# Release Notes for PICOS 2.11

These notes summarize PICOS 2.11 new features, new hardware, known bugs, and bug fixes. Best practices recommend that you read all the content before upgrading to this release. For more detailed feature information, refer to the configuration guides.

## New Software Features

### Layer 2 and Layer 3

<table>
<thead>
<tr>
<th>Bug ID</th>
<th>Release</th>
<th>Description</th>
</tr>
</thead>
</table>
| 8008   | 2.11.0  | Disable/Enable IP Routing  
Add a command which can globally enable/disable IP routing. By default, IP routing is disabled. |
| 8127   | 2.11.0  | Limit Maximum Number of VRRP Interfaces  
User can configure maximum 128 VRRP interfaces which is also the maximum number of L3 interfaces. |
| 8159   | 2.11.0  | Tagged/Untagged with Voice-VLAN  
If configured "tagged" on a specific port for voice-vlan, will include voice-vlan in the Network Policy TLV sent to the connected endpoint device such as IP phone. And only frames tagged with voice-vlan are sent out to the connected IP phone. Otherwise, Network Policy TLV doesn't include the voice-vlan. And untagged frames are sent out to the connected IP phone. |
| 8202   | 2.11.0  | PVST Manual-Forwarding  
Allow user to configure manual-forwarding on a port enabled PVST. |
| 8314   | 2.11.0  | TACACS+ Failover Enhancement  
Try TACACS+ servers one by one to do authentication if number of TACACS+ servers configured. Local authentication is used only if all TACACS+ servers are not reachable. If the TACACS+ server is not reachable for authorization, will go back to Linux shell. But in the case that PicOS enters CLI directly, will log off. |
| 8345   | 2.11.0  | MSH8920 - BPDU & LACP Tunneling on Static LAG  
On MSH8920, allow user to configure BPDU & tunneling on static LAG port. |
| 8422   | 2.11.0  | Enhancement for PVST/MSTP information in tech_support  
Include complete PVST/MSTP information on each VLAN and interface in the tech_support log file. |
| 8525   | 2.11.0  | Refreshing MAC Learning on MLAG Pair Switches  
To make sure consistence of MAC table between the 2 MLAG switches, MAC addresses on one MLAG switch will be refreshed depending on the MAC addresses on the peering MLAG switch every 30 minutes. |
| 8542   | 2.11.0  | Remove SSH/Telnet Connection Number Limiting  
The connection number of SSH/Telnet can be unlimited by setting the rate-limit of SSH/Telnet as 0. |
| 8546   | 2.11.0  | PoE - Power Negotiation  
To support power provision via PoE for Cisco 8861 VoIP phone with 8860 key expansion, support power negotiation via LLDP optional 802.3 Power-via-MDI TLV. |
<table>
<thead>
<tr>
<th>Page No</th>
<th>Section</th>
<th>Feature Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8605</td>
<td>2.11.0</td>
<td><strong>Show Entire Spanning-tree PVST Information</strong>&lt;br&gt;Add new command - &quot;show spanning-tree pvst interface vlan all&quot; - to display the entire spanning tree PVST information in addition to per-VLAN PVST information.</td>
</tr>
<tr>
<td>8658</td>
<td>2.11.0</td>
<td><strong>DHCP Snooping over MLAG</strong>&lt;br&gt;With DHCP snooping enabled on the MLAG pair switches, ensure DHCP DISCOVERY can go up to DHCP server via trust ports and similarly DHCP OFFER can go down to hosts via MLAG ports.</td>
</tr>
<tr>
<td>8755</td>
