

Deployment Guide



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Introduction

Infoblox and Tenable.io together help empower actionable insight into your entire infrastructure's security risks, allowing for you to quickly and accurately identify, investigate, and prioritize vulnerabilities and misconfigurations in your modern IT environment.

Infoblox provides Tenable.io with resources such as IP addresses, Hosts, and potential threats and in exchange Tenable.io gets improved management on assets and the ability to automatically trigger scans when security events occur. The integration with Infoblox and Tenable.io allows for quicker remediation and more insight into the entire network.

Note that all Images in this document were taken in NIOS 8.4

Prerequisites

The following are prerequisites for the integration using Outbound API notifications:

Infoblox:

- Infoblox:
- NIOS 8.3 or higher.
- o Security Ecosystem License.
- Outbound API integration templates.
- Prerequisites for the templates (e.g. configured and set Extensible Attributes).
- Pre-configured services: DNS, DHCP, RPZ, ADP and Threat Analytics.
- NIOS API user with the following permissions (access via API only):
 - All Network Views RW.
 - All Hosts RW.
 - All IPv4 Networks RW.
 - All IPv6 Networks RW.
 - All IPv4 Ranges RW.
 - All IPv6 Ranges RW.
 - All IPv4 DHCP Fixed Addresses/Reservations RW.
 - All IPv6 DHCP Fixed Addresses/Reservations RW.
- · Tenable.io
 - Account with standard permissions

Known Limitations

The current templates support DNS Firewall (RPZ), Threat Insight (DNS Tunneling), Advanced DNS Protection, Network IPv4, Network IPv6, Range IPv4, Range IPv6, Host IPv4, Host IPv6, Fixed address IPv4, Fixed address IPv6, Discovery and Lease events only. If additional templates become available, they will be found on the Infoblox community site.

Note that editing the device type of an IPv4 or IPv6 fixed address is not supported.

Note that for Host and Fixed events, manually adding, editing or deleting objects multiple times within a short span of time may cause unexpected results.

Best practices

Outbound API templates can be found on the Infoblox community site on the Partner Integrations page. After registering an account, you can subscribe to the relevant groups and forums. If additional templates come out, they will be found on the Infoblox community site.

For production systems, it is highly recommended to set the log level for an endpoint to **Info** or higher (**Warning**, **Error**).

Please refer to the Infoblox NIOS Administrator's Guide about other best practices, limitations and any detailed information on how to develop notification templates. The NIOS Administrator's Guide can be found through the Help panel in your Infoblox GUI, or on the Infoblox Support portal.

Configuration

Workflow

Tenable.io:

- 1. Configure Permissions
- 2. Create a Target Group
- 3. Create a Scan template.
- 4. Generate API Keys

Infoblox:

- 1. Install the Security Ecosystem license if it was not installed.
- 2. Check that the necessary services and features are properly configured and enabled, including DNS, DHCP, RPZ, ADP and Threat Analytics.
- 3. Create the required Extensible Attributes.
- 4. Download (or create your own) notification templates (Tenable IO Session, Tenable IO Scan, Tenable IO Discovery, Tenable IO Lease, Tenable IO Assets, Tenable IO Network & Range) from the Infoblox community website.
- 5. Add the templates.
- 6. Add a REST API Endpoint.
- 7. Add Notifications.
- 8. Emulate an event, check Rest API Endpoint debug log and/or verify changes on the grid.

Before you get Started

Download Templates from the Infoblox Community Website

Outbound API templates are an essential part of the configuration. Templates fully control the integration and steps required to execute the outbound notifications. Detailed information on how to develop templates can be found in the NIOS Administrator's guide.

Infoblox does not distribute any templates (out-of-the-box) with the NIOS releases. Templates are available on the Infoblox community website. Templates for the Tenable.io integration are located in the **Partner Integrations**. You can find other templates posted in the **API & Integration** forum.

Templates may require additional Extensible Attributes, parameters or WAPI credentials to be created or defined. The required configuration should be provided with a template. Don't forget to apply any changes required by the template before testing a notification.

Extensible Attributes

For this integration, the following Extensible Attributes need to be created on the grid.

