NetBrain® Integrated Edition 8.01

Release Notes

Version 8.01 | Last Updated 2019-11-08

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1. Summary

NetBrain Integrated Edition 8.01 (IEv8.01) is a minor release that introduces a number of feature enhancements and bug fixes.

- Enhancements to Dynamic Map and Collaborative Automation:
  - Export Comparison Result
  - Export Change Analysis Details
  - Enhancements to Embedded Map, e.g., enable login with non-SSO accounts, enable map creation by Qapp through triggered API…
  - Search Enhancements
  - Export Map to Image
  - Auto Unlink Interfaces on a Map
  - Map Interfaces/Links in a Device Group
  - Enhancements to Smart CLI
- Enhancements to Administration and Supportability:
  - Enhanced Domain Setup/Maintenance Process
  - Granular Policy for Device Access
  - Restore Backup Maps
  - Collect More Metrics in Service Monitor
  - Collect Usage Log
  - Patch Version Management
  - Security Enhancements
- Platform Enhancements:
  - Calculate Path Above Layer 4 via Customized Parameters
  - Calculate VXLAN L3 VNI Overlay Path
  - Calculate ACI L2 Overlay Path
  - Calculate IPsec Tunnel Topology for Viptela Devices
  - Enhancements to Multi-Vendor Support, e.g., enhanced discovery and data parsing for CheckPoint Firewall R80, login script customization, and more new drivers…
  - Enhancements to GDR, e.g., allow predefining Enum values…
  - Auto-Update More Resources in Knowledge Cloud
  - Enhanced Qapp Debugging and More Usability Improvements
  - New North-bound APIs and Plugin APIs

2. New Features and Feature Enhancements

2.1. Export Comparison Result

To enhance the collaboration flow of Runbook Automation, IEv8.01 adds the capability to export the Runbook comparison result to a portable file, so that users can directly share the comparison result with other colleagues. For example: compare the retrieved live data at different time points and export the comparison result for sharing.

The exported files are compressed in a zip file. Unzip it and double-click the **summary.html** file to view the summary report. Then click on "**Y**" to view changes in detail.

Note: Only the devices that have changed will be listed in the exported report.

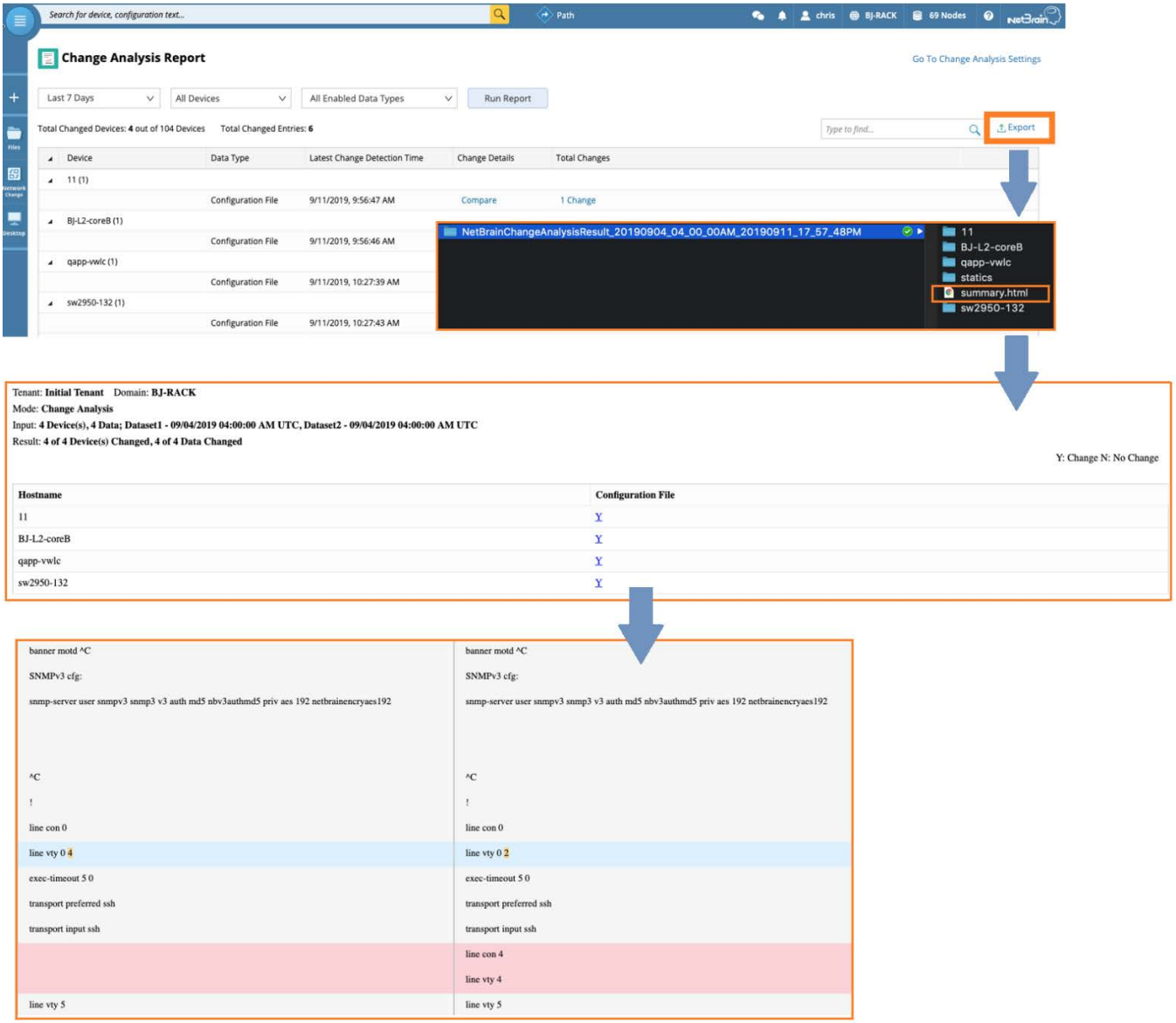
2.2. Export Change Analysis Details

With the Change Analysis feature introduced in IEv8.0, users can export the summary report for the data change occurs on specified devices during a specified period.

To enable users to document and share the report with changes in detail, IEv8.01 adds the capability to export the Change Analysis Report to a zip file. Besides the change summary, users can view the change details

(before and after) of each device side by side in the exported report, such as configuration files, route tables, and so on.

Note: For each device, only the last change during the specified time range will be exported.



Note: Unzip the exported file and double-click the **summary.html** file to view the portable report.

2.3. Enhancements to Embedded Map

IEv8.01 has improved the Embedded Map feature in the following aspects:

- **Enable login with non-SSO accounts**.

  IEv8.01 introduces the non-SSO deployment mode of the Embedded Map feature, which enables you

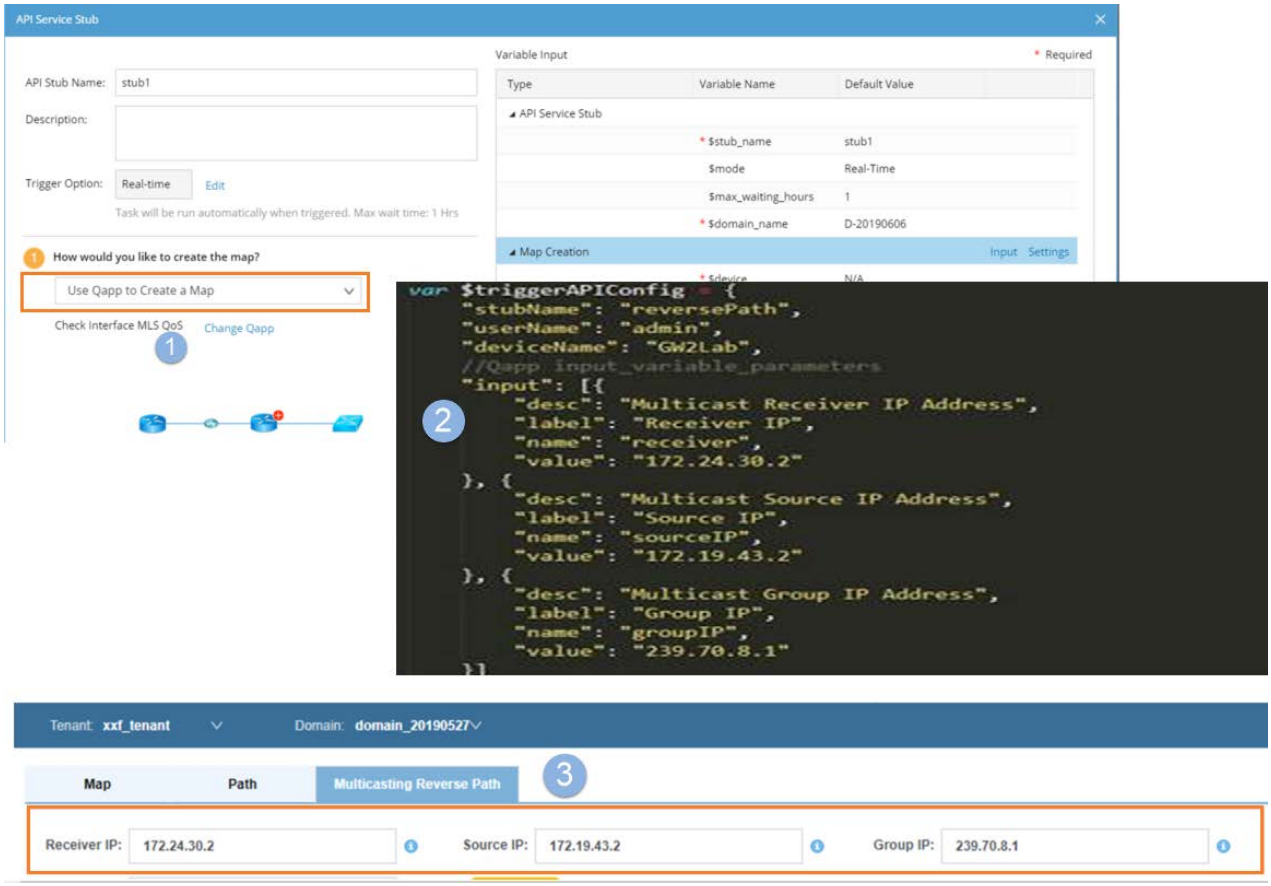
to create dedicated embedded-map users accounts in the IE system and authenticate login with the created non-SSO accounts.

Note 1: Non-SSO accounts do not consume system seat licenses.

Note 2: Non-SSO accounts can be only used to log into the embedded-map portal and cannot be used to log into the NetBrain IE system.

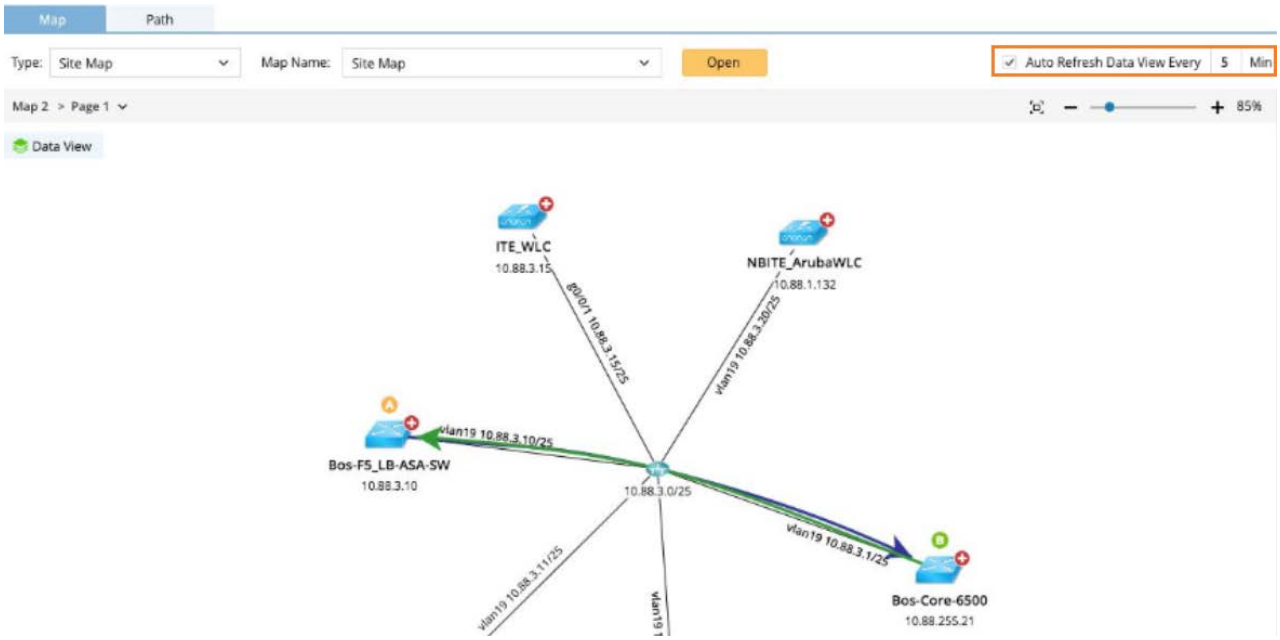
- **Allow creating an embedded map via Qapp through the Triggered API feature**.

  In IEv8.01, you can define a triggered-API automation task to use Qapp to create a map, call the task in your embedded map function and create an on-demand map in your embedded map page using the input parameters in the Qapp.