<td>2.11.1</td>
<td><strong>Kontron - CDP and LLDP Tunneling</strong>&lt;br&gt;Add CDP and LLDPDU tunneling in addition to BPDU and LACP tunneling.</td>
</tr>
<tr>
<td>8826</td>
<td>2.11.1</td>
<td><strong>Boeing - Add new OIDs to UCB MIB</strong>&lt;br&gt;Add new OIDs to UCB SNMP MIB:&lt;br&gt;- CPU - ssCpuRawSystem, ssCpuRawIdle&lt;br&gt;- Memory - memTotalReal, memAvailReal, memTotalFree</td>
</tr>
<tr>
<td>8868</td>
<td>2.11.4</td>
<td><strong>OEM - Display timestamp in syslog Message in Millisecond</strong>&lt;br&gt;Keep local syslog message and remote syslog message with consistent format. Format the timestamp into milliseconds for the local and remote syslog message. It's a customization feature for Verizon-ITNUC/Boeing.</td>
</tr>
<tr>
<td>8818</td>
<td>2.11.4</td>
<td><strong>OEM - Show System Date in Milliseconds</strong>&lt;br&gt;Display the date/time in milli-seconds, which is supported in the OEM version for Verizon-ITNUC/Boeing.</td>
</tr>
<tr>
<td>8820</td>
<td>2.11.4</td>
<td><strong>Remark DSCP with ACL Rule</strong>&lt;br&gt;Apply action of DSCP remarking to ACL rule with command alike &quot;set firewall filter xx sequence xx then dscp xx&quot;</td>
</tr>
<tr>
<td>8821</td>
<td>2.11.4</td>
<td><strong>Configure rate-limit on Egress Queues</strong>&lt;br&gt;Allow to apply rate-limit on each egress queue of a physical interface. It indicates that the traffic in a specific egress queue that exceeds the configured rate-limit will be dropped.</td>
</tr>
<tr>
<td>8947</td>
<td>2.11.4</td>
<td><strong>GE Interfaces on AG5628 and AS7312</strong>&lt;br&gt;Allow to configure the speed of 25G interfaces of hardware models with Tomahawk+ - AS5648 and AS7312 - to 1Gbps.</td>
</tr>
<tr>
<td>8967</td>
<td>2.11.4</td>
<td><strong>Send Traps if CPU Utilization Threshold is Exceeded</strong>&lt;br&gt;For seek of TCA (Threshold Crossing Alarm), switch will send SNMP traps for CPU threshold when&lt;br&gt;- Total CPU utilization rises above high_threshold&lt;br&gt;- Total CPU utilization falls below low_threshold&lt;br&gt;high_threshold and low_threshold can be configured.</td>
</tr>
<tr>
<td>8977</td>
<td>2.11.4</td>
<td><strong>Issue a SNMP Trap if L2 Table Threshold is Exceeded</strong>&lt;br&gt;For seek of TCA (Threshold Crossing Alarms), switch will send SNMP traps if threshold of L2 table is exceeded. The threshold is defined as the percentage of maximum capacity of L2 table. User can change the threshold.</td>
</tr>
<tr>
<td>8989</td>
<td>2.11.4</td>
<td><strong>Allow Hyphen &quot;-&quot; in VLAN Name</strong>&lt;br&gt;Allow to include hyphen &quot;-&quot; in VLAN name such as following command, admin@Xorplus# set vlans vlan-id 10 vlan-name &quot;office-sales&quot;</td>
</tr>
<tr>
<td>8990</td>
<td>2.11.4</td>
<td><strong>Add entPhysicalTable per RFC 6933</strong>&lt;br&gt;Support entPhysicalTable (such as entPhysicalDescr, entPhysicalSoftwareRev, entPhysicalSerialNum, entPhysicalMfgName, entPhysicalModelName) included in SNMP Entity MIB (RFC 6933).</td>
</tr>
<tr>
<td>Page</td>
<td>Section</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>---------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| 9665 | 2.11.4 | **Support UPoE**  
Support UPoE on N3048EP-ON and AS4610-54P and AS4610-30P. |
| 7654 | 2.11.7 | **Configure Rate Limit by Reference of Percentage**  
