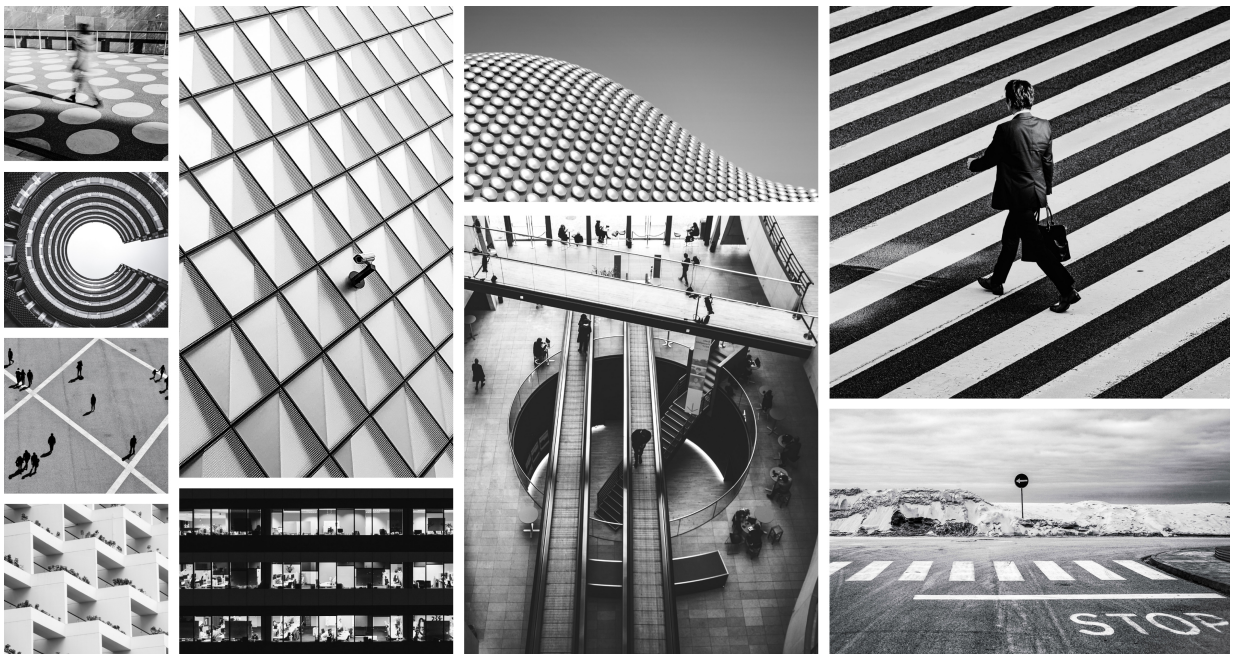
TECHNICAL
DOCUMENTATION

NEN Release Notes



Release	What's New	Known Issues	Resolved Issues
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What's New in NEN 2.7.x Releases

This topic describes the new features introduced in the following NEN releases.

NEN 2.7.10 New Features

- **Client Auth EKU no longer required in TLS certificates**
  Prior to release 2.7.10, the NEN relied on TLS certificates with the Client Auth EKU for some internal services. Certificates issued without this EKU could've resulted in operational disruptions. However, with the release of NEN 2.7.10, Client Auth EKU is no longer required.
- **Support for Postgres 16.11**
  NEN 2.7.10 adds support for Postgres 16.11.
- **Discontinued dependency on net-tools**
  Beginning with release 2.7.10, Illumio has discontinued dependency on net-tools. The **iproute(2)** suite of tools, especially the `ip` command, replaces the deprecated net-tools package.
- **Support for Non-default Ports and Protocols for NEN Flow Collection**
  Beginning with release 2.7.10, the NEN supports configurable flow-transport settings. Instead of using UDP and fixed destination ports, you can now configure TCP for flow collection and send flows to ports you define. This provides greater flexibility and support for diverse network and security requirements. For details, see Configure Non-default Ports and Protocols for NEN Flow Collection.

NEN 2.7.0 New Features

This release adds support for the following:

- **Top-of-rack Cisco IOS XR series routers**
  This release supports integrating the NEN with Cisco IOS series routers. (Illumio Core PCE 25.3.0 or later, SaaS only.)
- **Support for CIDR block interfaces**
  Allows you to assign CIDR blocks to unmanaged workloads. Each unmanaged workload can represent a subnet, a Layer 3 interface, or a group of workloads instead of just a single workload. (Illumio Core PCE

25.3.0 or later, SaaS only.) See
Enhance network security for Top Of Rack routers using Illumio NEN 2.7.0 and Cisco IOS
.

- **Support for NVIDIA BlueField DPU (with OVS)**

  OVS is a software-based network technology that enhances virtual machine (VM) communication within internal and external networks. It functions as a virtual switch, allowing VMs to communicate within a host and across different hosts. Typically installed on a NIC (for example NVIDIA's BlueField-3 Data Processing Unit; support for other cards may also be available), OVS' software-based approach for packet switching relieves the strain on CPU resources that can impact system performance and network bandwidth. See Integrate the NEN with the NVIDIA BlueField®-3 DPU featuring OVS.

  - **Illumio NEN + OVS Use Case**

    Integrating the NEN with OVS enables visibility and policy enforcement for traffic within and between IT and OT layers, allowing you to visualize all traffic to and from OT systems. Illumio's flexible labeling architecture helps you understand how your assets communicate. The NEN converts your segmentation policies into ACLs that are then installed on the OVS to secure your OT/IT infrastructure.

  - **Streamlined integration through the Illumio API**

    Integrating the NEN with OVS through the PCE web console is straightforward enough, but integration through the PCE API is even easier: enter the IP address and credentials for the OVS switch (see note below) and the NEN automatically discovers the switch configuration, programs flow monitoring on the switch, discovers and creates workloads in the PCE, and programs the ACLs on the OVS.

- **Support for NetFlow and IPFIX flow data monitoring protocols**

  These protocols are added to the NEN's existing support for sFlow.

- **Support for IPv6 Access Control Lists (ACLs)**

  Provided in addition to existing support for IPv4.

Resolved Issues in NEN 2.7.10

Issue	Fix description
E-135925	**Security Information** The ruby 3.1.6 package was upgraded to ruby 3.3.10 to address: RHSA-2025:23648, RHSA-2024:6785, RHSA-2025:23141 RHSA-2025:23927, RHSA-2025:10217, RHSA-2025:4063 RHSA-2024:3670, RHSA-2025:23062, RHSA-2025:4488 RHSA-2024:3671, RHSA-2025:23063, RHSA-2025:4493 RHSA-2024:6784, RHSA-2025:23140, RHSA-2025:8131
E-135764	**Missing information in NEN Health Report now restored** The NEN's Health Report was missing information in some cases: • The PCE Connectivity entry reported no information. • The HA Mode entry reported no information in some High Availability deployments This issue is resolved.
E-135492	**Resolved issue which prevented connecting to load balancers** Following an operating system update, the NEN couldn't connect to F5 load balancers running an incompatible version of TLS code. An SSL error was thrown. This issue is resolved.
E-134152	**NEN now able to send traffic flows to the PCE when proxy is configured** The NEN failed to send traffic flows to the PCE when an HTTP/HTTPS proxy was configured, even though the NEN was able to ingest and process sFlow data. Due to this, no flows for the associated workloads appeared in the PCE map or traffic table. This issue is resolved with this release.
E-133737	**Client Auth EKU no longer required in TLS certificates** Prior to release 2.7.10, the NEN relied on TLS certificates with the Client Auth EKU for some internal services. Certificates issued without this EKU could've resulted in operational disruptions. However, with the release of NEN 2.7.10, Client Auth EKU is no longer required.
E-133480	**Using a self-signed certificate to set up the NEN no longer fails** Using the `--generate-cert option` of the `illumio-nen-env` setup command to generate the NEN `service_discovery_cert` no longer fails.
E-131456	**SLB User ID no longer reaches maximum active login tokens** F5 SLBs experienced login token exhaustion. The NEN `service_discovery` service was restarting too frequently, which in turn restarted the `network_enforcement` service. Every time the `network_enforcement` service was restarted, it requested a new token from the F5 SLB, which eventually caused the F5 SLB to run out of tokens. This issue is resolved.