- **Automatically refresh data view in an Embedded Map**. IEv8.01 introduces the **auto-refresh data view** API, and you can call this API in your Embedded-Map function to automatically refresh the data view

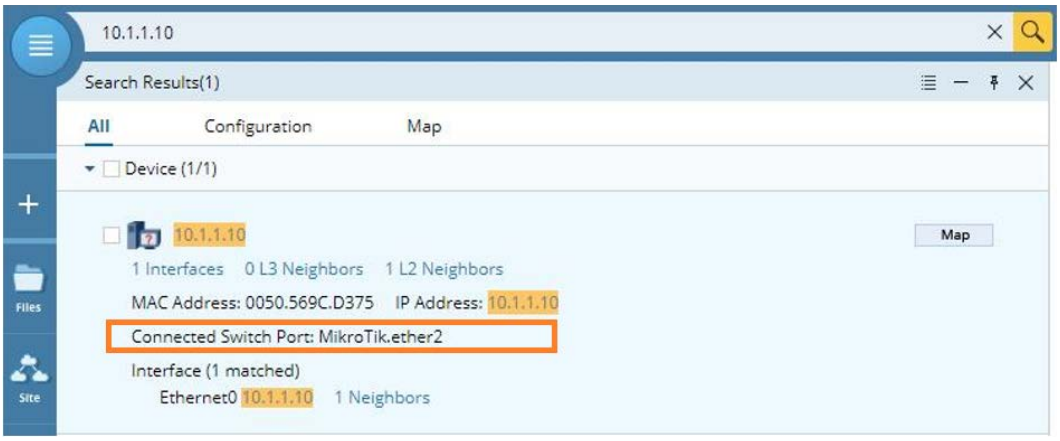
applied in your map page automatically.



2.4. Search Enhancements

IEv8.01 adds the following enhancements to the Global Search:

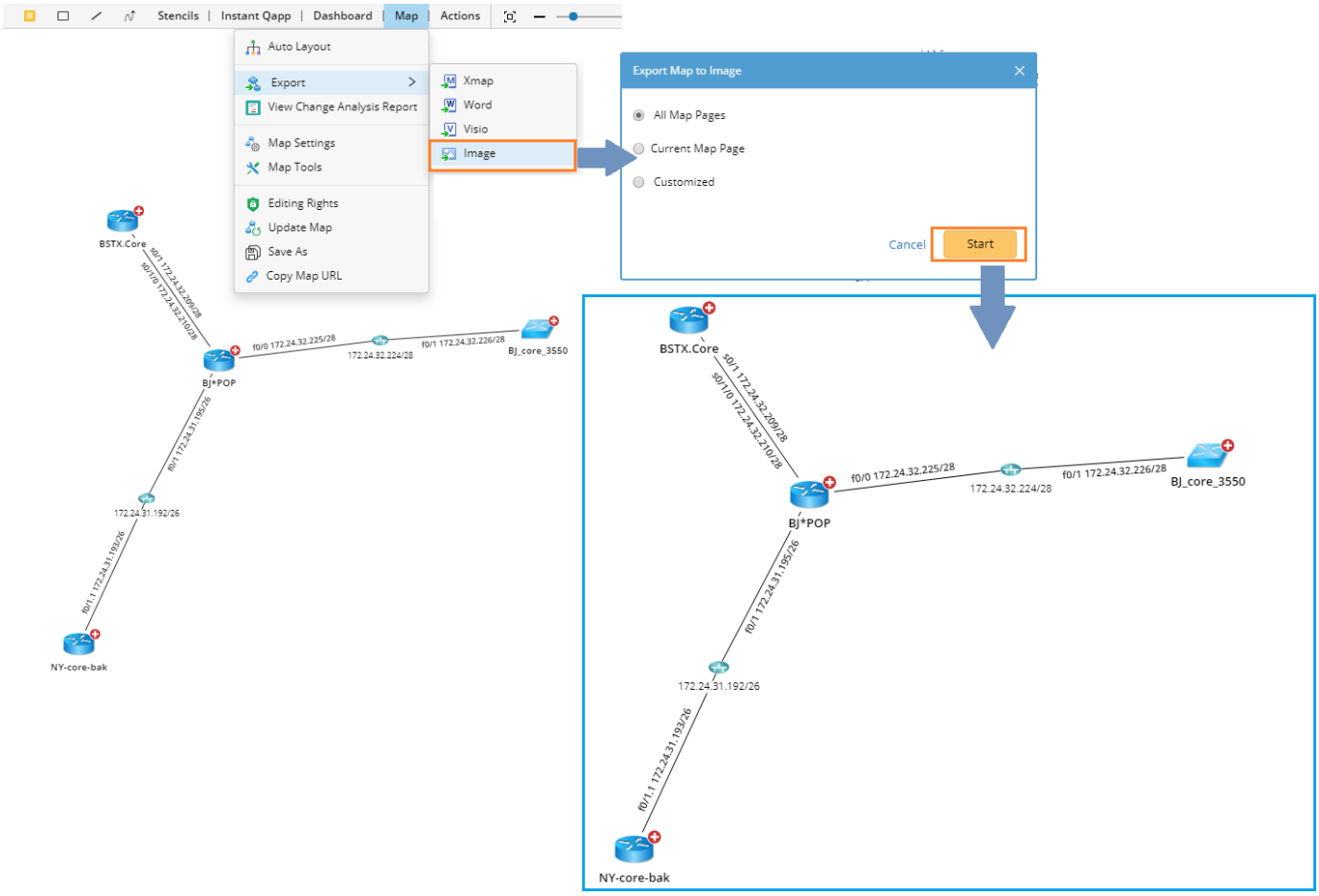
- Increase the default weight of hostname when prioritizing search results. In general, devices with matched hostnames will be displayed at the top. The value of weight is configurable at the back end.
- Display “Connected Switch Port” in the search result preview for Unknown End Systems.



2.5. Export Map to Image

IEv8.01 adds the capability to export a NetBrain map to an image file (.jpeg) in the local disk of users. Before starting the export process, users can specify the map pages to export.

By default, the system will export all map pages of the current map. JPG files will be compressed in a ZIP file.



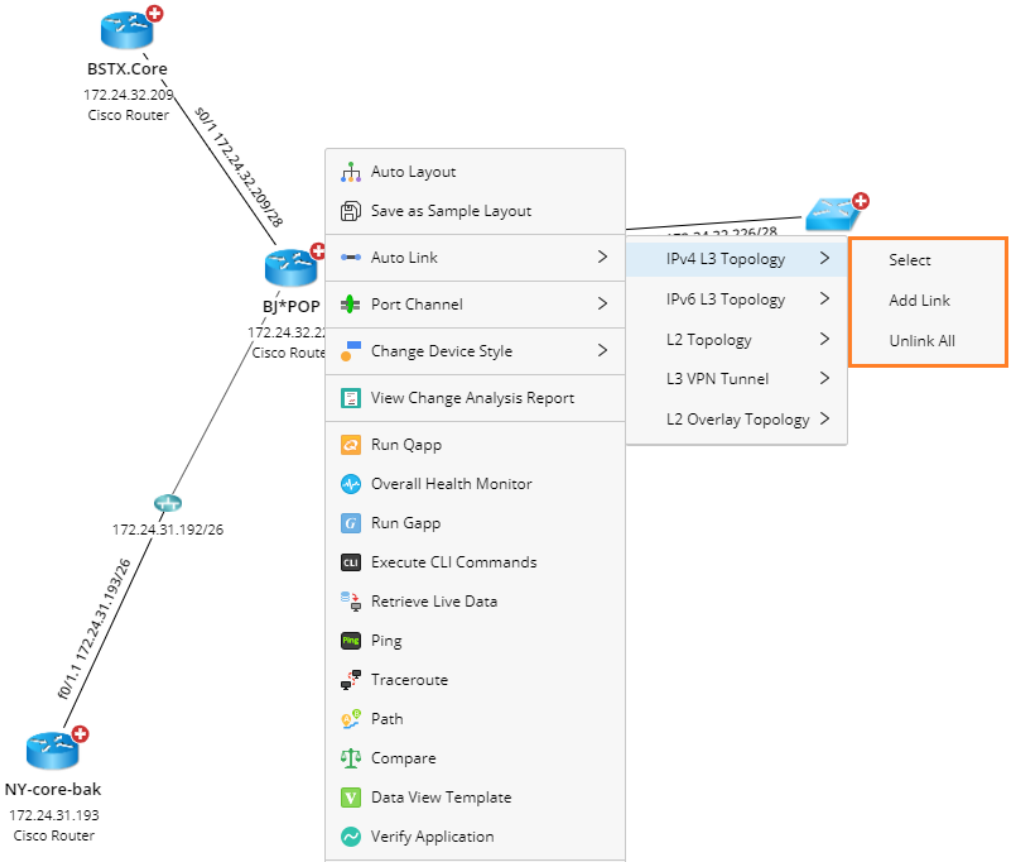
2.6. Auto Unlink Interfaces on a Map

In previous versions, it's labor-consuming for users to manually remove links from a map when they toggle to view links of a specific topology type by hiding the links of others.

IEv8.01 adds the Auto Unlink option in the context menu and introduces a few more changes:

- **Unlink All** New — remove a batch of links for a specific topology type.
- **Select** New — select a batch of links for a topology type. With this option, users can identify which links belong to this topology type.

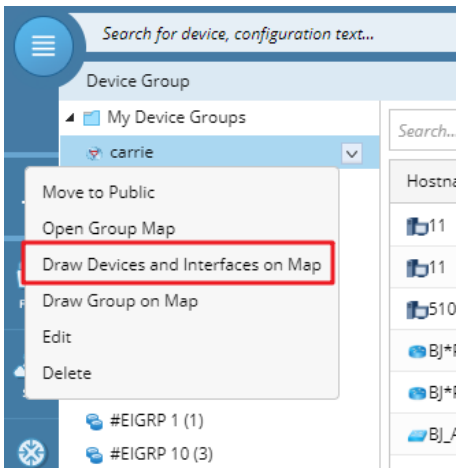
- **Add Link** — add a batch of links for a topology type, which is the same as the original Auto Link function.



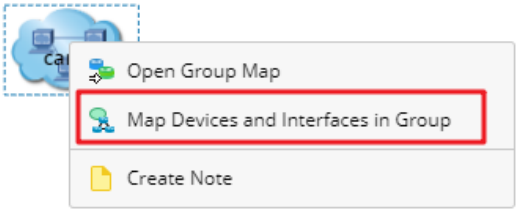
2.7. Map Interfaces/Links in a Device Group

IEv8.01 adds new capabilities to map either all interfaces or specified interfaces in a Device Group.

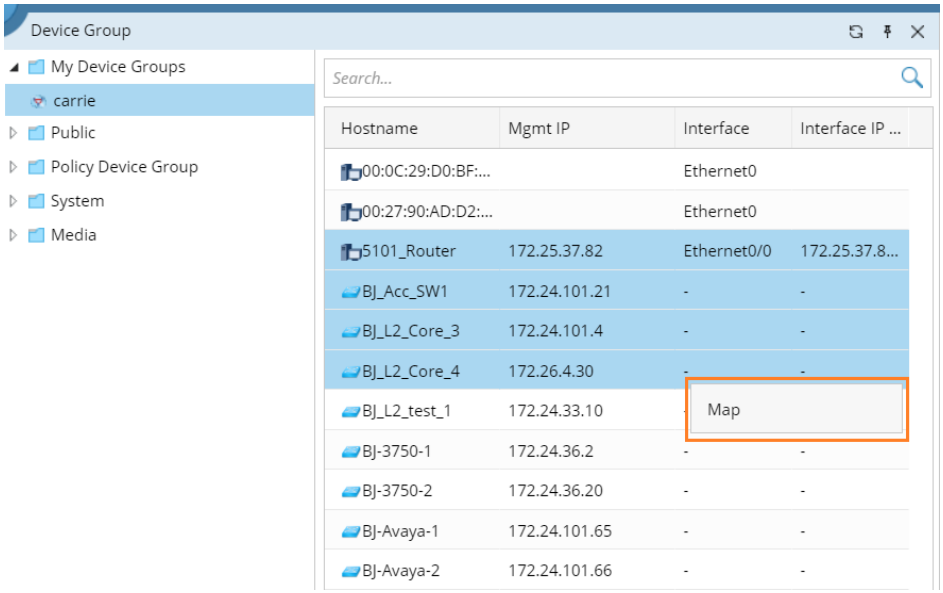
- Map all interfaces in a Device Group by clicking the context menu.



- Map all interfaces in a Device Group by clicking the context menu of a mapped device group.



- Map specified interfaces in a Device Group by selecting them and clicking the context menu.



Note: When you select more than 1,000 interfaces, or there are more than 1,000 devices in a Device Group, only the top 1,000 can be mapped out. For the rest of the interfaces, only the devices can be mapped out.

