

# 128T 4.5 Release Notes

## ! INFO

Issues resolved in a release are merged into subsequent releases chronologically AND numerically.

If you do not see an issue listed below, it may have been resolved in another recently released version. A link to the Release Notes for the most recent chronological release of SSR / 128T Software is provided.

Alternatively, refer to the [List of Releases](#) page for release dates and links to all SSR / 128T Release Notes; or, if you know the Issue ID Number, enter that into the Search field at the top right of this page.

## Release 4.5.11

**Release Date:** September 7, 2021

### Resolved Issues Requiring Configuration Changes

- **195-39617 Add cost (currency) and carrier information to the `network-interface` and `authority`:**  
Added attributes to the network-interface that reflect the monetary cost for paths. For more information, refer to `network-interface`, and `authority` in the Element Reference Guide.

### Resolved Issues

- **195-40035/195-40030 Jute maxbuffer limit for running/candidate configurations:** Created an alarm when the zookeeper jute buffer exceeds a threshold (75%), and an alert to change the system environment configuration.
- **195-40239 CVE-2021-26937:** This vulnerability has been resolved.
- **195-40241 RHSA-2020:1180:** Resolved RHSA-2020:1180 by deprecating package ImageMagick.
- **195-40242 CESA-2021:0856 advisory:** This vulnerability has been resolved.

- **I95-40624 Occasional failures in time-based HMAC:** This issue has been resolved.
- **I95-41070 Socket Hangs while validating configuration:** Validation checks now handle services with no address in `ServicePortRanges`.
- **I95-41105 Race condition causes peer path status to be down:** This issue has been resolved.
- **I95-41194 Log generated on the conductor is missing output of some commands:** The `show alarms` command now uses the local router name in `save-tech-support-info`.
- **I95-41227 Authentication Bypass Vulnerability:** The bypass vulnerability has been addressed.
- **I95-41412 Intermittent traffic drop:** Resolved an issue with compression code, resulting in invalid packets being discarded.
- **I95-41972 Automated Provisioner throws exception during show assets:** Resolved an issue with multiple aggregations when persisting in-memory metrics.

## Release 4.5.10

Release Date: June 8, 2021

### Resolved Issues Requiring Configuration Changes

- **I95-40411 Network Filters for in-product templating:** The `network_hosts` template filter has been added, allowing you to expand the IPv4 and IPv6 address ranges.

### Resolved Issues

- **I95-39249 Validation Warning when services collide:** Additional warnings are now provided during configuration validation when two services have overlapping protocol specifications.

- **I95-39436 Waypoint Allocation Issue:** Resolved an issue where pending queries for port key database were cleared unintentionally.
- **I95-40111 New flows not processed until system restart:** Resolved an issue with application schedulers causing a lockup, preventing new flows from being processed.
- **I95-40529 Duplicate Session ID causing a race condition in BFD:** Created a synchronized block to protect session IDs, and improved resiliency for BFD sessions.

## Release 4.5.9

Release Date: May 20, 2021

### Resolved Issues Requiring Configuration Changes

- **I95-40161 Improved organization of the network-interface GUI:** The flow of the GUI for network-interface configuration has been improved to be more intuitive and have a more natural flow.

### Resolved Issues

- **I95-39308, I95-39659, I95-39970, I95-40123 PortKeyDatabase accidentally clearing queries:** Resolved an issue where pending queries for port key database were cleared unintentionally.
- **I95-39477 Configuration validation failure when conductor non-forwarding fabric interfaces are configured in different subnets:** Updated to display a warning to the user to correct the issue, rather than failing.
- **I95-39761 Influx process not releasing memory:** Resolved an issue where influx would not release unneeded memory resulting in task restarts.
- **I95-39780 Hugepage tool incorrectly calculates hugepages based on Tenant table:** Revised the scaling of the Hugepage tool.
- **I95-39852 Synchronize Hardware clock to NTP Server:** Resolved an issue where the hardware and system clocks were not synchronized.

- **I95-39887 Router deployments taking longer than expected to complete:** Resolved an issue where assets take a long time to transition out of the connected state.
- **I95-39953 IPFIX Export Loop:** Resolved a race condition causing the IPFIX collector to get into an infinite loop exporting interim records.
- **I95-39985 Template save error:** Resolved an issue where creating persistent fields on an **existing** template in Advanced Mode generated a validation error and the template changes were not saved.
- **I95-39986 Mellanox driver discarding large segmented packets:** Resolved an issue where the Mellanox driver was discarding large segmented packets and reporting them as errors.
- **I95-40000 LTE Module Reset overwrites the LTE interface MTU:** The LTE target interface MTU is now persisted at 9000.
- **I95-40096 Missing Data in the Permutations Report:** Resolved an issue with the way incomplete samples were recorded in the Permutations Report.
- **I95-40133 Increase the Conductor Self-upgrade Timeout:** In some cases, the timeout for the Conductor self-upgrade was not long enough, causing a webserver timeout. The upgrade timeout has been increased to prevent this issue.
- **I95-40147 HMAC Digest Compare Failures causing poor performance:** Resolved an issue with the HmacContext verification process.
- **I95-40208 Quickstart not setting the minion\_id to the hardware identifier when the value is blank:** Previously, if the Quickstart configuration did not have a value for the `minion_id`, the `minion_id` would not be set to the hardware identifier. This has been corrected in the `128T-4.5.9-1.el7.0TP.v2.x86_64.iso` ISO.