Table 1. Extensible Attributes

Extensible Attributes	Description	Туре
TNBL_IO_Add_by_Hostname	Whether or not using a host's name as the target name is desired (otherwise will use its IP as the target name). The hostname should be resolvable by Tenable.io.	List (true, false)
TNBL_IO_Last_Scan	Timestamp when target was last scanned by Tenable.io.	String
TNBL_IO_Scan_On_Add	Whether or not a target will be scanned upon creation.	List (true, false)
TNBL_IO_Scan	Whether or not a target will be scanned after a security event.	List (true, false)
TNBL_IO_Sync	Whether or adding the target to the Target Group list of targets is desired.	List (true, false)
TNBL_IO_Scan_Template	Name of the scan that will scan the target. It must match an active scan on Tenable.io.	String
TNBL_IO_Asset_Sync	Whether or not syncing asset events with Tenable.io is desired.	List (true, false)
TNBL_IO_Sync_Time	Timestamp when the asset was added to Tenable.io.	String
TNBL_IO_Target_Group	A target group allows you to set permissions on which targets (FQDNs, CIDR notations, ranges, or IP addresses) users can scan.	String

Editing Instance Variables

Tenable.io templates use instance variables to adjust the templates' behavior. Instance variables can be entered through the grid GUI at $Grid \rightarrow Ecosystem \rightarrow Notification$ and then selecting the notification you created at $Edit \rightarrow Templates$.

Table 2. Instance Variables

Instance Variable	Description	Туре
Add_Discovery_Data	Whether or adding the target to the Target Group list of targets is desired.	String (true, false)
Scan_Discovery_Data	Whether or not a target will be scanned upon creation.	String (true, false)
Discovery_Asset_Sync	Whether or not syncing asset events with Tenable.io is desired.	String (true, false)
Discovery_Scan_Template	Name of the scan that will scan the target. It must match an active scan on Tenable.io.	String
Discovery_Target_Group	A target group allows you to set permissions on which targets (FQDNs, CIDR notations, ranges, or IP addresses) users can scan.	String

Editing Session Variables

The Tenable_IO_Session template uses two session variables to login to the Tenable.io instance. Session variables can be entered through the grid GUI at Grid → Ecosystem → Outbound Endpoint and then selecting the endpoint you created at Edit → Session Management.

Table 3. Session Variables

Session Variable	Description
accessKey	A Token that is required to leverage the Tenable.io API.
secretKey	A Token that is required to leverage the Tenable.io API.

Supported Notification

A notification can be considered as a *link* between a template, an endpoint and an event. In the notification properties, you define which event triggers the notification, which template is executed and with which API endpoint NIOS will establish the connection to. The Tenable.io templates support a subset of available notifications (refer to the limitations chapter in this guide for more details). In order to simplify the deployment, only create required notifications and use the relevant filters. It is highly recommended to configure deduplication for RPZ events and exclude a feed that is automatically populated by Threat Analytics.

Table 4. Supported Notifications

Notification	Description
DNS RPZ	DNS queries that are malicious or unwanted
DNS Tunneling	Data exfiltration that occurs on the network
ADP	DNS queries that are malicious or unwanted
DHCP Leases	Lease events that occur on the network
Object Change Network IPv4	Added/Deleted IPv4 network objects
Object Change Network IPv6	Added/Deleted network IPv6 objects
Object Change Range IPv4	Added/Deleted Host IPv4 objects
Object Change Range IPv6	Added/Deleted Host IPv6 objects
Object Change Fixed Address IPv4	Added/Deleted fixed/reserved IPv4 objects
Object Change Fixed Address IPv6	Added/Deleted fixed/reserved IPv6 objects
Object Change Host Address IPv4	Added/Deleted Host IPv4 objects
Object Change Host Address IPv6	Added/Deleted Host IPv6 objects
Object Change Discovery Data	Discovery data

Infoblox Permissions

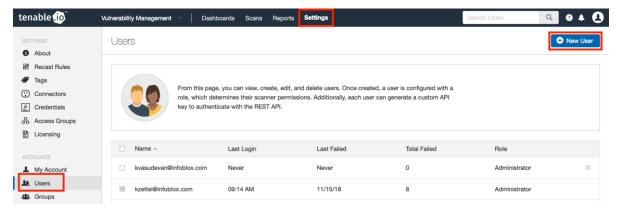
The Infoblox and Tenable.io integration requires a few permissions for the integration to work. Navigate to **Administration** → **Administrators** and add a **Roles**, **Permissions**, **Groups** and **Admins** to include permissions that are required for the integrations. When creating a new group, under the **Groups** tab, select the **API** interface under the **Allowed Interfaces** category.

