

DEPLOYMENT GUIDE

Implementing Infoblox Reporting and Analytics

Table of Contents

Introduction	2
Infoblox Reporting and Analytics Features	2
Search.....	2
Reports and Dashboards.....	2
Alerts.....	2
Trends and Predictive Analytics.....	2
Prerequisites	2
Deploying Infoblox Next-Generation Reporting	3
Configuring a Grid for Reporting.....	3
Viewing a Predefined Report	11
Scheduling Report Delivery	15
Creating Custom Reports	17
Converting a Search to a Report.....	17
Cloning an Existing Report	18
Creating Custom Dashboards	19
Creating a New Custom Dashboard.....	19
Cloning an Existing Dashboard	24
Working with Alerts	25
Subscription Licensing Model	29
Query Logging	32
Clustering	32
Instructions for Enabling Clustering.....	33
Multi-site Cluster.....	36
Infoblox Reporting Community	39

Introduction

Infoblox Reporting and Analytics automates the collection, analysis, and presentation of core network service data that assists you in planning and mitigating network outage risks so you can manage your networks more efficiently. You can quickly create custom security reports and dashboards to identify security issues, ensuring that your network is secure and available. You can easily meet audit requirements with pre-configured, customizable compliance reports or quickly and easily create your own. To keep your Infoblox Grid™ running smoothly, you can track and project the utilization of the Grid and easily forecast when you will need to scale up.

Infoblox Reporting and Analytics Features

Search

Flexible searching enables you to use keywords, phrases, fields, Boolean expressions, and comparison expressions to specify exactly which events you want to retrieve. Search results can be turned easily into dashboard widgets or standalone reports.

Reports and Dashboards

There are 100+ pre-configured reports—but you can also fully customize reports and dashboards. A wide variety of charts and visualizations make data understandable and actionable. You can export report data in XML and CSV formats.

New reports and dashboards are available on the Infoblox Experts Community (a new Reporting forum has been created), Infoblox Professional Services, or engineering teams—and they can be implemented without NIOS upgrades.

Alerts

Configurable alerts separate the critical data from background noise and let you know about problems fast. These alerts can invoke third-party applications or send emails.

Trends and Predictive Analytics

Trends and analytics for DNS, DHCP, IP address management (IPAM), security, compliance, and application monitoring help you track current services. Predictive analytics leverage historical data and growth trends to alert you of key issues and help predict the future needs.

Prerequisites

The following are prerequisites for this Infoblox next-generation reporting solution:

- Functional Infoblox Grid™ with a Grid Master running NIOS 8.x or newer
- A physical or virtual Infoblox Reporting Appliance

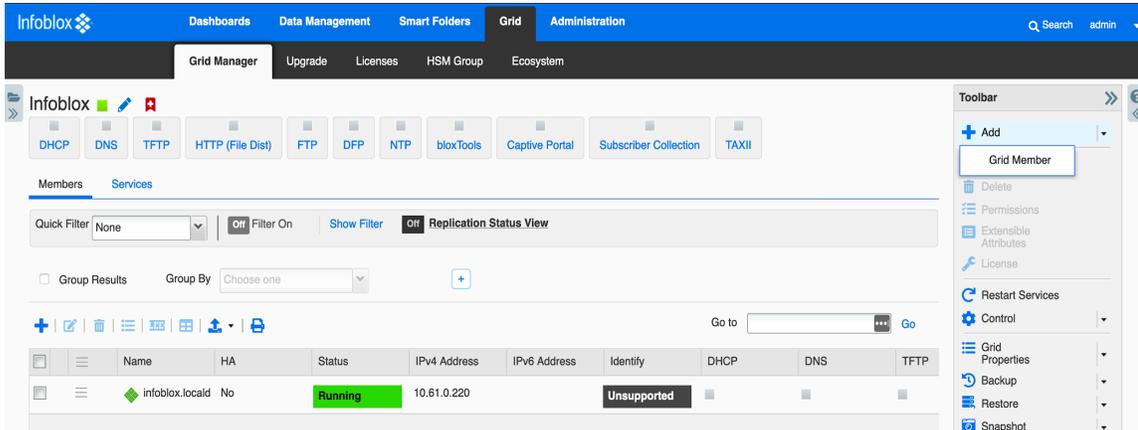
- Subscription license installed on the Reporting Appliance

Deploying Infoblox Next-Generation Reporting

An administrator needs to install a dedicated Infoblox Reporting Appliance, join it to the Grid, and enable the Reporting service to begin using Infoblox Reporting and Analytics.

Configuring a Grid for Reporting

1. Go to **Grid** → **Grid Manager** → **Members** and click **Add** → **Grid Member**.



2. In the Add Grid Member Wizard > Step 1 of 3 dialog box:

- Select **Infoblox** (for hardware appliance) or **Virtual NIOS** option from the Member Type drop-down menu.
- Type a fully qualified host name in the **Host Name** box.
- Click **Next**.

Add Grid Member > Step 1 of 3

Member Type:

*Host Name: Must be a fully qualified domain name

Time Zone: Override
Inherited from Grid Infoblox

Comment:

Master Candidate:

3. In the Add Grid Member Wizard > Step 2 of 3 dialog box:
 - Click the **LAN1 Address** field and specify the IP address of the Reporting Appliance.
 - Click the **LAN1 Subnet Mask** field and specify the subnet mask of the Reporting Appliance.
 - Click the **LAN1 Gateway field** and specify the default gateway of the Reporting Appliance.
 - Click **Save & Close**

The screenshot shows the 'Add Grid Member > Step 2 of 3' dialog box. At the top, the title bar reads 'Add Grid Member > Step 2 of 3'. Below the title bar, there is a 'Type of Network Connectivity' dropdown menu set to 'IPv4'. A help icon (?) and a back arrow (<<) are visible on the right side of this section.

Under the heading 'TYPE OF MEMBER', there are two radio button options: 'Standalone Member' (which is selected) and 'High Availability Pair'.

Below this is the 'REQUIRED PORTS AND ADDRESSES' section, which contains a table with the following data:

Interface	Address	Subnet Mask (IPv4) or Prefix Length (I...	Gateway	VLAN Tag	Port Settings
LAN1 (IPv4)	10.61.0.221	255.255.255.0	10.61.0.253		Automatic

At the bottom of the dialog box, there are four buttons: 'Cancel', 'Previous', 'Next', and 'Save & Close'.

4. If you are using a virtual NIOS member, you will need to add a second hard drive that is at least equal to the current hard drive in size. The steps would depend upon the type of hypervisor you are using.
5. Connect to the console of the reporting appliance. Login with the default user of **admin** and default password of **"infoblox"**.

6. Type `set temp_license` to set the reporting licenses.

```
type 'help' for more information

Infoblox > set temp_license

 1. DNSone (DNS, DHCP)
 2. DNSone with Grid (DNS, DHCP, Grid)
 3. Network Services for Voice (DHCP, Grid)
 4. Add NIOS License
 5. Add DNS Server license
 6. Add DHCP Server license
 7. Add Grid license
 8. Add Microsoft management license
 9. Add Multi-Grid Management license
10. Add Query Redirection license
11. Add Response Policy Zones license
12. Add FireEye license
13. Add DNS Traffic Control license
14. Add Cloud Network Automation license
15. Add Security Ecosystem license
16. Add Threat Analytics license
17. Add Flex Grid Activation license
18. Add Flex Grid Activation for Managed Services license

Select license (1-18) or q to quit: _
```

7. Select '4' for the NIOS license. This license will set NIOS VM to the proper reporting appliance model. Your choices are: IB-V805, IB-V1405, IB-V2205, IB-V4005, or IB-V5005. After making your selection, the VM will restart.

```
15. Add Security Ecosystem license
16. Add Threat Analytics license
17. Add Flex Grid Activation license
18. Add Flex Grid Activation for Managed Services license

Select license (1-18) or q to quit: 4

 1. IB-V805
 2. CP-V805
 3. IB-V815
 4. IB-V825
 5. IB-V1405
 6. CP-V1405
 7. IB-V1415
 8. IB-V1425
 9. IB-V2205
10. CP-V2205
11. IB-V2215
12. IB-V2225
13. IB-V4005
14. IB-V4015
15. IB-V4025
16. IB-V5005

Enter a number corresponding to a NIOS model (1 - 16) or q to quit:
```

8. Log back into the VM and type 'set temp_license'. Because it is now a reporting server, you will see less license options. Add the **Grid license** and **Reporting license**.

```
Infoblox >
Infoblox >
Infoblox >
Infoblox > set temp_license

  1. Add MIOS License
  2. Add Grid license
  3. Add Reporting license

Select license (1-3) or q to quit:
```

9. Type 'set network' to set the IP address of the reporting server. Follow the prompts. The VM will reboot.

```
type 'help' for more information

Infoblox > set network
NOTICE: All HA configuration is performed from the GUI. This interface is
used only to configure a standalone node or to join a Grid.
Enter IP address: 10.61.66.175
Enter netmask [Default: 255.255.255.0]:
Enter gateway address [Default: 10.61.66.1]:
Enter VLAN tag [Default: Untagged]:
Configure IPv6 network settings? (y or n): n
Become grid member? (y or n): n

New Network Settings:
IPv4 address:      10.61.66.175
IPv4 Netmask:     255.255.255.0
IPv4 Gateway address: 10.61.66.1
IPv4 VLAN tag:    Untagged

Old IPv4 Network Settings:
IPv4 address:      192.168.1.2
IPv4 Netmask:     255.255.255.0
IPv4 Gateway address: 192.168.1.1
IPv4 VLAN tag:    Untagged
Is this correct? (y or n):
```

10. Connect to the CLI of the Reporting Appliance and join it to the Grid using the set membership command.

```
Infoblox NIOS Release 8.5.0-390933 (64bit)
Copyright (c) 1999-2019 Infoblox Inc. All Rights Reserved.

type 'help' for more information

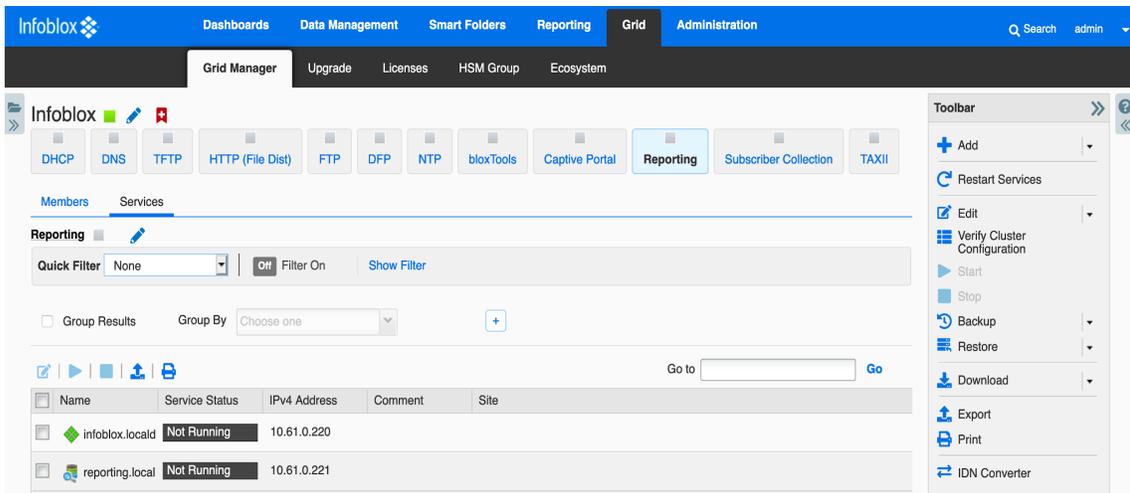
Infoblox > set membership
Join status: No previous attempt to join a grid.
Enter New Grid Master VIP: 10.61.0.220
Enter Grid Name [Default Infoblox]:
Enter Grid Shared Secret: test
Join grid as member with attributes:
  Grid Master VIP: 10.61.0.220
  Grid Name:      Infoblox
  Grid Shared Secret: test

WARNING: Joining a grid will replace all the data on this node!
Is this correct? (y or n): y
Are you sure? (y or n): y
```

11. Click the **user name** in the top-right corner and select **Logout** from the drop-down to log out of the Grid Manager interface.

When you log back into the Grid Manager, you will now see a Reporting tab. This tab will be empty until the reporting configuration is complete.