## Release 4.5.8

Release Date: April 28, 2021

## Resolved Issues Requiring Configuration Changes

- **195-39544 Non-persistent template fields:** You now have the option to create non-persistent template input parameters, allowing the template to create unique instances per instantiation.
- **195-39580 Reference Candidate Config Values in a Template:** Using a custom tag in Advanced Mode allows you to reference a value from a candidate configuration. For details about using this tag in Advanced Mode, refer to [Pulling Values from the Candidate Configuration](#).

## Resolved Issues

- **195-38758 Validate management-over-forwarding and default-route:** Not supplying a default-route prevents the ifcfg file from being generated. A validation check has been put in place to verify that the default route is set to true.
- **195-39525 BGP over SVR does not fail active sessions between SVR peers:** Existing sessions do not move to the next peer for bgp over SVR based transport. With this change, existing sessions will move to the new peer.
- **195-39602 Additional detail for `show peers hostnames`:** The `show peer hostnames` command now displays additional supporting information: Node, Destination IP address, and Status.
- **195-39632 Toggling traffic engineering causes power saver to fail:** Resolved an issue that causes power saver to fail on multi-core systems when traffic engineering is toggled.
- **195-39698 Alibaba Cloud with enhanced networking sometimes doesn't work:** Resolved an issue between Virtio and RSS causing an unbalanced queue.
- **195-39788 Inconsistent services after modifying certain service configs:** The system's underlying service configurations may have been in an inconsistent state when modifying a dhcp-relay or template application-type service.

- **I95-39798 Version update check may get stuck on GPG key access when using an access token:** The software upgrade version check has been modified to support access tokens.
- **I95-39826 Management over forwarding pppoe generates v6 services or service-routes:** Resolved an issue where pppoe config generation is treated as a possible ipv6 address family interface.
- **I95-39855 `show stats` usage missing units:** With this change the `show stats` usage help text includes units
- **I95-39890 Unable to establish GRE session:** Resolved an issue with occasional fastlane lockups when using the Retransmission-with-DPI feature.

## Caveats

- **I95-39985 Template save error:** When creating persistent fields on an **existing** template in Advanced Mode, a validation error appears and the template changes are not saved. **Workaround:** There are two workarounds.

You can either; use GraphQL to set `persistInput` on each template to `true` to resolve the issue for that template.

OR

1. Copy the contents of the variables pane to your clipboard.
2. Open the Settings dropdown.
3. Click "Persist Input" to disable the option.
4. Click "Proceed" in the warning modal.
5. Open the Settings menu and click "Persist Input" again to turn it back on.
6. Paste your variables back into the variables pane and save the template. This template should no longer encounter the issue.

## Deprecated Features

- **I95-39881 GraphQL User Mutations have been Deprecated:** The "createUser", "modifyUser", and "deleteUser" GraphQL mutations are now deprecated. Please use their REST equivalents which are listed in the GraphQL "deprecationReason" for those mutations.

# Release 4.5.7

Release Date: April 12, 2021

## Resolved Issues Requiring Configuration Changes

- **Support for Installer 3.0, providing token-based software access.** For Installation and Upgrade information, refer to [Conductor Interactive Installation](#).

## Resolved Issues

- **I95-39650 Repository access tokens provisioned on the Conductor are not automatically distributed to its managed routers.** Access Tokens are now distributed to managed routers.
- **I95-39649/BEL-42 Conductors/Routers on initial deployment not going to running state.** Resolved an issue where Conductors or Routers on initial deployment would not transition to a running state until a certificate was added.
- **I95-39793 Conductor fails to self-upgrade:** This issue affected only 4.5.6-1 systems performing Conductor self-upgrade with Installer version 2.7.0 (or later). This issue has been resolved.

## Caveats

- **I95-39798 Token Update and Available Version Update stuck on GPG key access:** In rare occasions the GPG key access may cause the token and version updates to hang, and block access to the software. To prevent this issue, log out of all open web and PCLI sessions before applying the token.

# Release 4.5.6

## Resolved Issues Requiring Configuration Changes

- **I95-35051 Provide a way to generate & stage all auto-generated configuration:** The `create config autogenerated` command has been added, which forces re-generation of all automatically generated configuration items, and stages the configuration changes into the current candidate configuration. This command serves only to aid in debugging, and allows you to validate, inspect, and make edits, without committing the changes.

- **I95-38642 Form Based Template Instantiation:** An administrator can now define a JSON Schema to create a template for variables so a user can fill out the variables in a simple form.
- **I95-38920 MIB additions - router metadata:** The following fields have been added to the T128-SYSTEM MIB:
  - Router Description
  - Router Location
  - Router Coordinates
  - Node Description
  - Node Location

## Resolved Issues

- **I95-30812 PCLI session terminated when actively running commands:** Prior to this change only the enter key would reset the PCLI activity timer. With this change, the `tab` and `?` operations will also reset the PCLI activity timer.
- **I95-35521 Ambiguous validation error:** Errors now more clearly identify the source of the error.
- **I95-36053 High number of System Events on 128T Config changes:** Added a filter to audit logs of type SERVICE-START and SERVICE-STOP based on service to filter just the required services.
- **I95-36366 Security keys are not automatically generated for unmanaged router:** Security keys are now automatically generated.
- **I95-36761 Configuring `default-route-distance` under bgp causes a fault in the PCLI:** This issue has been resolved by providing defaults for default BGP distances (ebgp, ibgp, and local).
- **I95-37002 Help text on shared-mac parameter should be more explicit:** The description has been updated to provide additional information.
- **I95-37181 LTE Modem denied from network with 128T Service Running:** Resolved an issue where UDP packets larger than the network-interface MTU causes Rx Error on the LTE interface, resulting in denial

of the LTE modem.