Allow user to configure rate limit on a specific port by reference of percentage of the maximum speed which can be supported by the port. |
| 9024 | 2.11.7 | **Add auto Mode to Voice VLAN**  
Add support for voice-vlan "auto" mode in addition to "untagged" and "tagged" modes. By default, auto mode is enabled on a port configured voice VLAN. Under auto mode, for attached endpoint device that are LLDP-MED capable, voice traffic is requested to be tagged with voice VLAN; otherwise, Voice traffic from attached endpoint devices that are not LLDP-MED capable will be untagged. |
| 9150 | 2.11.7 | **Disable SNMP Traps Related to LLDP**  
Add a command to allow user to disable SNMP trap related to LLDP as following:  
```
set protocols lldp snmp-trap false
```
| 9166 | 2.11.7 | **Enhancement on Displaying PoE Information**  
Add 2 columns, "Reserved" and "PD-Class", to the output of "run show poe interface XXXX". |
| 9222 | 2.11.7 | **IGMP Snooping over MLAG**  
If enable IGMP snooping on both MLAG spine switches, IGMP messages including report and query and leave received from an MLAG port on one spine switch should sync up with the peer spine switch which will updates multicast group information. The sources and clients of one multicast group attached to MLAG spine or leaf switches can communicate with each other. |
| 9284 | 2.11.7 | **TACACS+ - Add New Command local-auth-fallback**  
Configure and enable TACACS+. Login to PicOS On in-band/management interface. If TACACS+ server is not reachable or unavailable, will allow to fallback to local authentication if local-auth-fallback enabled. |
| 8590 | 2.11.7.2 | **Press "Enter" key to stop the process of upgrade2**  
The process of upgrade2 can be aborted before reboot into the update version of PicOS with the prompt message "PRESS ANY KEY TO STOP REBOOT". |
| 9047 | 2.11.7.2 | **Configure the rate-limit of filter rules by reference of kbps**  
Allow to configure rate-limit of ACL filter rules by reference of kbps in addition to pps. |
| 9687 | 2.11.14 | **Set Auto Negotiation Speeds**  
Allow user to configure the speeds which can be advertised to the connected device under auto-negotiation mode. |
| 9744 | 2.11.14 | **Performance Refinement - ARP Handling**  
Reduce the time to handle the packet-in ARPs. Allow larger number of protocol packets destined to CPU. |
| 9676 | 2.11.14 | **Performance Refinement - Sync up ARP on Active-Active VRRP Devices**  
The time used to syn up ARP on active-active VRRP devices is reduced drastically. |
| 9151 | 2.11.10 | **Support VRRPv3**  
PicOS supports both VRRPv2 and VRRPv3. The advantage of VRRPv3 is that it supports both IPv4 and IPv6 address families. |
| 9614 | 2.11.11 | **MLAG - Sync up MAC Addresses Learned on Orphan Ports the Peer Switch**  
MAC addresses which are learned on the single-homed ports of one spine switch of MLAG should be synchronized to the peer-link port of the other spine switch. |
| 8952 | 2.11.9 | **Add a Description Field after the Command "run request system reboot"**  
Add a description field after the command "run request system reboot" and add this text to the log message. This help Operations track the reason for the reboot through log messages. |
MSH8920 - Extend L2-transparency to cover LLDP and CDP