12. Log back into the Grid Manager, go to **Grid** → **Grid Manager** → **Services** and click the **Reporting** service.
13. Select your Reporting Appliance from the list, click **Start**, and click **Yes** to start the service.



14. Wait a few minutes while the Reporting Service starts up, and select **Grid Reporting Properties** from the **Edit** drop-down menu.

15. Check the **Enable Data Indexing** checkbox.

Infoblox (Grid Reporting Properties)

Toggle Basic Mode

Basic Advanced

Enable Data Indexing Enable Time Based Retention

Report Category	Category	Index %	Used %	Retention in days	Index Name
<input type="checkbox"/>	Audit Log	0	0.0	No Retention	ib_audit
<input checked="" type="checkbox"/>	DNS Query	20	0.004	No Retention	ib_dns / ib_dns_summary
<input type="checkbox"/>	DNS Performance				
<input type="checkbox"/>	DDNS				
<input type="checkbox"/>	DNS Record Scavenging				
<input type="checkbox"/>	DNS Query Capture	0	0.0	No Retention	ib_dns_capture
<input checked="" type="checkbox"/>	DHCP Performance	20	0.004	No Retention	ib_dhcp / ib_dhcp_summary
<input checked="" type="checkbox"/>	DHCP Fingerprint	39	0.001	No Retention	ib_dhcp_lease_history
<input type="checkbox"/>	DHCP Lease History				
<input type="checkbox"/>	DDI Utilization	5	0.082	No Retention	ib_ipam / ib_ipam_summary

Cancel Save & Close

Report Categories define what data is collected by the Reporting Appliance. Select the **checkbox** next to each report category you want to enable. The Index % field for each category defines how much of the reporting index capacity is assigned to each. *NOTE: You do not need to enable categories for Infoblox products you are not using in your Grid.*

Infoblox (Grid Reporting Properties)

Toggle Basic Mode

Basic **Advanced**

Enable Data Indexing Enable Time Based Retention

Report Category	Category	Index %	Used %	Retention in days	Index Name
<input type="checkbox"/>	Audit Log	<input type="text" value="0"/>	0.0	No Retention	ib_audit
<input checked="" type="checkbox"/>	DNS Query	<input type="text" value="20"/>	0.004	No Retention	ib_dns / ib_dns_summary
<input type="checkbox"/>	DNS Performance				
<input type="checkbox"/>	DDNS				
<input type="checkbox"/>	DNS Record Scavenging				
<input type="checkbox"/>	DNS Query Capture	<input type="text" value="0"/>	0.0	No Retention	ib_dns_capture
<input checked="" type="checkbox"/>	DHCP Performance	<input type="text" value="20"/>	0.004	No Retention	ib_dhcp / ib_dhcp_summary
<input checked="" type="checkbox"/>	DHCP Fingerprint	<input type="text" value="39"/>	0.001	No Retention	ib_dhcp_lease_history
<input type="checkbox"/>	DHCP Lease History				
<input type="checkbox"/>	DDI Utilization	<input type="text" value="5"/>	0.082	No Retention	ib_ipam / ib_ipam_summary

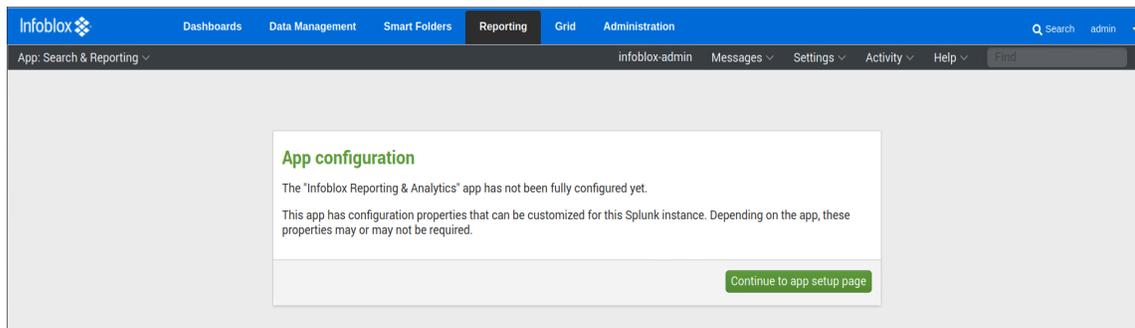
Cancel Save & Close

16. Specify the index capacity for each of the categories you selected in the previous step. Set all deselected categories to zero (0) so that the Total capacity adds up to 100.

NOTE: The index % total can be less than 100 but cannot be more than 100.

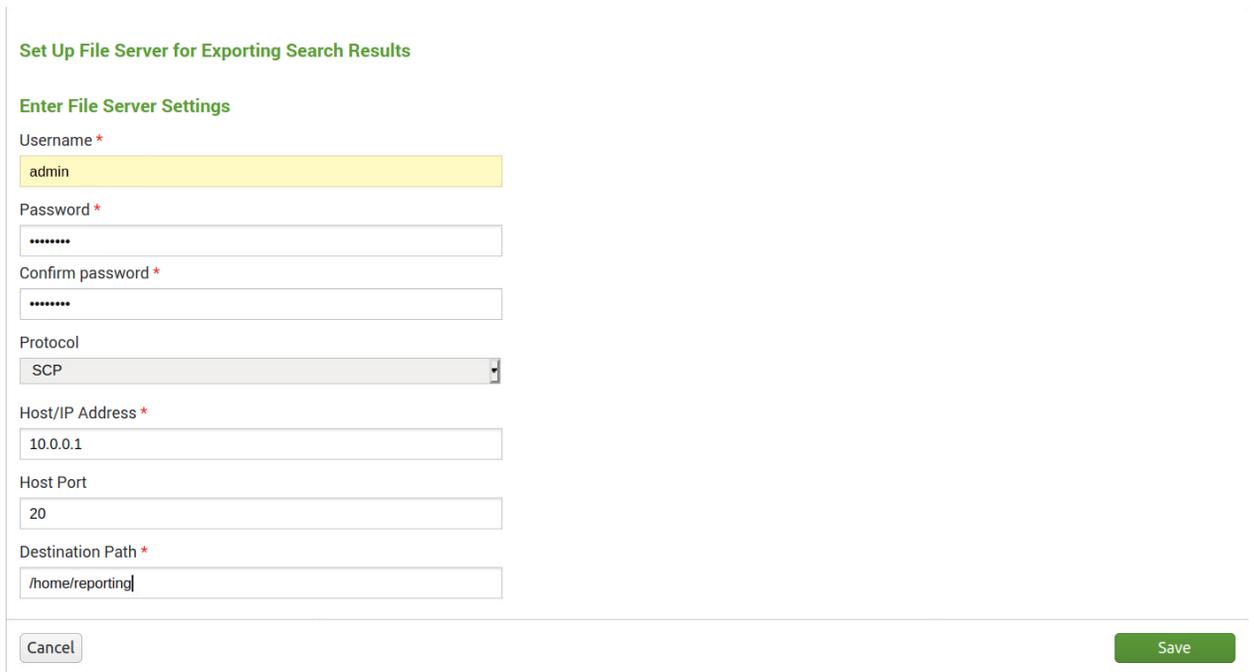
17. **Restart** services if prompted to do so and wait for 5 minutes until indexing has started and the first data has been forwarded to the reporting member. Go to **Reporting**.

18. When reporting processes are finished with startup, you will see the App Configuration warning for Infoblox Reporting and Analytics. Click **Continue** to the app setup page.



The app configuration is specifically for exporting search results to another system via file transfer, used for automatic report generation and to send system-generated data to other systems, such as sending data to a SIEM in a CSV file format.

19. Fill in the form with the appropriate settings for your environment. If you don't need this functionality, leave the configuration blank, since it can be configured later from **Administration** → **Set up in the dashboard**.
20. Click **Save**.

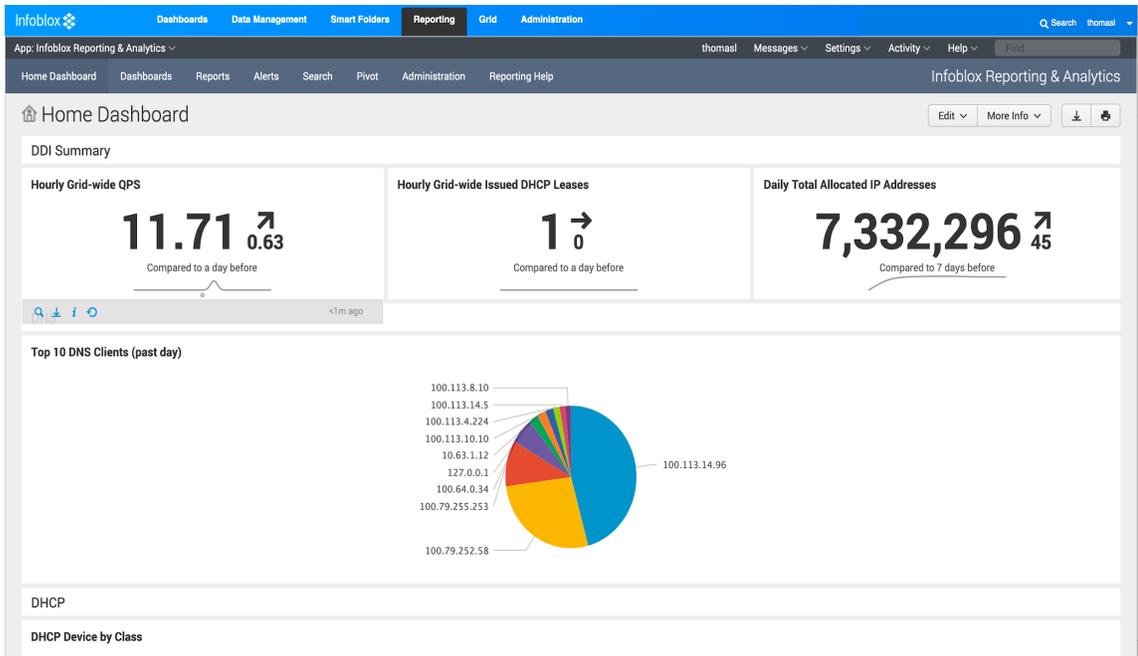


The screenshot shows a configuration form titled "Set Up File Server for Exporting Search Results". Under the heading "Enter File Server Settings", there are several input fields: "Username *" with the value "admin", "Password *" with masked characters, "Confirm password *" with masked characters, "Protocol" with a dropdown menu set to "SCP", "Host/IP Address *" with the value "10.0.0.1", "Host Port" with the value "20", and "Destination Path *" with the value "/home/reporting". At the bottom of the form, there are "Cancel" and "Save" buttons.

Viewing a Predefined Report

This section describes the steps to view predefined reports.