- **I95-37368 Asset ID unable to be reset from GUI:** An asset-id can be reset from the Asset ID field in the GUI.
- **I95-37770 Password Obfuscator consumes password as a command line argument:** This issue has been resolved.
- **I95-37832 Ensure no world writable files exist:** Added software tools to avoid world writable files.
- **I95-38378 Router unable to establish connection to conductor after enabling asset connection resiliency:** The salt-minion configuration file now loads at the time of a migration operation, to ensure the latest version of the configuration is available.
- **I95-38389 PDM gets pegged at 100% which makes the GUI and PCLI inaccessible:** The config export process has been made more efficient to reduce the chance of a race condition.
- **I95-38393 Router Cannot Get Past Connected State:** Resolved an issue where assets could become stuck in Connected state.
- **I95-38395 TCP Out of Order can cause Stuck Flow:** Resolved an issue where a TCP FIN received before the data that preceded it could cause a stuck flow.
- **I95-38458 PCLI fails to start after upgrade:** Resolved an issue where caching errors prevented 128T from starting.
- **I95-38474 The `router > dns-config` does not account for the immutable bit on `/etc/resolv.conf`:** Resolved an issue with the DNS proxy not working due to the immutable bit set by ISO.

- **I95-38495 Duplicate link-layer-address configuration causes DHCP server to fail to start:** A configuration validation error is shown when duplicate link-layer-address are configured.
- **I95-38500 CVE Medium: binutils (CESA-2018:3032), binutils (CESA-2019:2075):** Added binutils to deprecated packages.
- **I95-38649 CVE High: SSR-OS: kernel (CESA-2020:5437):** Update Kernel to 3.10.0-1160.11.1.
- **I95-38666 Management Services and routes may not be generated for PPPoE:** Resolved an issue where `management-over-forwarding` was not generating service or service-route config for PPPoE interfaces.
- **I95-38682 CVE Medium: Rebuild Python:** Python has been updated to address vulnerabilities.
- **I95-38694 SNMP ifTable does not conform to correct IF-MIB representation of high speed interfaces:** The `ifSpeed` field in the legacy `ifTable` has been set to conform with the higher speed values.
- **I95-38768 VMXNet3 driver not functional:** A fix has been applied to the ip header checksum and is now calculated via hardware offload.
- **I95-38815 Dynamic addresses for adjacencies are not propagated on configuration changes:** Unresolved dynamic peer hostnames are now properly handled via DPU and no longer produce DNS queries.
- **I95-38832 Intermittent PCLI command failure when issues queries against managed routers:** Resolved an issue that resulted in unresponsive web and command line interfaces caused by certain configuration sizes.
- **I95-38843 Highway crash shortly after upgrade to 4.5.4** Removed an unused component that was causing reverse key collisions for multi-hop scenarios.

- **I95-38919 Prevent DNF Corruption prior to Plugin Install:** Added corruption detection/remediation to plugin installation.
- **I95-38963 Address sudo CVE-2021-3156:** Upgraded to later version.
- **I95-38986 Template parse error is difficult to find:** Added additional context to the error to help identify.
- **I95-39011 AutomatedProvisioner process consuming 300%:** Resolved by increasing the timeout for local rpm queries.
- **I95-39036 dns-config=automatic should be allowed when using PPPoE:** Resolved an issue where management over pppoe interface does not allow dns-config mode to be configured.
- **I95-39069 Highway crash when committing configuration:** Resolved a Multi-threading race condition when processing multicast.
- **I95-39106 DHCP alarms are not cleared when config is changed to static:** We now clear stale alarms from unresolved DHCP enabled interfaces when reconfigured to use static address.
- **I95-39121 Extended driver stats for WAN Assurance:** These extended stats are now available using the extended stats APIs:
  - interface received undersize errors
  - interface received oversize errors
  - interface received fcs errors
  - interface received overrun\_errors
- **I95-39163 Long propagation times in FIB entries:** The routing agent implementation was improved to enable faster processing of configuration changes when there are services with a large port range.
- **I95-39167 IP violations caused by un-natted packets:** Resolved an issue where ICMP unreachables on an LTE interface are generating IP violations causing an unexpected disconnect.

- **I95-39189 CVE Medium: CESA-2020:5566 openssl:** The openssl package has been updated to the latest version.
- **I95-39190 CVE Medium: CESA-2021:0153 dnsmasq:** Upgraded dnsmasq to version 2.76-16.el7\_9.1 as a remediation for CESA-2021:0153.
- **I95-39192 BFD not able to recover after one-off source-nat changes on both directions:** BFD Session code has been modified to recover in this scenario.
- **I95-39239 Event persistence gets stuck on a high number of events:** This issue has been resolved.
- **I95-39248 Session Migration failed due to Session Modification:** The update logic has been modified to handle a metadata update during the migration process.
- **I95-39269 Interface Stats on Router Page do not show why an interface is up/down:** The GUI now indicates whether an interface is Admin down or unplugged.
- **I95-39319 Improve HMAC action performance via reusing context:** Changed lifetime of HMAC context to no longer be per packet, providing a much more efficient way of interacting with the OpenSSL HMAC library.
- **I95-39352 128T ISO boot logo has old 128T icon:** The splash screen has been updated to display the Juniper logo.
- **I95-39378 PCLI may return partial or empty results from some commands:** This issue has been resolved.
- **I95-39446 Rate limit Not Enforced on Upload:** Rate limiting is now applied even if the packet is coming from another node/router.

