Quick Start Guide

How to Deploy and Configure the BloxOne™ NTP Service

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Introduction

BloxOne's NTP service is a cloud managed feature which allows BloxOne servers to perform the duties of an NTP server using time that was synced via a third party NTP server. By utilizing BloxOne's NTP service, network administrators can improve time uniformity across devices, and increase the resilience of the vital NTP service. Additionally, BloxOne's NTP service allows for the utilization of authentication via certificates for upstream, or downstream NTP servers allowing for improved security. This document is intended to provide administrators with the information necessary to enable and configure the BloxOne NTP service.

Prerequisites

The following are prerequisites to configure BloxOne's NTP service:

- BloxOne License, one of the following:
    - BloxOne DDI
        - Essentials, Business, or Advanced
    - BloxOne Threat Defense
        - Business Cloud, or Advanced
- Infoblox CSP user account with administrator permissions
- BloxOne host:
    - Ports, Domains, IPs, URLs and Protocols allowed as specified on the BloxOne Connectivity and Service requirements webpage

Known Limitations

The current limitations that exist for the BloxOne NTP service are listed below:

- IPv6, CNIOS/NIOS, and Bare metal deployments are not supported.
- Only MD5 certificates are supported for Authentication purposes.
- NTP Access Control lists are not currently configurable.

Due to the nature of cloud platforms, these limitations may change with future BloxOne releases. For more information on updates, and limitations to the BloxOne NTP service please see the Infoblox documentation portal at docs.infoblox.com.

Workflow

Note: This guide does not cover how to deploy and configure a BloxOne host, which is required for the NTP service. For guidance on how to deploy a BloxOne host, please refer to the Infoblox documentation portal, located at docs.infoblox.com.

1. Deploy a BloxOne host or determine an existing host that will run the NTP service.
2. Create and attach the NTP Service to the correct BloxOne host via the Infoblox CSP.
3. Configure the NTP service at a Global or Local level.

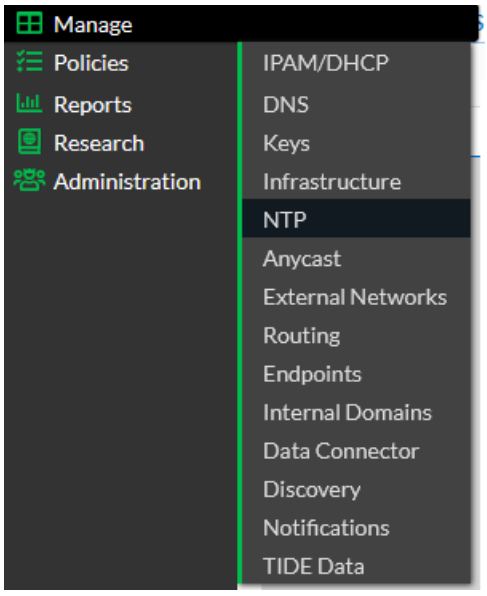
Select BloxOne Host to run NTP service

As mentioned in the Workflow section of this document, this document will not cover how to deploy a BloxOne host. For guidance on how to deploy a host, please refer to the Infoblox documentation portal, located at docs.infoblox.com. To run the NTP service, a host must be designated or deployed. *Note: As mentioned in the Known Limitations section, NIOS, CNIOS, IPv6 and Bare-metal deployments are not currently supported.*