1. Click on the Reporting Tab.

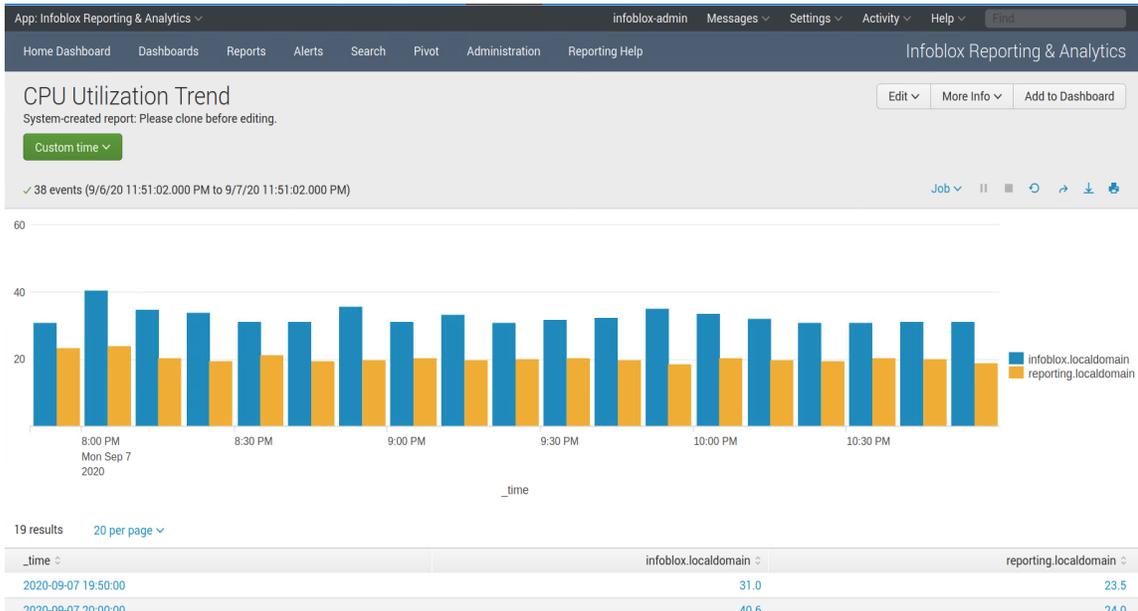


2. Click Dashboards to display the predefined and user-defined dashboards in the system.

The screenshot shows the 'Dashboards' page in the Infoblox Reporting & Analytics interface. It displays a list of 99 predefined dashboards. The table below summarizes the visible entries:

Title	Actions	Owner	App	Sharing
Administration	Edit	nobody	infoblox	App
Audit Log Events	Edit	nobody	infoblox	App
Audit Log WAPI Events	Edit	nobody	infoblox	App
CPU Utilization Trend	Edit	nobody	infoblox	App
DDNS Update Rate Trend	Edit	nobody	infoblox	App
Detailed RPZ Violations by Subscriber ID	Edit	nobody	infoblox	App
Device Advisor	Edit	nobody	infoblox	App
Device Class Trend	Edit	nobody	infoblox	App
Device Components	Edit	nobody	infoblox	App
Device Fingerprint Change Detected	Edit	nobody	infoblox	App
Device Interface Inventory	Edit	nobody	infoblox	App
Device Inventory	Edit	nobody	infoblox	App
Device Trend	Edit	nobody	infoblox	App
DHCP Lease History	Edit	nobody	infoblox	App
DHCP Leases by Vendor	Edit	nobody	infoblox	App
DHCP Message Rate Trend	Edit	nobody	infoblox	App
DHCP Top Lease Clients	Edit	nobody	infoblox	App
DHCPv4 Range Utilization Trend	Edit	nobody	infoblox	App
DHCPv4 Top Utilized Networks	Edit	nobody	infoblox	App
DHCPv4 Usage Statistics	Edit	nobody	infoblox	App
DHCPv4 Usage Trend	Edit	nobody	infoblox	App

3. Click any of the dashboards in the list to open the dashboard.



4. Manipulate the dashboard as required using the drop-down menus and text boxes and then click Submit.

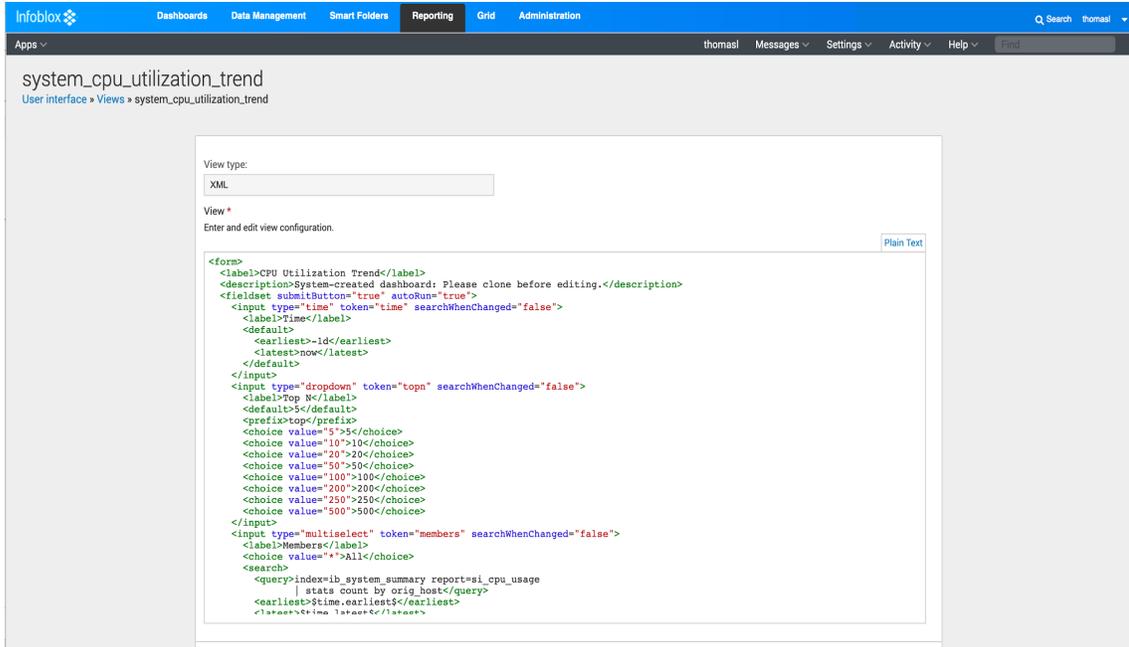
Note: A dashboard has filters that can be used to change the view of the data in the dashboard—the key advantage of a dashboard over a report.

5. Click the **Export PDF** icon to export the dashboard as a PDF and click the **Print** icon to print it.

Note: The source for a dashboard is far more complex than the search underlying a report. Do not modify the source of any predefined dashboards.

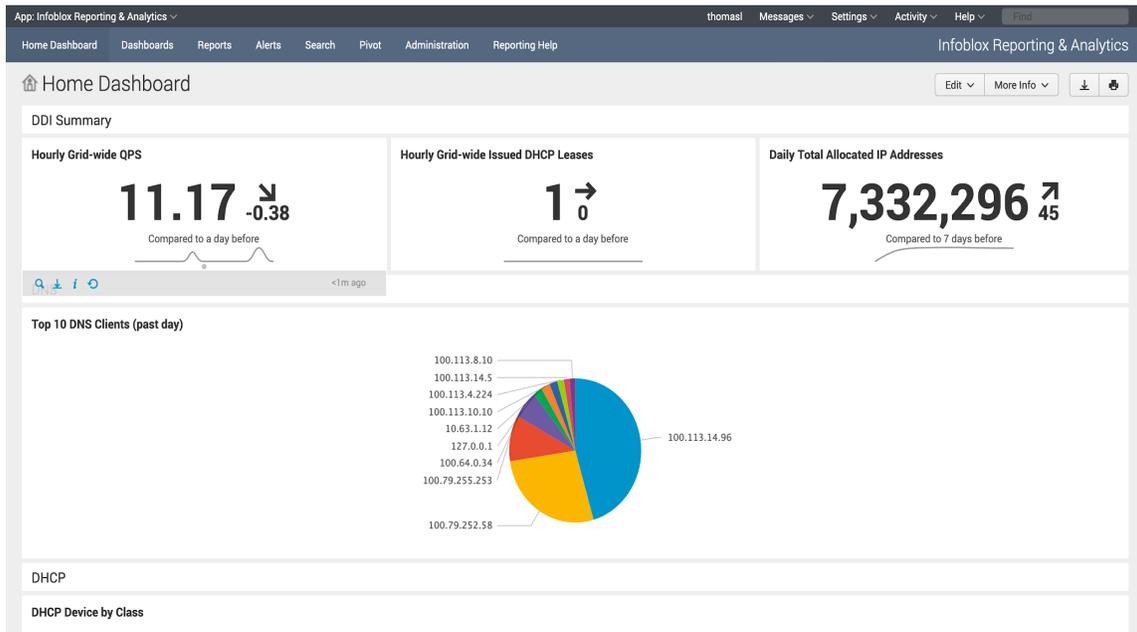
6. To display and edit dashboard source code, click **Edit** → **Edit Source**.

Note: The source for a dashboard is far more complex than the search underlying a report. Do not modify the source of any predefined dashboards.



- Open the **Reporting** tab. The default view is Home Dashboard. The Home Dashboard is pre-configured to show some general information about the DNS, DHCP, IPAM, and Reporting Health of your Grid. To change the default panels click **Edit** → **Edit Panels**.

NOTE: It is not recommended to change the pre-built reports or dashboards in the system; instead create clones and modify the clones.



- Click **Reports**. This section contains the predefined and user-defined Reports in the system. Note the difference between Reports and Dashboards: Reports are the results of a single Search within the reporting system. Dashboards are a collection of data that can be assembled from multiple searches and other reports.

The screenshot shows the 'Reports' section of the Infoblox Reporting & Analytics interface. It features a navigation bar with 'Reports' selected. Below the navigation, there's a header for 'Reports' with a brief description. A table lists 110 reports, each with a title, actions (Open in Search, Edit), owner, app, sharing status, and embedding status. The reports include various system metrics like CPU Utilization, DNS Cache Hit Ratio, and DHCPv4 Usage.

Title	Actions	Owner	App	Sharing	Embedding
Audit Log Events	Open in Search Edit	nobody	infoblox	App	Disabled
Audit Log WAPI Events	Open in Search Edit	nobody	infoblox	App	Disabled
CPU Utilization Trend	Open in Search Edit	nobody	infoblox	App	Disabled
CPU Utilization Trend (Detailed)	Open in Search Edit	nobody	infoblox	App	Disabled
DDNS Update Rate Trend	Open in Search Edit	nobody	infoblox	App	Disabled
DDNS Update Rate Trend (Detailed)	Open in Search Edit	nobody	infoblox	App	Disabled
DHCP Lease History	Open in Search Edit	nobody	infoblox	App	Disabled
DHCP Message Rate Trend	Open in Search Edit	nobody	infoblox	App	Disabled
DHCP Message Rate Trend (Detailed)	Open in Search Edit	nobody	infoblox	App	Disabled
DHCP Top Lease Clients	Open in Search Edit	nobody	infoblox	App	Disabled
DHCPv4 Range Utilization Trend	Open in Search Edit	nobody	infoblox	App	Disabled
DHCPv4 Top Utilized Networks	Open in Search Edit	nobody	infoblox	App	Disabled
DHCPv4 Usage Statistics	Open in Search Edit	nobody	infoblox	App	Disabled
DHCPv4 Usage Trend	Open in Search Edit	nobody	infoblox	App	Disabled
DNS Cache Hit Ratio Trend	Open in Search Edit	nobody	infoblox	App	Disabled
DNS Cache Hit Ratio Trend (Detailed)	Open in Search Edit	nobody	infoblox	App	Disabled
DNS Daily Peak Hour Query Rate by Member	Open in Search Edit	nobody	infoblox	App	Disabled
DNS Daily Query Rate by Member	Open in Search Edit	nobody	infoblox	App	Disabled
DNS Domain Query Trend	Open in Search Edit	nobody	infoblox	App	Disabled
DNS Domains Queried by Client	Open in Search Edit	nobody	infoblox	App	Disabled

Click any of the reports in the list to open the report, and then click the **Export** or **Print** icons to export the report to PDF or print it.

NOTE: There are no filters to change the view of the data within the report, because the report is built from a single search.



- Click **Edit** → **Open** in Search to open the source search for the report in the search text box. A search presents the data from the report in a tabular view and is the most basic way to view data within the Infoblox Reporting and Analytics indexes. An Index is the database object that contains the raw data collected by the system. In order to write custom reports you need to know the available Indexes in the system. To export or print the tabular search results, click the appropriate icon.

_time	infoblox.localdomain	reporting.localdomain
2020-09-07 19:50:00	31.0	23.5
2020-09-07 20:00:00	40.6	24.0
2020-09-07 20:10:00	35.0	20.4
2020-09-07 20:20:00	34.0	19.7
2020-09-07 20:30:00	31.4	21.5
2020-09-07 20:40:00	31.44	19.5
2020-09-07 20:50:00	36.0	19.8
2020-09-07 21:00:00	31.3	20.6
2020-09-07 21:10:00	33.4	20.0
2020-09-07 21:20:00	31.2	20.2
2020-09-07 21:30:00	32.0	20.4
2020-09-07 21:40:00	32.5	20.0
2020-09-07 21:50:00	35.4	18.8

Scheduling Report Delivery

In order to schedule report delivery via email you must first configure the email settings for the Reporting Appliance. For file transfer delivery, reference the earlier initial setup section of this guide (settings are in **Reporting** → **Administration** → **Set up**. Click **Settings** → **Server Settings** → **Email Settings**).