- **I95-39486 Conductor installation does not update while performing the upgrade from the GUI:** Resolved an issue that during a conductor upgrade, the GUI was not updating until the last few seconds of the installation. The GUI now shows the install/upgrade progress.
- **I95-39543 Out of order packets when traffic-eng is enabled in multicore environments:** Fixed occasional reorder issue when `traffic-eng` is enabled in a multicore environment.

## Caveats

- **I95-39793 Conductor fails to self-upgrade:** This issue affects only 4.5.6-1 systems performing conductor self-upgrade with Installer version 2.7.0 (or later). Released versions of 128T prior or after 4.5.6-1 are not affected.

The following error is displayed:

```
/usr/bin/nice: /usr/lib/128T-installer/install128t.par: No such file or
directory
Failed to upgrade 128T!
```

The recommended course of action is to perform a manual interactive upgrade of the conductor. Please refer to [Upgrading Using the Interactive Installer](#) for that process.

## Release 4.5.5

### Resolved Issues

- **I95-38833 Q-in-Q packets are not recognized when packets have non-zero DSCP value:** Resolved an issue where a WAN interface with Q-in-Q enabled was incorrectly reading the VLAN tag from the outer VLAN header.

## Release 4.5.4

### Resolved Issues

- **I95-35919 Resolve SSH-related vulnerabilities:** [Several fixes have been put in place to harden SSH access.](#) With these changes, upgrading a router changes the host key identifier. This results in the SSH message: WARNING: REMOTE HOST IDENTIFICATION HAS CHANGED being displayed after the upgrade, as well as when a user connects to the system using the `ssh` command.

- **I95-37192 Template Instance Input Helpers:** Added the ability to define input helper text for a given templated parameter, so that template consumers enter data appropriate to the input form.
- **I95-37774 Detached Flow Collision:** Resolved a rare case that allowed a flow collision with a detached flow that may result in an application fault.
- **I95-38084 SNMP failure alarm after upgrade:** Resolved an issue where the snmpd service was starting before the configuration had been received causing the failure alarm.
- **I95-38152 Access Policy field in GUI with wrong title:** Corrected the title in the Access Policy for Service field.
- **I95-38175 Deleting an invalid interface from the router logs an error:** Resolved an issue where a non-forwarding interface would fail to be removed from Linux when deleted from configuration.
- **I95-38194 Conductor cannot see peer path stats in GUI:** The web server now makes an explicit version check to verify the correct data is sent.
- **I95-38196 Session Collision:** Resolved a situation that occurs when a flow is setup at the same time from both directions, the subsequent collision results in only one of the two flows being established.
- **I95-38223 Using a question mark on a command that does not exist creates a stack trace:** Added checks against syntax in Command line commands.
- **I95-38230 Support reverse arp learning for off subnet IPs:** A flag has been added to allow the ARP entry for each of the reverse flows to use the source MAC from the incoming packet as the subnet source IP address.
- **I95-38299 Not handling ICMP request with Zero as identifier:** ICMP packets with a value of 0 are now handled correctly.

# Release 4.5.3

## WARNING

SSH Root Login is not permitted.

Before upgrading, ensure that there is at least one user on each 128T system that has sudo privileges. Failure to do so may result in the loss of remote management connectivity to the 128T Networking Platform. Please see the [Installation Overview](#) for additional information.

## Resolved Issues Requiring Configuration Changes

- **I95-34924 CLI changes for `show sessions`.** The `show sessions` command has an additional subcommand `by-id` that will display a specific session by entering the session-ID. See [show sessions](#) for additional details.
- **I95-36122 Set interface provisional status.** The `set provisional-status interface state` has been added to allow an interface to be brought down for administrative purposes. `show device-interface` has been updated to display the interface provisional status.
- **I95-37855 Configurable waypoint allocation.** The `max-way-points` value is configurable at the adjacency level for each associated inter-router path. The `max-inter-node-way-points` value is configurable at the router level for all inter-node paths. Please refer to [max-inter-node-way-points](#) and [max-way-points](#) for more details.

## Resolved Issues

- **I95-39044 OTP ISO bootstrap sets HA nodes with name of first node** The OTP bootstrap operation now updates the second node in an HA pair with the correct name. This correction has been applied to the v2 version of the 4.5.3 OTP ISO. This fix does not apply to the 4.5.4 nor the 4.5.5 OTP ISO at this time (03/01/2021).
- **I95-35567, I95-37833 Weak Password Policy.** New restrictions on password properties have been added to ensure strong passwords.