Issue	Fix description
E-131285	**Interactive NEN setup no longer stuck when generating encryption key** The interactive setup no longer gets stuck when generating the service discovery encryption key. It now supports 32-byte encryption keys and completes successfully without manual key entry.
E-130713	**Extra ACL entry no longer appears in generated inbound and outbound rules** In some circumstances, when NEN 2.7.0 generated ACLs for a switch integration, it generated an extra ACL entry at the end of the generated inbound and outbound rules. The redundancy had no effect and is now fixed in this release.

Resolved Issues in NEN 2.7.0

Issue	Fix description
E-129909	**NEN-discovered load balancer not added to the PCE is now added** During the NEN's VIP discovery process, a discovered F5 VIP was not added to the PCE due to a duplicate database identifier. This issue is resolved.
E-129077	**Incorrect ACL generation now corrected** In an Illumio NEN + Precisely integration, incorrect ACLs were generated for an **all port** (wildcard) rule because the wrong formatting routine was called. This issue is resolved.

Known Issues in NEN 2.7.0

Issue	Description
E-130713	**Extra ACL entry may appear in generated inbound and outbound rules** In some circumstances, when NEN 2.7.0 generates ACLs for a switch integration, it may generate an extra ACL entry at the end of the generated inbound and outbound rules. As the information in the extra entry is already included in the previous ACL entry in the rules, it's merely redundant and has no effect. Illumio plans to correct this in a future NEN release.
E-130118	**Switch model missing when editing the switch configuration in PCE UI** If you try to edit an existing Cisco 9000 switch configuration in the PCE Web Console (**Infrastructure > Switches**), the Model field will be empty (no longer populated with "9000"). As you cannot save the configuration with that field empty, you must either enter 9000 manually or cancel the Edit operation.

Illumio NEN Release Notes 2.6

What's New in NEN 2.6.x Releases

This section describes new features introduced in the following NEN releases.

NEN 2.6.40 New Feature

JSON Format Change

Beginning with this release, generic workload JSON files are uploaded as a single, parseable object. This new format allows a program to use the JSON file to apply policy to a device customers want to protect.

```
[
  {
    "$schema": "http://json-schema.org/draft-04/schema#",
    "definitions": {
      "rules":{
        "description": "Array of rule objects",
        "type": "array",
        "items": {
          "description": "A single rule",
          "type": "object",
          "required": ["action", "port", "protocol", "ips"],
          "properties": {
            "action": {
              "description": "Action for the rule either permit or deny",
              "type": "string",
              "enum": ["permit", "deny"]
            },
            "port" : {
              "description": "Inbound or Outbound port(s) bound to rule. Either a port, port range or *",
              "type": "string"
            },
            "protocol" : {
              "description": "Protocol for rule. Either a protocol number or *",
              "type": "string"
            },
            "ips" : {
              "description": "An array of inbound or outbound IP addresses bound to rule",
              "type": "array",
              "items": {
                "description": "IP address associated to rule. Either IP address, CIDR block, IP address range or *",
                "type": "string"
              }
            }
          }
        }
      }
    },
    "description": "An array of objects, one per workload",
    "type": "array",
    "items": {
      "type": "object",
      "required": ["name", "href", "rules"],
      "properties": {
        "name": {
          "description": "Name of workload",
          "type": "string"
        },
        "href": {
          "description": "href of workload",
          "type": "string"
        },
        "rules": {
          "description": "Object containing Inbound and Outbound rules",
          "type": "object",
          "properties": {
            "Inbound": {
              "description": "Array of Inbound rule objects",
              "$ref": "#/definitions/rules"
            },
            "Outbound": {
              "description": "Array of Outbound rule objects",
              "$ref": "#/definitions/rules"
            }
          }
        }
      }
    }
  }
]

```

NEN 2.6.30 New Features

IMPORTANT

Before installing NEN release 2.6.30

Installing this release upgrades the existing database on the NEN to a newer version of the database software. Illumio recommends that you back up the existing NEN database before you install NEN 2.6.30 so that you can revert the installation if necessary.

To back up the existing NEN database, issue the following commands on the NEN primary node:

```
illumio-nen-ctl set-runlevel 1 -svw
```

```
illumio-nen-db-management dump --file <outputfile-name>
```

```
illumio-nen-ctl stop
```

Support for CentOS Stream 9

This release includes support for installing NENs on nodes running CentOS Stream 9.

Switch ACL generation now supports all protocols

With this release, the NEN now recognizes all PCE-supported protocols, ensuring that the NEN can translate switch policy into ACLs when such policy references any PCE-supported protocol.

Support for VMware NSX Advanced Load Balancer AVI 22.1.6

With this release, the NEN now supports VMware NSX Advanced Load Balancer AVI version 22.1.6.

NEN 2.6.20 New Features

Support for RHEL 9

This release includes support for running standalone NENs on Red Hat Enterprise Linux (RHEL) 9 where the version of **openssl-libs** is **3.1 or earlier**.

To determine the openssl-libs version, issue `rpm -qa | grep openssl-libs` .

NEN 2.6.10 New Features

Support for Verifying NEN RPM Signature

Beginning with NEN release 2.6.10, you can verify the signature of the NEN RPM package before installation. This allows you to ensure that the package hasn't been modified since it was signed. For details, see Verify the NEN RPM digital signature.

Support for NEN Proxy Communication

Beginning with NEN release 2.6.10, there is now `runtime_env` support for defining an HTTP/HTTPS proxy for communication between the NEN and the PCE or between the NEN and managed devices (such as Server Load Balancers (SLBs)). You can also specify a list of IP address that are not allowed to communicate via a proxy server. For details, see Configure Proxy Support for NENs.

Ruby updated to version 3.1.2

Ruby was upgraded from version 2.7.1 to 3.1.2.

NEN 2.6.1 New Features

Support for all Citrix ADC (Netscaler) Load Balancer-supported protocols

With this release, the NEN now supports all the protocols that Citrix (NetScaler) 13.1 lists in the **Load Balancing > Virtual Servers > Add > Protocol** menu.

NEN 2.6.0 New Features

Support for Citrix ADC (Netscaler) Load Balancer

With this release, the NEN now supports Citrix ADC (Netscaler) Load Balancers and their associated virtual servers that have only a single IPv4 address.