1. Configure the email server settings for your environment and click **Save**.
2. Click **Reports** and select the report you want to schedule.
3. Click **Edit** → **Edit Schedule**

4. Check the **Schedule Report** checkbox. Using the dialog, configure the schedule for the report and click **Next**.

Edit Schedule [X]

Report CPU Utilization Trend

Schedule Report [Learn More](#)

Schedule Run every week ▾

On Monday ▾ at 6:00 ▾

Time Range Custom time ▶

Schedule Window? No window ▾

Cancel Next

5. Select the **Send Email** checkbox and enter the recipient email address in the To box.
6. Select **Attach PDF** to attach the report to the email and select other required options.
7. Click **Save** to save the new scheduled report delivery.

Edit Schedule [X]

Enable Actions

Send Email Email must be configured in System Settings > Alert Email Settings. [Learn More](#)

To Comma separated list of email addresses. [Show CC and BCC](#)

Priority Normal ▾

Subject Splunk Alert: \$name\$ The email subject and message can include tokens that insert text based on the results of the search. [Learn More](#)

Message

Include Link to Report Link to Results
 Search String Inline [Table](#) ▾
 Attach CSV Attach PDF

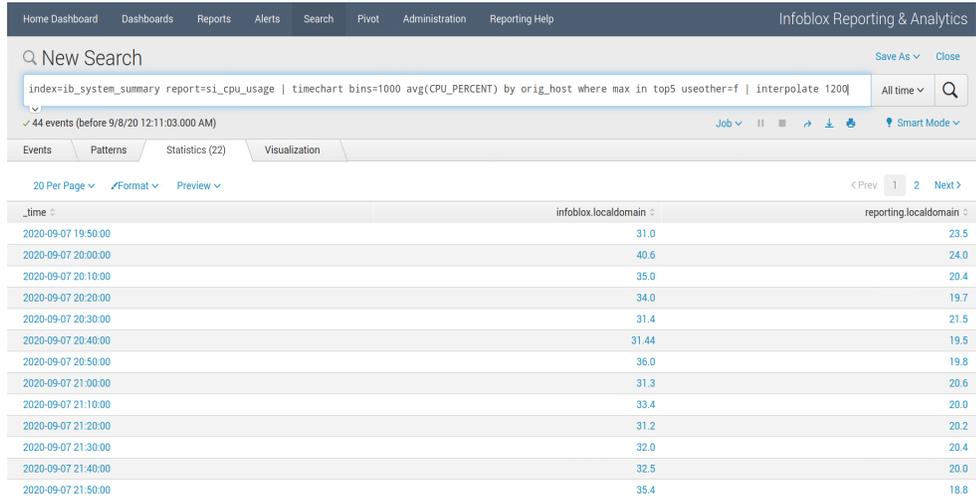
Back Save

Creating Custom Reports

There are two ways to start creating a custom report-convert a search or clone an existing report.

Converting a Search to a Report

1. Click **Search**, enter a new search string in the text box, and press enter.



2. Review the data returned by the search to ensure it matches what you expect, and click **Save As** → **Report**.
3. Specify a report title in the Title box, select Line Chart, Table, or both from the Content selector, and choose whether or not to have a Time Range Picker on the report. Click **Save**.

The screenshot shows the "Save As Report" dialog box. It has a title bar with a close button (X). The dialog contains the following fields and options:

- Title:** A text input field containing "New Custom Report".
- Description:** A text input field containing "optional".
- Content:** A selector with three options: a line chart icon, a bar chart icon, and a table icon. The line chart icon is selected.
- Time Range Picker:** A selector with two options: "Yes" and "No". The "Yes" option is selected.

At the bottom of the dialog, there are two buttons: "Cancel" and "Save".

4. Now that the report has been created, you can continue editing it, add it to a dashboard, and specify additional settings. In this case click **View** to see the report in the report view.

Your Report Has Been Created
✕

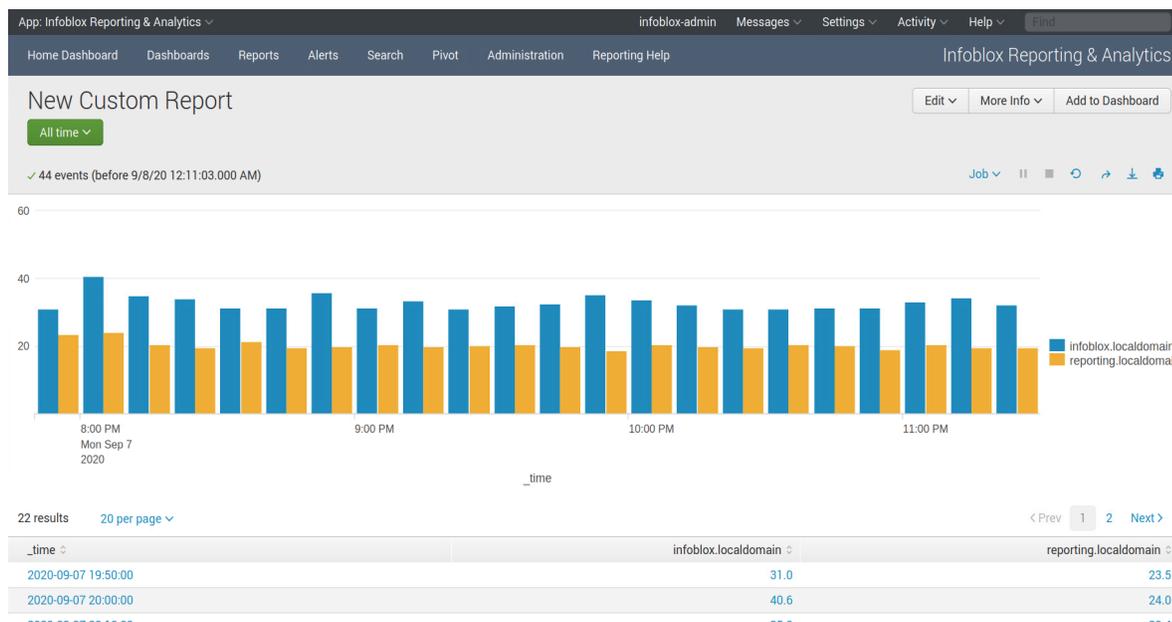
You may now view your report, add it to a dashboard, change additional settings, or continue editing it.

Additional Settings:

- [Permissions](#)
- [Schedule](#)
- [Acceleration](#)

Continue Editing
Add to Dashboard
View

You can now view the final result of the newly created report.



Cloning an Existing Report

1. Open **Reports** and select the report you want to clone.
2. Click **Edit** → **Clone**.
3. Enter a title in the New Title box and optionally, a Description.
4. Choose whether to make the new report Private or to Clone the permissions on the original report.

5. Click **Clone Report** and it will be added to the list of reports in the system.

Clone

New Title CPU Utilization Trend Clone

New Description System-created report: Please clone before editing.

Permissions Private Clone

Acceleration will be disabled (you can enable it again later).

Cancel Clone Report

6. Once the report has been cloned, click **Open in Search**.

Report has been cloned

You may now view your report, add it to a dashboard, change additional settings, or edit it in Search.

Additional Settings:

- [Permissions](#)
- [Schedule](#)
- [Acceleration](#)

Add to Dashboard Open in Search View

7. In the Search dialog, make any changes you need to the search string and click **Save** to save the customized, cloned report.

Creating Custom Dashboards

There are two ways to create a custom dashboard—create a new dashboard or clone an existing dashboard.

Creating a New Custom Dashboard

1. Click **Dashboards** → **Create New Dashboard**

2. Enter a title for the new dashboard in the Title box and the ID will be created automatically.

NOTE: The ID must be unique and cannot be changed once the dashboard has been created.

3. Select the appropriate **Permissions**. Private means that the dashboard is available only to the user who created it. Shared in App means anyone with access to the reporting system can view the new dashboard.
4. Click **Create Dashboard**.

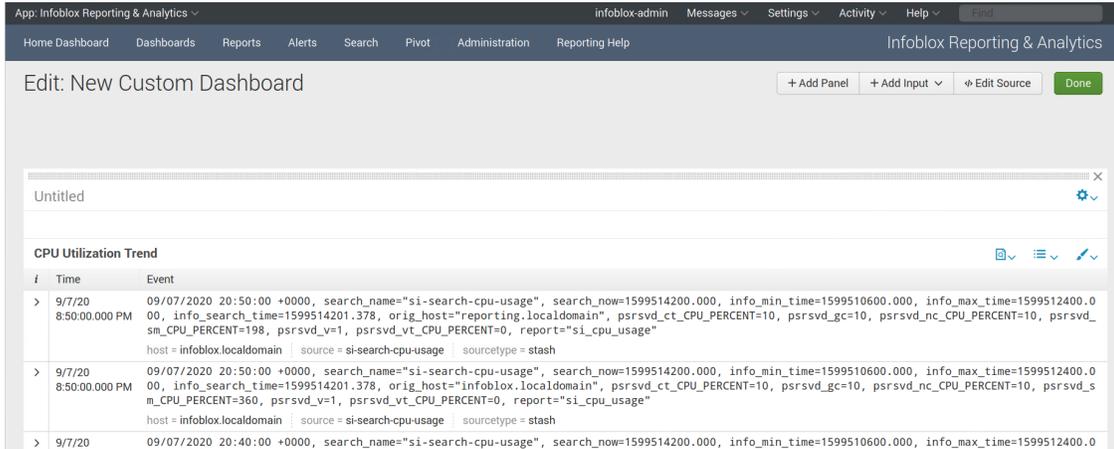
The screenshot shows a 'Create New Dashboard' dialog box. It has a title bar with the text 'Create New Dashboard' and a close button (X). The dialog contains the following fields and options:

- Title:** A text input field containing 'New Custom Dashboard'.
- ID?:** A text input field containing 'new_custom_dashboard'. Below this field is a note: 'Can only contain letters, numbers and underscores.'
- Description:** A text input field containing 'optional'.
- Permissions:** Two radio buttons, 'Private' and 'Shared in App', with 'Private' selected.

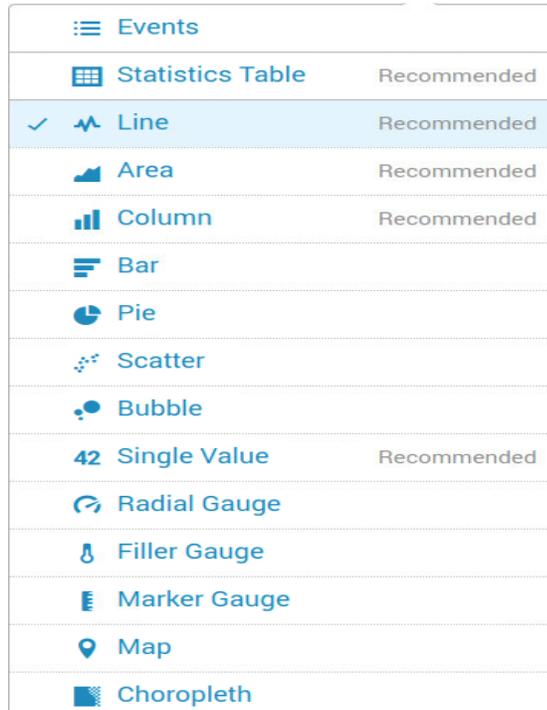
At the bottom of the dialog, there are two buttons: 'Cancel' and 'Create Dashboard'.

5. The new dashboard opens to the Edit window. Click **Add Panel** and select options in the Add Panel toolbar.
 - New to add a new object to the dashboard, these objects include tables and charts.
 - New from Report to add data from an existing report to a dashboard.
 - Clone from Dashboard to take a panel from an existing dashboard and add it to this new custom dashboard.
 - Add Prebuilt Panel to add a pre-built panel from a stored list of pre-built panels if any have been defined.