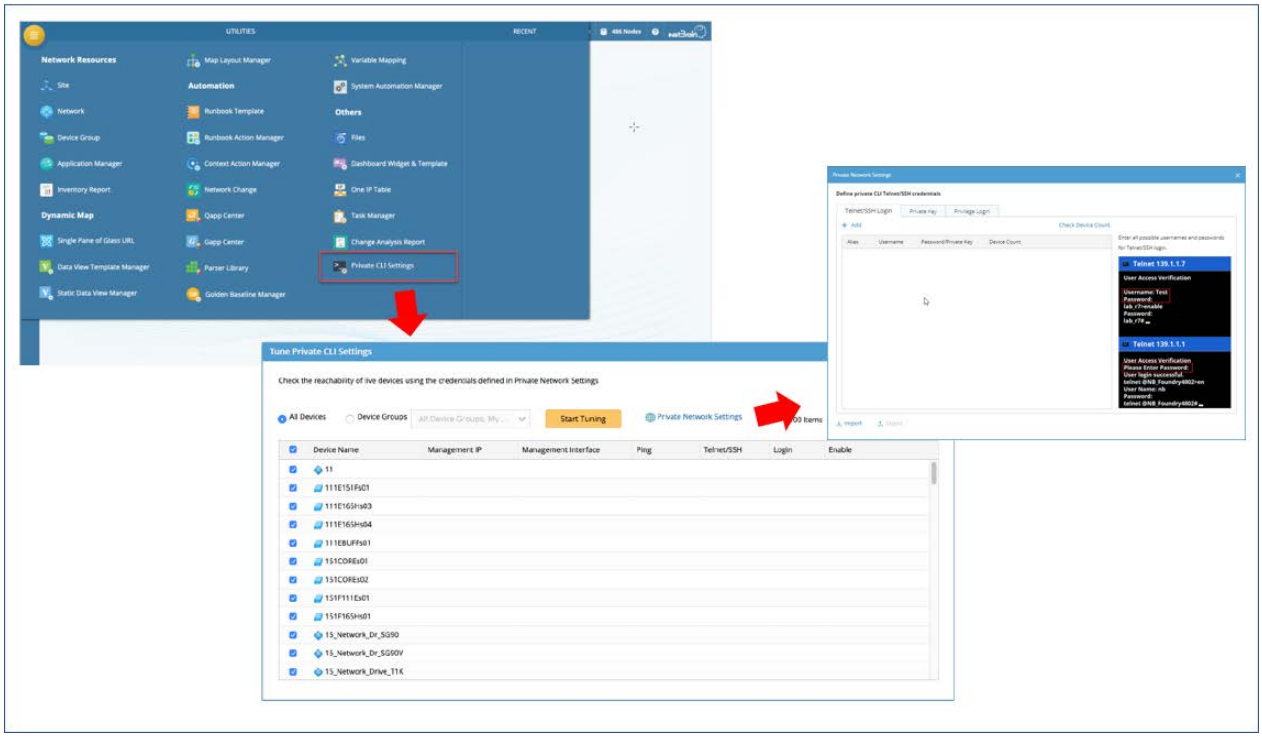
2.8. Enhancements to Smart CLI

IEv8.01 enhances the Smart CLI feature in the following aspects:

- **Allow End Users to Tune a Batch of Private CLI Settings**

  Provide an entrance for Private CLI Settings in the Start Menu. End users without the Domain

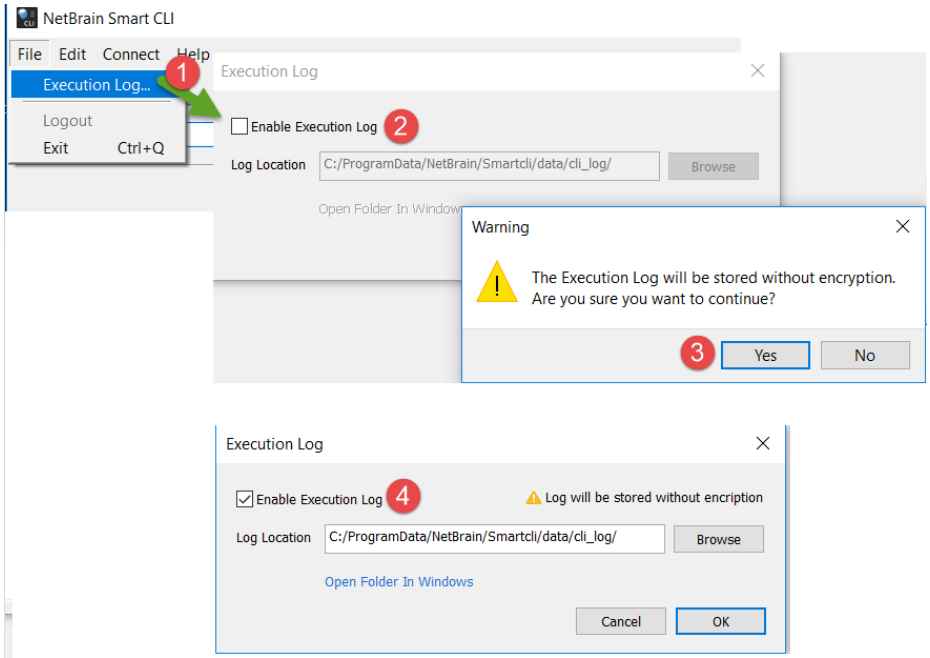
Management privilege can add and tune Private CLI settings.



- **Allow End Users to Enable or Disable Device Execution Logs**

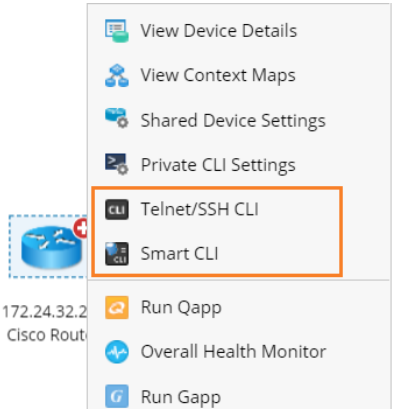
  In IEv8.0, the Smart CLI client records device logs and save them in a clear text by default, which may not meet the security specifications of some companies. IEv8.01 adds an option to enable the execution log recording with a warning message to alert users about this risk.

  By default, this option is disabled, which means that device execution logs are not recorded.

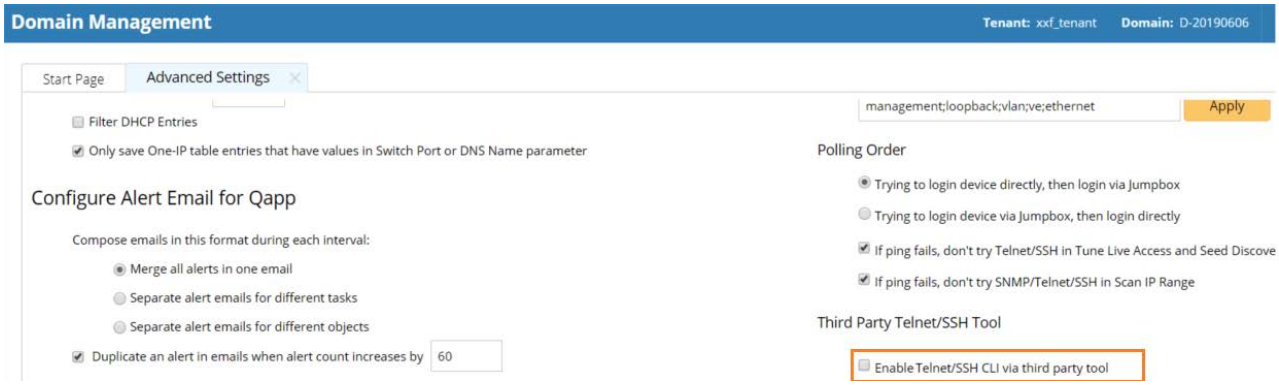


- **Allow Domain Administrator to Enable/Disable Telnet/SSH CLI**

Both Smart CLI and Telnet/SSH CLI are remote connection tools in the system, which may confuse users for choices.



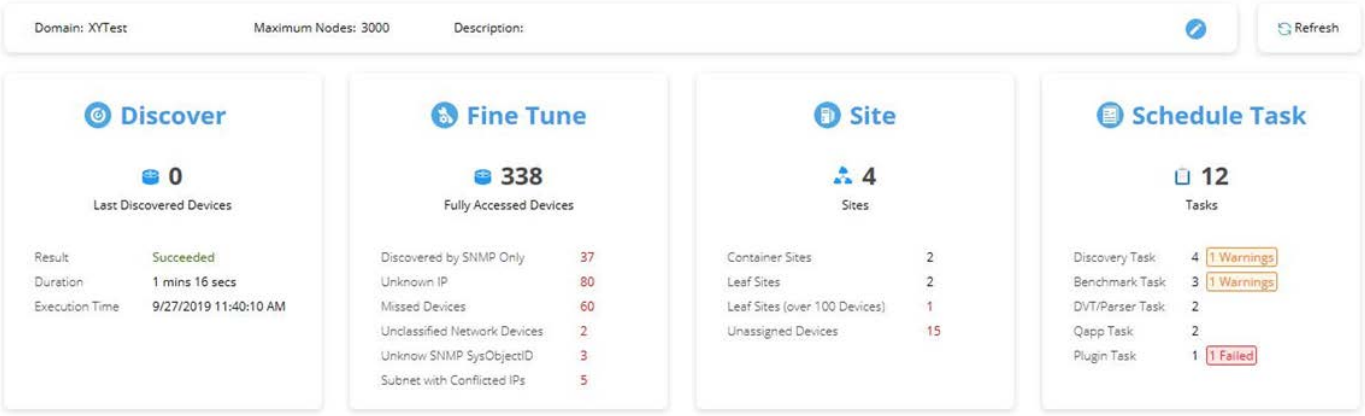
IEv8.01 adds an option to enable/disable the Telnet/SSH CLI feature. By default, this option is disabled.



3. Administration Enhancements

3.1. Enhanced Domain Setup/Maintenance Process

To solve the pain point that the domain administrator may not be aware of the problems existing in a domain among too many focuses, the domain setup/maintenance process is optimized in IEv8.01 to provide a summary report about the domain health, including a guidance of to-do that the domain administrator needs to care about and perform.



The redesigned start page of Domain Management lists the most essential 4 categories of the domain setup/maintenance process:

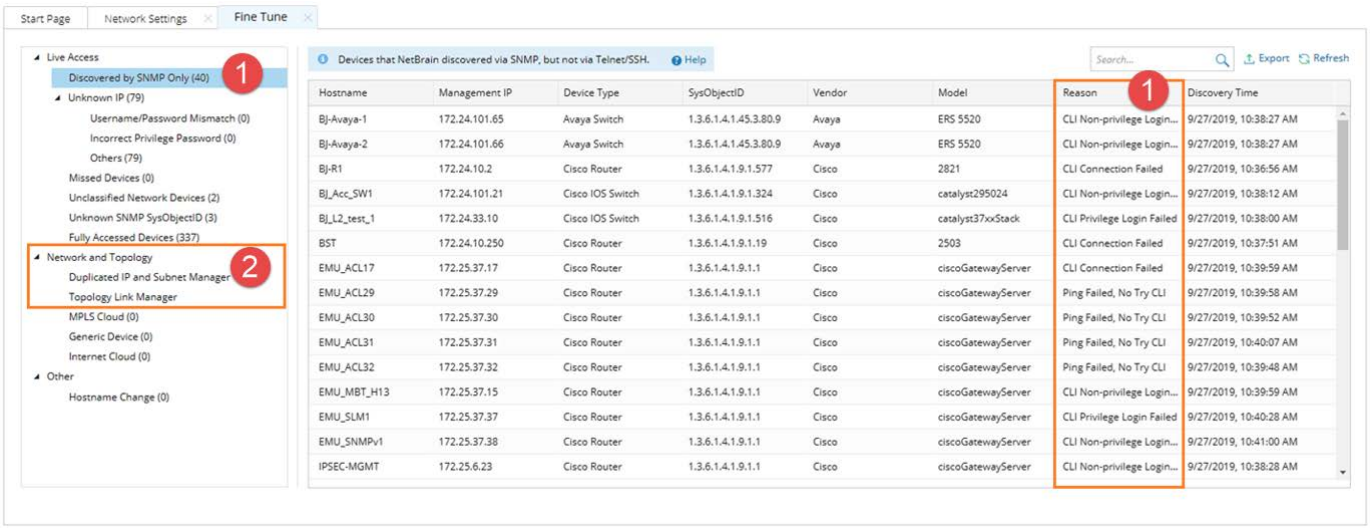
- **Discovery** — shows the record of the last on-demand discovery task performed by the current logged-in domain administrator.
- **Fine Tune** — renamed “Domain Manager”, highlighting the problems that the domain administrator must pay attention to.
- **Site** — highlights the count of leaf sites that contain more than 100 devices and the count of unassigned devices.
- **Schedule Task** — highlights the count of scheduled tasks that the last result may not be healthy.

Besides the summary page, check out more changes in the following areas:

- Network Settings
- Benchmark Report
- Re-organized Operation Menu

3.1.1.Fine Tune

The “Domain Manager” in previous versions is renamed to “Fine Tune” in IEv8.01 to help users better understand the feature, introducing the following enhancements:



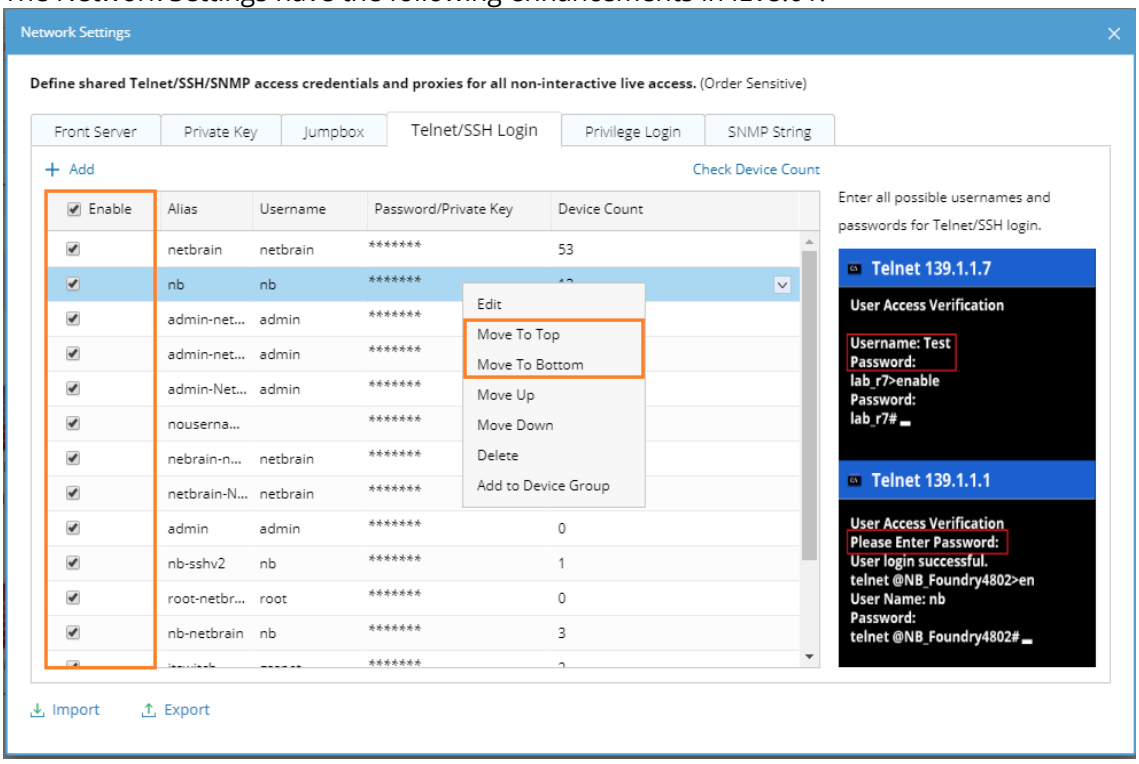
1. Identify root causes for the category “Discovered by SNMP Only”.