L2-transparency is enabled for LLDP and CDP. Namely, if "set protocols lldp|cdp message-in disable true", the frames of LLDP and CDP will be flooded out of the switch instead of being trapped to CPU.

802.1X - Support MAB Authentication, Dynamic VLAN and CoA Function

Extend the 802.1X feature to support MAB authentication, dynamic VLAN and CoA function.

### OVS and OpenFlow

<table>
<thead>
<tr>
<th>Bug ID</th>
<th>Release</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6867</td>
<td>2.11.0</td>
<td>OVS 2.6 Upgrade</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The base code of OVS is upgraded to open source OVS 2.6. There are some feature differences with open source OVS 2.3. We add command which used to switch to the base code of open source OVS 2.6. Have the details at, <a href="http://intranet.pica8.com/display/PicOS211sp/Switching+Open+vSwitch+version">http://intranet.pica8.com/display/PicOS211sp/Switching+Open+vSwitch+version</a></td>
</tr>
<tr>
<td>7988</td>
<td>2.11.0</td>
<td>Enable/Disable CoS with VLAN PCP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Under OVS mode, frames can go to different egress queues depending on CoS mapping with VLAN PCP (Priority Code Point). For example, if PCP value 5 is mapped to queue 6, the frame with PCP value 5 will enter egress queue 6. By default, the CoS mapping with VLAN PCP is disabled. All frames of which the PCP values are changed to 0 are put in queue 0.</td>
</tr>
<tr>
<td>8258</td>
<td>2.11.0</td>
<td>Add New Match Modes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Add new match modes for LuxarTech NPB application such as mac_x, ip_x and l2l4. Have details at, <a href="http://intranet.pica8.com/display/PicOS211sp/Optimizing+TCAM+Usage">http://intranet.pica8.com/display/PicOS211sp/Optimizing+TCAM+Usage</a></td>
</tr>
<tr>
<td>8308</td>
<td>2.11.0</td>
<td>VNTAG Support</td>
</tr>
<tr>
<td></td>
<td></td>
<td>User can match VNTAG fields in a flow entry. Additionally, ECMP and LAG hashing can be calculated based on VNTAG fields.</td>
</tr>
<tr>
<td>8346</td>
<td>2.11.0</td>
<td>Configure Polling Interval on Interface/Flow Counter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Allow user to set the update interval of counters of interface or flow.</td>
</tr>
<tr>
<td>9477</td>
<td>2.11.11</td>
<td>Set Rate-limit on Port under OVS Mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Limit maximum rate on specific port under OVS mode.</td>
</tr>
<tr>
<td>9169</td>
<td>2.11.8</td>
<td>Command &quot;switch-to-ovs-2.6&quot; Fails</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PicOS 2.11.x has 2 versions of OVS - 2.3 and 2.6. Command &quot;switch-to-ovs-2.6&quot; is used to switch to OVS 2.6 from OVS 2.3.</td>
</tr>
</tbody>
</table>

### Linux Platform

<table>
<thead>
<tr>
<th>Bug ID</th>
<th>Release</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8395</td>
<td>2.11.0</td>
<td>upgrade2 – New Way of Upgrade</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Add an extra upgrade tool - upgrade2. If upgrade goes wrong with upgrade2 because of unexpected reason, will return to the current version of PicOS.</td>
</tr>
<tr>
<td>8721</td>
<td>2.11.1</td>
<td>Kontron - Upgrade Linux Kernel to LTS Version</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Upgrade the Linux Kernel to a long-term support version - 4.14.3.</td>
</tr>
<tr>
<td>8757</td>
<td>2.11.1</td>
<td>Kontron - Dump Binary Data of FPGA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provide access to the whole register for FPGA in sysfs, <code>admin@Xorplus$hexdump -C -s 0x31 -n 1 /sys/class/fpga/fpga0/raw</code></td>
</tr>
</tbody>
</table>
**Add New Option to upgrade2**

upgrade2 takes the current configurations and moves to upgrade version. It's possible that there are deprecated or unsupported configurations from a version change such as from 2.12 to 2.11. Provide new option and allow upgrade version to ignore the deprecated or unsupported configurations.

Additionally, allow picos-rollback to take the current configuration to previous version. And the previous version can also ignore the deprecated or unsupported configurations.

**Display Content of System EEPROM**

Add a new sysfs file - /sys/class/hwinfo/onie-syseeprom - to display the content of system EEPROM.

**Enable OverlayFS on N3048EP-ON**

OverlayFS is a memory based file system, which can cache any write operation without write the data onto the underlying physical storage. OverlayFS is a different way to load PicOS on the switches which do not come with USB based NAND such as N3048EP-ON.