To add a Citrix Software Load Balancer, see the section *Configure Load Balancers* in the "Load Balancers and Virtual Servers for the NEN" topic.

Support for allowing customers to specify whether disabled VIPs are reported to the PCE

Prior to the release of NEN 2.6.0, if VIP filtering was disabled, all VIPS – including disabled VIPs – were reported to the PCE. You can now disable this reporting using the following new option in the `illumio-nen-ctl slb-enable` command:

```
--disabled-virtual-server-reporting enabled|disabled
```

To ensure backwards compatibility, the default value is `enabled`.

PCE-provided rule IP addresses and ports now combined into CIDR blocks

NENs now combine rule IP addresses and ports provided by the PCE into CIDR blocks and port ranges. This reduces the number of ACLs that NENs need to generate for switches.

Benefits include:

- Fewer ACLs that the NEN generates for switches.
- Fewer ACLs generated for the IBM iSeries integration with Precisely (current limit: 10k ACLs) allows for optimization of IP addresses into ranges larger than can be covered by a single CIDR block.
- Lower demand on switch TCAM where ACLs are stored.

Support for Rocky Linux 8.7

This release includes support for running standalone NENs on Rocky Linux 8.7.

Support for configuring a PCE policy request timeout

Beginning with NEN 2.5.2.A1, you can configure a PCE policy request timeout. This may be needed If your NEN SLB implementation will involve large policy

calculations. The timeout ensures that the NEN doesn't wait too long for the PCE to respond to policy requests in scenarios involving large policy calculations.

To configure the timeout, use the following runtime environment variable:

```
pce_policy_request_timeout_minutes
```

- Default value: 10 minutes
- Minimum value: 3 minutes

Resolved Issues in NEN 2.6.40

Issue	Description
E-119690	**NEN setup command failed and 'unknown property' error thrown** After the user configured the `proxy_config` entry in the `runtime_env`, the `illumio-nen-env setup` command failed with an 'unknown property' error.
E-119644	**NEN activation failed and SSL error thrown** When the user activated the NEN using the `proxy_config` settings in the `runtime_env`, the NEN ignored the specified values and failed with an SSL error.
E-122961	**Not all Virtual IPs appeared on the PCE** When using a VMware NSX Advanced Load Balancer greater than version 21.0, the NEN did not honor the "next" field in the vsvip API response and didn't read all entries that define the virtual server IP values. Therefore, it skipped related virtual server entries.

Known Issues in NEN 2.6.40

There are no known issues in this release.

Resolved Issues in NEN 2.6.30

- **ACL Generation Hangs if Switch Policy Includes Multicast Addresses** (E-117247)
  If a PCE switch policy includes a multicast address, the NEN became inoperative when trying to generate ACLs for that policy. This issue is fixed.
- **Rules referencing some protocols didn't appear in ACLs** (E-117013)
  PCE policy rules referencing certain protocols didn't appear in NEN-generated switch ACLs. This issue is fixed. With this release, the NEN now supports all PCE-supported protocols.

Known Issues in NEN 2.6.30

There are no known issues in this release.

Resolved Issue in NEN 2.6.20

- **Potential unexpected denial of some traffic flows** (E-114782)
  In NEN releases 2.6.10 and earlier, while in Selective Enforcement the NEN applied ACL deny rules before allow rules, which could inadvertently deny flows that you want to allow. This issue is fixed. Beginning with this release, NENs now apply ACL allow rules before deny rules.

Known Issues in NEN 2.6.20

There are no known issues in this release.

Resolved Issues in NEN 2.6.10

- **In NEN HA pair SLB jobs aborted in some circumstances** (E-112912)
  In a NEN HA pair, after the Secondary Node served temporarily as the Primary Node and then returned to its normal Secondary role, an issue occurred where SLB policy jobs on the Secondary Node were aborted and the database wasn't being reset to allow other SLB policy jobs to run on those SLBs. The issue stems from the timeout behavior being too aggressive. This issue is resolved: the Secondary Node now gracefully returns to its normal role.
- **Unnecessary word prevented some rules from being applied in IBM AS400 integration** (E-111870)
  In an IBM AS400 integration, the ACL files generated by the NEN contained the word `permit` at the end on each rule line, which prevented Precisely from ingesting the rules. This issue is resolved: `permit` is no longer appended at the end of rules.

Known Issues in NEN 2.6.10

There are no known issues in this release.

2.6.10 Security Information

- Upgraded netaddr-1.5.0.gem to 2.0.4 or higher to address CVE-2019-17383
- Upgraded tzinfo-1.2.7.gem to 0.3.61,1.2.10 or higher to address CVE-2022-31163
- Upgraded json-1.8.6.gem to 2.3.0 or higher to address CVE-2020-10663
- Upgraded activesupport-5.2.4.2.gem to 5.2.4.3,6.0.3.1 or higher to address CVE-2020-8165 CVE-2023-22796
- Upgraded addressable-2.7.0.gem to 2.8.0 or higher to address CVE-2021-32740
- Upgraded cURL to v7.87.0 on the Illumio NEN to address CVE-2019-5443 & CVE-2019-3882

Resolved Issues in NEN 2.6.1

- **Timeout issue prevented NEN from updating SLB Policy** (E-107324)

  Due to the shortness of the default connect timeout in the CURL library (5 minutes), the NEN was susceptible to timing out when trying to connect to the PCE. This in turn prevented the NEN from updating policy on the SLB. The issue was resolved by adding the following configurable PCE runtime_env parameter:

  `pce_policy_connect_timeout_minutes`

  - Default value: 10 minutes
  - Minimum value: 3 minutes
- **Handling of SLB empty data response led to erroneous "deletion pending" state** (E-106930)

  An issue caused an F5 SLB to return an empty data response when the NEN queried it for virtual servers, even though managed virtual servers actually existed on the SLB. This occurred at a time when the NEN was programming the SLB. This in turn caused the PCE to put these existing virtual servers in a 'deletion pending' state. After the NEN was restarted, all the virtual servers were discovered and available on the PCE Web Console. This issue is resolved. The NEN will now ignore empty data responses if the SLB has managed virtual servers or is currently being programmed with policy.
- **Route domain length prevented virtual server discovery** (E-106800)

  F5 SLB virtual servers with route domains longer than two digits weren't discovered by the NEN and consequently weren't displayed on the PCE Web Console. This issue is resolved. The NEN now recognizes route domains up to five digits in length.

Known Issues in NEN 2.6.1

There are no known issues in this release.

Resolved Issues in NEN 2.6.0

- **Unable to deactivate the NEN** (E-104053)

  In a certain circumstance (described below), after using the PCE Web Console to remove all the SLBs and associated virtual servers from the NEN, users were unable to deactivate the NEN. Details are as follows:

  1. The user removed SLBs through the PCE Web Console.
  2. As the SLBs no longer existed on the PCE, the NEN couldn't inform the PCE of their state.
  3. This prevented the NEN from removing the SLBs correctly from its database.
  4. This caused the NEN to think it was still managing the SLBs.
  5. This in turn prevented the user from deactivating the NEN.

  Circumstance: At the time the user removed the SLBs through the PCE Web Console, the associated virtual servers were unmanaged.

  This issue is resolved. The NEN now recognizes when the SLB is being removed and no longer tries to inform the PCE of changes in SLB state. This allows the NEN to remove SLBs from its database correctly.