- **I95-35987 Downloading exported config files does not preserve the file name.** The download process correctly preserves the file name.
- **I95-36656 Asset-ID not included in Quickstart file.** Updates have been made to always include the Asset-ID in the quickstart file.
- **I95-36910 Failed to setup IP address on linux interface when VLAN is configured.** IP addresses are now setup correctly.
- **I95-37225 Routers disconnect from their Conductors.** Improved the handling of clock drift between multiple worker cores within the datapath.
- **I95-37457 `show rib` and `show bgp` do not support more than one pagination session.** Pagination issues have been resolved for `show rib` and `show bgp`.
- **I95-37514 App-ID result is stuck pending if script is not executable.** App-ID results are no longer held pending.
- **I95-37577 LDAP authentication fails for users that contain a '`'` in their name.** Naming issues have been resolved with LDAP authentication.
- **I95-37638 Duplicate Assets showing in CLI.** Resolved an issue where there were duplicate values in the output of `show assets`.
- **I95-37642 A user cannot change their password from the 128T GUI.** A user can now change their 128T password from the web application GUI.
- **I95-37643 Accounts with the role of "user" have access to plugin REST API resources.** Account privileges have been reviewed and updates have been made to remediate this vulnerability.

- **I95-37644 Analytics backend requests do not adhere to a strict schema.** This vulnerability has been addressed, and fixes put in place to prevent SQL injection attacks.
- **I95-37645 Restriction of excessive authentication attempts.** [The user is now locked out after six failed login attempts.](#)
- **I95-37646 Password Change does not require current password.** The password change process has been strengthened, and now requires the current password.
- **I95-37647 Server-Sent-Events pass values in the clear for some internal request URIs.** Vulnerabilities identified with server sent events have been resolved.
- **I95-37650 The 128T web UI incorrectly supports being embedded as an iFrame within another page.** The 128T UI does not support embedded iFrames.
- **I95-37651 Unrestricted File Upload.** [Restrictions are in place](#) that make it impossible to import or upload files that do not match tar.gz format.
- **I95-37652 SSH Follows Weak Security Practices.** [Several fixes have been put in place to harden SSH access.](#) Please see the warning regarding SSH Root Login at the top of this page.

 NOTE

As part of the SSH hardening process, inactive SSH sessions will be logged out after 60 minutes. Please see [Access Management](#) for additional information.

- **I95-37666 Excessive ARPs from Broadband modem causing a Link Down condition.** The per-pipe restrictions have been lifted and distributions for the application scheduler have been rebalanced.
- **I95-37680 nodeMonitor process may fault on shutdown of 128T.** `nodeMonitor` no longer faults on 128T shutdown.

- **I95-37752 A race condition exists when a session is manually deleted through the `delete sessions` PCLI command.** The `delete sessions` command no longer creates a race condition. (Interim IPFIX record generation or HA session synchronization could also cause trigger the same fault, and is also addressed by this fix.)
- **I95-37777 Adding SNMP configuration may cause webserver to be inaccessible.** This issue has been resolved; adding SNMP configurations no longer impacts the Webserver.
- **I95-37791 128T Search crashes on an unknown config.** This issue has been resolved, the 128T search no longer encounters issues with leftover plugins.
- **I95-37800 Apply MSS Clamping on SYN/SYN+ACK packets.** MSS enforcement has been enabled on SYN-ACK packets.
- **I95-37806 Unable to delete sessions when a service no longer exists.** Services that no longer exist can now be deleted.
- **I95-37819 Ensure rsyslog default file permissions are configured.** The default file permissions for log files created by rsyslog are set.
- **I95-37822 Ensure the noexec option is set on the /dev/shm partition.** The shared memory partition /dev/shm is configured with the noexec mount option during initialization.
- **I95-37823 Ensure the "sticky bit" is set correctly on all world-writable directories.** The bit is set to protect all world-writable directories.
- **I95-37825 Ensure that AIDE (Advanced Intrusion Detection Environment) is installed.** The AIDE package is installed and is a 128T dependency.
- **I95-37828 Ensure core dumps are restricted.** Coredump tuning has been updated with the latest security settings, and will not be collected on processes with privilege escalation.

- **I95-37830 Ensure permissions on /etc/crontab and related cron files are configured.** The permissions on cron files have been updated with the latest security settings.
- **I95-37831 The default umask setting on user-created files must be more restrictive.** The default umask setting has been updated to be more restrictive.
- **I95-37842 Inter-router flow move failure for sessions with same source/dest port (UDP/TCP/ICMP).** Inter-router flow movement now identifies session source when the source and destination port are the same.
- **I95-37843 Require username and password when updating environmental configuration.** The initializer has been updated to require both a username and password when installing 128T and configuring it as the second peer in an HA configuration.
- **I95-37908 The routingEngine.log is not rotated.** Log rotation has been updated to rotate the routingEngine log file.
- **I95-38008 Automated Provisioner race condition.** Resolved an issue causing a race condition when multiple events arrived at the same time.
- **I95-38012 Remediate CVE's for kernel-3.10.0-1127 and update kernel.** Kernel updates have been made and are included in the release.
- **I95-38015/I95-38078 CVE updates.** Addressed latest CVEs.
- **I95-38119 Entry insertion into FIB causes issues with lookup returning a less specific match.** A stronger lookup strategy has been implemented to provide accurate results.

## Release 4.5.2

### Resolved Issues

- **I95-34650** In a multihop SVR scenario, the system may incorrectly attribute incoming packets as coming from a different peer path. This results in packet loss until the load-balancer learns of the loss and migrates the session.