Reason	Access via CLI
Ping Failed, No Try CLI	Unattempted
Don’t Support CLI	Not applicable
CLI Connection Failed	Connection Failed
CLI Non-Privilege Login Failed	Connected but non-privilege login failed
CLI Privilege Login Failed	Connected but privilege login failed
CLI Configuration Retrieval Failed	Connected and logged in but cannot retrieve configurations.
CLI Configuration Update Failed	Connected and logged in but cannot update configurations.
Others	E.g. “SNMP only” is selected in the Discovery Settings.

2. Add a new category “Network and Topology”, and group “Duplicated IP and Subnet Manager” and “Topology Link Manager” inside.

3.1.2.Network Settings

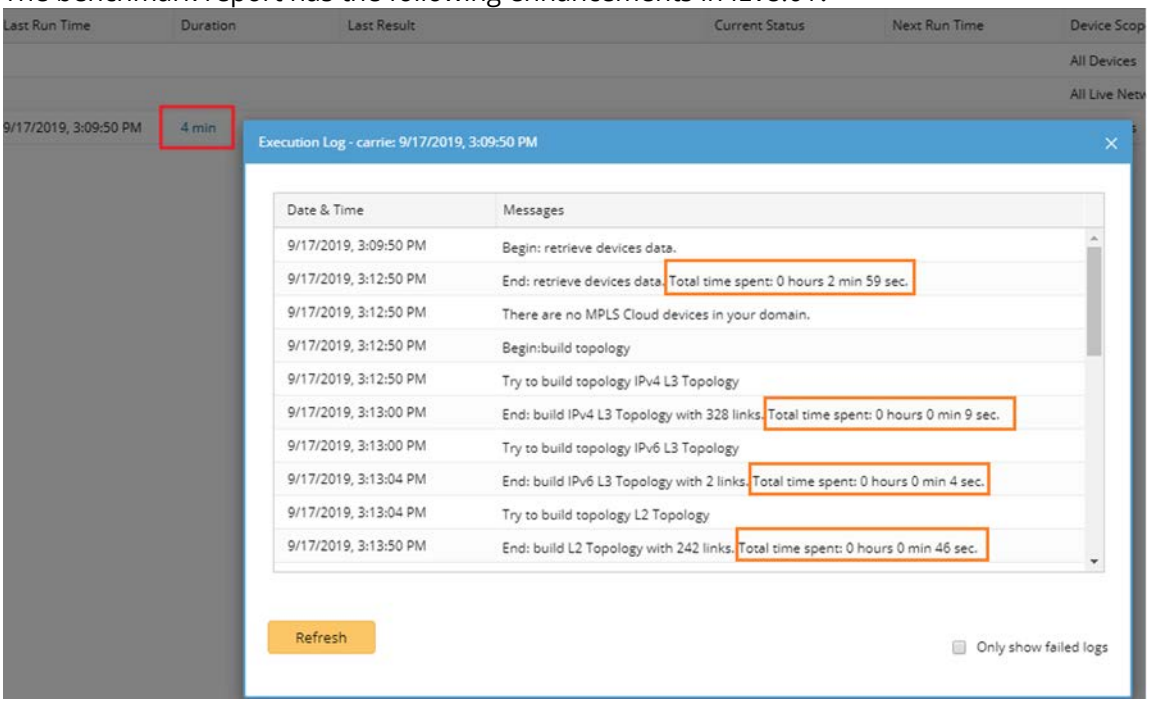
The Network Settings have the following enhancements in IEv8.01:



- Add a new “Enable” column for bulk selection, and deprecate the “Select/Deselect All” options in the context menu
- Add “Move To Top” and “Move To Bottom” to quickly prioritize the polling order of credentials.

3.1.3.Benchmark Report

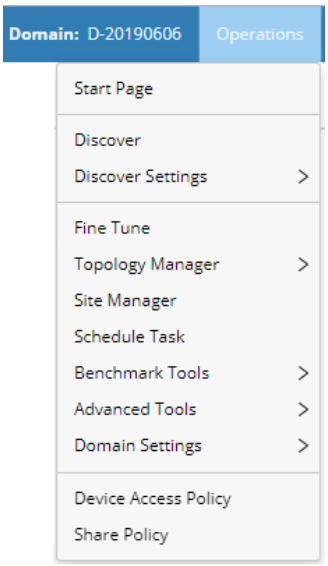
The benchmark report has the following enhancements in IEv8.01：



- The value of a task duration displays as a hyperlink to redirect to the execution log.
- The time spent on each subtask is displayed in the execution log.

3.1.4.Re-Organized Operation Menu

To help the domain administrator better understand the purpose of domain setup/maintenance operations, the hamburger menu of Operations on the quick access toolbar has been re-organized in IEv8.01.



3.2. Granular Policy for Device Access

In previous versions, the NetBrain IE system only provides the general control on what NetBrain features users can perform and use, so the domain administrator can only grant users access to either all network devices or no device access at all.

To meet security requirements, IEv8.01 introduces the granular controls to allow specified users to have access privileges to specified devices.

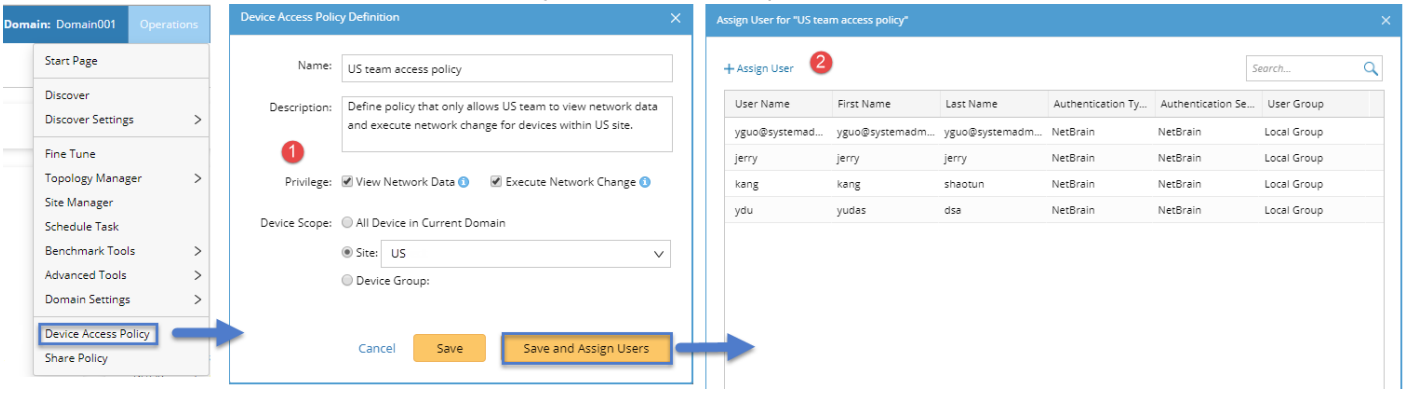
Key Use Case

Large customers usually divide and manage their networks geographically, e.g., China, U.S., EMEA, and have a strict security policy that each network management team can only view the data of their managed devices. For example, the U.S. team can only view the data of the devices in the U.S. site. Moreover, another common situation is that a specific team can view the data of a specific device type. For example, only the security team can view the configuration file of the firewalls.

With the granular device access policy, the domain administrator can assign users in different regions to comply with different device access policies. These policies determine whether users can be authorized to view the data of specific devices or execute changes based on their associated policies.

Key Use Flow

The use flow to define a Device Access Policy contains two steps:



Prerequisites: The function privilege of "Share Policy Management" is required for defining Device Access Policies.

1. Define a Device Access Policy by selecting device scope and at least one of the following privileges:
   - **View Network Data**

     The network data includes: Configuration File, Route Table, ARP Table, MAC Table, NDP Table, STP Table, BGP Advertised Table, NCT Table, GDR Property, CLI/SNMP/API Original Result, Parsed Variable and Configlet.

- **Execute Network Change**, including:
  - Run the Execute node in a Change Management Runbook.
  - Run the Ansible Task node in a Runbook.

  Note: The function privileges of "Access to Live Network" and "View Network Change" are also required for users who execute network changes.

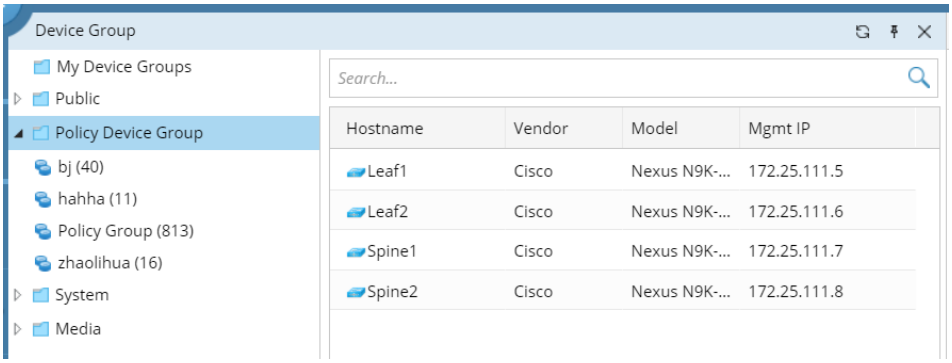
2. Assign Users to comply with the Policy.

   Alternatively, the user assignment can also be done when configuring the domain share policy or when adding a system user account.

   Note: Each user can be associated with multiple policies. If a user hasn't been associated with any policy, he/she will not be authorized to view the detailed data of any device in a domain or execute changes on any device in a domain.

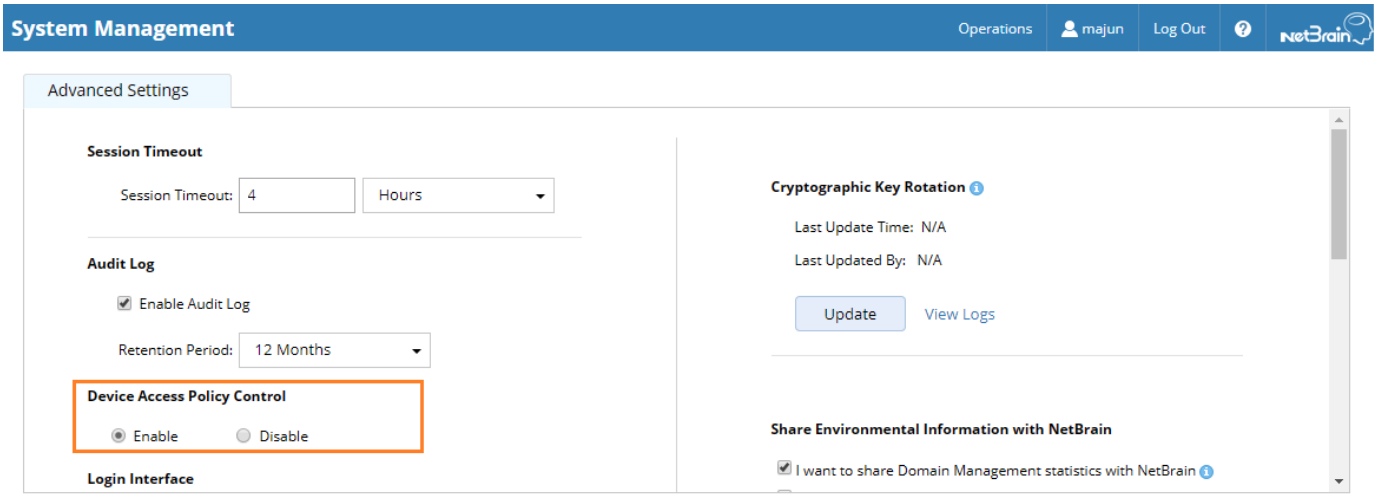
Policy Device Group

Policy Device Group is a new type of device group dedicated to defining device access policies. Only the users with the Share Policy Management privilege can create, edit, and delete a Policy Device Group.



Enable Device Access Policy Control

Before using this feature, the system administrator must enable the "Device Access Policy Control".

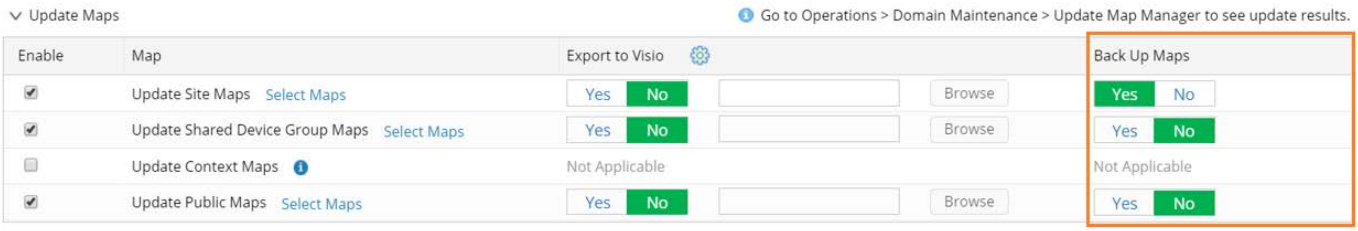


3.3. Restore Backup Maps

To help the domain administrator deal with unexpected map update errors and roll back to the previous version of a map, IEv8.01 adds the capability to restore the maps that have been backed up through benchmark tasks.