Tenable.io Configuration

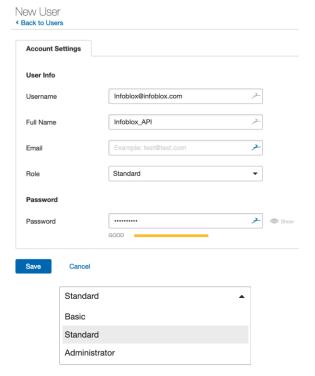
Configure Permissions

In order to configure permissions:

1. Navigate to **Settings** → **Users** and click **New User**.



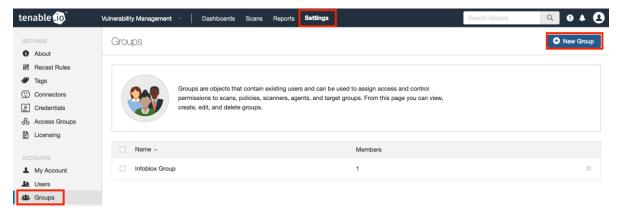
2. Insert the name and password and enter the Role with permissions levels set to Standard or higher.



3. Navigate to **Settings** → **Groups** and click **New Group**.

Integration with Tenable.io

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4. Enter a name for a Group that is not currently being used and click Add.



5. Inside the Created Group select Manage Users and then click Add Users.

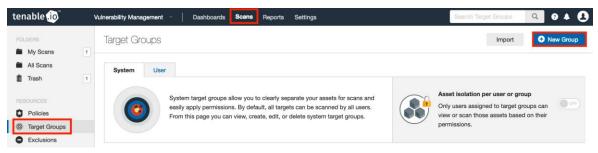


6. Click the User dropdown and select the user created for the API.

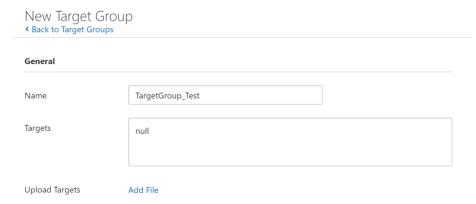


Create a Target Group

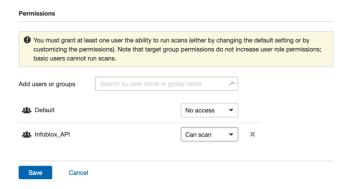
7. Navigate to **Scans** → **Target Groups** and select **New Group**.



8. Enter a name for a target group that isn't being used and for Targets enter any default value for a place holder.



9. Under permissions add a group with at least standard permissions and click the drop down next to the user and choose **Can scan** then click **Save**.



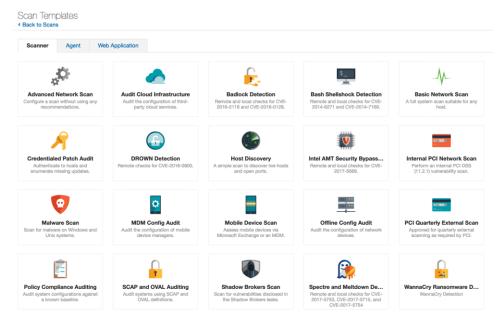
Create a Scan Template

In order to create a scan template:

1. Navigate to **Scans** → **My Scans** and select **New Scan**.



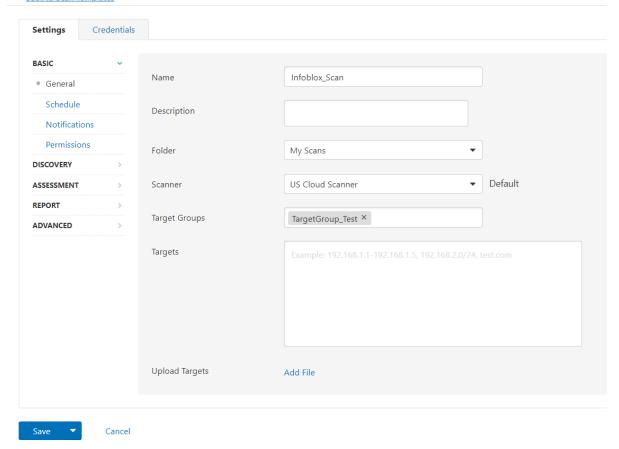
2. On the **Scan Templates** page select the appropriate Scanner template you wish to use.