**Symptom:** Show peers will show the physically disconnected peer as UP while in this state.

- **I95-35927** When deleting a VLAN network interface and simultaneously assigning its VLAN ID to the only other remaining network interface on the same device interface, future operational state changes on that interface may be ignored.
- **I95-36540** Session expiry logic algorithm was inefficient causing latency in session setup.
- **I95-36873** Alarms generated by a router in an authority are incorrectly sent as SNMP traps from all other routers in the authority.
- **I95-37197** Configuration validation will now fail if you configure overlapping session-type ranges within the same protocol.
- **I95-37269** Session may not recover correctly after path migration for outbound only connections.
- **I95-37304** Automatic installation recovery procedure can inadvertently terminate an in-process upgrade resulting in a 128T system not being able to boot.
- **I95-37308** Upgrade to 4.5.1 or Rollback can create multiple defunct salt-minion processes.
- **I95-37325** Asset state may incorrectly state `connected` after node failover.
- **I95-37338** When connection resiliency is enabled, the salt-minion on managed routers can intermittently disconnect.

- **I95-37341** Support for Azure Accelerated Networking MT27710 ConnectX-4 LX Virtual Function device.
- **I95-37359** `reachability-detection tcp establishment` metric incorrectly increments `close-before-establishment`.
- **I95-37402** The output of `show stats` is missing from tech-support-info.
- **I95-37436** When a sub-tenant is removed from the configuration, and the sub-tenant has a parent tenant used in a service access-policy, the sub-tenant may remain in the FIB.
- **I95-37442** The summary is missing from PCLI `ping` and `service-ping`.
- **I95-37477** An exception is thrown in the PCLI when issuing tab complete for `capture-filter` command.
- **I95-37512** Starting the PCLI prior to the 128T starting may produce an error message.

**Symptom:** % Error: Unhandled ConnectionError: ('Connection aborted.', RemoteDisconnected('Remote end closed connection without response',))

- **I95-37513** Network interface cards that do not respond to physical stats may result in system lockup.
- **I95-37518** An aborted configuration commit operation can result in a system fault when processing traffic.
- **I95-37523** Querying the router asset state from the conductor can cause the asset state to remain in its current state perpetually.
- **I95-37531** RTT reported by PCLI ping is incorrectly dividing result by 1000.

- **I95-37550** A possible race condition causes the next-hop ARP state to be incorrect between HA nodes of a router, potentially causing traffic to fail.
- **I95-37576** Waypoints that are configured for `outbound-only` may experience one way traffic in session migration scenarios if the session on the public side expires, but the session on the private side still exists.
- **I95-37588** Value for `configure > authority > router > system > software-update > repository > address` uses the first lexicographically sorted router for all other routers in authority instead of using a unique value per router.
- **I95-37597** Data structure for FIB has been redesigned to increase memory utilization by 45%.
- **I95-37617** Linux-based `save-tech-support-info` may not capture event history.
- **I95-37693** A race condition exists when retransmitting BGP over SVR packets causing a fault in the highway.
- **I95-37696** Users that have not previously logged in are unable to login when configured to use LDAP.
- **I95-37697** LDAP authentication fails for users that contain a "." in their name.

## Release 4.5.1

### Resolved Issues Requiring Configuration Changes

- **I95-33193** "About This System" within the GUI will display additional information if it is installed with a 128T OTP ISO.
- **I95-35319** "Managed Reports" (Custom Report factory defaults) are now shipped with the product.

- I95-36112 Q-in-Q VLAN stacking

## Resolved Issues

- I95-18807 Removed a benign error displayed in journal due to imudp module loaded by rsyslog daemon.

**Symptoms:** The following message can be seen in the journal:

```
rsyslogd[1337]: imudp: module loaded, but no listeners defined - no input  
will be gathered [v8.24.0 try http://www.rsyslog.com/e/2212 ]
```

- I95-32660 Log files were only rotated daily which may result in larger than expected log file size for the following: saltmaster, radvd, influxdb\_http, t128tuntap.
- I95-33471 Adaptive encryption counters are incorrectly incremented when encryption is disabled and adaptive-encryption is enabled.
- I95-33989 Terminating a "validate" command with CTRL-c returns to the PCLI prompt but does not stop the in-progress validation. This prevents subsequent validation attempts until the in-progress validation completes in the background.

**Symptom:** The following can be seen in the PCLI output:

```
* Validating...  
% Error: Candidate configuration is invalid:  
1. A request of type validate is already in progress. The first request was  
started 13 seconds ago.
```

Until the system is upgraded to 4.5.1, this issue will resolve itself after the background tasks have completed.

- I95-35111 `No active NTP server` alarm erroneously generated when 128T can successfully reach a provisioned NTP server.

**Conditions:** When multiple NTP servers are configured, at least one is reachable and at least one is not reachable.

- **I95-35331** A custom chart that contains multiple line charts selects the incorrect graph when clicking on the corresponding legend.
- **I95-35406** Shutdown race condition may cause improper DHCP server clean up, causing DHCP server to fail on next start of 128T.
- **I95-35544** LTE SIM number (ICCID) is absent from the output of `show device-interface` on LTE interfaces.
- **I95-35933** `show device-interface` displays incorrect values for speed and duplex for PPPoE interfaces.
- **I95-36050** Race condition on HA Conductor may incorrectly report pending configuration changes when no changes exist.

Until the system is upgraded to 4.5.1, this issue can be mitigated by applying a configuration change.

- **I95-36212** Fixed an issue where some Automated Provisioner actions would fail silently or return an error.