**Update Authentication Behavior of TACACS+/RADIUS**

Authentication behavior of TACACS+/RADIUS is updated as following:

- On console port, if TACACS+/RADIUS service is reachable, user can only be authenticated against TACACS+/RADIUS server. Otherwise if TACACS+/RADIUS service is unreachable, issue a log message and fallback to local authentication.
- On management interface, whether in-band or out-of-band, if TACACS+/RADIUS service is reachable, user can only be authenticated against TACACS+/RADIUS server. Otherwise if TACACS+/RADIUS service is unreachable, issue a log message and do nothing else.

**Disable upgrade1 on MSH8920**

On MSH8920, upgrade1 is disabled. Only upgrade2 is available. Additionally, the step in upgrade2 to prepare backup partition is removed because that might take much longer to trigger watchdog to reboot. And the backup partition is only needed for upgrade1.

**convert the 2.11.7.2 pica_startup.boot to 2.7.2S1F**

Add a tool - convert-conf - which is used to remove the configuration items in 2.11.7.2 pica_startup.boot which are unknown for 2.7.2S1F. Add an option to upgrade2 to allow user to specify the startup configuration file which will be brought back to 2.7.2S1F.

**Add PoE checking to system-diag**

PoE checking is added system-diag which is executed before starting PicOS.

**Keep Specified Backup Files when Upgrade to New Version**

Add an option to upgrade/upgrade2 to allow user to specify a file list which will be kept when upgrade to new version. After add and delete multicast route

**MSH8920 - Upgrade2 is Broken by Watch Dog Resetting**

The watch dog is started in uboot on MSH8920. It takes so long to prepare the backup partition due to upgrade2 that watch dog resets the CPU and then reboots the system. So a watch dog refreshing demon is added to send keeping alive messages to the watch dog immediately after Linux platform boots up.

**MSH8920 - Add Wtmp Rotation to Crontab**

By default, CRON will check the size of /tmp/log/wtmp every 5 minutes. If its size is larger than 5M, rotation will be executed. User can adjust the interval and the size for /tmp/log/wtmp by modifying /etc/crontab and /etc/logrotate2.conf.

---

### Bug List

<table>
<thead>
<tr>
<th>Bug ID</th>
<th>Release</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9251</td>
<td>2.11.14</td>
<td>Port to Dell N3048EP-ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Please refer to the document Release Notes for PICOS 2.11.</td>
</tr>
</tbody>
</table>
### Fixed Issues