- **NEN 2.5.2 Failed to Update SLB Policy** (E-103432)

  An issue caused the NEN policy process to hang while sending an SLB policy request to the PCE. The NEN issue was resolved by adding a configurable PCE policy request timeout to the NEN's code. To configure the optional timeout, use the following runtime environment variable:

  `pce_policy_request_timeout_minutes`

  - Default value: 10 minutes
  - Minimum value: 3 minutes

- **Extraneous API call to the load balancer** (E-96324)

  The NEN made an extraneous GET API call to the AVI Advantage Load Balancer for programming the virtual server. This issue is resolved. The NEN no longer makes this extraneous API call.

Known Issues in NEN 2.6.0

There are no known issues in this release.

Illumio NEN Release Notes 2.5

Resolved Issue in NEN 2.5.2.A1

NEN 2.5.2 Failed to Update SLB Policy (E-103432)

An issue caused the NEN policy process to hang while sending an SLB policy request to the PCE. The NEN issue was resolved by adding a configurable PCE policy request timeout to the NEN's code. To configure the optional timeout, use the following runtime environment variable:

```
pce_policy_request_timeout_minutes
```

```
pce_policy_request_timeout_minutes
```

- Default value: 10 minutes
- Minimum value: 3 minutes

Known Issues in NEN 2.5.2.A1

There are no known issues in this release.

Resolved Issues in NEN 2.5.2

- **Tamper checking was prevented on the SLB** (E-98697)
  In some circumstances, the PCE may inform the NEN that there is a policy update for an SLB when there isn't actually an update. This may prevent the NEN from running tamper checking on the SLB. To help resolve this condition going forward, if the NEN is told about a non-existent policy update for the SLB and the time for performing a tamper check has lapsed, the NEN will now perform a full policy check for the SLB.
- **Problems caused when deleting a VS before unmanaging it on the PCE** (E-97909)
  Deleting an enforced VS from an SLB without first unmanaging the VS on the PCE interfered with the NEN's attempt to remove policy from the SLB, which prevented the NEN from correctly handling error responses from the SLB. This caused the NEN to:

- Retry removing policy multiple times, which put a load on the SLB.
- Run multiple simultaneous SLB programming jobs.

This issue is resolved. Now, the NEN no longer retries sending APIs requests when 4xx API response codes are returned during the removal of policy from a VS and only runs one programming job per SLB at a time.

Known Issues in NEN 2.5.2

There are no known issues in this release.

Resolved Issue in NEN 2.5.1

Excessive NEN API GET calls to F5 prevented policy programming (E-96989)

When trying to unmanage F5 Virtual Servers, NEN API GET requests to the F5 encountered slower than expected response times, which lead to the following sequence of events:

1. Responses from the F5 timed out.
2. Which in turn caused the NEN to retry its requests repeatedly.
3. Lacking timely F5 responses, the NEN ran multiple simultaneous unmanage jobs for VSs.
4. This caused the NEN to DDOS the F5 with `GET /mgmt/tm/security/firewall/policy?expandSubcollections=true` API calls.
5. **Result:** This overloaded the F5 and caused policy programming to fail due to API timeouts.

This issue is resolved. The NEN now serializes unmanage VS jobs for server load balancers.

Known Issues in NEN 2.5.1

There are no known issues in this release.

Resolved Issues in NEN 2.5.0

- **When processing multi-paged AVI API responses, policy programming failed** (E-95740)

While processing multiple-paged AVI `networksecuritypolicy` API responses during policy programming, the NEN incorrectly stored the policy ID to associate the policy to its rules. This caused the NEN to point to an invalid memory location, which in turn caused `network_enforcement_policymgr` to crash and policy programming to fail. This issue is resolved.

- **Problem when tamper checking AVI SLBs in multi-page AVI API responses** (E-95546)

  An invalid check of the returned API response occured when the NEN performed tamper checking of multiple-paged AVI `networksecuritypolicy` API responses. This issue could have caused the NEN to miss some Illumio `networksecuritypolicies` . The NEN could then have interpreted the missed policy as policy tampering, triggering a check on the SLB for those missing policies, resulting in no errors found. The issue was resolved by fixing the API response checks to make sure the NEN retrieved all `networksecuritypolicies` from the AVI SLB.
- **Generating switch policy failed in a HA configuration** (E-94344)

  Generating policy by running the `switch policy generate` command on the primary node of an High Availability (HA)-configured NEN (from either the UI or from the CLI) could cause policy generation to fail and return the following error message: *This command can only be run on the node running the primary Network Enforcement Service* . This issue is resolved. The command can now be run on any NEN node – primary or secondary – that is running the `network_enforcement` service.

- **Policy update failed when new Illumio iRules weren't applied correctly** (E-93921)

  An error occurred when trying to create a policy that applied a new Illumio iRule to block an existing non-Illumio iRule. The error prevented policy from being updated. This issue is resolved. New Illumio iRules are now applied before non-Illumio iRules.
- **PCE sent multiple unnecessary policy updates to the NEN** (E-93851)

  Illumio updated the NEN 2.5.0 to address this issue in the PCE. In previous releases, the PCE sent policy updates to the NEN even when the SLB virtual services address list hadn't changed. This issue occurred because pods frequently go down and come back up and that triggered a policy job with "no address list changes" in the PCE. In this release, this issue is resolved for the NEN. The issue will be resolved in the PCE in a future release. In this release, the NEN optimizes the addresses in the address list and stores the SHA of the sorted address list for comparison between policies. The PCE ignores policy updates that don't contain changes in the overall address list by comparing the SHA of new address list with the previous one.
- **F5 AM policy deletion for a deleted VS failed** (E-92008)

  When a NEN tried to delete a policy from an F5 BIG-IP Advanced Firewall Manager (F5 AFM) for a virtual server (VS) that had been deleted, the NEN

defaulted to treating the VS like a non-AS3 managed VS. This resulted in the policy remaining on the F5 AFM. This issue is resolved and the NEN now makes sure (as originally intended) that no artifact of a policy remains on the SLB for the deleted VS.

Known Issues in NEN 2.5.0

There are no known issues in this release.

Illumio NEN Release Notes 2.4

Resolved Issue in NEN 2.4.10

F5 AFM Policy Deletion for a Deleted VS Failed (E-92008)

When a NEN tried to delete a policy from an F5 BIG-IP Advanced Firewall Manager (F5 AFM) for a virtual server (VS) that had been deleted already, the NEN defaulted to treating the VS like a non-AS3 managed VS. This resulted in the policy remaining on the F5 AFM. This issue is resolved and the NEN now makes sure (as originally intended) that no artifact of a policy remains on the SLB for a deleted VS.

Known Issues in NEN 2.4.10

There are no known issues in this release.