**Symptom:** The following message can be seen in the journal:

```
"state.highstate" is running as PID 29159 and was started at 2020, Jul 09 14:26:54.384868 with jid 20200709142654384868
```

- **I95-36246** IMSI and MSISDN are absent from the output from `show platform` on systems with LTE interfaces.
- **I95-36341** Race condition can occur when receiving a BGP packet destined for the 128T during startup without a fully populated FIB, causing a system fault.

- **I95-36351** User without admin privileges cannot change their password.
- **I95-36358** Currently downloading version in the asset state would persist after a download has completed.

Until the system is upgraded to 4.5.1, this issue can be mitigated by restarting the salt-minion service by executing `systemctl restart salt-minion` in the Linux shell. If not manually restarted, the salt-minion watchdog will also restart the salt-minion after one hour.

- **I95-36416** Navigating to the DNS Config page under a router in GUI edit configuration results in error.

Until the system is upgraded to 4.5.1, this issue can be mitigated by configuring dns-config via the PCLI.

- **I95-36536** Deleting a session-capture filter within the PCLI can cause the highway process to fault.

- **I95-36537** Dynamic session-captures are now created with a default session count of 100 instead of unlimited.

- **I95-36564** Buffer queue depth allocation algorithm was inefficient causing latency in session setup.

- **I95-36574** After an HA interface fail over, a session collision can occur between the recovered flow and an existing reverse flow. The recovered flow does not get set up properly and can cause the highway process to fault upon session expiry.

**Conditions:** Symmetrical services must be configured that match both forward and reverse flows.

- **I95-36591** Using connected route redistribution causes routes to be re-advertised or flapped, resulting in packet loss.

- **I95-36604** Debug tables within the GUI do not honor the node selector.

- **I95-36608** `network-interface > management` is not configurable when `device-interface > type` is not explicitly configured.
- **I95-36632** Empty Office365 metadata file results in HTTP 400 bad request error.
- **I95-36638** Polling SNMP OID 1.3.6.1.2.1.1.2 returns `NET-SNMP-TC: :linux` instead of `T128-MIB::t128NetworkingPlatform (1.3.6.1.4.1.45956.1)`
- **I95-36645** Bytes converter in the GUI does not handle values larger than Terabyte (TB), leaving value in bytes.
- **I95-36646** SVR Savings page automatically refreshes, resetting router selector.
- **I95-36672** Deleting all session-capture filters on a *device-interface* with active traffic can cause the highway process to restart.
- **I95-36727** A non-forwarding, external (i.e. management) interface configured in 128T does not obtain a DHCP IP upon disconnecting and reconnecting the cable.
- **I95-36770** Salt minion log file was not being properly rotated.
- **I95-36779** Clarified Template Import Error Message to properly indicate advanced mode templates cannot be imported in basic mode.
- **I95-36780** SNMP Traps are incorrectly sent for routers in maintenance mode when peer path goes down.
- **I95-36832** Erroneous restart required alarm raised during configuration change when restart is not needed.
- **I95-36841** TCP RST can cause the highway process to fault on a SVR path performing UDP transform.

- **I95-36850, I95-36851** An asset's available and downloaded versions are incorrectly cleared when an upgrade or rollback is initiated.
- **I95-36866** When adding an access policy in a service in the GUI, the tenant drop down list comes up empty on the first try.

Until the system is upgraded to 4.5.1, this issue can be mitigated by canceling out and repeating the operation again. The list will be fully populated on subsequent attempts.

- **I95-36872** Azure-based Accelerated Networking Interfaces may fail to reinitialize upon restart of 128T.
- **I95-36879** Firewall zone will not be created for management over forwarding interfaces that are configured with a VLAN.
- **I95-36891** Exception thrown in PCLI when `CMD + right arrow` jumping past the end of an auto complete command.
- **I95-36927** Race condition can cause a fault in the highway process during session setup and configuration change removes BGP service route path
- **I95-37006** Peer path establishment may fail for waypoint interfaces that use DHCP (e.g., LTE) when upgrading from 4.4.x.
- **I95-37021, I95-37026** Configuring overlapping session-types could cause the highway process to ignore the configuration change.
- **I95-37042** 128T process `prank` journal logs were incorrectly excluded from output of `save tech-support-info`.
- **I95-37106** Initiating a download on an HA router may silently be ignored on one of the nodes if it was in "connected" state.

- **I95-37131** Unable to perform SNMP query for table indices on 128T OIDs.
- **I95-37168** Race condition can cause system fault when creating candidate configuration.
- **I95-37217** Reverse metadata was not being updated properly when the service routes were of type `next-peer`, resulting in an inability to recover sessions upon node failover.
- **I95-37220** 128T deployed behind a NAT may fail to recover a session after a node failure.
- **I95-37226** Output of `show network-interface` on non-active HA node may result in empty address for interfaces.

## Release 4.5.0

### New Features and Improvements

- **I95-9955** [Encryption of 128T Configuration](#)
- **I95-1212, I95-34108** [Configuration Templates](#)
- **I95-16104** [Management traffic over forwarding interface](#)
- **I95-22304** [Re-run commands in PCLI history with "!"](#)
- **I95-23898** Improved feedback on PCLI when invalid arguments are provided to a command
- **I95-28366** Greatly reduced memory consumption of PCLI, allowing many more concurrent users
- **I95-29043** [Asset Connection Resiliency](#)

- I95-30332 Extensibility of GUI Navigation pane for 3rd party links
- I95-31405 SVR Savings Proof Points
- I95-32783 `show assets summary` enhancements
- I95-33174 Automatic LTE band management per carrier
- I95-33215 Audiocodes M800 watchdog
- I95-33351 Optimizations in FIB data structure allow for 20% additional entries
- I95-33358 Static Hostname Mappings
- I95-33375 Address latest security vulnerabilities
- I95-33427 Per-Service Rate Limiting
- I95-33776 `show config events` tracks configuration changes

## Resolved Issues

- I95-32594 Validation allows for mismatched adjacency security-policy with peer network-interface security-policy for cases where multiple network interfaces in a router have the same IP Address. Only the first one is considered for matching inter-router-security policy between the network interface and peer adjacency.
- I95-33313 Add units to `show device-interface` output.
- I95-34112 Rename `show config events` -> `show events config`.