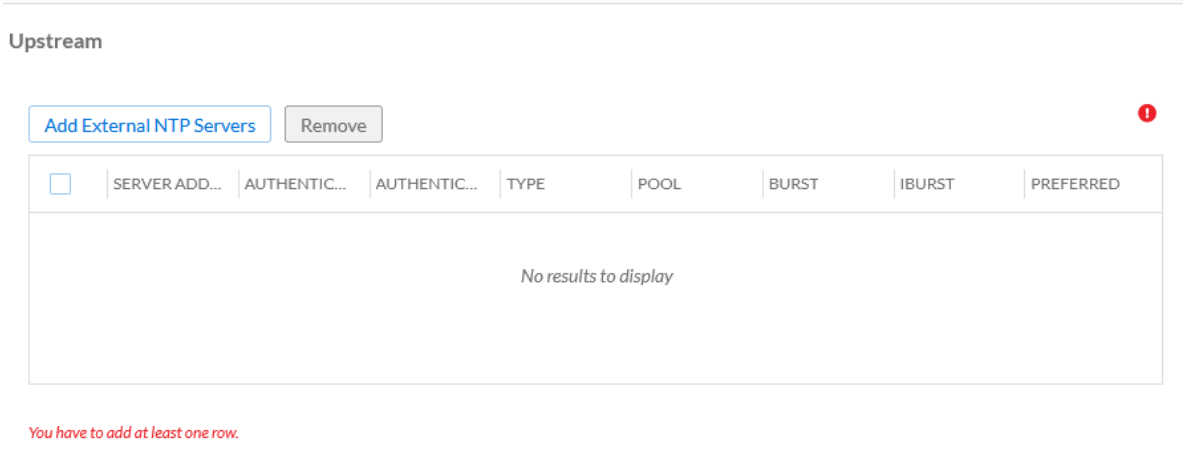
Global NTP Configuration

Before deploying the NTP service, it is good practice to configure the Global NTP settings. This is not required; however, all new deployments will source their initial configuration from these settings. If desired, these settings may be overridden at a local level when creating or editing an NTP service.

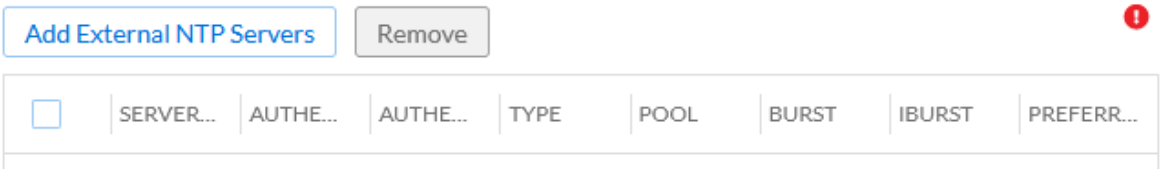
1. Navigate to the *NTP* page. Highlight **Manage**, then click **NTP**.



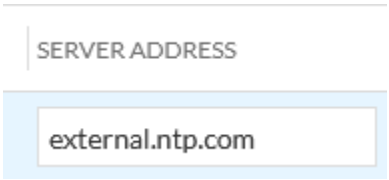
- In the **Upstream** section an external NTP server may be added. *For the operation of each NTP service to be successful, at least one NTP server must exist in the Upstream section either locally, or globally.*



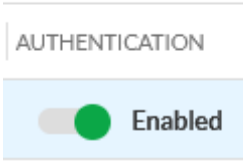
- To add an Upstream server, click the **Add External NTP Servers** button.



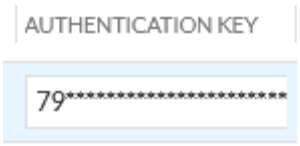
- In the Server Address textbox, input an **FQDN** or **IP address** of an external NTP server.



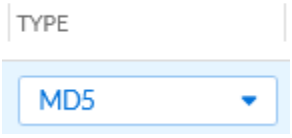
- (Optional) If Authentication is desired click the *Toggle switch* to enable **Authentication.**



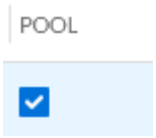
- If Authentication is enabled, input a **MD5 Trusted Authentication key** in the *Authentication Key* textbox. *Note: This key is acquired from the administrator of a third-party NTP server you are adding as an External NTP server.*



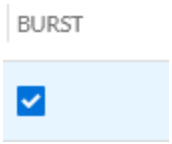
- For *Type* select **MD5** via the Dropdown menu.



- (Optional) Click the **Pool** *checkbox* to add the NTP server to a pool. *When this checkbox is enabled, this server is added to a pool of servers which devices can synchronize time with.*

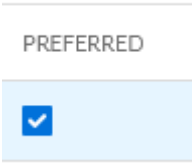


- (Optional) Click the **Burst** *checkbox* to enable the Burst setting. *Note: by enabling Burst, the NTP client will send a burst of eight packets if the External NTP server is reachable, and a valid source of synchronization is available. These packets are sent at the interval of every 2 seconds. This setting is used to measure jitter.*

