use of Local Management (menu system via the console port or telnet) for configuration has three limitations.

- **Consequence:** The three limitations mean:

    1. Local Management has limited configuration capabilities when compared to Intel® Device View (the graphical user interface).

    2. Intel® Device View might not automatically detect changes made using Local Management.

    3. Changes made in Local Management only affect that switch. If that switch is in a stack, this may result in an unsynchronized or nonfunctioning stack.

- **Workarounds:** Recommendations:

    1. Only use Local Management for configuration when the use of Intel® Device View is not possible.

    2. Do not change or reset settings in Local Management while using Intel® Device View.

    3. Only use Local Management to configure stand-alone switches (not a stack of switches).

ATM port STP configuration

- **Products affected:** Intel® Express 510T, 520T, 550T or 550F Switch containing an ATM module.

- **Observation:** Spanning Tree parameters for the ATM port cannot be reconfigured.

- **Consequence:** The port is permanently configured with the recommended default values in IEEE 802.1d.

- **Workaround:** Use bridge priority in other bridged devices to avoid the ATM module becoming the root bridge.

ATM port STP monitoring

- **Products affected:** Intel® Express 510T, 520T, 550T or 550F Switch containing an ATM module.

- **Observation:** There are some monitoring limitations with the ATM ports in the switch:

1. Spanning Tree state is always shown as 'forwarding'. The values shown are wrong, but the actual settings are correct.

2. In standalone mode, the link state is always shown 'up'. The values shown are wrong, but the actual settings are correct.

- **Consequence:** This means:

  1. The spanning tree state for an ELAN cannot be monitored.

  2. You cannot see if there is a link on the ATM port.

- **Workaround:** None available.

Link aggregation in a stack of switches

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches

- **Observation:** In a setup with two link aggregated 1000Base modules and an ATM module in a stack of switches, there are limitations for frame forwarding between the ATM and 1000Base ports.

- **Consequence:** Frames received on the non-Anchor port are discarded

- **Workaround:** Never link aggregate 1000Base ports, when using an ATM Module in the same stack.

Changing the name of a VLAN

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches

- **Observation:** You can only have 19 characters in 'VLAN Name'.

- **Consequence:** This is one less than the number stated in the User Guide.

- **Workaround:** Shorten the name of the VLAN by one character.

Lower performance during Change-over in a Redundant Stack

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches

- **Observation:** When a failover occurs in a redundant stack, the forwarding of the Layer 3 packets may drop to approximately 20% of the expected performance. This condition can last up to 10 minutes.

- **Consequences:** Lower performance because the switch's protocols 'buffer' the traffic transmitted during the change-over, but there are no packets lost.

- **Workaround:** None available. The issue only occurs during failover.

Number of VLAN policies and stations learned on a port

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches

- **Observation:** If 'Number of VLAN policies' multiplied by 'Maximum number of stations learned on a port' is equal to 200 000 or more, the switch may 'crash' at port link up/down. For example, 4000 stations x 50 policies.

- **Consequence:** Connection to the network is lost through this switch (until the switch is rebooted).

- **Workaround:** Reduce either the number of VLAN policies or the maximum number of stations learned (connected) on a port.

Failing initialization of Matrix Module on power-up cycle

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches

- **Observation:** When the power is down for a very short time in a switch stack, the Matrix Module may not be properly initialized.

- **Consequence:** This may result in the module not operating, or the switch containing the module may fail (a red status LED).

- **Workaround:** When power cycling a switch stack, ensure that the switch containing the Matrix Module is powered-down for at least 15 seconds.

Restoring a VLAN configuration from Flash

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches

- **Observation:** In a stack of switches in Distributed VLAN mode you change the VLAN configuration (including changing the VLAN mode to Stand-alone) and then decide these changes are not needed. You then try to restore the previous VLAN configuration from the Flash Memory; on rare occasions, the switch may not restore this configuration.

- **Consequence:** The previous VLAN configuration has not been restored, but this can be retrieved by using one of the methods in 'Workaround'.

- **Workaround:** This only happens when the switches in the stack are the only switches in the Distributed VLAN. There are two possible solutions:

    1. Reset the stack.

    2. Reload the VLAN configuration from Flash Memory for a second time.

STP protocol and Receive Values

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches

- **Observation:** The STP protocol may make a minor truncation error on received timing values. If the received value is NOT a multiple of 1/8th of a second, the reported values will be changed by 1/256th of second.

- **Consequence:** This has no impact on the protocol and the values will not be changed if running with default timer values. This is only detected using elaborate test tools and it has no effect on the efficiency of the switch or network.

- **Workaround:** None.