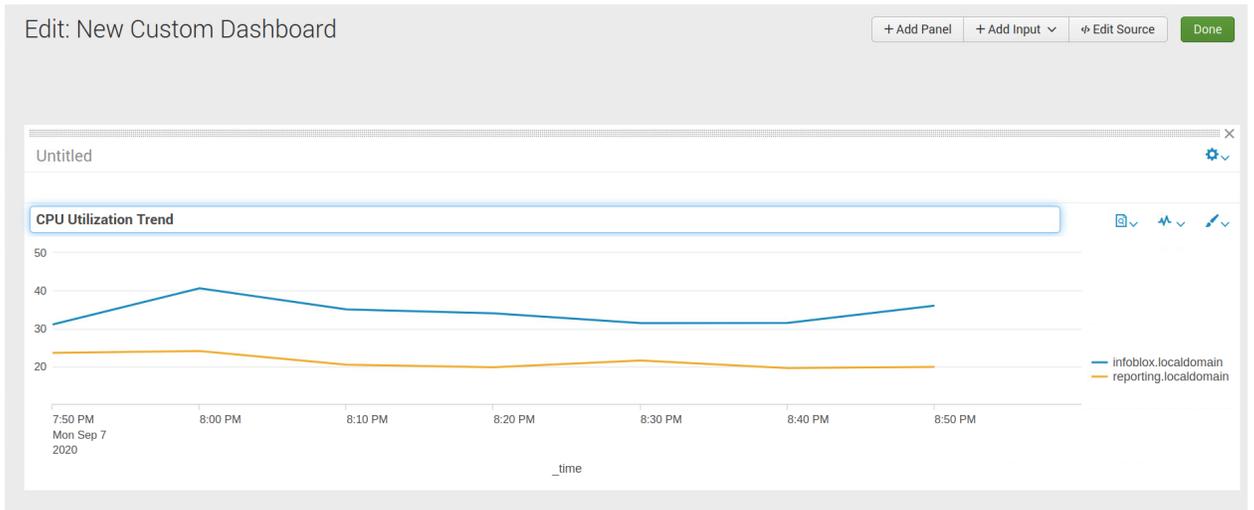
- Click **New from Report**, select a predefined report from the list, and click **Add to Dashboard**. This adds the tabular data view of the data in the report to the dashboard as a new panel.



- The second Edit icon from the right is the object type selector. Click the icon and select a different icon type from the list.



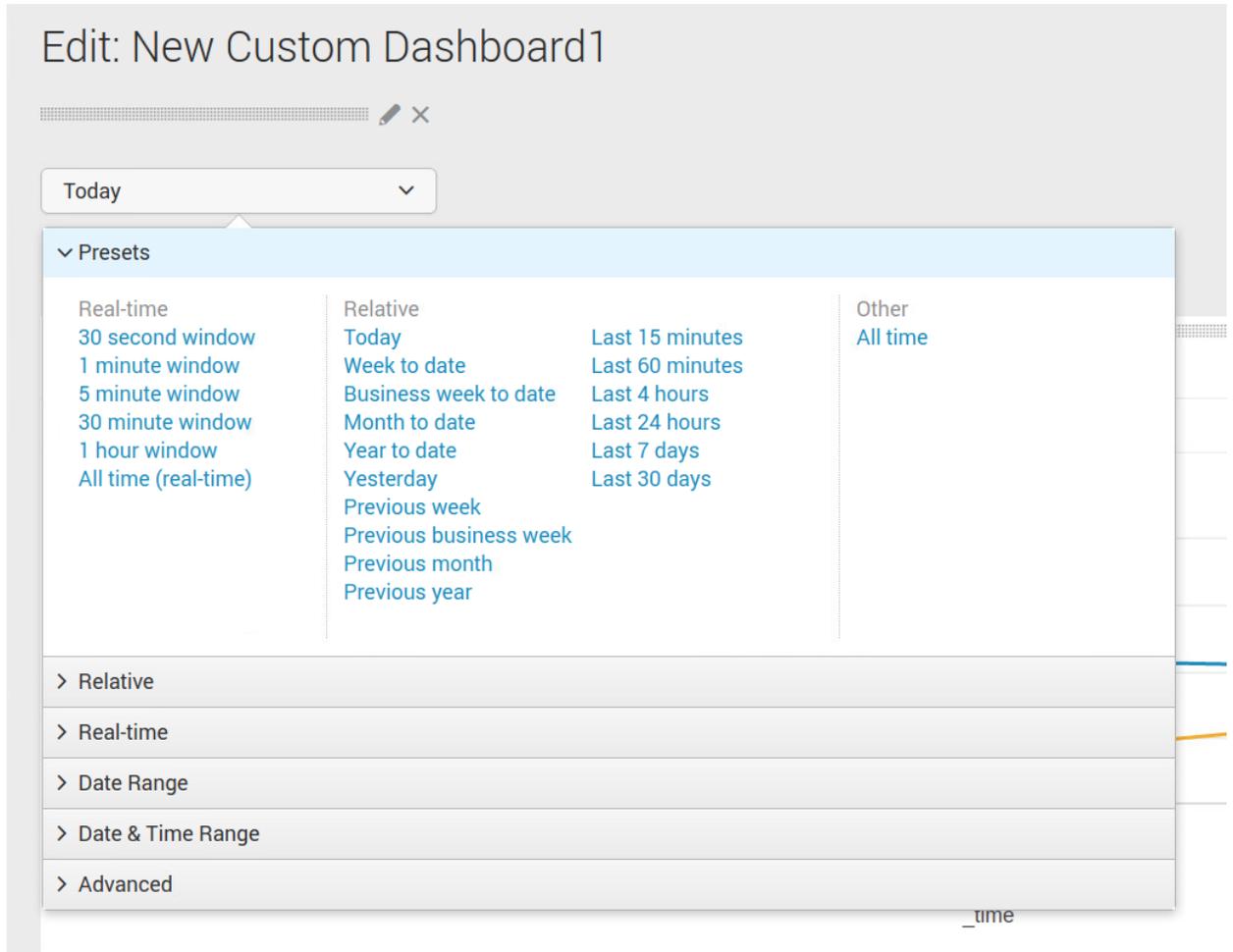
- When you select a different object type, the new panel changes to that type.



- Continue to add panels using the Add Panel button until you have built the dashboard you need.
- Use the **Add Input** button to add inputs for the dashboard and allow customization of the dashboard data in real time while viewing the dashboard.

- Text
- Radio
- Dropdown
- Checkbox
- Multiselect
- Link List
- Time
- Submit

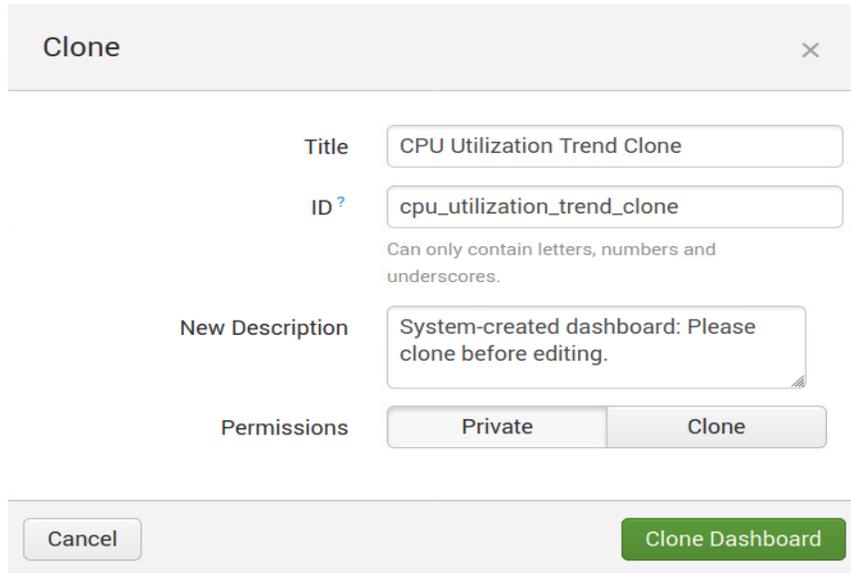
11. Select **Time** from the Add Input drop-down menu to add Time input to the dashboard,so that you can customize the time range for the data displays when you use the dashboard after it has been defined.



12. Click **Done** when you are finished. The newly created dashboard will be available under **Dashboards**.

Cloning an Existing Dashboard

1. Open an existing dashboard, and select **Clone** from the **Edit** drop-down menu.
2. Give the cloned dashboard a new name in the Title box and click **Clone Dashboard**.

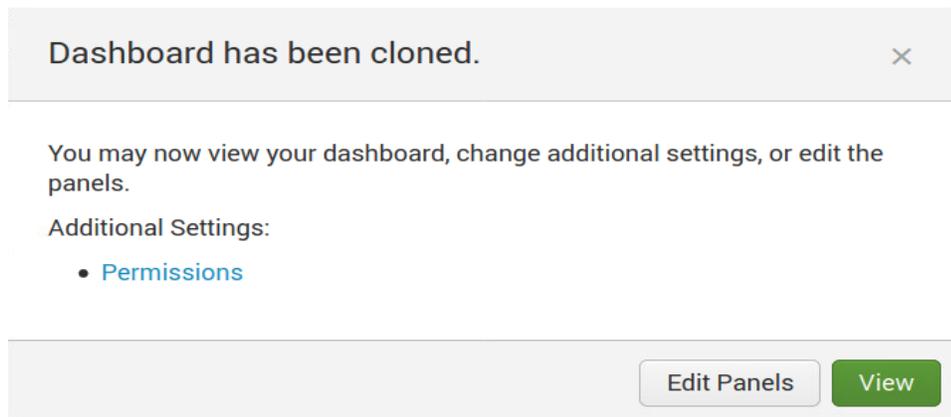


The screenshot shows a modal dialog titled "Clone" with a close button (X) in the top right corner. The dialog contains the following fields and options:

- Title:** A text input field containing "CPU Utilization Trend Clone".
- ID ?**: A text input field containing "cpu_utilization_trend_clone". Below this field is a note: "Can only contain letters, numbers and underscores."
- New Description:** A text area containing "System-created dashboard: Please clone before editing."
- Permissions:** Two radio buttons, "Private" (selected) and "Clone".

At the bottom of the dialog, there are two buttons: "Cancel" on the left and "Clone Dashboard" on the right.

3. You can now View the cloned dashboard or customize it. Click **Edit Panels** to customize the cloned dashboard.



The screenshot shows a confirmation message box with a close button (X) in the top right corner. The message reads:

Dashboard has been cloned.

You may now view your dashboard, change additional settings, or edit the panels.

Additional Settings:

- [Permissions](#)

At the bottom of the message box, there are two buttons: "Edit Panels" on the left and "View" on the right.

4. This opens the dashboard in the edit view and you can make modifications similar to the previous ones for creating a new dashboard. Once you are done making modifications click Done. You can now see the newly cloned dashboard in the Dashboards tab.

Working with Alerts

Alerts are actions that are triggered by specific search conditions. There are a number of predefined alerts in the system and custom alerts can be added. Alerts can trigger a number of actions when the alert criteria are met.

1. Click Alerts.

The screenshot shows the 'Alerts' management page. At the top, there is a header 'Alerts' with a bell icon and a brief description: 'Alerts set a condition that triggers an action, such as sending an email that contains the results of the triggering search to a list of people. Click the name to view the alert. Open the alert in Search to refine the parameters.' Below this is a filter bar with '43 Alerts' and tabs for 'All', 'Yours', and 'This App's', along with a search filter input. The main content is a table with columns for 'Title', 'Actions', 'Owner', 'App', and 'Sharing'. The table lists various alerts such as 'Discovered CVE entry for Device', 'Discovered EOX Device', 'License Violation Alert', and several reports for managed devices (ib-managed-ddi, ib-managed-dns, si-search-adns, si-search-cpu, si-search-ddns, si-search-devices, si-search-dhcp, si-search-dhcp-range, si-search-dhcp-top-os, si-search-dhcp-usage). Each row includes 'Open in Search' and 'Edit' actions.

i	Title ^	Actions	Owner	App	Sharing
>	Discovered CVE entry for Device	Open in Search Edit v	nobody	infoblox	App
>	Discovered EOX Device	Open in Search Edit v	nobody	infoblox	App
>	License Violation Alert	Open in Search Edit v	nobody	infoblox	App
>	ib-managed-ddi-feature-usage-report-per-month	Open in Search Edit v	nobody	infoblox	App
>	ib-managed-ddi-feature-usage-report-per-quarter	Open in Search Edit v	nobody	infoblox	App
>	ib-managed-ddi-ip-usage-report-per-month	Open in Search Edit v	nobody	infoblox	App
>	ib-managed-ddi-ip-usage-report-per-quarter	Open in Search Edit v	nobody	infoblox	App
>	ib-managed-dns-usage-report-per-month	Open in Search Edit v	nobody	infoblox	App
>	ib-managed-dns-usage-report-per-quarter	Open in Search Edit v	nobody	infoblox	App
>	si-search-adns-resource-pool-availability	Open in Search Edit v	nobody	infoblox	App
>	si-search-cpu-usage	Open in Search Edit v	nobody	infoblox	App
>	si-search-ddns-update	Open in Search Edit v	nobody	infoblox	App
>	si-search-devices-denied-an-ip-address	Open in Search Edit v	nobody	infoblox	App
>	si-search-dhcp-message	Open in Search Edit v	nobody	infoblox	App
>	si-search-dhcp-range-utilization-trend	Open in Search Edit v	nobody	infoblox	App
>	si-search-dhcp-top-lease-client	Open in Search Edit v	nobody	infoblox	App
>	si-search-dhcp-top-os-by-network	Open in Search Edit v	nobody	infoblox	App
>	si-search-dhcp-usage-trend	Open in Search Edit v	nobody	infoblox	App

2. Select an alert from the list of predefined alerts in the system.

The screenshot shows the configuration page for the 'si-search-cpu-usage' alert. The title is 'si-search-cpu-usage' with a subtitle 'Fill summary index for CPU Utilization Trend' and an 'Edit' button. The configuration includes: 'Enabled: Yes. Disable', 'App: infoblox', 'Permissions: Shared in App. Owned by nobody. Edit', and 'Alert Type: Scheduled. Cron Schedule. Edit'. The 'Trigger Condition' is 'Number of Results is > 0. Edit' and 'Actions' is '1 Action. Edit'. There is a bell icon and 'Add to Triggered Alerts' button. Below the configuration is a 'Trigger History' section with a '20 per page' dropdown and a table of triggers.