Back Up Maps through Benchmark Settings

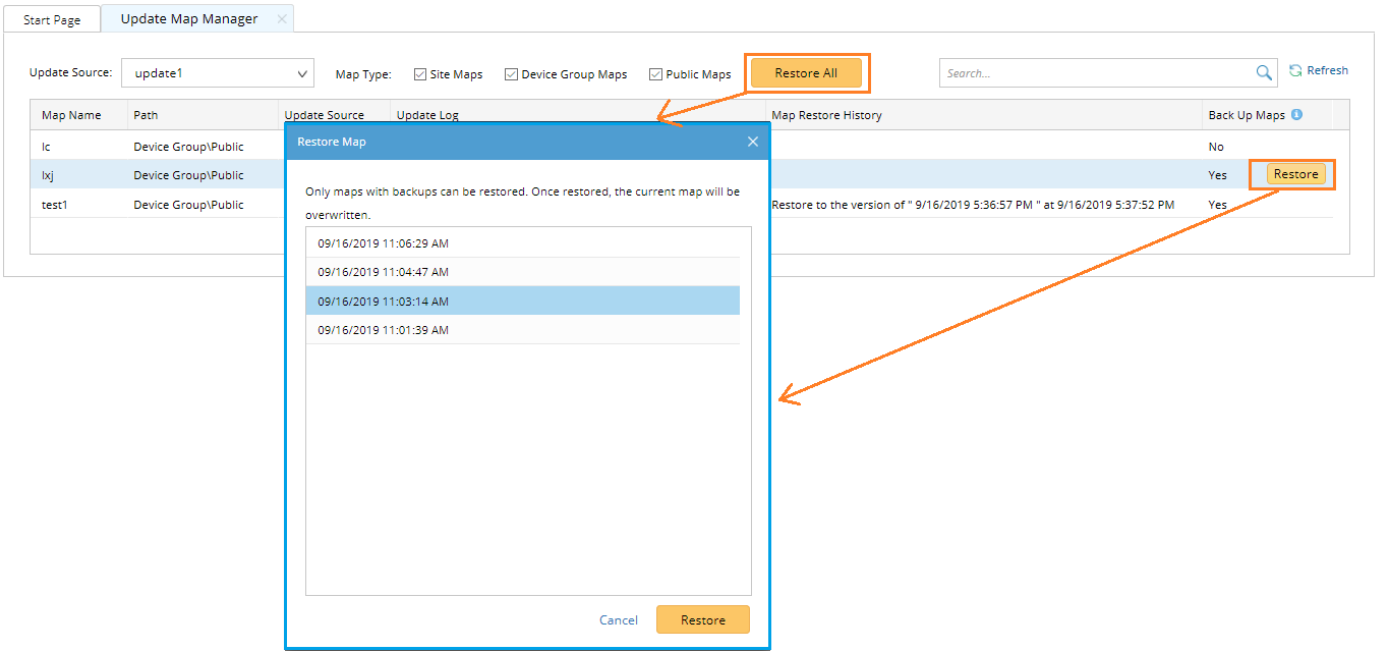
By default, the "back up map" function is disabled. To enable it, go to **Benchmark > Additional Operations after Benchmark > Update Maps** and slide the button to select "Yes".



Note: To free your disk, backup maps can be deleted on a customized frequency. Go to **Domain Management > Global Data Clean Settings**.

Restore Backup Maps

The domain administrator can either restore a single map or restore a batch of maps in the Update Map Manager by selecting the timestamp of backups:



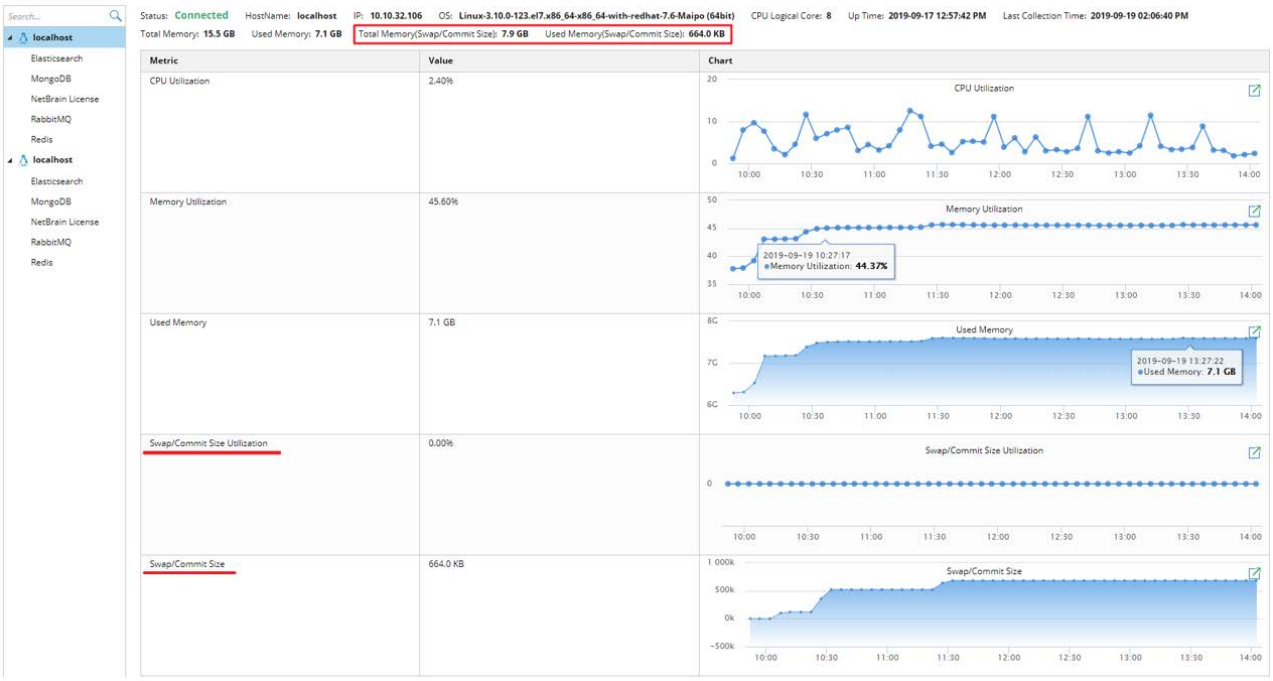
Note: Only maps with backups can be restored. For a batch restore, all the maps that have backups will be restored with one-click.

3.4. Enhancements to Service Monitor

IEv8.01 provides more monitoring metrics for troubleshooting references.

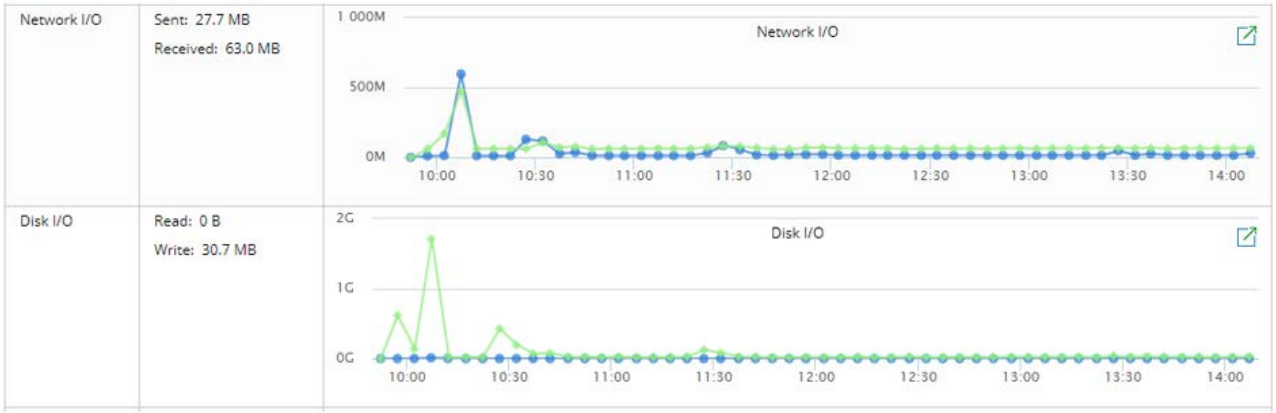
New Metrics for All Servers

- Add 2 Static Metrics and 2 Tendency Metrics:



  - Total Memory(Swap/Commit Size)
  - Used Memory(Swap/Commit Size)
  - Swap/Commit Size Utilization
  - Swap/Commit Size

- Change the chart type for “Network I/O” and “Disk I/O” from Total Tendency to Incremental Tendency.

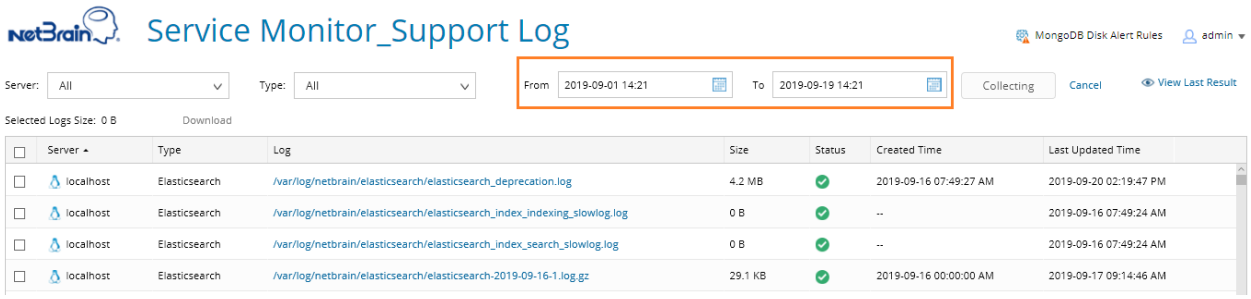


New Metrics for RabbitMQ

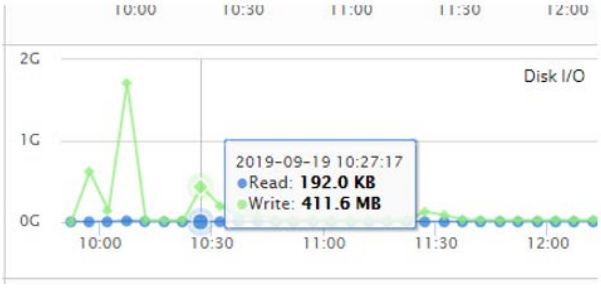
- Number of Ready Messages for RMClientCallback Queue
- Number of Ready Messages for flowengine health monitor Queue
- Number of Ready Messages for flowengine leader Queue
- Number of Ready Messages for flowengine task status Queue
- Number of Ready Messages for taskengine event Queue
- Number of Ready Messages for xfagent task Queue
- Number of Ready Messages for prepared task Queue
- Number of Ready Messages for FSC trigger Queue

Other Enhancements

- The timestamp for both the start time and the end time of the collected support log is automatically translated to the local time zone of users based on UTC (universal time code).



- When a chart contains multiple legends, hovering on a data point will display the values of all legends.

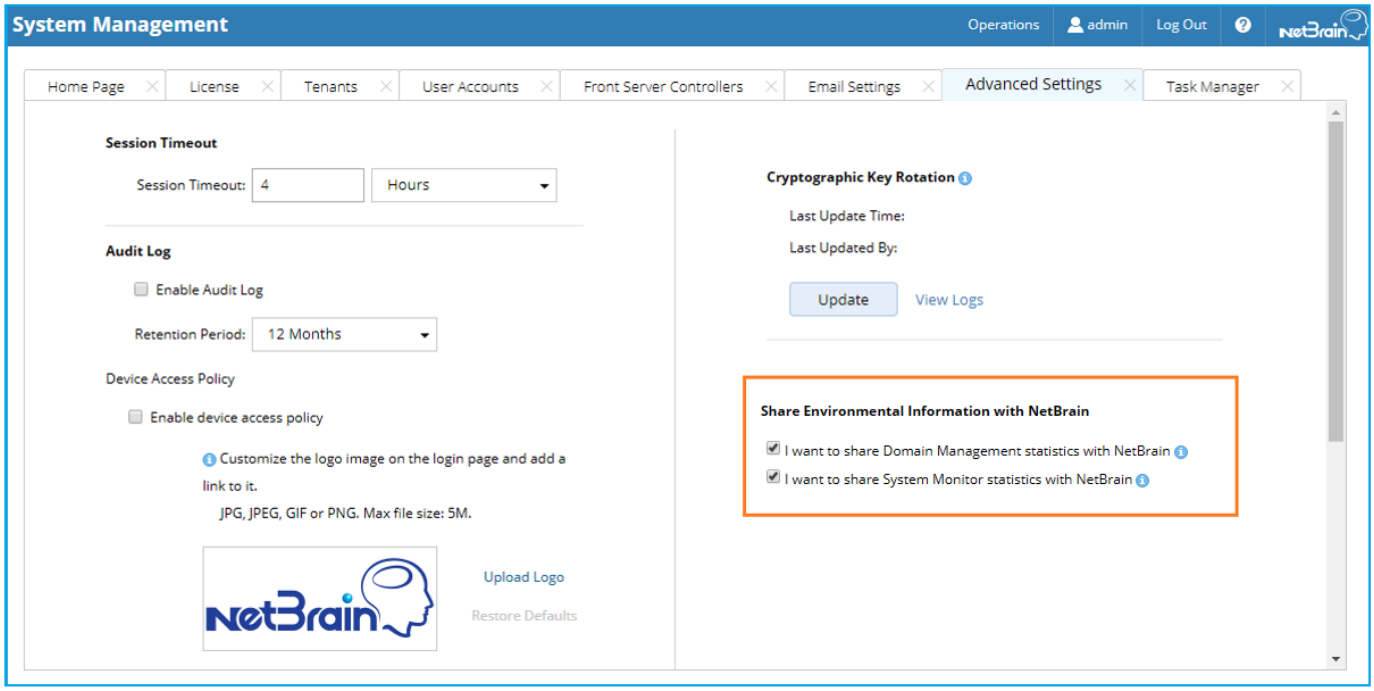


3.5. Collect Usage Log

To help NetBrain engineers better assist customers with more solid statistics, IEv8.01 adds options to send the NetBrain feature usage information via logs to the NetBrain team.