Resolved Issues in NEN 2.4.0

- **VS filtering failed to work correctly on secondary NEN nodes** (E-90850)
  The secondary NEN node didn't perform Virtual Server (VS) filtering even though VS filtering was enabled on the NEN. This meant that VS filtering occurred only on the primary NEN node, which sometimes caused the VS to appear and disappear in the PCE Web Console.
- **For an AVI SLB, NENs reported tenant names incorrectly in the non-admin tenant space** (E-90758)
  When discovering non-admin tenant Virtual Servers on an AVI multi-tenant Server Load Balancer (SLB), the NEN reported Virtual Server names according to their tenant **UUID** instead of their tenant **name** (**Infrastructure > Load Balancers > AVI SLB > Virtual Servers** tab). The NEN also used the tenant UUID in the API header it sent to the AVI SLB when it tried to program the Virtual Server. This prevented policy from being programmed on those Virtual Servers. This issue is resolved; NENs now correctly use the tenant name of discovered Virtual Servers.
- **When adding a switch, the list of supported switches was incomplete for the attached NENs** (E-85844)
  Given two active NENs attached to a PCE, each a different version supporting different switches:

When adding a new switch through the PCE Web Console, the **Manufacturer** drop down list showed only switches that are supported by the first NEN in the **NEN host name** drop down list. This occurred regardless of which NEN host the user selected. The incomplete list of switches could've prevented users from selecting the precise switch type they were trying to integrate or might have lead them to select a switch type that's not supported by the selected NEN host. This issue is resolved. The **Manufacturer** list now shows the switch(es) supported by whichever host is selected in the **NEN host name** drop down list.

- **Memory leak in NEN process** (E-85114)
  When programming a large number of virtual servers, excessive memory consumption in the `network_enforcement_ndconfig` process could've resulted in an out-of-memory exception in rare circumstances. This issue is resolved.

Known Issues in NEN 2.4.0

There are no known issues in this release.

Limitation in NEN 2.4.0

Enforcement Boundaries not supported for NENs

The PCE doesn't support Enforcement Boundary policies for devices attached to the NEN.

Enforcement Boundaries are a security policy model available in the Core PCE for broadly managing communication across a set of workloads, ports, and/or IP addresses. They allow you to define the end state and then the PCE implements an Enforcement Boundary to create the appropriate native firewall rules. For more, see Enforcement Boundaries .

Illumio NEN Release Notes 2.3

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About This Document

These release notes describe the resolved and known issues for the Network Enforcement Node (NEN) 2.3.*x* releases.

The NEN is the Illumio Core switch and Server Load Balancer (SLB) interface that provides visibility and enforcement on switches and SLBs.

See the for information.

Product Version

NEN Version: 2.3.10

Compatible PCE Versions: 21.5.10 (LTS Candidate), 21.5.2 (Standard), 21.5.1 (Standard), 21.4.1 (Standard)

Standard versus LTS Releases

For information about Standard versus Long Term Support (LTS) releases, see Versions and Compatibility in the Illumio Support portal (log in required).

Release Types and Numbering

Illumio Core release numbering uses the following format: "a.b.c-d+e"

- "a.b": Standard or LTS release number, for example "2.2"
- ".c": Maintenance release number, for example ".1"
- "-d": Optional descriptor for pre-release versions, for example "preview2"
- "+e": Hot Fix release descriptor, for example "+H1", "+H2", "+H3".

What's New In This Release

To learn what's new and changed in this and earlier NEN releases, see *What's New in The Releases* in the latest .

Resolved Issues in NEN 2.3.10

- **Network enforcement log showed exception when switching from node 2 to the primary node** (E-85609)

  On the NEN server, in the network_enforcement.log, an error was shown with an exception message when switching from Node 2 to the primary node. This issue is resolved.
- **Deleting VS policy from the F5 night leave AS3 declare in an unstable state** (E-85489)

  When deleting a VS policy from the F5, the code ignored the response from the AS3 PATCH command and deleted the policy. However, if the AS3 declare PATCH failed, this left the system in a state where subsequent AS3 PATCH commands failed due to an inconsistency with the AS3 declare and

the state of the F5. This caused the policy to not be applied. This issue is resolved.

- **Failed to apply policy to a virtual server after NEN upgrade** (E-85412)

  A policy change could generate a 409 error. Policy for the virtual server would then fail to update. This happened because during policy changes, the PCE failed to detect and correct of out-of-sync F5 AS3 declarations and virtual server configuration. The NEN would therefore try to create a policy that already existed. This issue is resolved. A subsequent tamper check fixes the policy for the virtual server.
- **NEN logs DEBUG info in prod level** (E-85363)

  The NEN was not setting the default log level for the production environment correctly, causing DEBUG information to be logged into the `network_enforcement` log.

  This issue is resolved and the NEN now works as expected.
- **Some NEN logs should be at debug level** (E-85341)

  Some logs were growing very large (over 5GB) in a very short time because policy information was mistakenly added to the logs.

  This issue is resolved so that some parts of that information are added at DEBUG log level instead of INFO log level, while some parts (such as PNports info) are not added to the log.
- **Discovery loop not working on NEN 2.2.0 in production environment** (E-85307)

  The discovery job was sometimes not working properly. It did discovery, but for only one SLB. The symptom was increased Ruby gems errors in logs. The issue was caused by an insufficient number of database connections in the pool. The issue is resolved. The default number of connections in the database pool is increased from 4 to 50.
- **NEN health status could display incorrect cluster status** (E-85301)

  Running the `illumio-nen-ctl health` command could provide incorrect information for the NEN HA cluster in the Cluster Mode field. For example, the command output could incorrectly display “Standalone (split brain)” when the NEN service on one of the nodes was stopped. The field should have displayed “Standalone (failover).” This issue is resolved and the Cluster Mode field now displays the correct information.
- **NEN - Failover not working if NEN primary freezes** (E-85256)

  The NEN primary node could stop logging unexpectedly because of an unforeseen event such as a full disk. The lack of logs made the node appear frozen, but the NEN was still running, so the NEN secondary node did not take over. However, if the disk on the primary node got full and caused the database and node to fail, the primary node would fail, and then failover to the secondary node would occur. This issue is resolved. To address the disk full issue and the lack of logging, if a disk gets 95% or more full, the node will now be stopped, and the NEN fails over to the other node.
- **NEN didn't delete empty iRule and create a new non-empty rule** (E-85211, E-84872)

iRules are a feature within the F5 BIG-IP local traffic management (LTM) system. An iRule can become empty due to tampering. If the NEN detects that an iRule is empty, it's supposed to delete it and then create a new non-empty rule. In this case, the NEN failed to delete the empty iRule and create a new non-empty rule. This issue is resolved.

- **Policy updates and tampering check weren't working** (E-85197)
  When the NEN service on the primary node of a NEN HA cluster was stopped, the secondary NEN node did not apply policy updates that the primary node was processing when the primary node failed. This issue is resolved. The secondary NEN node now correctly applies the policy updates from the primary node when it failed over.

Known Issues in NEN 2.3.10

There are no known issues in this release.

Resolved Issues in NEN 2.3.0

NEN 2.3.0 was a Limited Availability (LA) release. However, these issues are also resolved in NEN 2.3.10.