	TriggerTime	Actions
1	2020-09-07 22:00:01 UTC	View Results
2	2020-09-07 21:30:01 UTC	View Results
3	2020-09-07 21:00:01 UTC	View Results
4	2020-09-07 20:30:01 UTC	View Results
5	2020-09-07 20:00:01 UTC	View Results

- Click **Open** in Search from the Edit drop-down menu to see the search condition for the alert.

_time	host	psrsvd_ct_CPU_PERCENT	psrsvd_gc	psrsvd_nc_CPU_PERCENT	psrsvd_sm_CPU_PERCENT	psrsvd_v	psrsvd_vt_CPU_PERCENT
2020-09-07 21:10:00	infoblox.localdomain	7	7	7	232	1	0
2020-09-07 21:10:00	reporting.localdomain	7	7	7	143	1	0
2020-09-07 21:20:00	infoblox.localdomain	10	10	10	312	1	0
2020-09-07 21:20:00	reporting.localdomain	10	10	10	202	1	0
2020-09-07 21:30:00	infoblox.localdomain	10	10	10	320	1	0
2020-09-07 21:30:00	reporting.localdomain	10	10	10	204	1	0
2020-09-07 21:40:00	infoblox.localdomain	3	3	3	89	1	0
2020-09-07 21:40:00	reporting.localdomain	3	3	3	63	1	0

- Click on the browser's back button.
- Click the **Edit** link next to **Trigger Condition** to see the trigger conditions for the alert as they relate to the search from the previous step. Select whether the alert is run on a scheduled basis or in real time. In this example the alert is triggered once if there is at least one result from the associated search since the previously scheduled run of the alert.

Edit Trigger Condition
✕

Settings

Alert: si-search-cpu-usage

Alert type: Scheduled Real-time

Run on Cron Schedule ▼

Earliest: e.g. -1h@h (1 hour ago, to the hour). [Learn More](#)
9/7/20 9:14:00.000 PM

Latest: e.g. -1h@h (1 hour ago, to the hour). [Learn More](#)
9/7/20 9:44:00.000 PM

Cron Expression: e.g. 00 18 * * * (every day at 6PM). [Learn More](#)

Trigger Conditions

Trigger alert when: Number of Results ▼

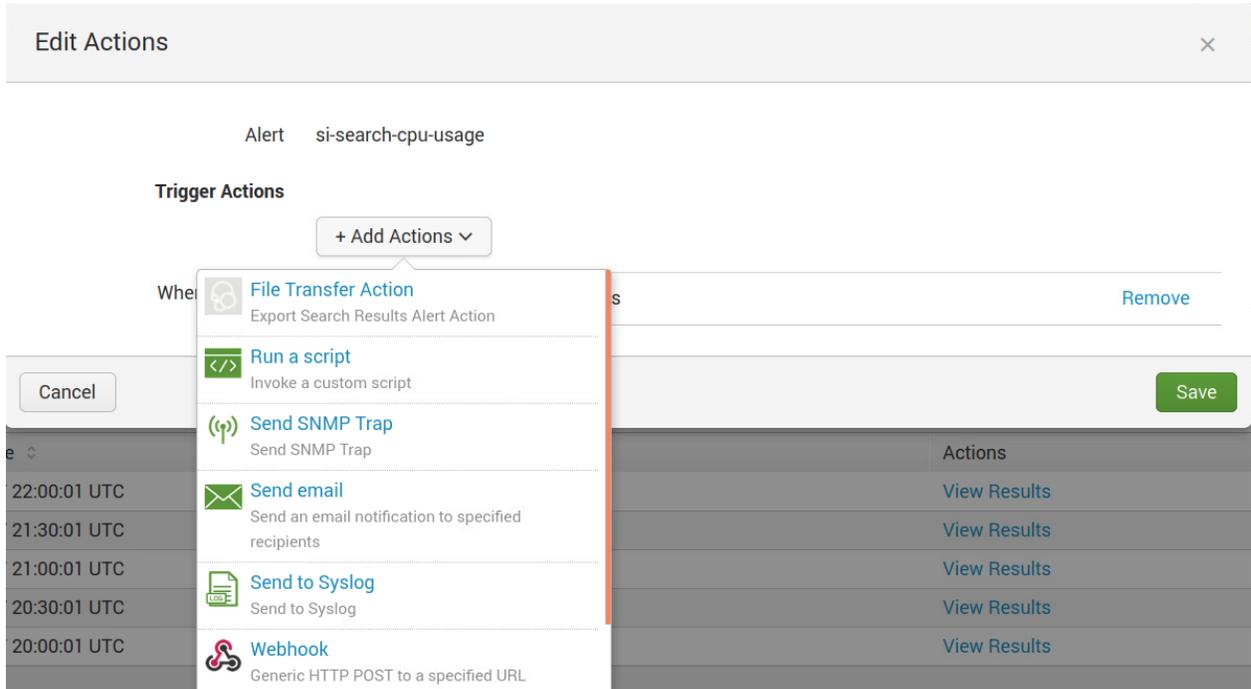
is greater than ▼

Trigger: Once For each result

Throttle?

Cancel
Save

6. Click **Cancel**.
7. Click **Edit** next to Actions. Alert actions are taken when the alert is triggered based on the trigger conditions from the previous step. The default for most alerts is Add to Triggered Alerts, which simply adds the alert to the Triggered Alerts view and takes no other action. Click **Add Actions** to see the list of available action types.



8. Select an action such as Send email to configure the email action. Specify at least one email address in the To box. You can also customize the email subject and message and choose items to be included in the email such as a link to the alert, a PDF or CSV copy of the alert data, and other information using the Include checkboxes.

The screenshot shows the 'Edit Actions' dialog box. At the top, it says 'When triggered' followed by a dropdown menu showing 'Send email' with a green envelope icon and a 'Remove' link. Below this, there are several fields and options:

- To:** A text input field containing 'alerts@company.com'. To the right, there is a note: 'Comma separated list of email addresses. [Show CC and BCC](#)'.
- Priority:** A dropdown menu set to 'Normal'.
- Subject:** A text input field containing 'Splunk Alert: \$name\$'. To the right, there is a note: 'The email subject and message can include tokens that insert text based on the results of the search. [Learn More](#)'.
- Message:** A large text area containing the word 'Default'.
- Include:** A group of checkboxes:
 - Link to Alert
 - Link to Results
 - Search String
 - Inline [Table](#)
 - Trigger Condition
 - Attach CSV
 - Trigger Time
 - Attach PDF
- Type:** Two buttons: 'HTML & Plain Text' (selected) and 'Plain Text'.

At the bottom of the dialog, there is a 'Cancel' button on the left and a green 'Save' button on the right. Above the 'Save' button, there is a bell icon and the text 'Add to Triggered Alerts' with a 'Remove' link.

9. Click **Save** to save alert actions.

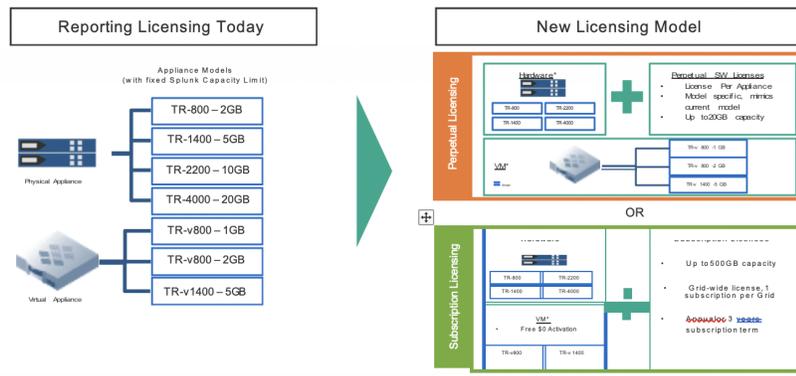
Other available action types include:

- **File Transfer Action:** Exports the result of an alert to a file server.
- **Run a script:** Invokes a specified script stored on the reporting appliance
- **Send SNMP Trap:** Sends an SNMP trap to the SNMP trap receiver configured in the Grid.
- **Send to Syslog:** Writes an entry to the local syslog.
- **Webhook:** Sends the alert payload in JSON format to a specified URL.

Subscription Licensing Model

With the release of the 7.3.201 version of NIOS, a subscription licensing model was introduced in addition to the old licensing model. The diagram below shows the differences:

- Freemium – 500 MB/day limit
- New Reporting Subscription & Freemium
- HA, DR and scale clustering



With the traditional reporting licensing, the capacity is governed by the model of the reporting server. The limitation of one reporting server exists within a Grid.

With the reporting free and annual subscription models, the indexing capacity is limited to 500MB/day with a storage capacity up to 500GB. When the indexing limit is exceeded, a banner warning is posted on the GUI. Within a 30-day period, if the indexing overages occur 3 times, then the reports are not rendered. This report stoppage can be resolved by one of the following methods:

- Get an increased capacity license.
- Reduce data being collected like DNS and/or DHCP services. This depends on the service(s) that are most used.
- Wait 30 days from the first overage for the counter to reset.

However, data is still being collected.

To enable the free license, you enter the license information using the `set temp_license` command from the console or SSH session of the Grid master.

Example 500MB data collection

Here are 3 example configurations that will generate close to 500MB of reporting data:

1. Grid configuration with DNS Security (ADP, DNS FW, Analytics), IPAM, Network Discovery, AD User sync.
 - 10 appliances: Grid Master, Grid Master Candidate, Reporting, Network Discovery, and 6 PT appliances in HA pairs.
 - Grid Master serves IPAM (with Network Discovery)
 - Up to 1000 network devices, 3000 IP addresses;
 - AD users sync (250 users);
 - PT devices serve authoritative and caching DNS, DNS Firewall, and Analytics.
 - This configuration can be extended up to 6 PT appliances (e.g. distributed HA pairs).
 - In this case, the freemium license should fit but should monitor the real usage of the security index. You can then make adjustments to the indexes accordingly.
2. A Grid with DHCP, MS DNS and users sync
 - 6 appliances: Grid Master in HA pair, DDI members in HA, and 2 reporting servers in DR mode.
 - Grid Master serves IPAM and is integrated with MS DNS servers (DNS zone sync).
 - 10 DNS Zones
 - 1000 Networks and Ranges
 - up to 170000 IPs (it doesn't count)
 - 13000 AD users with up to 10 login/logout events a day
 - DDI members serve only DNS Cache and DHCP v4
 - DHCP lease history index consumes most of the indexing volume. LPS can be increased up to 18-19.
3. Grid with cloud automation
 - 11 appliances: Grid Master in HA, 4 CP in HA, Reporting
 - Cloud platform appliances serves 40 DNS zones, 400 Networks, and up to 20000 VM address changes a day (4 vConnectors, 4 dynamic license pools);
 - This configuration has a lot of space to grow. DNS Query index would consume the most volume.