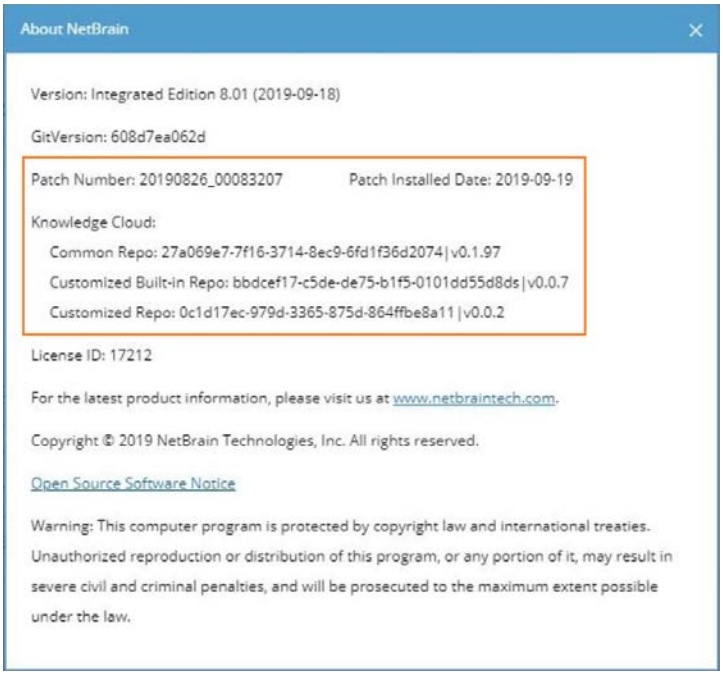
- **I want to share Domain Management statistics with NetBrain** — send the usage statistics about Tenant and Domain to NetBrain, including device discovery and advanced feature metrics.
- **I want to share System Monitor statistics with NetBrain** — send the usage statistics about Service Monitor to NetBrain, including operating system information and the health of NetBrain services.

By default, these two options are enabled.



3.6. Patch Version Management

To better manage the patch release and also elevate the troubleshooting process, IEv8.01 adds both the patch version number and Knowledge Cloud version number to the About NetBrain dialog.



Note: Patch version number will also be recorded in the Usage Log to share with NetBrain.

3.7. Security Enhancements

IEv8.01 introduces the following security enhancements:

- Encrypt the configuration keys for “requirepass” and “masterauth” to securely store Redis credentials.
- Update the search guard to use appropriate cipher suites only.
- Remove the support for older versions of TLS (before TLS 1.2, including SSL).
- Remove all instances of clear-text and hard-coded passwords.

4. Platform Enhancements

4.1. Enhancements to Path

IEv8.01 has improved the Path feature in the following aspects:

- Calculate Path Above Layer 4 via Customized Parameters
- Calculate VXLAN L3 VNI Overlay Path
- Calculate ACI L2 Overlay Path
- Calculate IPsec Tunnel Topology for Viptela Devices

4.1.1.Calculate Path Above Layer 4 Via Customized Parameters

IEv8.01 has the capability of calculating traffic path above Layer 4 protocols, such as checking DSCP value/URL in ACL or PBR.

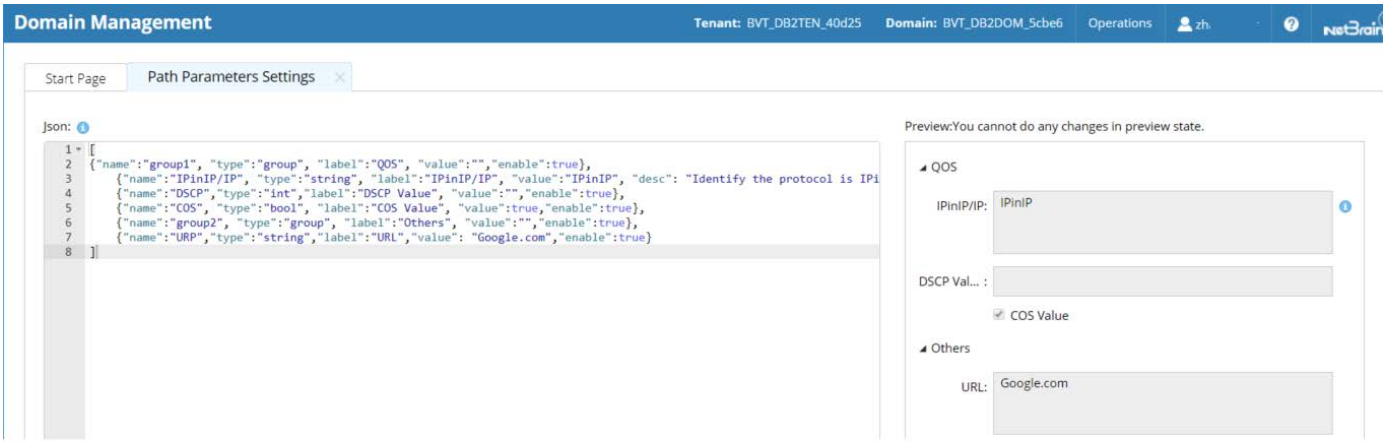
Note: The framework already supports the parameter definition of this feature, but the specific scripts to calculate the path are not ready in the system at the present. The scripts will be released and pushed to customers via Knowledge Cloud after the 8.01 release.

The flow to calculate a path above Layer 4 is as follows:

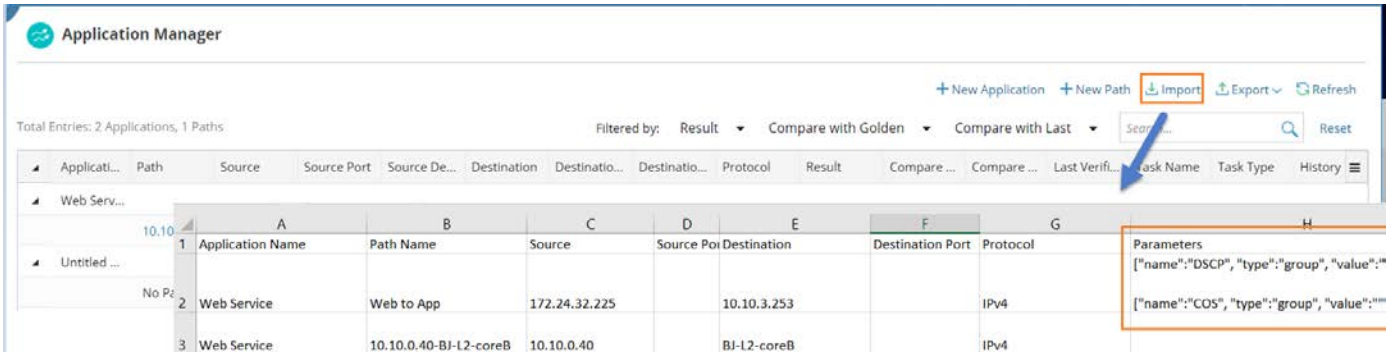
1. Domain Admin: Define additional path parameters
2. End User: Specify values before path calculation

1. Define Additional Path Parameters at the Domain Level

The domain administrator can define parameters for layer 4 above path calculation. Like the definition of Qapp input, the definition of additional path parameters is based on JSON.

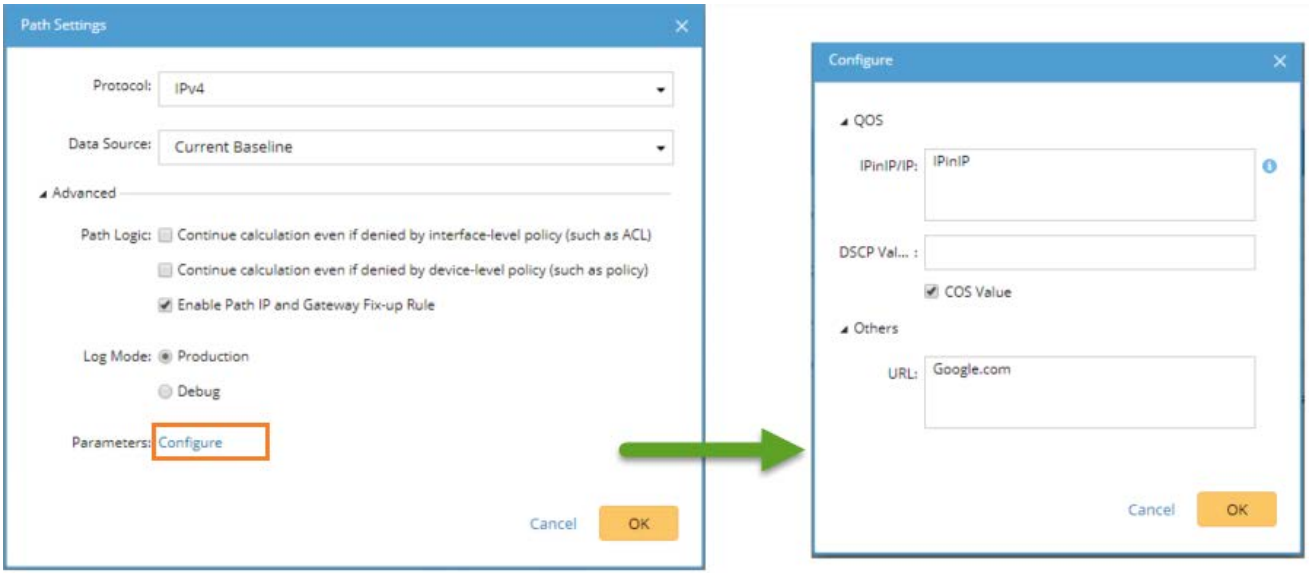


Tip: You can also define additional path parameters in JSON format in a CSV file when importing applications and paths to the Application Manager.



2. Specify Parameter Values in Path Settings

The predefined path parameters will be displayed in the Path Settings. Before calculating a path, end users can specify values for these parameters.



Path Calculation Logic for Additional Path Parameters

The traffic state adds DSCP, COS, QOS-Group, and Precedence options to record the corresponding information of traffic packets. When the system checks that an interface is configured with policies during a path calculation, it changes the corresponding value in the traffic state to determine routing decisions if the value in the packet is changed.

Take the path calculation in service policy configured network for example:

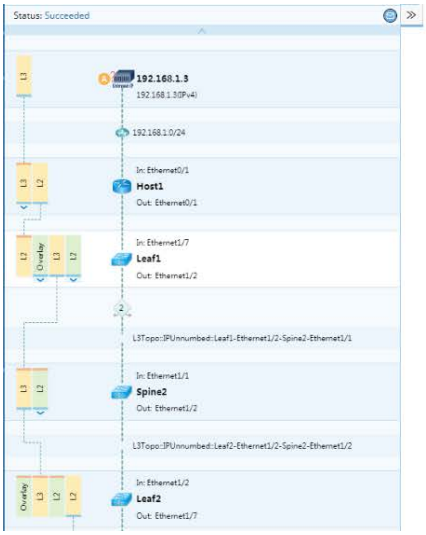
1. The system checks whether the in/out interfaces are configured with service policy.
2. If configured, the system checks whether the DSCP/COS/TOS value is modified in the service policy.
3. If modified, the system checks whether the class-map content is matched with the simulated content, including IP, port, DSCP, and simulated packet.
4. If matched, the system modifies the DSCP value in the traffic state and passes the value to the next-hop device for further processing.

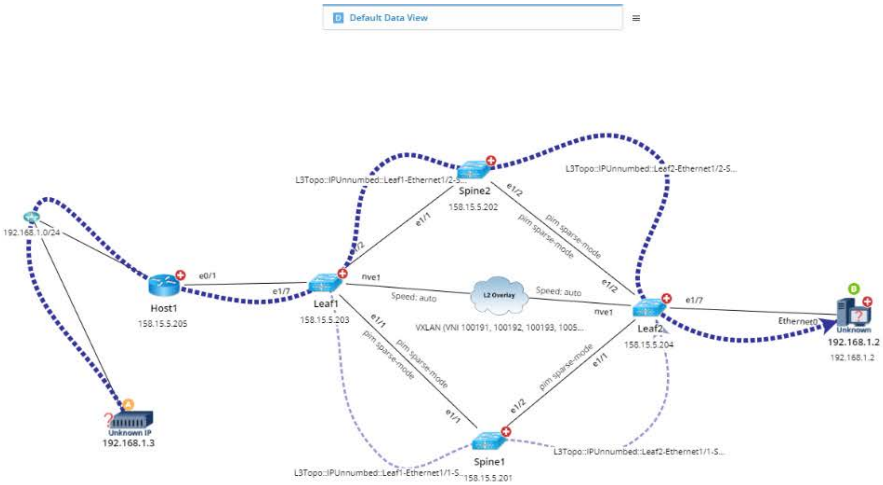
Note: The change of the Path Settings affects all modules that call the Path feature, such as Application Manager and Runbook.

4.1.2.Calculate VXLAN L3 VNI Overlay Path

IEv8.01 has enhanced the capability of calculating the VXLAN Overlay Path, which can calculate VXLAN L3 VNI Overlay Path. It adds the Router-MAC information to VXLAN Peer Table and the Router-MAC is used as

destination MAC during VXLAN L3 VNI Overlay Path calculation.