- **PCE and NEN became stuck in a provisioning loop** (E-84712)
  Implementing an actor-only policy change caused a provisioning loop in which the PCE continually sent the same policy to the NEN which in turn applied it continually to the F5 SLB. The loop was reported in the network_enforcement log and F5 logs. This problem occurred because actor-only policy changes lack a rule version and NENs don't store or acknowledge policy changes that lack a rule version. This issue is fixed. Now, NENs that receive actor-only policy changes use the last-stored rule version from their database, allowing these NENs to acknowledge such policy changes to the PCE.
- **Full policy update not performed on tampered DVSs** (E-84614)
  When a NEN was triggered to perform a tampering check on Discovered Virtual Servers (DVS), a full policy update didn't occur and only the address list was updated. This issue is fixed: tampered DVSs now receive a full policy update.
- **Maximum number of auth tokens exceeded** (E-84573)The error *maximum active login tokens* occurred when too many F5 authentication tokens where generated in a 20 minute period. Prior to this fix, a new F5 authentication token was generated whenever a Discovered Virtual Server (DVS) was unprogrammed (for example, when its status changed to unmanaged) or was reprogrammed (for example, when it was identified

as tampered). This issue is fixed. NENs now use a single token for these actions.

- **Primary NEN node would hang in some cases** (E-84111)

  A logging problem that occurred in the `network_enforcement` service caused the primary NEN node in an HA cluster to hang, which was subsequently not recognized by the secondary NEN node. This issue is fixed. The primary NEN node can now tolerate logging issues that occur during the `network_enforcement` service and the Secondary NEN node now recognizes when the Primary node hasn't sent its status to the PCE for 3 minutes.

Illumio NEN Release Notes 2.2.0

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About This Document

These release notes describe the resolved and known issues for the Network Enforcement Node (NEN) 2.2.*x* releases.

The NEN is the Illumio Core switch and Server Load Balancer (SLB) interface that provides visibility and enforcement on switches and SLBs.

See the for information.

Product Version

NEN Version: 2.2.0

Compatible PCE Versions: 21.3.0

Standard versus LTS Releases

For information about Standard versus Long Term Support (LTS) releases, see Versions and Compatibility in the Illumio Support portal (log in required).

Release Types and Numbering

Illumio Core release numbering uses the following format: “a.b.c-d+e”

- “a.b”: Standard or LTS release number, for example “2.2”
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- “-d”: Optional descriptor for pre-release versions, for example “preview2”
- “+e”: Hot Fix release descriptor, for example “+H1”, “+H2”, “+H3”.

What's New In This Release

To learn what's new and changed in this and earlier NEN releases, see *What's New in The Releases* in the latest .

Resolved Issues in NEN 2.2.0

- **Incorrect Cluster Mode shown in NEN Health Report** (E-80063)
  In a cluster configured with only one NEN node, the Cluster Mode field in the generated health report showed HA Failover instead of Standalone, as expected. This issue is resolved and the Cluster Mode is now reported as Standalone in this case.
- **NEN didn't specify the VS protocol in rules it programmed on SLBs** (E-79568)
  When the NEN programed an SLB Virtual Server with a rule that included an Accept action, the rule specified Any for the protocol instead of the actual protocol of the virtual server. This issue is resolved. Now such rules specify the configured protocol of the virtual server.

- **Some NEN logs were written to the wrong directory** (E-79408)
  In standalone NEN implementations, some log files were written to `/var/log/` instead of to `log/illumio-nen`. This issue is resolved. NEN logs are now written to the `log/illumio-nen` directory.
- **NEN logs are now archived** (E-79328)
  To prevent the disk on standalone NEN nodes from filling up with unarchived log files, log files older than 1 day are now rotated and archived to the `logs/archive` directory. Log files older than 7 days are deleted.
- **Time-based SLB/VS discovery and tamper checking frequency** (E-78352)
  To better secure environments with a large number of load balancers and virtual servers, SLB VS discovery now occurs approximately every 5 minutes instead of according to a loop count. Tamper checking now occurs after policy programming has been completed and then approximately every 5 minutes when policy is not running.
- **AVI load balancer integration in pending state** (E-72540)
  After integrating an AVI Vantage load balancer with the Illumio Core NEN, the load balancer remained in the Pending connection state. From the PCE web console menu (**Infrastructures > Load Balancers**) the hourglass icon in the Status column indicated that the load balancer was stuck in the Pending connection state. This issue is resolved. Beginning in this release, AVI Vantage load balancers are supported.

Known Issues in NEN 2.2.0

- **Not possible to apply policy to network switches** (E-81421)
  In this release, generating ACLs for a switch policy fails. The file generated by clicking **Generate ACLs** (**Infrastructure > Switches**) contains an error message instead of ACLs.
- **PCE Listen Only mode does not yet apply to NENs** (E-80376)
  Listen Only mode allows you to temporarily stop the PCE from sending policy updates to your VENs. Policy updates resume only after you disable Listen Only mode. This behavior is not yet available for NEN/F5 policy updates, which means that there's a chance that an F5 SLB could receive a stale policy when the PCE is in Listen Only mode.
- **Only TCP and UDP protocols are discoverable by NENs** NENs will only discover SLB Virtual Servers that are programmed with the TCP or UDP protocol.

Illumio NEN Release Notes 2.1.1

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About This Document

These release notes describe the new features, enhancements, resolved issues, and known issues for the Network Enforcement Node (NEN) 2.x.y releases.

The NEN is the Illumio Core's switch interface, which allows you to get visibility and enforcement on switches. The NEN has both switch and server load balancer capabilities.

See the NEN Installation and Usage Guide for information.

Product Version

NEN Version: 2.1.1

Compatible PCE Versions: 21.2.3, 21.2.4

Illumio NEN 2.1.1 is only compatible with Illumio Core PCE 21.2.3 and 21.2.4. Earlier versions of NEN 2.1.0 are compatible with PCE 21.2.2, 21.2.1, 21.2.0, 21.1.0, 20.2.0.

Standard versus LTS Releases

For information about Standard versus Long Term Support (LTS) releases, see Versions and Compatibility in the Illumio Support portal (log in required).

Release Types and Numbering

Illumio Core release numbering uses the following format: “a.b.c-d+e”

- “a.b”: Standard or LTS release number, for example “20.2”
- “.c”: Maintenance release number, for example “.1”
- “-d”: Optional descriptor for pre-release versions, for example “preview2”
- “+e”: Hot Fix release descriptor, for example “+H1”, “+H2”, “+H3”.

What's New In This Release

To learn what's new and changed in this and earlier NEN releases, see *What's New in The Releases* in the latest .

NEN 2.1.1

Resolved Issues

- **Error occurs after installing the NEN on CentOS 8 or RHEL 8** (E-85689)
  Attempting to install a NEN on a CentOS Linux 8 or RHEL 8 node generates the following error after restarting the PCE:

`failed to create symbolic link 'runtime_environment_extensions.rb': File exists You must now restart the PCE.`

Workaround: The NEN is not supported on CentOS 8 nor RHEL 8. Don't attempt to install the NEN on a node running those operating systems.

- **NEN didn't delete empty iRule and create a new non-empty rule** (E-84872)

  iRules are a feature within the F5 BIG-IP local traffic management (LTM) system. An iRule can become empty due to tampering. If the NEN detects that an iRule is empty, it's supposed to delete it and then create a new non-empty rule. In this case, the NEN failed to delete the empty iRule and create a new non-empty rule. This issue is resolved.

- **NEN didn't discover all tenants and VIPs from AVI load balancer** (E-84047)

  When attempting to import Virtual IPs (VIPs) into the PCE from an AVI load balancer, the NEN didn't discover all tenants and VIPs. The issue occurred because the previous NEN version didn't support API paging. This issue is resolved with this release.