3. Insert a name that isn't being used and choose the **Target Group** you created to add assets from Infoblox to.

New Scan / Basic Network Scan

Back to Scan Templates



Note: you can configure any other setting as needed.

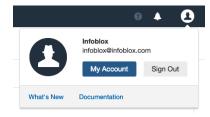
4. Click Save when you are finished configuring the scan template.



Generate API Keys

In order to Generate API Keys:

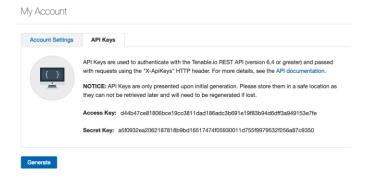
1. Navigate to the image for your profile and select My Account.



2. Navigate to API Keys and click Generate.



3. Here you will find the **Access Key** and the **Secret Key**. You will need these for creating the Outbound Endpoint later in Infoblox.

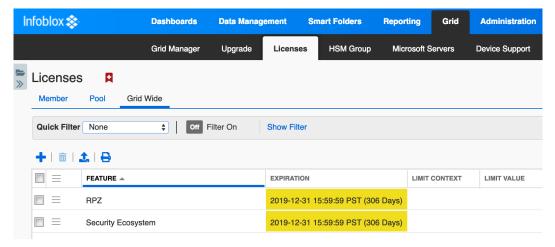


Infoblox NIOS Configuration

Check if the Security Ecosystem License is Installed

Security Ecosystem License is a **Grid Wide** License. Grid wide licenses activate services on all appliances in the same Grid.

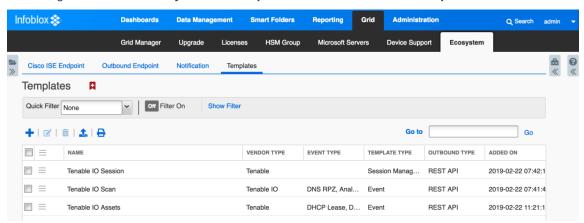
In order to check if the license was installed navigate to **Grid** → **Licenses** → **Grid Wide**.



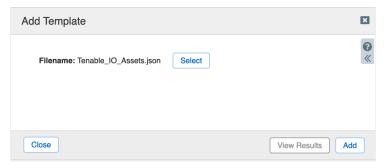
Add/Upload Templates

In order to upload/add templates:

1. Navigate to **Grid** → **Ecosystem** → **Templates** and click + or + **Add Template**.



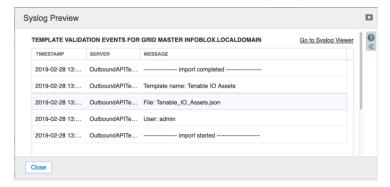
- 2. Click the **Select** button on the **Add template** window.
- 3. Click the **Select** button on the **Upload** window. The standard file selection dialog will open.
- 4. Select the file and Click the Upload button on the Upload window.
- 5. Click the Add button and the template will be added/uploaded.



6. If a template was previously uploaded, click Yes to overwrite the template.



7. You can review the uploaded results in the syslog or by clicking the View Results button.

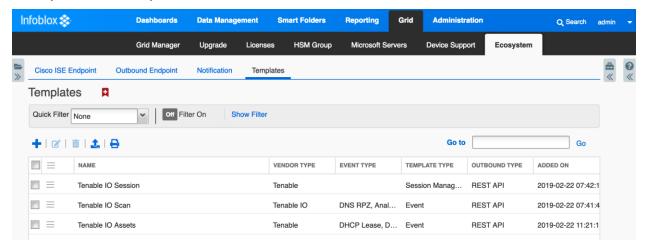


Note: There is no difference between uploading session management and action templates.

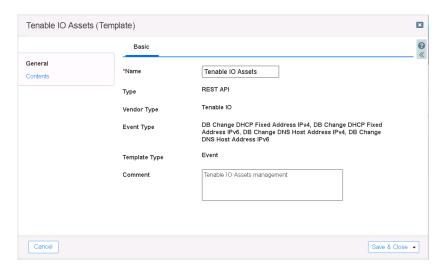
Modifying Templates

NIOS provides the facility to modify the templates via the web-interface.