Best Practices

- Do not enable DNS query logging. DNS query logging will fill up 500mb/day very quickly in most environments.
- Do not enable syslog for DNS. For example, 100 DNS queries per second translates to 800mb per day.
- Enable syslog on appliances that are needed and only for IPAM.

Free Reporting Tier

As an existing Infoblox DDI customer, you can deploy a virtual Infoblox Reporting and Analytics appliance free of charge. This offer is for existing Infoblox DDI customers who are running NIOS release 7.3.5 or later. If you're not an existing Infoblox user and want to see the power of Infoblox DDI and Reporting and Analytics, please visit our [evaluation page](#).

Once you sign up for Reporting and Analytics, you will receive an Infoblox Reporting and Analytics virtual appliance with 500MB/day indexing capacity. This will include the following:

- Over 90 pre-configured reports for security, DNS, DHCP, discovery, IP address management, and more
- Configurable alerts to separate critical data from background noise
- Predictive analytics to plan for future requirements

You will receive detailed instructions on how to download and install the free Reporting and analytics appliance after you complete the form at [Infoblox Reporting & Analytics](#)

You will also receive a free license to enable free tier reporting. The following section covers the steps to enable the free license.

How to Enable the Free License

1. Deploy the DDI OVA and make sure to select the IB-v5005 model as the deployment type.
2. Once deployed, edit the VM settings and add a second disk – this is the retention disk and should be at least 500GB. The larger the second drive is, the more historical data it can retain.
3. Start the reporting VM. Once the VM is on, log in and run the `set temp_license` command. Select the “**Add NIOS license**” option and choose the IB-V5005. Once confirmed, the system will restart.
4. Run the CLI on the virtual machine again. Log in and run the `set temp_license` command a second time. Select the “**Add Grid license**” option. Once the change is confirmed, the UI will restart.

5. Follow steps 1 through 3 above in the section Configuring a Grid for Reporting. Once the reporting server grid member has joined the grid, you will need to add the grid-wide reporting license.
6. To add the grid-wide reporting license, open the CLI on the reporting server virtual machine and log in. Run the `set temp_license` command a third time. Select “**Add Reporting subscription license.**” This will install a permanent grid-wide license in the grid.
7. In the Grid Manager GUI, log off and log back on. The “**Reporting**” tab will now be visible in the GUI.

Query Logging

With DNS increasingly becoming a vital exploit path for malware and data exfiltration, security teams are often blind to the wealth of threat mitigation data available through their core networking infrastructure. To gain access to this critical data, DNS query logging must be enabled. The traditional query logging (system-level logging facilities) is extremely resource intensive and can impact critical DNS services. Infoblox Reporting and Analytics offloads and streamlines the process of collecting, archiving, reporting on, and sharing DNS query data, while ensuring minimal impact on the DNS infrastructure.

The Infoblox Cloud Data Connector Virtual appliance collects DNS query and response data from the Infoblox Grid members, filter out based on user criteria thus reducing the quantity of data, convert the data to a format that can be securely transferred to the NIOS reporting server for report generation. The data connector acts as a central point for data collection across your network. For more information click on the links as follows:

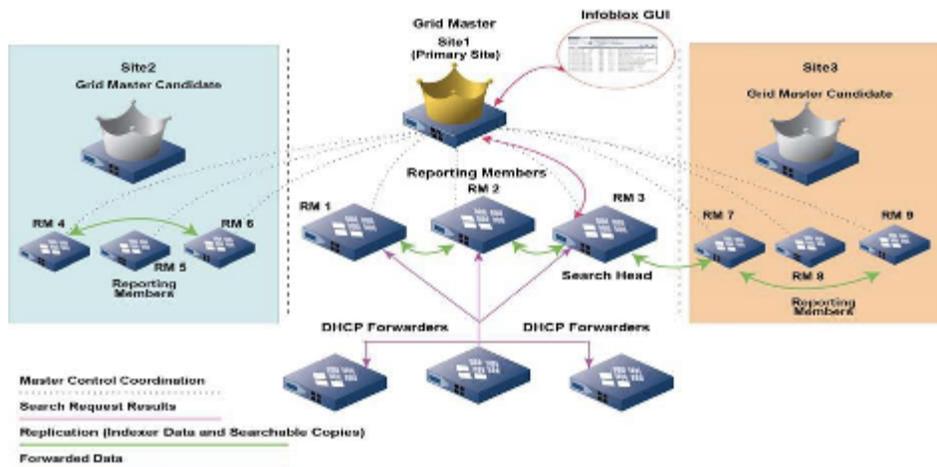
[Deployment Guide | Data Connector](#)

[Infoblox Reporting & Analytics Query Logging](#)

Note: You need to have a login account for the Infoblox Cloud Service Portal in order to access the Cloud Data Connector VM code.

Clustering

The concept of reporting clustering is to set up a group of reporting members within one site (location) or across multiple sites. When you configure multiple reporting members within one site, you are setting up a single-site cluster. Configuring multiple reporting members across different sites gives you a multi-site cluster. Single-site clusters and multi-site clusters provide scalability for storage and indexing capacity. They also offer the benefits of high availability and disaster recovery. Without reporting clustering, a reporting member is known as a single indexer.



After adding one or more reporting members to your grid and enabling the reporting service as documented above, you can then configure the reporting cluster. The following are the supported cluster types:

- **Single Indexer:** This is the traditional configuration of one reporting server.
- **Single-Site Cluster:** This configuration has 2 or more reporting servers within the same location
- **Multi-Site Cluster:** This configuration has 2 or more reporting servers in different geographical locations. This means the minimum number of reporting members for a multi-site cluster is 4.

Here are some additional details regarding clustering, high availability, and disaster recovery:

Subscription

- Total indexing capacity is determined by subscription license.
- Total disk capacity = Total disk capacity of all nodes – the capacity of one node (lowest common capacity)

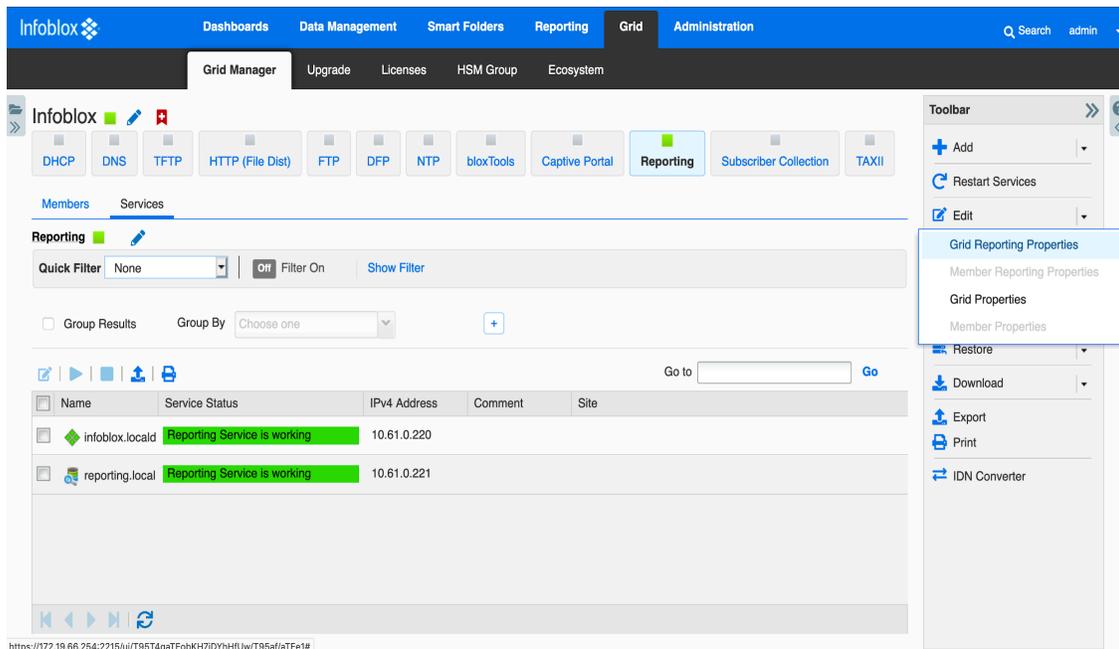
Perpetual

- Total indexing capacity is determined by cumulative indexing capacity of all reporting members.
- Total disk capacity = Total disk capacity of all nodes – the capacity of one node (lowest common capacity)

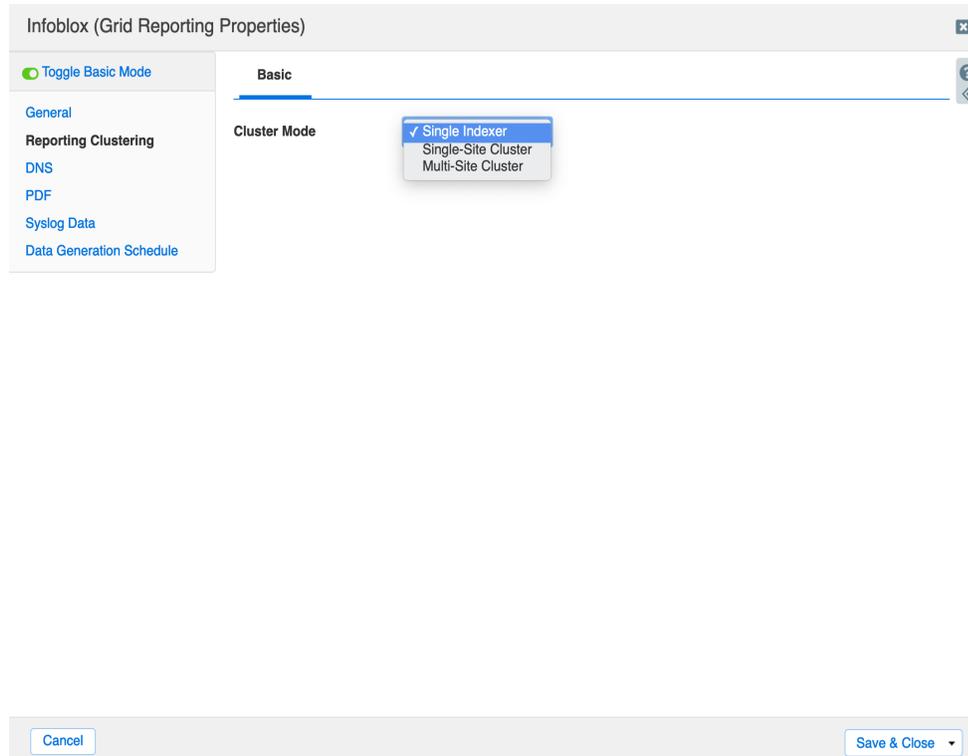
Instructions for Enabling Clustering

1. Please refer [to page 3](#) of this guide for instructions on adding additional reporting members.
2. Go to Grid → Grid Manager → Reporting.

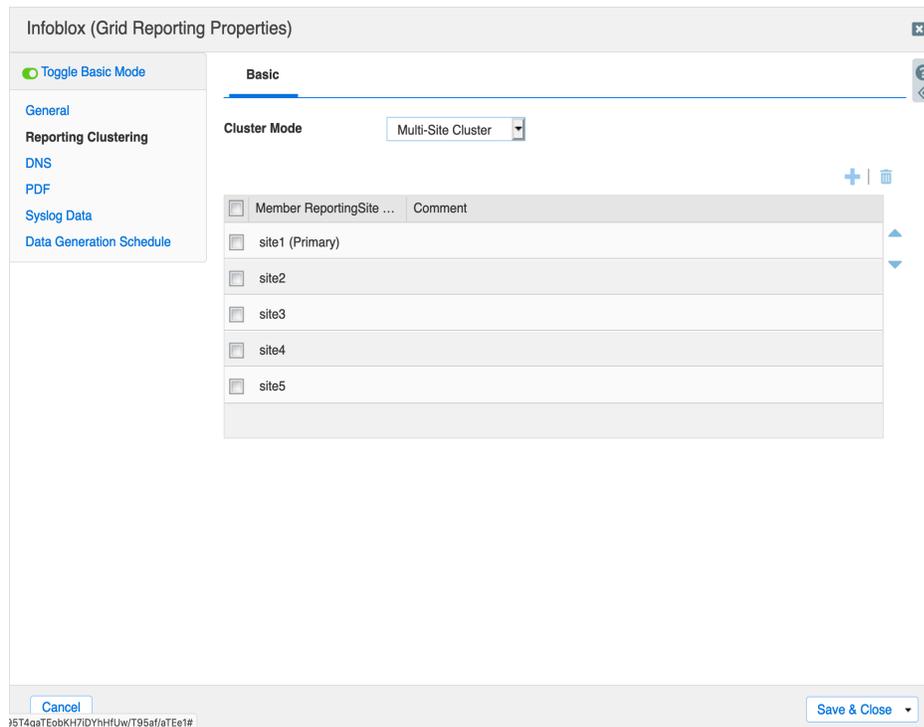
3. On the Toolbar, click on **Edit** → **Grid Reporting Properties**.