NEN 2.1.0

Resolved Issue in NEN 2.1.0+H7

- **PCE upgrade failed** (E-82713)

  Upgrading a PCE to release 21.2.3 failed. The failure was reported on data nodes with a NEN installed via the error " PGPASSWORD cannot be included in the command. Please use `env_hash` to pass it as env variable." This issue is resolved and upgrading to PCE release 21.2.3 now succeeds.

Resolved Issues in NEN 2.1.0+H6

- **Discovering a load balancer's virtual servers could take 30 minutes or longer** (E-80718)

  In the previous release, the NEN completed the following operations serially: load balancer policy programming, tamper checking, and virtual server discovery. Programming policy can take up to 30 minutes; therefore, the NEN could take 30 minutes or longer to discover the load balancer's virtual servers (especially, when the NEN performed tamper checking too). This issue is resolved. In this release, the NEN discovers virtual servers in parallel with programming policy and tamper checking. Discovering new

virtual servers occurs much faster because the NEN no longer waits for policy programming and tamper checking to finish first.

NOTE

Because Illumio added separate concurrent threads to the NEN for virtual server discovery in this release, the PCE data nodes can experience increased CPU utilization. Please ensure that your PCE has enough capacity to run the NEN in this release.

- **PCE could mark discovered virtual servers as pending deletion** (E-80662, SFDC Issue 15594)

  The PCE could mark a discovered virtual server as pending deletion when it wasn't unpaired via the PCE web console or REST API, or removed from the F5. This issue could occur due to the F5 returning unexpected errors during virtual server discovery. When the NEN rediscovered the virtual server in the "Deletion Pending" state, the PCE did not revert that state automatically. This issue is resolved. The PCE no longer marks discovered virtual servers as pending deletion when the NEN encounters unexpected errors from the F5.

Resolved Issues in NEN 2.1.0+H5

- **Badly formed JSON when reprogramming DVS** (E-79438)

  JSON was sometimes badly formed due to tampering when DVS was reprogramed.

  This issue is resolved.
- **NEN needs to ignore VS when filtering is disabled** (E-78454)

  NEN needs to ignore VS when filtering is disabled and when protocol is neither TCP nor UDP.

  This issue is resolved and the system is able to discover all VIP's configured on F5.
- **Increase timeouts on NEN requests** (E-78109)

  When handling large number of SLBs and VSs it was needed to increase timeouts for NEN requests to PCE for the SLB configuration and policy.

  This issue is resolved.
- **Change in policy order or policy action state on AFM does not trigger tampering** (E-77888)

  The NEN was not always detecting minor modifications in VS rule values or the change in order of rules within a policy, when programming a policy.

  This issue is resolved.

Resolved Issues in NEN 2.1.0+H4

- **SLB reject rules now support logging** (E-77278)

  In the previous release, traffic flows for server load balancer (SLB) reject rules (`"action":"reject"`) were not logged by the NEN. In this release, the log option is set (`"log":"yes"`) for SLB reject rules.
- **NEN didn't propagate rule with updated IP list** (E-77038)

  When customers provisioned a rule with a new IP list, the virtual server(s) impacted by the rule received the update but it wasn't propagated through the F5 interface to the Advanced Firewall Manager (AFM) cluster. This issue is resolved. Provisioned rules with updates to their IP lists are propagated to the AFM cluster.
- **Script to back up or duplicate the NEN database can now run when the NEN is part of a Supercluster** (E-76952)

  In the previous release, you could not run the `illumio-nen-db-management` script on a NEN that was part of a Supercluster deployment because it required running at runlevel 1. In this release, you can run the `illumio-nen-db-management` script on a NEN that is part of a Supercluster deployment, because it no longer requires running at runlevel 1 in a Supercluster deployment.

  When the NEN is deployed as a standalone NEN primary node, you still must run the `illumio-nen-db-management` script at runlevel 1.
- **The Policy Manager process stopped responding and closed** (E-76934)

  When programming an F5 Application Services 3 (AS3) virtual server that didn't exist, the NEN `PolicyMgr` process stopped responding and closed. This issue could happen when a virtual server was renamed or deleted on a server load balancer (SLB) before the NEN discovered it by polling the SLB. This issue is resolved. When attempting to program a virtual server that doesn't exist, the NEN no longer stops responding or closes and instead writes a message to the log that it cannot program the missing virtual server.

Resolved Issues in NEN 2.1.0+H3

- **NEN failed to detect a policy rule change** (E-75343)

  The NEN did not detect when the F5 UI was used to remove and replace the policy for an AS3 managed VIP. It should have detected that the original policy had been modified. This issue is resolved.
- **NEN failed to detect enforcement that had been tampered with** (E-75342)

  The NEN did not detect when the F5 UI was used to tamper with the enforcement state of the policy for an F5 AS3 managed VIP, despite a change that should have been detected. This issue is resolved.

- **PCE did not display a list of discovered virtual servers** (E-75088) An API version mismatch between the PCE and the NEN caused the NEN to discover the presence of virtual servers, but the PCE could not display the list of these virtual servers. This issue is resolved.
- **PCE was setting 0.0.0.0/32 even when policy existed** (E-75028)

  When the PCE encountered a rule set with both empty and non-empty IP sets, the PCE replaced the empty sets with the 0.0.0.0/32 entry to make sure nothing matched. The non-empty IP sets were still set to the correct IPs, so no traffic was incorrectly blocked; this was only a display issue. The empty IP sets could be caused when there were not currently any workloads with those labels. This issue is resolved. The PCE now only adds the 0.0.0.0/32 entry if the entire combined IP list for the rule is empty.
- **NEN updated AFM Policies even when no changes were triggered from PCE** (E-74952)

  This issue arose only for AS3 managed BIG-IP Advanced Firewall Manager (AFM)s. The NEN would repeatedly create and delete AFM policies, even when no changes were triggered from the PCE. This issue happened because the NEN code used the wrong address list name when comparing policy information during AS3 managed VIP tamper checking. This caused tamper checking to fail and the NEN to reprogram the VIP. This issue is resolved. The NEN now uses the correct format of the address list name for AS3 VIPs.
- **AFM policy provisioning failure on the NEN-managed VIPs** (E-74876)

  If VIPs were removed from the NEN DB but not from the PCE DB, when a policy for the unknown VIPs was sent to a NEN it stopped programming policy instead of ignoring the VIP.

  This issue is resolved. The code was updated to ignore the VIPs it doesn't know about.
- **NEN 2.1.0+HF2 was unable to provision policy to both active/standby devices in an AFM pair** (E-74515)

  When the NEN sent a PATCH command to update the F5 AS3 declare, the F5 returned a 202 response code which was not expected by the NEN. This issue was resolved.
- **Incomplete removal of VIPs from SLB** (E-66278)

  When you used the server load balancer (SLB) UI to remove all virtual IP addresses (VIPs) from the SLB, the VIPs were still displayed in the PCE UI. This issue is resolved and the VIPs are not displayed in the PCE web console after being removed.

Known Issue in NEN 2.1.0+H3

- **F5 16.x not supported** (E-75470)

  Due to a known F5 issue, NEN 2.1.0+H3 does not support F5 16. *x*.