- **I95-33594** Changing the `neighbor-as` of an existing bgp neighbor prevents it from connecting.

Until the system is upgraded to 4.5.0, this issue can be mitigated by restarting the 128T or by removing and recreating the bgp configuration.

- **I95-35193** Performing a download of software may fail. **Conditions** 128T connection to the conductor is disconnected or restarted.
- **I95-35391** Selecting a specific line within a custom report graph does not always select the metric clicked.
- **I95-35793** Large responses from a DNS server may be rejected by 128. When this happens, FQDNs in the configuration remain unresolved. **Conditions:** The following log message can be seen:

```
Jun 16 06:09:25.272 [DNS |DNSR] WARN (dnsManagerTP ) Failed to parse  
Ipv4Host (1) response for edge-global.plcm.vc: Message too long
```

- **I95-35799** When a dynamic route is removed that exactly matches the prefix of a configured service, the route is removed from the RIB but it may remain in the FIB and still be used for establishing new sessions.
- **I95-35873,I95-35679** Asset stuck in a connected state as a result of a corrupted linux rpmdb. The issue requires the system be updated to the 128T-installer version 2.6.1 (see [IN-267](#)). If the conductor is used to upgrade systems, the latest installer will be updated from the repository being used. If the systems do not have access to the 128T public repositories, the repository being used should be updated with the 128T-installer 2.6.1 version. With the correction of this issue, the PCLI command `send command yum-cache-refresh` has been updated to perform the rpmdb repair if the rpmdb is corrupted.

Until the system is upgraded to 128T 4.5.0 and 128T-installer 2.6.1, the issue can be mitigated by running the following linux commands:

```
rm -f /var/lib/rpm/_*  
rpm --rebuilddb
```

- **I95-35935** Configuring the same value for `router > conductor-address` on different routers will generate invalid configuration.
- **I95-36012** `show device-interface` displays incorrect values for speed and duplex for LTE interfaces.
- **I95-36109** Sessions may not reestablish properly on a fail-over between different routers to the same destination router (e.g., Session originates on R1 to R2. Later, the same session fails over to traverse R3 to R2.)
- **I95-36146** Non-PCLI commands, such as pagination responses, are incorrectly stored in command history.
- **I95-36283** The 128T router asset state is stuck on its current state. **Conditions:** The following log message can be seen:

```
TypeError: heap argument must be a list
```

Until the system is upgraded to 4.5.0, this issue can be mitigated by restarting the salt-minion service by executing `systemctl restart salt-minion` on the Linux shell. If not manually restarted, the salt-minion watchdog will also restart the salt-minion after one hour.

- **I95-36356** Loading a configuration that changes the BGP graceful-restart restart-time may cause a highway process crash if a subsequent graceful-restart timeout occurs.

## Special Considerations

- **I95-33004** RoadRunner Removed The RoadRunner process collected anonymous information from the router and sent it to 128 Technology for storage and analysis. This helped inform and allows 128 Technology to support and improve the 128 Networking Platform. The anonymous data collection tool RoadRunner has been removed from the product.
- **I95-35629** The threshold for broadcast announcement for concurrent PCLI sessions has been increased from 4 to 10 as a result of I95-28366.

- **I95-36525** TLS 1.0 is no longer supported.

## Caveats

- **I95-34941** *nodejs* process can segfault during the upgrade of the 128T.

**Corrective Action:** No action required. The webserver will immediately restart.

- **I95-33560** When upgrading an HA conductor to version 4.4.0 or later there is a compatibility issue due to an upgrade of the asset provisioning software. This results in a reported asset error that will persist until the two nodes are upgraded to the same version.

**Symptom:** This error is seen during the upgrade of an HA conductor pair to version 4.4.0 or later. An upgrade of a single standalone conductor node will not see this error. The following error will be reported by the node running software version earlier than 4.4.0:

```
"128T highstate: ["Rendering SLS '128T:reverse_ssh' failed: Jinja variable 'dict object' has no attribute 'iteritems'"]"
```

This error can be viewed by running the following PCLI command from either node: `show assets <asset-id>`. Where `asset-id` is the asset-id of the node running pre 4.4.0 version that has not yet been upgraded.

**Corrective Action:** This error is transient and will only persist for the duration of the upgrade. The error will not self-correct. Continue to upgrade the second conductor node. After upgrade, verify that there are no asset state errors.

- **I95-37687** PCLI configuration change flag `*` may persist in the active PCLI session after a configuration commit operation.

**Corrective Action:** Exit and re-enter the PCLI after a commit to remove the flag.

- **I95-37752** A race condition exists when a session is manually deleted through the `delete sessions` PCLI command; interim IPFIX record generation or HA session synchronization may cause the highway process to fault.