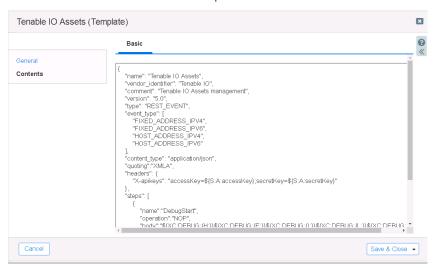
1. Navigate to **Grid** → **Ecosystem** → **Templates**, and then click the gear icon next to the template you want to modify.



2. Click the Edit button to open up the Template window.



3. Click on the Contents tab to view/edit the template.



The template editor is a simple interface for making changes to templates. It is recommended to only use the template editor to make minor changes. You can also edit, cut and paste template snippets from a text editor of your choice.

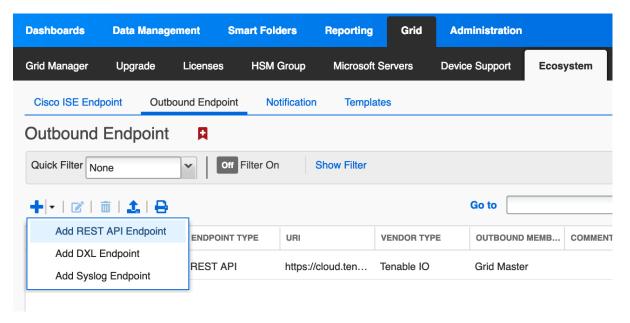
Note: You cannot delete a template if it is used by an endpoint or by a notification.

Add a Rest API Endpoint

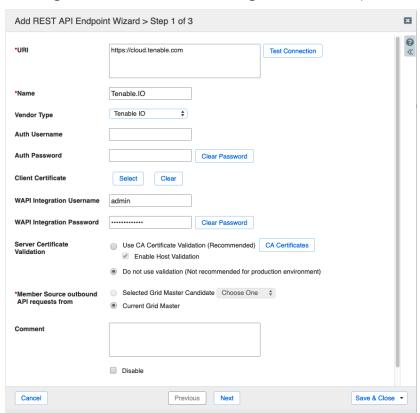
A **REST API Endpoint** is basically a remote system which should receive changes based on a notification and a configured template. A Grid, for example, can not only send notifications, it can also receive the notifications from itself (e.g. for testing purposes).

In order to add REST API Endpoints:

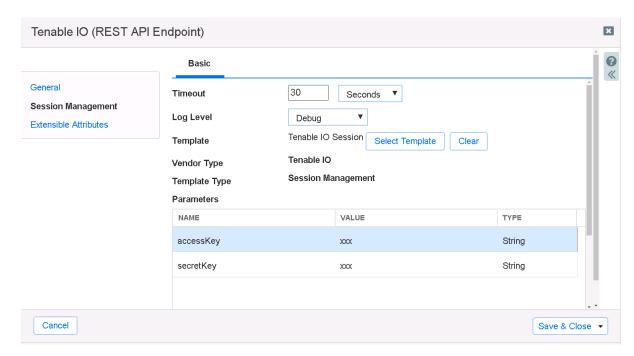
 Navigate to Grid → Ecosystem → Outbound Endpoints and click + or + Add REST API Endpoint buttons. The Add REST API Endpoint Wizard window will open.



- 2. The URI and Name for the appliance you are integrating with are required.
- 3. The URI should be the IP/FQDN of the appliance you are integrating with, with the correct URI scheme.
- 4. Specify WAPI Integration Username and WAPI Integration Password (NIOS credentials).



5. (Optional) For debug purposes only: Under Session Management, set Log Level to Debug.

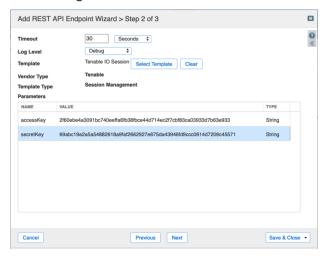


6. The accessKey and secretKey can be found when you create the API keys for the user.

Note: When possible, it is recommended to send notifications from a Grid Master Candidate instead of from the Grid Master.

Adding Token

• Navigate to the **Session Management** tab and add the **Token** to the value fields.