Redundant 1000Base Modules recovery after failed operation

- **Products affected:** Intel® Express 510T, 520T, 550T and 550F Switches

- **Observation:** When running a redundant switch stack including Gigabit modules, a change back to normal operation after a failover situation may lead to a non-functioning Gigabit connection.

- **Consequence:** This may cause the Gigabit module in slot A to not work properly, after the secondary stack side in the B slots has been in operation due to a temporary failure in the primary stack side.

- **Workaround:** Reboot the stack after a temporary failure.

Precautions when connecting Redundant Stacks or Switches using a 1000-Base Module without Auto-negotiation

- **Products affected:** Intel® Device View managing Intel® Express 510T, 520T, 550T and 550F Switches.

- **Observation:** Failover occurs in the stack if a Stacking Cable is defective or removed from a 1000-Base Module. Ideally, failover should occur if the Gigabit cable is

removed, but this does not happen if auto-negotiation is disabled. For example, if auto-negotiation is disabled and a single fiber is defective or a TX plug is removed, failover does not occur.

- **Consequence:** Because one of the two plugs is still connected and auto-negotiation is disabled, the switch still detects a link pulse from the device at the other end of the fiber and does not failover. You will not have redundancy -- as you expected to -- and your users will lose traffic.

- **Workaround:** Enable auto-negotiation on Gigabit ports to provide redundancy.

Connectivity through 1000SX and 1000SX Advanced Modules in a Stack containing two switches

- **Products affected:** Intel® Device View managing Intel® Express 510T, 520T, 550T and 550F Switches

- **Observation:** Two switches in a compressed stack: each containing a 1000-Base Module (1000SX or 1000SX Advanced Module). Connect to the 1000-Base Module that is **not** in the same switch as the Matrix Module. In Intel® Device View, restore to factory default and save the configuration: you can still make changes to the stack configuration. If you reboot the stack later, you cannot manage the stack using Intel® Device View because the Matrix Module is no longer in compressed stack mode. (However, you can manage and configure local settings in the device that is connected to Intel® Device View.)

- **Consequence:** You will still see traffic and, for example, Flow Control functioning on the switch connected to your Intel® Device View. However, you cannot reconfigure the stack using Intel® Device View.

- **Workaround:** Connect to the 1000-Base Module in the switch containing the Matrix Module, reboot the switches and configure the Matrix Module to compressed stack mode.

Incorrect configuration version after returning to factory default

- **Products affected:** Intel® Device View managing Intel® Express 510T, 520T, 550T and 550F Switches.

- **Observation:** If the switches in a stack are the only devices in a distributed VLAN when you reset the stack configuration to Factory Default, one of the switches might fail to accept the expected configuration. This is a rare occurrence because there is no advantage in having the switches in a stack in a distributed VLAN.

- **Consequence:** The switch which failed to accept the factory default configuration will also fail to accept any further updates of the configuration.

- **Workaround:** Reboot the stack of switches.

Connectivity and traffic forwarding may be lost if a stack command is sent to a stack too soon

- **Products affected:** Intel® Device View managing Intel® Express 510T, 520T, 550T and 550F Switches.

- **Observation:** If you send a Stack Command to a stack of switches using Intel® Device View a short time after you make a configuration change to the stack, you may lose connectivity and traffic forwarding within the stack may also stop. The Stack Commands are: Save to Flash, Load from Flash, Return to Factory Default and Backup to/from Disk.

- **Consequence:** You will not be able to manage the device using Intel® Device View and the users connected to that stack of switches will not be able to send or receive traffic.

- **Workaround:** Wait at least 15 seconds for the stack to stabilize after making a configuration change; you can then issue a Stack Command.

Web Cache Redirection and 10/100TX Module for 500 Series Switches in Intel® Device View

- **Products affected:** Intel® Device View managing Intel® Express 550T and 550F Routing Switches.

- **Observation:** While configuring Web Cache Redirection for a 10/100TX Module, the ports are listed by their port number (A1-A4, B1-B4) and not their name.

- **Consequence:** While you expect to see the name, this causes no problems. After you have selected the port, it is correctly configured for the caching operation.

- **Workaround:** None.

Switch Health in Intel® Device View

- **Products affected:** Intel® Device View.

- **Observation:** The value in the Utilization field in Intel® Device View (Monitoring > Switch Health) is always lower than the actual value.

- **Consequence:** There is actually more traffic passing through the switch than shown in this field.

- **Workaround:** None.

Erroneous warning during Backup and Restore

- **Products affected:** Intel® Device View managing Intel® Express 510T, 520T, 550T and 550F Switches.

- **Observation:** During backup and restore of the switch configuration, you may see a warning about lost connectivity. This warning is incorrect -- you still have connectivity.

- **Consequence:** Connectivity has not been lost.

- **Workaround:** None needed.