

Lenovo ThinkSystem NE10032

# Release Notes

For Lenovo Cloud Network Operating System 10.7

**Lenovo**<sup>™</sup>

**Note:** Before using this information and the product it supports, read the general information in the *Safety information and Environmental Notices* and *User Guide* documents on the *Lenovo Documentation CD* and the *Warranty Information* document that comes with the product.

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## Release Notes

This release supplement provides the latest information regarding Lenovo Cloud Network Operating System 10.7 for the Lenovo ThinkSystem NE10032 (referred to as NE10032 throughout this document).

This supplement modifies and extends the following Cloud NOS documentation for use with CNOS 10.7:

- *Lenovo Network Application Guide for Lenovo Cloud Network Operating System 10.7*
- *Lenovo Network Command Reference for Lenovo Cloud Network Operating System 10.7*
- *Lenovo Network Python Programming Guide for Lenovo Cloud Network Operating System 10.7*
- *Lenovo Network REST API Programming Guide for Lenovo Cloud Network Operating System 10.7*
- *Lenovo ThinkSystem NE10032 Installation Guide for Lenovo Cloud Network Operating System*

These publications are available from the following website:

[http://systemx.lenovofiles.com/help/topic/com.lenovo.systemx.common.nav.doc/overview\\_rack\\_switches.html](http://systemx.lenovofiles.com/help/topic/com.lenovo.systemx.common.nav.doc/overview_rack_switches.html)

Please keep these release notes with your product manuals.

**Note:** The Lenovo Cloud Network OS is based on the Embedded Linux Integration Environment (ELIE). To obtain open source code licenses, go to <https://github.com/lenovo/ELIE/tree/master/eli-1.7.1/licenses/>. For details on how to obtain open source code, please contact Lenovo Support.

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## Hardware Support

CNOS 10.7 software is supported on the NE10032 high performance Layer 2-3 network switches.

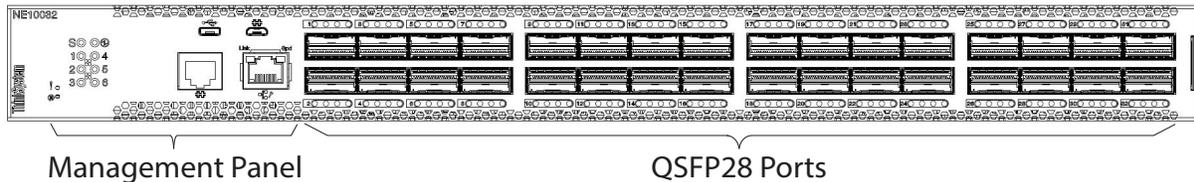
The NE10032 is a 1U GbE switch and it can be mounted horizontally or vertically, depending on your application. Mounting options are available for a variety of rack systems.

For superior reliability, the NE10032 uses redundant, hot-swap power supply modules and six hot-swap fan modules. Module options are available for either front-to-rear airflow, or rear-to-front airflow.

The NE10032 contains the following ethernet ports:

- Thirty-two 100 Gigabit Ethernet (GbE) Quad Small Form Pluggable 28 (QSFP28) ports which also support legacy 100/40 GbE connections

**Figure 1.** NE10032 front panel



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## Supplemental Information

This section provides additional information about configuring and operating the NE10032 and CNOS.

### The BIOS Menu

The Basic Input/Output System (BIOS) menu allows you to have complete system control at boot.

You can interrupt the startup process of the switch and enter the BIOS menu from the serial console port. When the system displays the following message, press **Delete** or **Esc**.

Press <DEL> (Terminal Not applicable) or <ESC> to enter setup...

The BIOS menu appears.

```
Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
Main Advanced Event Logs Security Boot Save & Exit
-----
| BIOS Information                                     | Choose the system |
| BIOS Vendor          American Megatrends          | default language  |
| Core Version         5.009                         |                   |
| Compliancy           UEFI 2.3; PI 1.2              |                   |
| Project Version      0ACBZ 0.33 x64                |                   |
| Build Date and Time  05/10/2017 11:09:14          |                   |
|
| Memory Information                                     |                   |
| Total Memory        8192 MB (DDR3)                 |                   |
|
| OEM Version         ALPHA.05.33.0206B             |                   |
|
| System Language     [English]                     |                   |
|
| System Date         [Thu 05/11/2017]              |                   |
| System Time         [11:13:37]                    |                   |
|
| Access Level        Administrator                  |                   |
|
|<: Select Screen
|^v: Select Item
|Enter: Select
|+/-: Change Opt.
|F1: General Help
|F2: Previous Values
|F3: Optimized Defaults
|F4: Save & Exit
|ESC: Exit
-----
Version 2.17.1245. Copyright (C) 2017 American Megatrends, Inc.
```