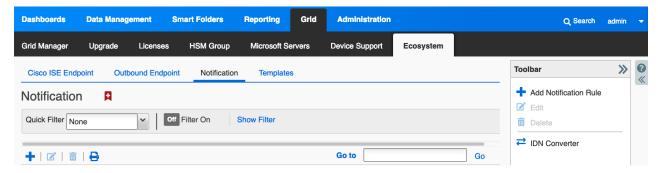


Add a Notification

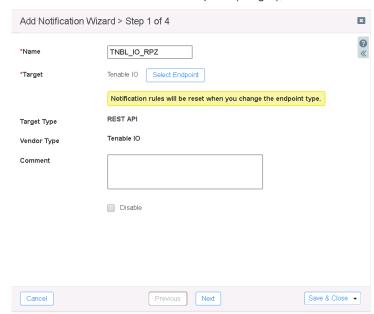
An endpoint and a template must be added before you can add a notification.

In order to add notifications:

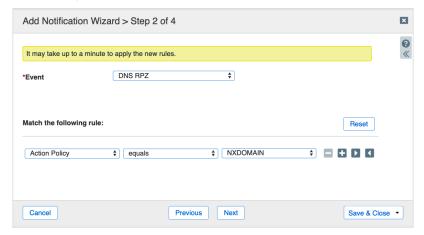
 Navigate to Grid → Ecosystem → Notification and click + or + Add Notification Rule then the Add Notification Wizard window will open.



2. Specify the notification's name and select an endpoint (Target), click Next.



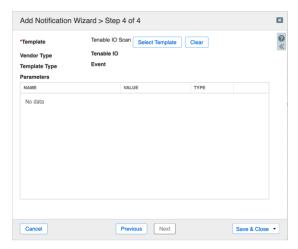
3. Select an event type and define a filter. Note: For optimal performance, it is best practice to make the filter as narrow as possible. Click **Next**.



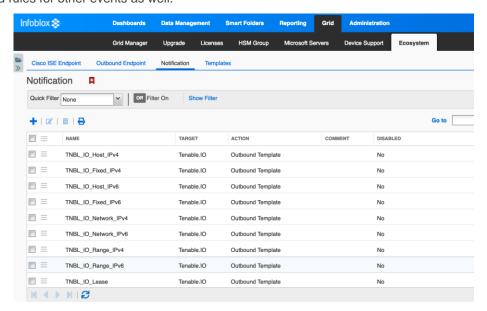
4. (For Security related notifications only) Check **Enable event deduplication** and specify relevant parameters. Click **Next**.



5. Select a relevant template and specify the template's parameters if any are required. Click **Save & Close**.

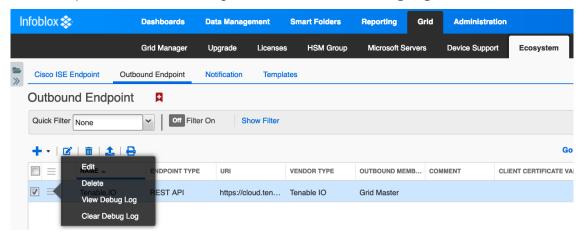


6. Add rules for other events as well.



Check the Configuration

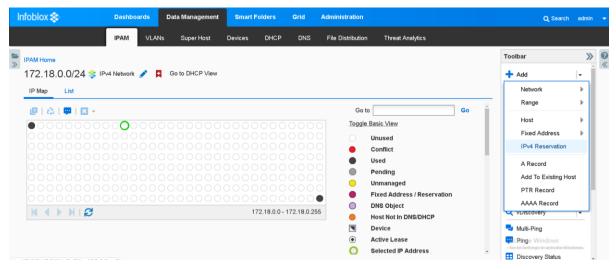
(Optional) On the Infoblox grid, navigate to **Grid** → **Ecosystem** → **Outbound Endpoint**, select Tenable.io endpoint, click on the hamburger icon and select **Clear Debug Log**



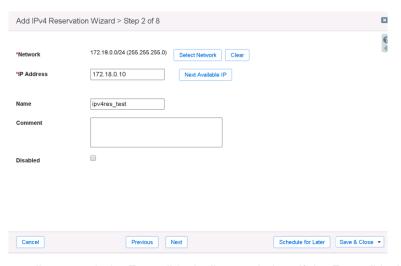
Address Object Management Test

The templates support IPv4/IPv6 Hosts, IPv4/IPv6 Fixed IP/Reservations, IPv4/IPv6 Networks, IPv4/IPv6 Ranges, Discovery, and DHCP lease events. This use case demonstrates how to manage IP addresses on Tenable.io.