#### System Management

<table>
<thead>
<tr>
<th>Bug ID</th>
<th>Release</th>
<th>Description</th>
</tr>
</thead>
</table>
| 7803   | 2.11.0  | Support AG7648  
The AG7648 is top of rack (ToR) switch designed for data centers. It has 48 10GbE SFP+ ports and six 40GbE QSFP ports. The AG7648 provides comprehensive hardware capability on supporting layer 2 and layer 3 features. |
| 8285   | 2.11.0  | Clean up the Data when Remove an User  
Clean up the corresponding data at /pica/config if an user is removed. |
| 8559   | 2.11.0  | MSH8920 - Configure FEC on 10G Fabric  
Enable/Disable FEC on 10G fabric ports, which is only available on MSH8920. |
| 8604   | 2.11.0  | Indicate That the Interface is Down Due to BPDU Guard  
If an interface is brought down by BPDU guard, include the information in the output of "show interface .....". |
| 8754   | 2.11.1  | Kontron - Present portmap Running Configuration  
Present portmap setting even if default value - 9x40G_FABRIC - configured with "show | display all". |
| 8784   | 2.11.1  | Kontron - keep executing the rest of the commands in the execution file even if encounter the "same value"  
The execute CLI command stops when there exist "WARNING: The same value ..." message. Kontron asks to continue executing the rest in the file. |
| 8916   | 2.11.1  | Power Outages Cause Corruption of pica_start.conf  
The file pica_start.conf is damaged because it is updated by rc.sh but not flushed to the flash when outage happens. Boot process hangs with the damaged pica_start.conf. |
| 8923   | 2.11.1  | Clean up Associated ACL Rules When Delete MLAG  
When delete a MLAG, the associated ACL rules should be removed. Otherwise, specific traffic from the peer link will be dropped. |
| 8927   | 2.11.4  | DHCP Request are Send When ZTP is Disabled and IP is Configured Statically  
DHCP DISCOVERY should not be sent out if ZTP is disabled and static IP address is configured to management interface. |
| 8962   | 2.11.4  | Boot Failure Caused by Configuration File Corrupted  
It is possible that PicOS hangs up if power outage happens during boot process, which might damage the config files which is being written. |
| 8975   | 2.11.4  | More Than 2 wtmp Files  
It's possible to have more than 2 wtmp files in /tmp/log/wtmp. That does not work as designed. |
| 8979   | 2.11.4  | Do not Remark Voice Traffic DSCP by Default  
It will not update the DSCP of voice packet to 46 by default. User can remark the DSCP of voice traffic with command,  
# set vlans voice-vlan dscp [0..63] |
There is no cable plugged into switch's management interface eth0. But the management interface is up when use Linux tool such as "ifconfig" to display the status of eth0.

OUI is used to identify the attached voice devices such as IP phone. By removing the default OUIs, allow user to configure up to 10 different OUIs.

PicOS keeps sending the "kern.debug" messages to syslog server even though the log-level is Info set in XorPlus CLI. The root cause of the problem is because the log-level in XorPlus does not apply to Kernel.

It does not work to set threshold-mode to 1 on all PoE ports with command "set poe interface all threshold-mode 1".

It's possible that startup configuration file pica_startup.boot could be corrupted if power cycle or power outage happens during PicOS boot process. To fix this issue, firstly, will not write back to pica_startup.boot when PicOS boots up. Secondly, will load backup configuration if pica_startup.boot is corrupted.

It does not make sense to check the date of end support of license when downgrade to previous version.

If there is a large file in /home/admin, upgrade2 might be broken by an error of out of memory when tar and compress the file and copy to the second partition. To fix this issue, on the one hand, copy the backup files to the target partition directly instead of tar & gzip & untar; on the other hand, clean up cache memory with /proc/sys/vm/drop_caches.

When disable MAC learning on a specific port such as,

```
admin@XorPlus# set interface gigabit-ethernet xe-1/1/2.1 mac-learning false
```

MAC entries do not disappear from the mac table immediately.

On MSH8920, BPDU & LACPDU can be flooded out of switch instead of being trapped to CPU.

PICOS used to trap all of the VRRP packets to CPU even if they are the host VRRP Keepalive packets for load balance. The fix is to add source MAC address matching field to the VRRP filter.

After enabling IGMP Snoop, the client is unable to join the group any more.

In case of neighbor device with multiple sub-interfaces, the switch will send out an SNMP traps if receive a LLDP PDU including a different port ID with previous one. Eventually, ton of SNMP traps are issued.

<table>
<thead>
<tr>
<th>Bug ID</th>
<th>Release</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7566</td>
<td>2.11.0</td>
<td>Mac Leaning Command Does Not Work at Once</td>
</tr>
<tr>
<td>8344</td>
<td>2.11.0</td>
<td>MSH8920 - Add option to allow BPDU &amp; LACP to Bypass CPU</td>
</tr>
<tr>
<td>8796</td>
<td>2.11.0</td>
<td>PICOS stops host load balance if VRRP is configured</td>
</tr>
<tr>
<td>8858</td>
<td>2.11.1</td>
<td>IGMP Snooping Does NOT Work</td>
</tr>
<tr>
<td>8925</td>
<td>2.11.4</td>
<td>Duplicate SNMP Traps of LLDP Update</td>
</tr>
</tbody>
</table>
If receive a LLDP PDU with an unknown TLV, the unknown TLV should be skipped instead of dropping the total LLDP frame.