This menu permits the following actions:

- Monitoring system configuration
- Setting user passwords
- Switching to Secure Boot Mode
- Performing key provisioning

## The Grub Menu

The Grub menu allows you to switch the software image. The menu appears on the screen automatically during the switch startup process.

```
Welcome to GRUB!

                                GNU GRUB  version 2.00

+-----+
|CNOS slot 1
|CNOS slot 2
|Recovery Mode
|ONIE
|
|
+-----+

Use the ^ and v keys to select which entry is highlighted.
Press enter to boot the selected OS, `e' to edit the commands
before booting or `c' for a command-line. ESC to return
previous menu.
```

**Note:** For more information on ONIE, please see the *Lenovo ThinkSystem NE10032 RackSwitch ONIE Quick Start Guide*.

## Rescue Mode

The Rescue Mode option allows you to recover from a failed firmware or boot image upgrade using TFTP or a USB drive.

To enter Rescue Mode, select **Recovery Mode** in the GRUB menu. The following menu appears.

```
Entering Rescue Mode.
Please select one of the following options:
  T) Configure networking and tftp download an image
  U) Install image from USB stick
  F) Run filesystem check
  I) Select which image to boot
  C) Reset configuration to factory default
  Z) Reset the Network Administrator (admin) password
  B) Reset the password required to enter privileged exec mode
  R) Reboot
  E) Exit

Option? :
```

The Rescue Mode menu allows you to perform the following actions:

- To recover from a failed software or boot image upgrade using TFTP, press **T** and follow the screen prompts.
- To recover using an image from a USB stick, press **U**.

- To check if the switch is ready to run Cloud NOS, press **F**. It performs a check to see if the filesystem is optimally partitioned and updates it accordingly.
- To select which firmware image to boot, press **I**.
- To reset the switch configuration to factory defaults, press **C**.
- To reset the Network Administrator account (admin) password, press **Z**.
- To reset the password required to enter Privileged EXEC mode, press **B**.
- To restart the reload process from the beginning, press **R**.
- To exit the Rescue Mode menu, press **E**.

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## New Features in This Release

This release of Lenovo Cloud Network OS contains the following significant fixes, enhancements, and other changes.

### BGP Unnumbered and BFD

BGP unnumbered can be used in conjunction with Bidirectional Forwarding Detection (BFD) to extend the capabilities of BGP unnumbered to make setting up large configurations easier and faster by enabling BFD on all BGP unnumbered neighbors.

### CLI Keyword Syntax Changes

This release brings CLI syntax changes for the following keywords:

**Table 1.** *CLI Keyword Syntax Changes*

OLD KEYWORD SYNTAX	NEW KEYWORD SYNTAX
<code>configure device</code>	<code>configure terminal</code>
<code>routing-protocol</code>	<code>router</code>
<code>bridge-port</code>	<code>switchport</code>
<code>port-aggregation</code>	<code>port-channel</code>
<code>aggregation-group</code>	<code>channel-group</code>
<code>cancel</code>	<code>abort</code>
<code>startup</code>	<code>boot</code>
<code>remove</code>	<code>clear</code>
<code>cp</code>	<code>copy</code>
<code>apply</code>	<code>set</code>
<code>display</code>	<code>show</code>
<code>save</code>	<code>write</code>
<code>dbg</code>	<code>debug</code>

**Note:** The old CLI syntax is still supported to allow any configurations present on the switch to be automatically converted to the new CLI syntax.

### Explicit Congestion Notification

Explicit Congestion Notification (ECN) extends the functionality of Weighted Random Early Detection (WRED) by marking packets instead of discarding them when the average queue length exceeds the configured threshold. Network devices configured with WRED and ECN use the marking of packets as a signal that the network is congested and packet transmission is slowed down.

## Network Policy Agent - VMware VDM Plug-in

The functionality of the Network Policy Agent has been extended to work with VMware Virtual Domain Manager (VDM). Interactions between the switch and the external VMware VDM is handled by the Lenovo VDM plug-in.

## Warning Message Displayed when Changing the Default Network Administrator Password

The following warning message is displayed reminding the users to change the default Network Administrator password as soon as possible:

Warning: Please change the default Network Administrator password as soon as possible. Note that in the next CNOS release (10.8.x or later), user will be forced to change the default password upon first successful login.