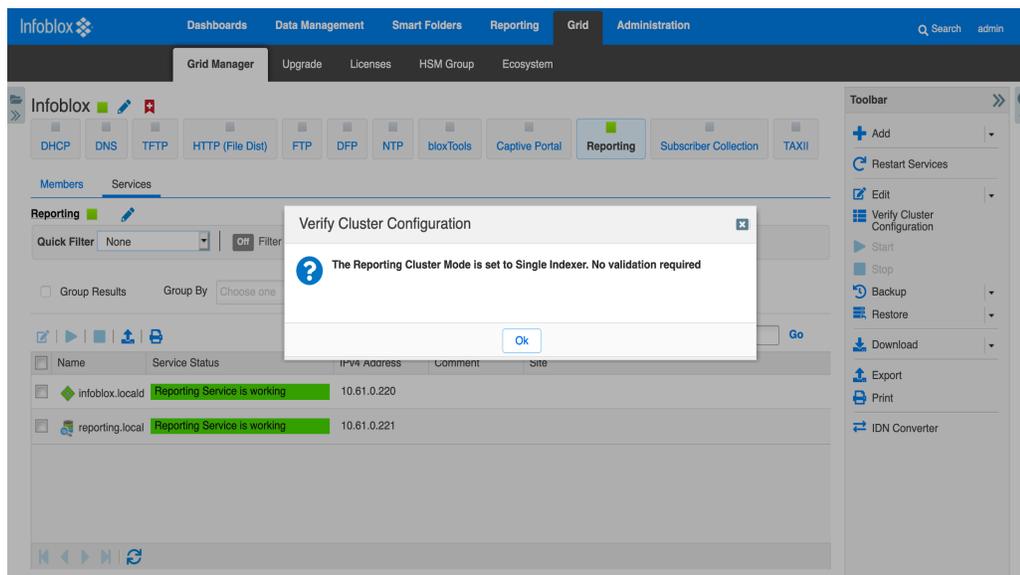
4. From Reporting Clustering, select **Single Indexer**, **Single-Site Cluster**, or **Multi-site**.



5. If you choose to implement a multi-site cluster, click on the **'Add'** button to add the sites.



6. Click **Save & Close**.
7. To verify your clustering configuration, click on the **Verify Cluster Configuration** button on the Toolbar.



Multi-site Cluster

1. Go to Grid → Grid Manager → Members and select the reporting members that you want in a site.

The screenshot shows the Infoblox Grid Manager interface. The top navigation bar includes 'Dashboards', 'Data Management', 'Smart Folders', 'Reporting', 'Grid', and 'Administration'. The 'Grid' menu is expanded, showing 'Grid Manager', 'Upgrade', 'Licenses', 'HSM Group', and 'Ecosystem'. The 'Grid Manager' sub-menu is active, displaying 'Members' and 'Services' tabs. The 'Members' tab is selected, showing a list of members. The 'reporting.local' member is selected, and its status is 'Running'. The 'Identify' column shows 'Unsupported'.

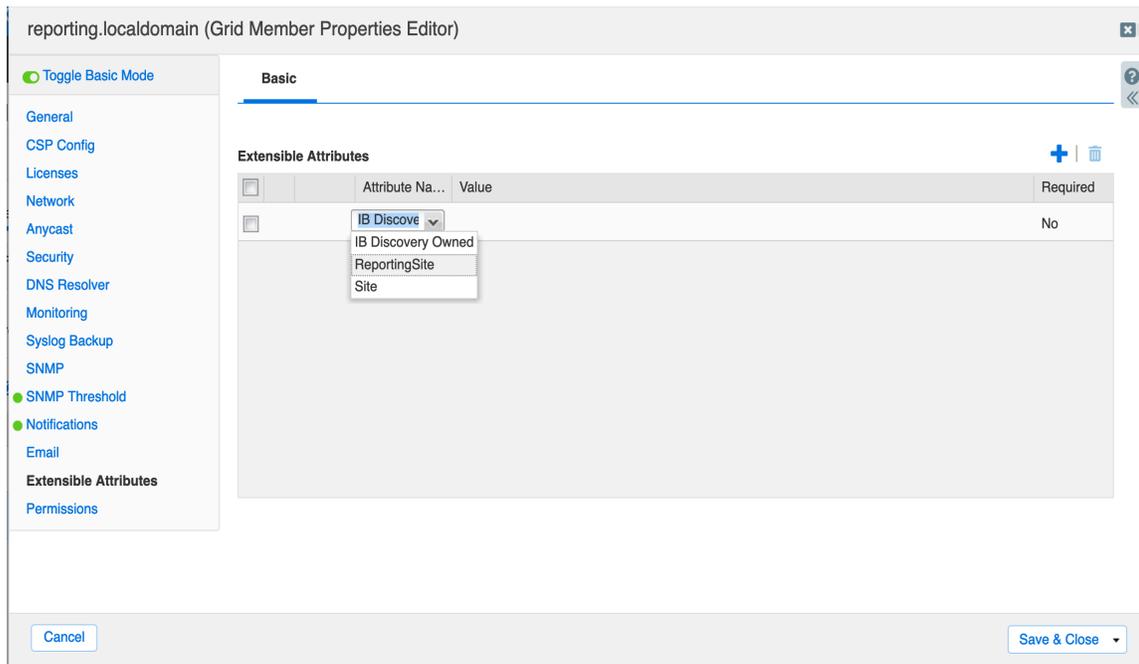
Name	HA	Status	IPv4 Address	IPv6 Address	Identify	DHCP
infoblox.locald	No	Running	10.61.0.220		Unsupported	
reporting.local	No	Running	10.61.0.221		Unsupported	

2. Click on the **Extensible Attributes** button on the Toolbar.

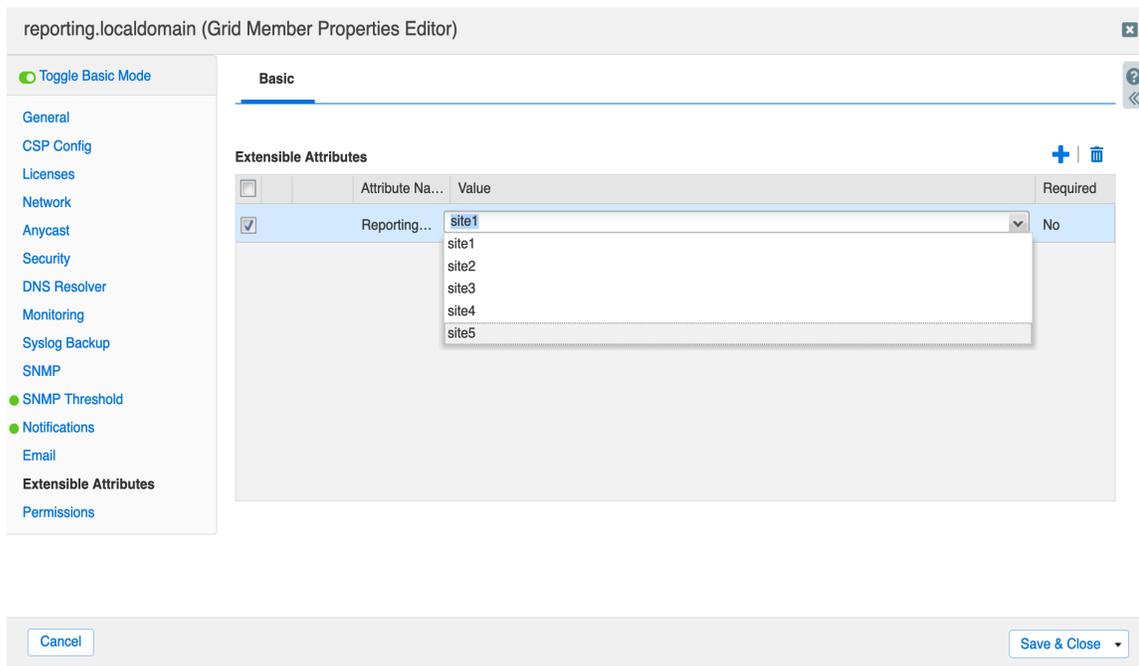
The screenshot shows the 'reporting.localdomain (Grid Member Properties Editor)' window. The 'Basic' tab is selected. The 'Extensible Attributes' section is visible, showing a table with columns for Attribute Name, Value, and Required. The table is currently empty, displaying 'No data'.

Attribute Na...	Value	Required
No data		

- Click on the '+' button to add an extensible attribute and then click on the **drop down** menu for the attribute name. Select **Reporting Site**.



- In the Value section, click on the **drop down** menu to select the site name.



- Click **Save & Close**.
- Repeat steps 1-5 for each subsequent member that will be part of the Multi-Site Cluster. You must have at least 2 reporting members for each multi-site cluster.

7. Go to **Administration** → **Reporting** → **Toolbar** → **Grid Reporting Properties**.

Infoblox (Grid Reporting Properties)

Toggle Basic Mode

Basic Advanced

Reporting Server: reporting.localdomain

Enable Data Indexing: Enable Time Based Retention:

Report Category	Category	Index %	Used %	Retention in days	Index Name
<input type="checkbox"/>	Audit Log	0	0.0	No Retention	ib_audit
<input checked="" type="checkbox"/>	DNS Query	20	0.004	No Retention	ib_dns / ib_dns_summary
<input type="checkbox"/>	DNS Performance				
<input type="checkbox"/>	DDNS				
<input type="checkbox"/>	DNS Record Scavenging				
<input type="checkbox"/>	DNS Query Capture	0	0.0	No Retention	ib_dns_capture
<input checked="" type="checkbox"/>	DHCP Performance	20	0.004	No Retention	ib_dhcp / ib_dhcp_summary
<input checked="" type="checkbox"/>	DHCP Fingerprint	39	0.001	No Retention	ib_dhcp_lease_history
<input type="checkbox"/>	DHCP Lease History				

Cancel Save & Close

8. Click on **Reporting Clustering**. If needed, click on the **Cluster Mode** pull down menu and select **Multi-Site Cluster**.

Infoblox (Grid Reporting Properties)

Toggle Basic Mode

Basic

Cluster Mode: Multi-Site Cluster

Member ReportingSite ...	Comment
No data	

Cancel Save & Close

35T4qatEobKH7IDYhHFUw/T95saI/atEa1#

- Click on the '+' button to add the site that was selected in step 4.

The screenshot shows the 'Infoblox (Grid Reporting Properties)' dialog box in 'Basic' mode. On the left is a sidebar with navigation options: 'Toggle Basic Mode', 'General', 'Reporting Clustering', 'DNS', 'PDF', 'Syslog Data', and 'Data Generation Schedule'. The main area shows 'Cluster Mode' set to 'Multi-Site Cluster'. Below this is a table with two columns: 'Member ReportingSite' and 'Comment'. The first row in the table has 'site1' selected in the 'Member ReportingSite' column. To the right of the table are a plus sign and a trash icon. At the bottom of the dialog are 'Cancel' and 'Save & Close' buttons.

- Click **Save & Close**.

Infoblox Reporting Community

Infoblox hosts multiple forums, one of which is a Reporting Forum. This forum is a community in which users can get valuable information, ask questions, post reports and dashboard templates, and find interesting reports developed by their peers as well as Infoblox experts.

To access Infoblox Reporting community forum, please click on the link below [Infoblox Reporting Community](#)



Infoblox unites networking and security to deliver unmatched performance and protection. Trusted by Fortune 100 companies and emerging innovators, we provide real-time visibility and control over who and what connects to your network, so your organization runs faster and stops threats earlier.

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