Resolved Issues in NEN 2.1.0+H2

- **NEN was unable to provision policy to AFM HA pair** (E-73673)

  NEN was unable to provision policy written on the PCE to the AFM HA pair even though it could communicate with that pair . This issue was caused due the way in which credential/connectivity information was stored for an HA pair. This issue is resolved and the NEN can successfully provision policies.
- **NEN was not overriding Illumio policies on AFM when tampered manually** (E-72468)

  After logging in to AFM, if you selected an AFM policy that was written by Illumio and edited that policy by adding a 'dummy IP', the Illumio ACL did not remove the 'dummy IP'. This issue is resolved and NEN overrides the manually tampered Illumio ACL back to its original state.

Resolved Issues in NEN 2.1.0+H1

- **NEN was not able to program rules to the AVI controller when IPv6 was present** (E-72952)

  After setting up AVI integration with the PCE, when you wrote a policy rule that contained virtual servers and managed workloads, the NEN could not program that rule. This issue is resolved and the NEN programs the AVI controller with the correct ACLs.
- **SLB Tampering checks did not detect errors if the address-list generation number contained a zero** (E-72923)

  If anything in a rule was changed other than the data group information, then the tampering was not detected if the address list generation value contained a zero. This issue is resolved.
- **AVI load balancer integration would be in a pending state** (E-72704, E-72540)

  After integrating an AVI Vantage load balancer with the Illumio Core NEN, the load balancer would remain in the Pending connection state. This issue is resolved.

Resolved Issue in NEN 2.1.0

- **NEN stopped updating the IPset addresses** (E-71650)

  A bad heartbeat or config response from the PCE would cause the NEN to clear its config and it never requested the config, because as per the PCE the configured policy had not changed. This issue is resolved and the NEN gets the config as soon as it gets a valid heartbeat response.

New Features and Enhancements in NEN 2.1.0

The NEN 2.1.0 release includes the following features and enhancements:

Policy on Both Members of SLB cluster

The policy can be applied to both the configured members of an SLB cluster:

- You can create and update rules on both members of an AFM/LTM cluster, with up to two load balancers.
- Both members must be in sync before informing the PCE that the policy has been applied.
- If only one SLB is available, the operation will fail. You can retry to apply the policy only after both are in sync.
- If one member fails to program the rules, you should not retry.

Remove Filtering of F5 VIPs

You can view all types of Virtual Services configured on F5 load balancers, by running a specific command during the NEN installation. To disable (enabled, by default) the built-in filter running on the NEN on the leader PCE cluster, run the following command:

```
illumio-nen-ctl slb-enable --virtual-server-filtering disabled
```

Single NEN RPM

From the NEN 2.1.0 release onwards, a single NEN RPM is available, which you can install either on a PCE/NEN system or a standalone system.

If you are upgrading from Illumio Core 19.3.0 or below to Illumio Core 20.2.0 or from Illumio Core 20.1.0 to Illumio Core 20.2.0 and you have the NEN installed on a PCE, run the following command before installing the PCE RPMs and NEN RPM:

```
rpm -e illumio-pce-nen --noscript
```

Manage NEN on Supercluster Leader

For Supercluster deployment, you can install the NEN only on the 2 database nodes of the Supercluster leader. You cannot install on a standalone system or on non-Supercluster leader nodes.

Scale

The NEN 2.1.0 release supports up to 500 VIPs and up to 15 SLBs.

Known Issue in NEN 2.1.0

- **AVI load balancer integration in pending state** (E-72540)

  After integrating an AVI Vantage load balancer with the Illumio Core NEN, the load balancer remains in the Pending connection state. From the PCE web console menu, choose **Infrastructure > Load Balancers**. The Server Load Balancer page appears. The hourglass icon in the Status column indicates that the load balancer is in the Pending connection state. AVI Vantage load balancers are not supported in this release.

NEN 2.0.0

Resolved Issues in NEN 2.0.0

- **SLB HA didn't work as expected** (E-66731)

  If the first configured Server Load Balancer (SLB) device of high availability (HA) pair became unavailable or unreachable, the second SLB device was not used and the NEN was unable to program rules for the managed DVS. This issue is resolved.
- **Unable to pair AFMs in HA mode with the PCE** (E-66640)

  Pairing F5 Advanced Firewall Managers (AFM) individually with the PCE would work. However, pairing them in the HA mode would fail due to the request to the PCE getting timed out. This issue is resolved and you can pair AFMs with the PCE in the HA mode.
- **NEN able to re-pair with the existing PCE** (E-61765)

  If a standalone NEN was lost due to machine failure, you could not re-pair a new NEN with the same hostname to the existing PCE. This issue is resolved and you can re-pair a new NEN.

New Feature in NEN 2.0.0

The NEN 2.0.0 release includes support for AVI Vantage load balancers.

Known Issue in NEN 2.0.0

- **Incomplete removal of VIPs from SLB** (E-66278)
  If the SLB UI is used to remove all virtual IP addresses (VIPs) from a PCE-monitored SLB, the VIPs are still displayed in the PCE UI and policy change requests may be generated for those VIPs.

Illumio NEN Release Notes 2.0.0

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About This Document

These release notes describe the new features, enhancements, resolved issues, and known issues for the Network Enforcement Node (NEN) 2.x.y releases.

The NEN is the Illumio Core's switch interface, which allows you to get visibility and enforcement on switches. The NEN has both switch and server load balancer capabilities.

See the for information.

Product Version

Current PCE Version: 20.1.0+H4 (Standard Release)

Current VEN Version: 20.1.0 (Standard Release)

Current NEN Version: 2.0.0

Standard versus LTS Releases

20.1.0-PCE is a standard release. Illumio will designate a version of 20.*x.y* as a Long Term Support (LTS) release. Do not upgrade to 20.1.0 if your environment requires an LTS release.

For information on Illumio software support for Standard and LTS releases, see Illumio Versions and Compatibility .

Release Types and Numbering

Illumio Core release numbering uses the following format: "a.b.c-d+e"

- "a.b": Standard or LTS release number, for example "20.1"
- ".c": Maintenance release number, for example ".1"
- "-d": Optional descriptor for pre-release versions, for example "preview2"
- "+e": Hot Fix release descriptor, for example "+H1", "+H2", "+H3".

New Features in NEN 2.0.0

The NEN 2.0.0 release includes support for AVI Vantage load balancers.

Resolved Issues in NEN 2.0.0

- **SLB HA did not work as expected** (E-66731)
  If the first configured Server Load Balancer (SLB) device of an high availability (HA) pair became unavailable or unreachable, the second SLB device was not used and the NEN was unable to program rules for the managed DVS. This issue is resolved.

- **Unable to pair AFMs in HA mode with the PCE** (E-66640)
  Pairing F5 Advanced Firewall Managers (AFM) individually with the PCE would work. However, pairing them in the HA mode would fail due to request to the PCE getting timed-out. This issue is resolved and you can pair AFMs with the PCE in the HA mode.
- **NEN unable to re-pair with the existing PCE** (E-61765)
  If a standalone NEN was lost due to machine failure, you could not re-pair a new NEN with the same hostname to the existing PCE. This issue is resolved and you can re-pair a new NEN.

Known Issue in NEN 2.0.0

- **Incomplete removal of VIPs from SLB** (E-66278)
  If the SLB UI is used to remove all virtual IP addresses (VIPs) from a PCE-monitored SLB, the VIPs are still displayed in the PCE UI and policy change requests may be generated for those VIPs.