If the voice VLAN ID is changed on a specific port, in certain circumstance, the status of voice VLAN is always "working" even the LLDP neighbor is disappeared.

PicOS does not support VRRP authentication. Issue explicit syslog message if receive VRRP Authentication Packets.

LLDP module can only process one packet per 1 second in state machine, so there will be packets dropped when more than 1 packet per 1 second per interface. In case of peer device with sub-interfaces configured, the switch sometimes ages out and then re-adds LLDP neighbors even though it is receiving regular LLDP updates for each neighbor every 30 seconds.

If enable IGMP snooping on a switch, because the IGMP leave message sent out of mrouter interface(s) is generated by IGMP snooping, the source MAC address of the IGMP leave message should be the MAC address of the switch instead of the multicast client host.

With IGMP snooping enabled, PIM protocol packets are trapped to CPU. IGMP snooping uses PIM hello message to learn mrouter interfaces automatically. And then, PIM protocol packets are dropped. To fix this issue, PIM protocol packets are flooded out of the switch meanwhile duplicate copies are destined to CPU.

If the static IP address is configured to management interface, the static IP address will be activated on eth0 before starting PicOS. Ensure that user can access the hardware model even if PicOS is failed to boot up.

This version (2.11.7.2) of Verizon-ITNUC release will always send out UDLD PDU with Pica8 OUI (0x486E73). But it needs to use the OUI in the UDLD PDU to figure out if the peer device is PICOS 2.7.2S1F (OUI=0x486E73) or Cisco (OUI=0x00000C), and use the corresponding method to calculate the checksum. Anyway, 2.11.7.2 can talk to both 2.7.2S1F (backward compatible) and the future release (forward compatible) via UDLD.

When disable the port with traffic, it switches to the other port after ~550-600ms. But when enable it again, it interrupts the whole traffic. The mac entries are messed up.

The maximum size of headroom is increased. If enable flow control and configure speed of the port, the size of headroom is 0.

Initially one link of a MLAG is down. And then bring it up, the traffic from upstream device is broken for 5 - 6 seconds.

With reload delay configured, the traffic from downstream device is broken for 12 seconds when the master spine shuts down.

If enable root guard on a port, the port will be blocked if received a BPDU with high bridge priority. That can deny devices behind such ports from participation in STP. The blocking is removed as soon as the device ceases to send superior BPDU's.

If enable DHCP snooping, DHCP DISCOVERY packets with unexpected VLAN ID can be received on a port and flooded out of the ports configured with different VLAN memberships. For example, an DHCP DISCOVERY packet tagged with VLAN 608 can ingress ge-1/1/2 and then egress on te-1/1/49 even though the VLAN608 is only configured for te-1/1/49. e expected only tagged packets on VLAN 19 and VLAN 20 to be allowed to ingress on ge-1/1/2.
<table>
<thead>
<tr>
<th>Bug ID</th>
<th>Release</th>
<th>Description</th>
</tr>
</thead>
</table>
| 7978   | 2.11.0  | **Error BGP Statistics**  
  When create both IPv4 and IPv6 sessions between 2 BGP peering switches, the number of BGP routes including received prefixes and accepted prefixes and active prefixes is incorrect. |