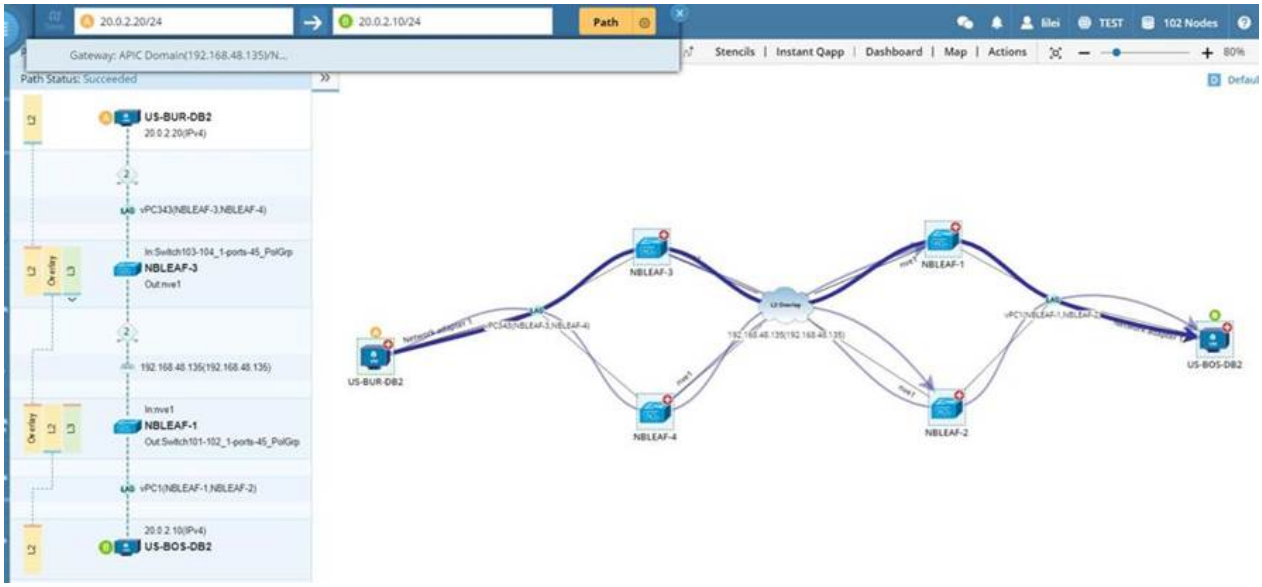




4.1.3.Calculate ACI L2 Overlay Path

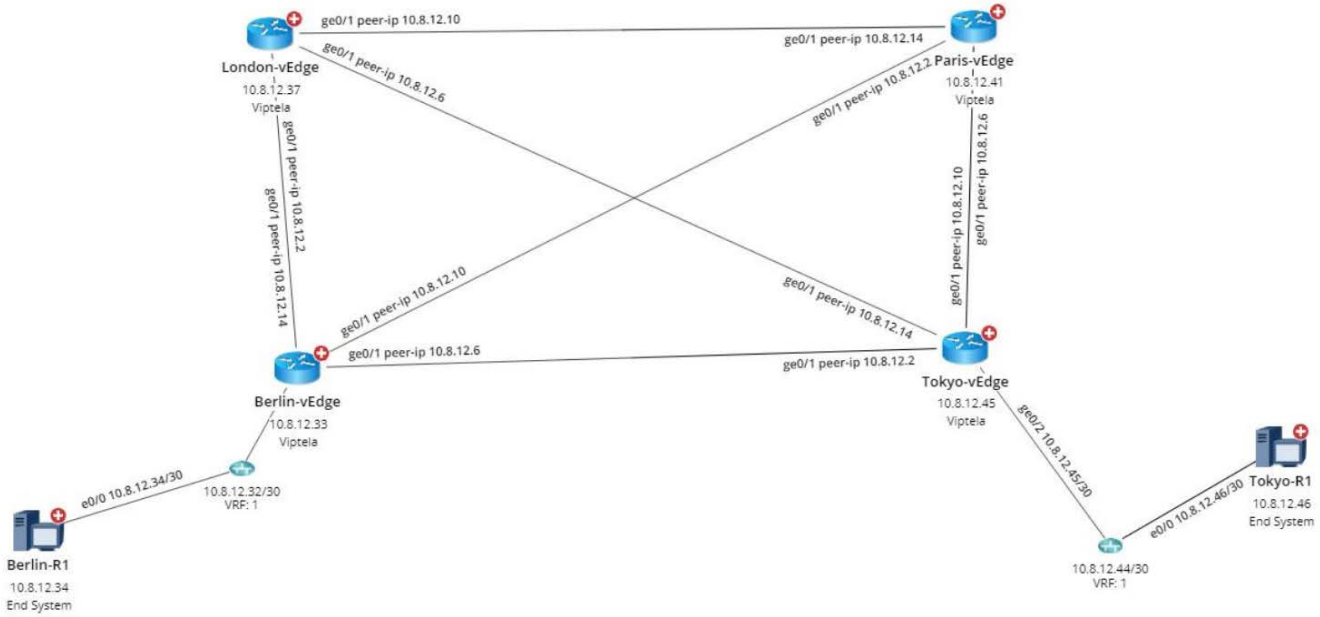
IEv8.01 has enhanced the support of ACI L2 Overlay Path in the following aspects:

- Connect all leaf devices in the same ACI Fabric that have an L2 overlay connection to one L2 Overlay Media.
- When calculating a pure L2 path crossing an ACI Fabric, the system calculates L2 overlay and underlay path based on topology dependency.



4.1.4.Calculate IPsec Tunnel Topology for Viptela Devices

IEv8.01 can visualize IPsec tunnel topology for Viptela devices.

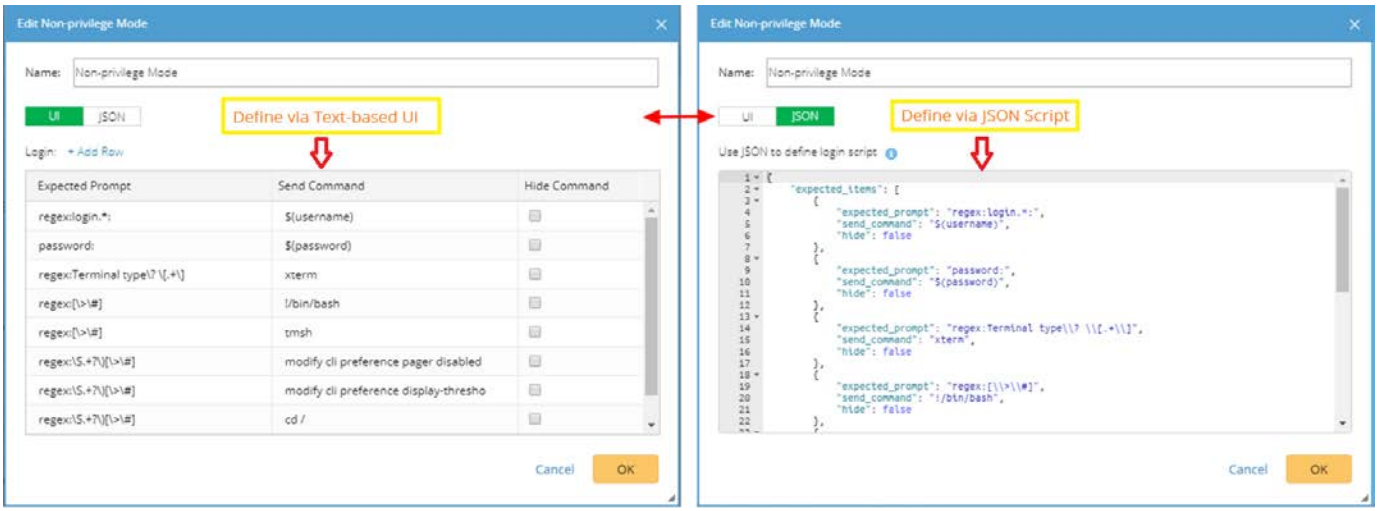


4.2. Enhancements to Multi-Vendor Support

4.2.1.Enhanced Customization of Login Script and Supported Keys

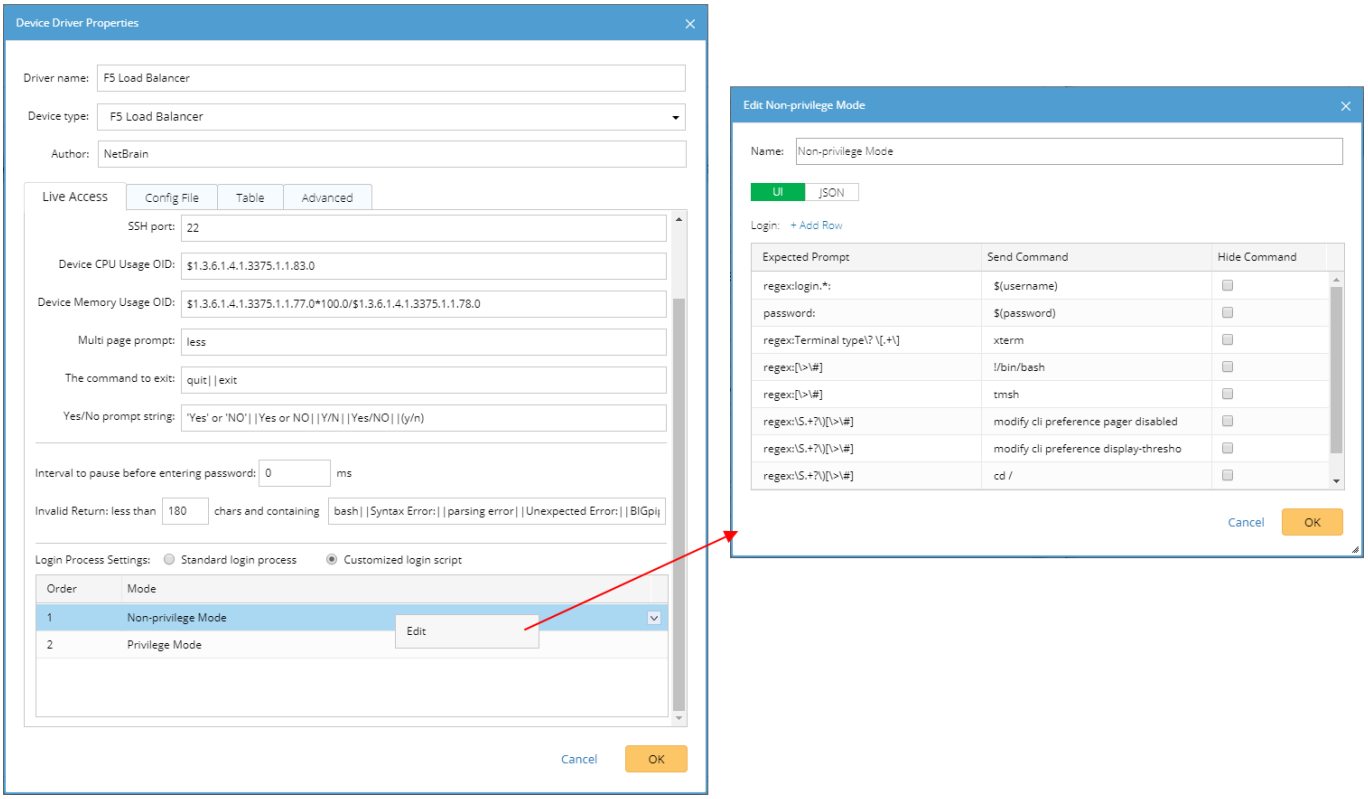
Login Script Customization

IEv8.01 enables you to define a customized login script via text-based UI or via JSON scripts.



The content defined on the UI tab and JSON tab is associated and synchronized with each other. When you configure prompts and commands on the **UI** tab, the corresponding JSON scripts of your configurations are automatically generated on the **JSON** tab, and vice versa.

Tip: You can access login script definition UI in shared device settings or drivers. The login script defined in a driver applies to all device types that use this driver, while that customized in the shared device settings of a device can be applied to a device or device group.



More Key and Combination Keys

With the continuous development of network technology, network devices are constantly being updated. In order to cope with the more complex login interaction scenarios that NetBrain may encounter in the Multi-vendor Support, IEv8.01 supports more key and combination keys.

No.	Key/Combination Key	Description
1	[Ctrl+Y]	The **Ctrl+Y** command is sent. Y is a letter in a lower or upper case from A to Z.
2	[Shift+Y]	The **Shift+Y** command is sent.
3	[Alt+Y]	The **Shift+Y** command is sent.
4	[Ctrl+Shift+Y]	The **Ctrl+Shift+Y** command is sent.

5	[Ctrl+Alt+Y]	The **Ctrl+ALT+Y** command is sent.
6	[Shift+Alt+Y]	The **Shift+ALT+Y** command is sent.
7	[Ctrl+Y, X]	This command includes pressing the **Ctrl+X** combination key and then pressing the **Y** key separately (without holding **Ctrl+X)**. ▪ X and Y are both letters in a lower or upper case from A to Z. ▪ **Ctrl+Y**, in this case, can be any type of combination keys from No.1 to No.6, such as [Ctrl+Shift+Y, X].
8	[Ctrl+Y, Ctrl+X]	The **Ctrl +Y+X** command is sent. ▪ **Ctrl +Y or Ctrl+X**, in this case, can be any type of combination keys from No.1 to No.6, such as [Ctrl+Shift+Y, Ctrl+X].
9	[Esc]	The **Esc** command is sent.
10	[Enter]	The **Enter** command is sent.
11	[Space]	The **Space** command is sent.
12	[Y]	The **Y** command is sent.
13	[Ctrl+\]]	The **Ctrl+]** command is sent. The system uses [ ] to include a key or combination key, so the escape character **** is used to avoid the conflict of the] character.

Tip: The following two combination keys can be used to customize whether to send an additional Enter key when sending a command.

- **+\r**: send a command with the Enter key. For example, [Ctrl+Y, X] +\r.
- **-\r**: send a command without the Enter key. For example, [Ctrl+Y] -\r.

4.2.2.Enhancements to CheckPoint Firewall R80 Supportability

Enhanced Discovery Upon Inconsistency between CLI and API Name

IEv8.01 has improved the discovery flow and logic of Checkpoint Firewall R80 to resolve the issue that a single R80 device is added as two different devices to a domain if its name retrieved via API and SNMP/CLI are different.

With the enhancement, the recommended discovery flow is **CLI discovery > API Discovery > Benchmark**.

Data Table Parsing Enhancements

IEv8.01 has expanded the parsing customization of Checkpoint Firewall R80 in the following data tables:

- **Policy NCT Table Parsing Enhancement**
  - Add the capability to retrieve protocol and port information based on the service name in a Policy NCT table.
  - Add the capability to parse the Negated configuration in the Policy NCT table.

- **NAT Table Parsing Enhancement**

  IEv8.01 will parse the install-on information of Checkpoint Firewall R80 after retrieving the NAT of all Checkpoint devices. It uses the install-on information to determine which device a NAT table belongs to, thus providing NAT loss and mismatch.

- **IPSec Table Accuracy Enhancement**

  In the previous edition, the system did not consider the distinction between the mesh and star mode when parsing gateways in the IPSec VPN Table. IEv8.01 adds the capability to parse the information based on different modes.

4.2.3.More Drivers

IEv8.01 introduces new drivers to support more device types and also improves some existing drivers.

Driver Name	Description
Cisco Web Security Application New	Can add configuration files via SNMP only.
Imperva WAF New	Can add configuration files and ARP tables.
Secure64 New	Can add configuration files via SNMP only.
NetScaler SD-WAN New	Can add configuration files and ARP tables.
Checkpoint XOS New	Can add configuration files, ARP table, route table, and virtual device information.
Cisco ENCS New	Can add configuration files, NDP tables, and MAC tables.