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## Known Issues

This section describes known issues for CNOS 10.7 on the Lenovo ThinkSystem NE10032 RackSwitch.

### Network Policy Agent

The following limitations exist:

- When configuring a virtual machine (VM) name, use only alphanumeric characters. (ID: 127222)
- When multiple ESXi clusters are managed by the same vCenter server, the switch receives events from all clusters, regardless if the cluster is connected to the switch or not. (ID: 126713)
- IP information for a VM's virtualized Network Interface Card (vNIC) is not propagated to the vCenter if the VM does not have installed VMware's guest tool. Therefore, vCenter notifications do not contain IP information. In this scenario, a security policy cannot be attached to a VM if the VM is identified by its IP address. (ID: 126728)
- When a VM is migrated to another host, there is a delay in receiving IP information from the vCenter. During this delay, if a security policy was attached to the VM via its IP address, traffic does not follow the configured clauses of the policy until IP information is received from the vCenter. (ID: 127960)

### Network Virtualization Gateway

The following limitations exist:

- For optimal performance, it is recommended that the number of VLAN-VxLAN Network Identifier (VNI) mappings does not exceed 1,000 entries. Going above this limit leads to longer convergence times when attaching or detaching the Lenovo hardware Layer 2 gateway to or from NSX logical switches. (ID: 99467)
- For optimal Equal Cost Multiple Paths (ECMP) load balancing, it is recommended that only Layer 3 routed ports are used for connecting to spine switches. (ID: 123627)
- When broadcast, unknown unicast, and multicast (BUM) traffic is received on the switch, it is replicated on all member ports of the same VxLAN Network, except the port that is the source port of the BUM traffic. This is displayed in the source port statistics as dropped packets. (ID: 95658)
- Throughput statistics of the southbound interface of the VxLAN gateway do not display on the NSX GUI. (ID: 113832)
- After Bidirectional Forwarding Detection (BFD) failover, when using the default value for the probe interval of 300 ms, the active service node election takes approximately three seconds to occur. (ID: 116882)
- In the switch Application-specific Integrated Circuit (ASIC), the lookup to VxLAN-translation takes place first, before the dot1q tunnel VLAN. The dot1q tunnel VLAN is not used during VxLAN processing. Therefore, dot1q tunnel feature in conjunction with VxLAN is not operational. (ID: 101708)

- The VLAN used in VLAN-VxLAN Network Identifier (VNI) mapping must be used exclusively for switching within the associated VNI domain. Different access vPorts belonging to the same VLAN must be mapped to the same VNI. Hence, only one-to-one VLAN-VNI bindings are supported. (ID: 100606, 123143)
- In case the vLAG instance goes down on one of the vLAG switches, the MAC addresses learned on that instance are not be moved to the ISL. This means that the traffic will be flooded on both ISL and other potential access ports. The flooding on ISL means that the traffic eventually gets to the vLAG instance on the peer, so no traffic is lost. The hosts on the other access ports drop the traffic as it is not addressed to them. (ID: 108729)
- In case all network ports go down on one of the vLAG switches, all ingress traffic received on the local access ports is flooded to all other local access ports from the same VxLAN Network Identifier (VNI). Flooding stops when the network ports are back up. (ID: 110732)
- In High Availability (HA) mode, the recommended maximum number of local unicast MAC addresses is 32,000. If this limit is exceeded, MAC address synchronization between the vLAG switches might not work properly. More than 32,000 unicast MAC addresses can be used, but the synchronization process fails to function normally. (ID: 113145)

## Privileged EXEC Mode Password Persistence

When upgrading the switch firmware image from CNOS version 10.3 or 10.4 to CNOS version 10.7, if there exists a previously configured encrypted password used to enter Privileged EXEC mode, it persists across the upgrade process. It is overwritten only when configuring a new clear text password and the switch running configuration is saved.

If a previously configured encrypted password is still used for entering Privileged EXEC configuration mode after the upgrade process, then only the first eight characters are checked when entering the password.

When downgrading the switch firmware image from CNOS version 10.7 to a previous version, if a previously configured Privileged EXEC encrypted password is present in the switch startup configuration file, then the password persist across the downgrade process. The password is required to enter Privileged EXEC configuration mode after the downgrade process is done. (ID: 119771)

## WRED

The following limitations exist:

- Explicit Congestion Notification (ECN) does not work with Weighted Random Early Detection (WRED) for unknown unicast, multicast, and broadcast packets. (ID: 129278)
- If WRED is configured with a minimum threshold higher than 2142 packets, the queue begins to discard packets before the minimum threshold is reached, and thus ECN is not triggered. (ID: 128909)