**Routing Protocols**

<table>
<thead>
<tr>
<th>Bug ID</th>
<th>Release</th>
<th>Description</th>
</tr>
</thead>
</table>
| 8301   | 2.11.0  | **Statistics Error on Tunnel Packets**  
  Drop counter on ingress side still goes up even if the tunnel packets are forwarded out of switch correctly. |
| 8467   | 2.11.0  | **Command ovs-pica-save/ovs-pica-load does not Work Occasionally**  
  Command ovs-pica-save/ovs-pica-load is not so reliable. It is possible that ovs-pica-save/ovs-pica-load fails even though it shows successfully. |
| 8596   | 2.11.0  | **DHCP Cycle in CrossFlow Mode**  
  Under CrossFlow mode, with DHCP snooping enabled, DHCP control packets might cycle on a self-loop connection. |
| 8978   | 2.11.4  | **Install the Flow Entry to ASIC Even If User Try to Set DSCP to 0**  
  PICOS/OVS is not allowed to install the flow entry to ASIC with "set_field:0->ip_dscp" as following:  
  $ ovs-ofctl add-flow br0 in_port=2049,ip,actions=set_field:0->ip_dscp,normal  
  Additionally, PICOS/OVS is not allowed to configure a flow entry to ASIC with action such as "set_field:24->ip_dscp" which has the same value of in match criteria "ip_dscp=24" as following:  
  ovs-ofctl add-flow br0 in_port=2049,vlan_tci=0x1000/0x1000,ip, ip_dscp=24,actions=set_field:24->ip_dscp,normal |
Linux is in Panic

It's possible that Linux runs into panic due to a null pointer referenced in Fan driver code under the circumstance of race condition of different threads.

ARP Proxy Does not Work on Tunnel Port

If enable ARP proxy enable on tunnel's network port, it will send out arp reply packet which has a tunnel header.

Support 6k Flow Entries for AS5812 and AS6812

Allow to configure maximum 6k flow entries on AS5812_54T and AS5812_54X and AS6812.

AS5812 OVS Sflow Function Fails to Generate Flow Samples

In OVS 2.6, sflow only generates counter samples (CNTR) but not flow samples (FLOW).

Refine the Performance by Adding Large Amount of Flow Entries

In case of same priority, the time to add 4k flow entries is reduced dramatically on AS5812.

It Takes Too Long to Deletes 6k Flows on AS5812 and AS6812

It takes 20 minutes to delete 6k flow entries. It's too long.

Convert OVSDB to Match New Schema in Upgrade2

PicOS OVS uses OVSDB to restore the configurations. It's possible that the schema of the OVSDB would be changed because new configuration commands might be added to the new version of PicOS. To bring the OVSDB into the new version of PicOS by upgrade2, the OVSDB should be converted to adapt the the new schema of the new version of PicOS.

Security

<table>
<thead>
<tr>
<th>Bug ID</th>
<th>Release</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9031</td>
<td>2.11.4</td>
<td>Apply Policer to Aggregate Traffic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If configure a policer to a couple of ACL rules, the policer will applied to the aggregate traffics instead of each traffic matching specific ACL rule independently.</td>
</tr>
</tbody>
</table>

Miscellaneous

<table>
<thead>
<tr>
<th>Bug ID</th>
<th>Release</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9196</td>
<td>2.11.7</td>
<td>Issue SNMP Trap if LAG Member Port Links Up/Down</td>
</tr>
<tr>
<td></td>
<td></td>
<td>As a common physical port, if a member port of a LAG is up or down, an SNMP trap should be issued.</td>
</tr>
<tr>
<td>9232</td>
<td>2.11.7</td>
<td>Protocol Packets are Counted to Discarded</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L2 protocol frames and L3 protocol packets including bpd, lldp, mlag, bgp, bfd, ospf, RIP, dhcp, igmp, pim, arp, which are trapped to CPU but not replicated and sent to egress side, are counted to Discarded packets.</td>
</tr>
<tr>
<td>9252</td>
<td>2.11.7</td>
<td>SNMP - Value of ifLastChange is Always 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The value of ifLastChange (OID: 1.3.6.1.2.1.2.1.9) should be the time the interface being in the current operational state.</td>
</tr>
</tbody>
</table>
SNMP - Value of sysUpTime is not in Timetick

The value of sysUpTime (OID:1.3.6.1.2.1.1.3) should be in timetick instead of integer.