Driver Name	Description
AeroHive Switch New	Can add configuration files, ARP tables, MAC tables, and route tables.
XetaWave Ethernet Radio New	Can add configuration files, ARP tables, and route tables.
AudioCodes Appliance New	Can add configuration files, ARP tables, and route tables.
RackSwitch New	Can add configuration files, MAC tables, NDP tables, and route tables.
Fortinet FortiGate Firewall	Remove root as virtual node to be discovered.
Cisco IOS Router	Support traceroute for version IOS 16.
Citrix-B Series	Add MAC table and NDP Table.
Cisco WAAS	Add module information.
Alcatel Lucent Server Router	Add NCT tables, including Management ARP Table, Management Route Table, BFD Table, ARP Table[Learning], LDP Table, BGP Neighbor Table, OSPF Neighbor Table.

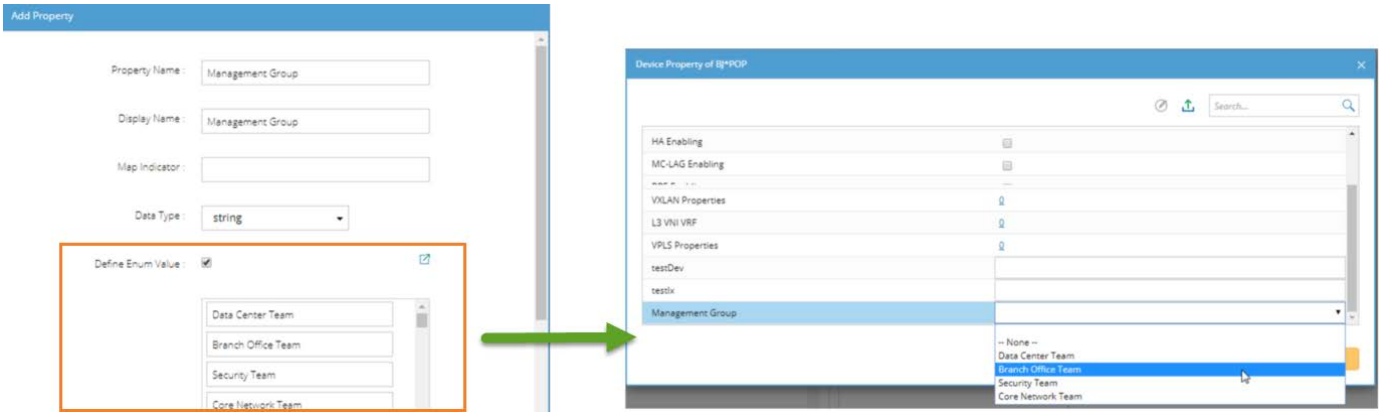
4.3. Enhancements to GDR

4.3.1.Allow to Predefine Enum Values

In previous versions, a GDR property can only be assigned with value via manual input in the Device Detail Panel. When multiple network engineers fill in the values of these GDR properties for different devices, the same values may be filled in different formats.

IEv8.01 provides the enum value function that enables you to predefine values when defining a single-valued GDR property, such as int, double, and string. The predefined values will be displayed as a list for you to select

when you assign a value for a GDR property in the Device Details Pane.



4.3.2.Allow the Deletion of GDR Property Assigned with Value

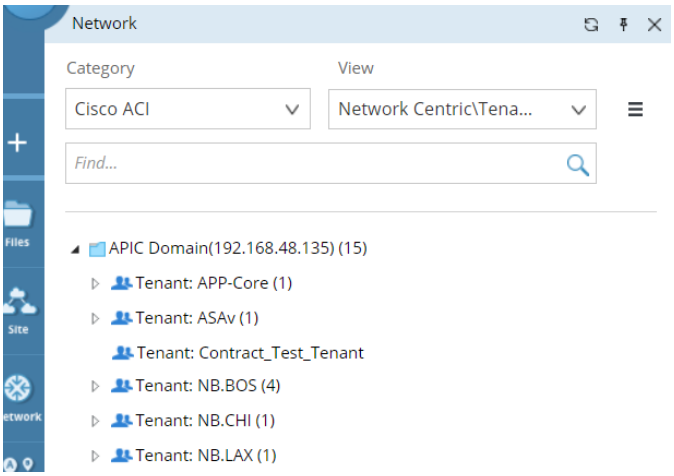
In previous versions, if a GDR property was filled in with a value, then this GDR cannot be deleted. IEv8.01 allows you to delete a GDR property that has been assigned with a value in the GDR configuration. When the GDR property is deleted, the corresponding value is also removed from the database.

4.4. Auto-Update More Resources in Knowledge Cloud

Beyond the capabilities of Knowledge Cloud introduced in IEv8.0 to auto-update a variety of resources, more resources types that can be auto-updated are added to IEv8.01, including:

- **Interface Type Translation** — the definition file for the mapping between a short name and a long name for an interface.
- **Default Data View Template** — the definition file for the Default Data View Template.

- **Network Tree Category and Different Views** — the categories and views that can be updated/refreshed in the Network pane.

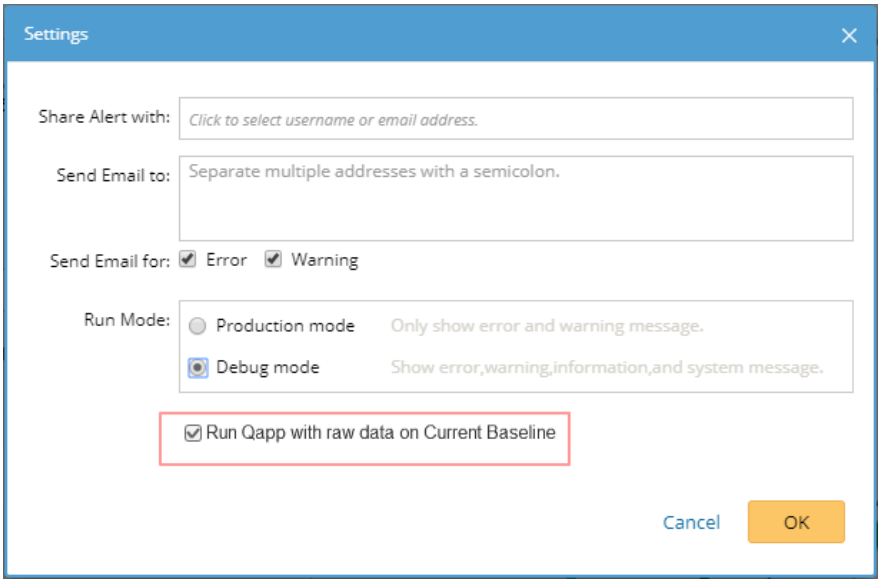


4.5. Enhancements to Qapp

Enable Qapp Debugging with Raw Data

When being executed with Current Baseline, a Qapp uses the parsed data in the Current Baseline (data generated the scheduled parser/DVT task) to analyze results, instead of the raw data of the Current Baseline. It brings a problem that NetBrain engineers cannot use the raw data provided by users to debug a Qapp beyond the users' domains.

To resolve this problem, IEv8.01 introduces a function that allows running a Qapp with raw data directly for the debugging purpose.

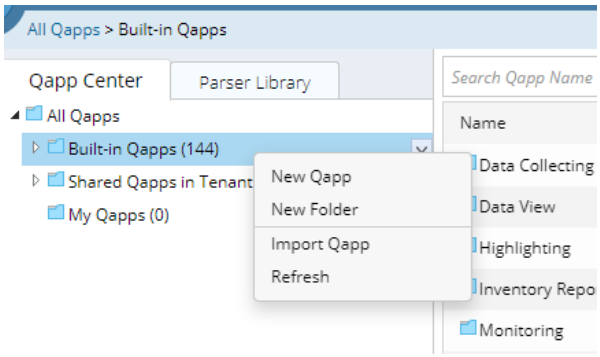


Note: This option is available only when the data source is **Current Baseline** and the **Debug Mode** is enabled.

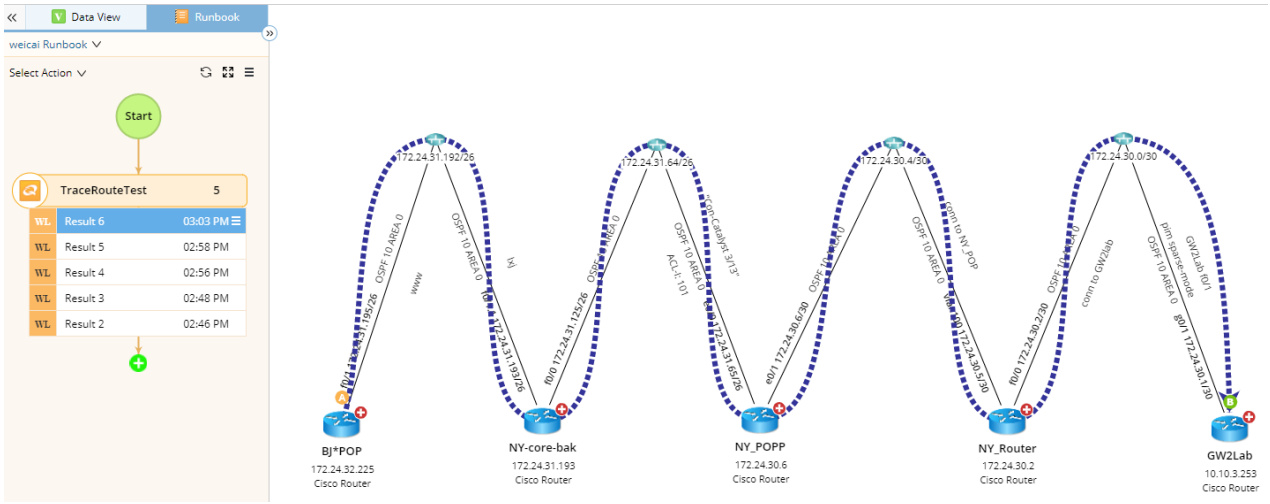
It is not recommended for customers to use this function, because it is designed for NetBrain Engineers to debug a Qapp for customers. Variable Mapping will not be applied when the option is checked.

Usability Enhancements

- Use the shortcut key **CTRL+ S** to save a Qapp/Gapp/Parser file.
- Add a right-click menu for folders in the Parser Library, Qapp Center and Gapp Center.



- Add a **DrawTraceRouteHops()** API in the script output to draw the traceroute result hop by hop on a map.



4.6. New APIs

4.6.1.North-bound APIs

IEv8.01 has added and improved the following north-bound APIs:

API	Description
Get Device and Device Attributes	Get devices and their attributes data in batches. The response of this API will return a list in JSON format. **Notes:** ▪ This API follows the privilege control of NetBrain IE system. If there are restrictions set by Access Control Policy for the target querying resources, the response will not return queried data. ▪ This API doesn't support any GDR that is not set as displayed, except first discovery time and last discovery time. ▪ This API in the earlier editions is still being compatible for use.
Get Device Neighbors with Topology Type	Get device neighbors with topology types in batch. The response of this API will return a list in JSON format. **Notes:** ▪ This API follows the privilege control of NetBrain IE system. If there are restrictions set by Access Control Policy for the target querying resources, the response will not return queried data. ▪ This API in the earlier editions is being compatible with use.
Get Device Access Policies new	Get a device access policy in the current domain.
Add Device Access Policy new	Create a new device access policy.
Update Device Access Policy new	Modify a device access policy. **Note:** Domain Management or above privilege is required.
Delete Device Access Policy new	Delete a device access policy.
Get User Device Access Policy new	Get all device access policies associated with one specified user account.
Set User Device Access Policy new	Set a device access policy assigned to a user account.

API	Description
Assign Device Access Policies to User new	Assign new policies to a user account without deleting the existing policy of the account. **Note:** Share Policy Management or above privilege is required.
Remove Device Access Policies from User new	Remove device access policies for a user account.
Get Users of Device Access Policy new	Get user accounts who have the same device access policy in the current domain.
Get Device Group new	Get all device groups in the current domain, including Public group, system group and private group.
Add Device Group new	Add a device group in the current domain.
Update Device Group new	Update a device group in the current domain
Delete Device Group new	Delete a device group in the current domain.

4.6.2.System APIs

IEv8.01 introduces 2 new system APIs, which can be called in Plugin, Qapp or other modules in the system.

System API	Description
addDevicesToSite(sitename,devicelist)	Add devices to a site. The API can be called in the Qapp/plugin/path feature.
DrawTraceroute()	Draw the result of a traceroute operation hop by hop on a map. This API can be called in the Qapp feature.

Tip: For more APIs in the system, click this link.

5. Performance Enhancements

Compared to IEv8.0, the performance improvements achieved in IEv8.01 are listed as follows.

Feature	Test Scenario	IEv8.0	IEv8.01
MPLS Dynamic Search	Search out 724 CE devices and 1.3k interfaces	4.1 hour	0.1 hour
Big Data Environment	Build L2 topology for 45k devices	3.7 hours	1.9 hours
	Build L2 topology for 90k devices	29 hours	6.5 hours
	Build L3 topology for 10k devices and 463k interfaces, containing 100k+ Class A IP addresses (without mask) connected to a single media **Note:** The **Use the main class mask to calculate L3 topology for an IP without mask** option is checked.	18 hours	0.21 hour
	Extend neighbors for a device with 250k ARP entries	Failed after 15 minutes loading	2 minutes
Front Server Support for Golden Baseline	Calculate golden baseline for 10k devices	The loading speed in IEv8.01 is 4 times faster than IEv8.0	
Network Tree	▪ ACI Tenant Count: 876 ▪ ACI BD Count: 4k+ ▪ ACI VRF Count: 4k+ ▪ ACI EPG Count: 4k+ ▪ ACI ANP Count: 1k ▪ ACI EP Count: 142k	▪ The loading speed in IEv8.01 is 1.6 times faster than IEv8.0 ▪ The consumed memory in IEv8.01 is 40%~60% lower than IEv8.0	
Semantic Search	E.g., search for “OSPF 1 AREA 0“ with 20 out of 646 devices returned	151 seconds	30 seconds
File Upload	Upload 2k Data View Template files.	Failed	Succeeded