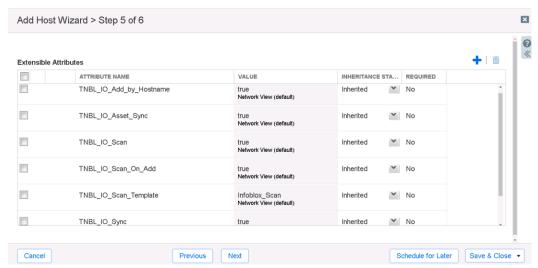
- 1. To create an IPv4 reservation, navigate to **Data Management** → **IPAM**. Select an IPv4 network here (i.e 172.18.0.0/24).
- 2. Click the drop down next to the + Add button under the toolbar and choose IPv4 Reservation.



3. Click Next, then insert the IP 172.18.0.10 into the IP Address field.



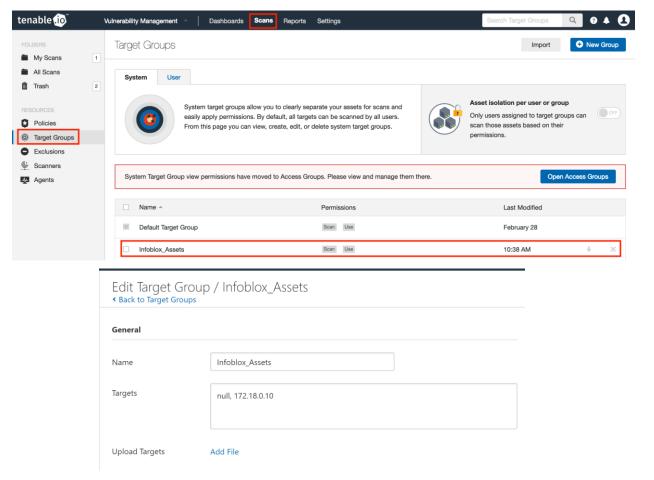
4. Click on **Next** until you reach the Extensible Attributes window. If the Extensible Attributes have not already been inherited from the network, set them.



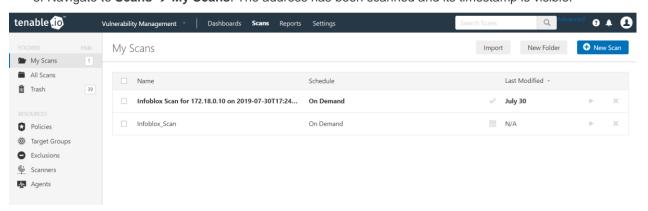
- 5. Click Save & Close.
- 6. Select the IP and refresh. The **TNBL_IO_Sync_Time and TNBL_IO_Last_Scan** EA is now updated.



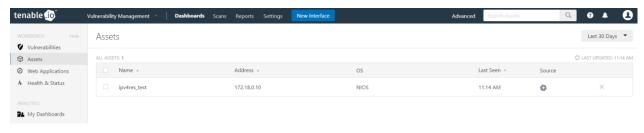
7. In Tenable.io, navigate to **Scans** → **Target Groups** then select the target group you sent the asset to. The **172.18.0.10** address reservation has been added to the **Targets** list. Refresh the page if necessary.



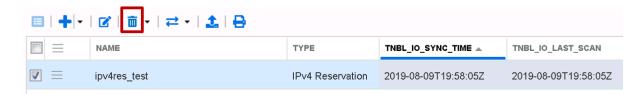
8. Navigate to **Scans > My Scans**. The address has been scanned and its timestamp is visible.



9. Navigate to **Dashboards** → **Assets.** The object has been added as an Asset.



10. In NIOS, navigate to **Data Management** → **IPAM** → **172.18.0.0./24** and select the **IPv4 Reservation** object just created. Scroll down and click the garbage can iii icon.



11. In Tenable.io, navigate to **Dashboards** → **Assets.** The asset has been deleted.

Summary

Infoblox and Tenable.io together help empower actionable insight into your entire infrastructure's security risks, allowing for you to quickly and accurately identify, investigate, and prioritize vulnerabilities and misconfigurations in your modern IT environment.





Infoblox is leading the way to next-level DDI with its Secure Cloud-Managed Network Services. Infoblox brings next-level security, reliability and automation to on-premises, cloud and hybrid networks, setting customers on a path to a single pane of glass for network management. Infoblox is a recognized leader with 50 percent market share comprised of 8,000 customers, including 350 of the Fortune 500.

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