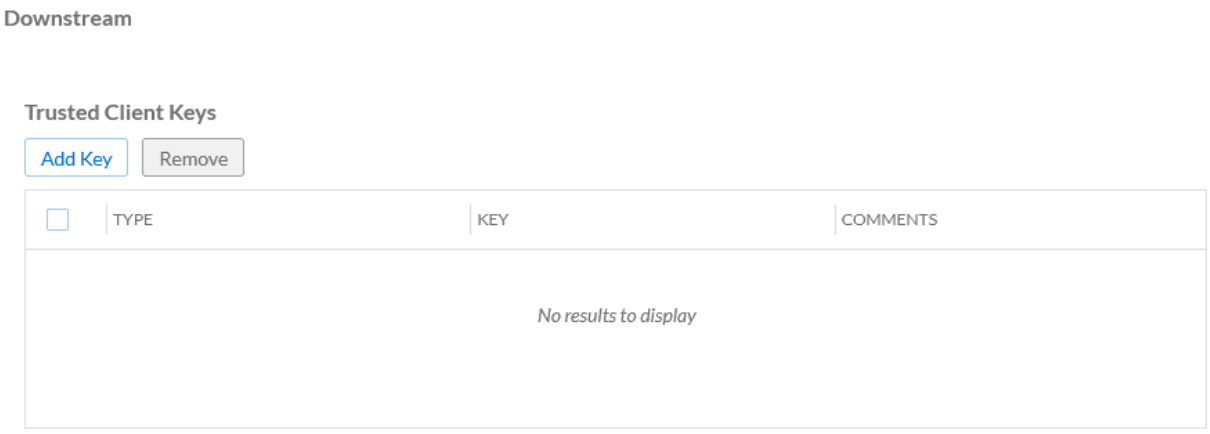


- (Optional) Click the **IBurst** *checkbox* to enable the IBurst setting. *Note: By enabling IBurst, the NTP client will send a burst of eight packets if the External NTP server is* ***not*** *reachable when the client sends the first NTP packet to the server. These packets are sent at the interval of every 2 seconds. Packets are continually sent until the NTP server is reachable. If the NTP server remains unreachable, BloxOne will utilize another upstream server, or default to the local clock of the OPH with NTP enabled.*

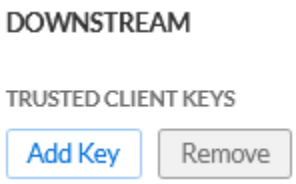
- (Optional) Click the **Preferred** *checkbox* to make this External NTP server the preferred external NTP server. *Note: This setting forces the existing NTP servers to sync with this server instead of potential alternatives. You may only select one external NTP server as a preferred server.*



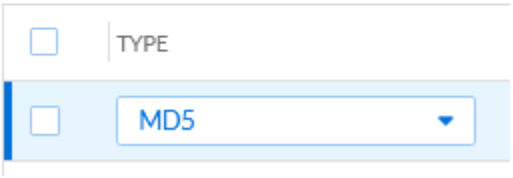
- (Optional) Below the *Downstream* header, a trusted client key can be added. *Note: when you configure a trusted client key, this key is used to authenticate an external third-party NTP server that will attempt to sync NTP data with BloxOne. This key is acquired from the third-party NTP server.*



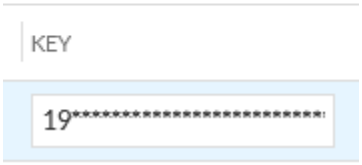
- To add a trusted client key, click via the **Add Key** button.



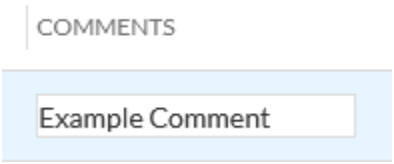
- After clicking the *Add Key* button, input the following data to add a trusted client key:
  - Select **MD5** via the *Type* dropdown menu.



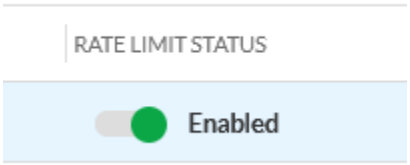
  - Input the key in the **Key** textbox. *Note: This key is acquired from the NTP server you are adding as a Downstream NTP server.*



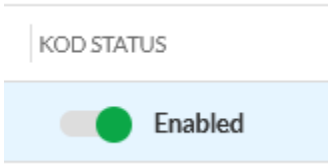
  - (Optional) Input a comment in the **Comments** field. *Note, a comment is a way to input a description of the key.*



- Under the *Access Control & Rate Management* header the following settings are configurable *(Note: Currently Add ACL, Remove ACL, and ACL selection are not configurable)*:
    - (Optional) If you wish to enable Rate Limiting, click the **toggle switch** associated with the Rate Limit Status column. *Note: this setting enables BloxOne NTP servers to not respond when a packet violates the rate limit specified in the **Inter Packet Spacing (seconds)** section.*



    - (Optional) To enable the KoD status, click the **toggle switch** associated with the KoD Status column. *Note: in order to enable this setting, the Rate Limit status must be set to 'enabled'. The KoD status or Kiss-o'-death status setting allows for the KoD packet to be sent to NTP servers that exceed the rate limit that is specified.*



    - (Optional) Under the Inter Packet Spacing (seconds) header, the following rate limiting parameters can be set. *Note: in order to change these settings, the Rate Limit status must be set to 'enabled'. Inter-packet spacing is the pause between NTP packets.*

- (Optional) Input the permitted **Average** time between NTP packets via the *Average* textbox. *Note: this setting sets the minimum allowed average time in seconds for an inter-packet pause between two NTP packets. The default for this setting is 3 seconds.*

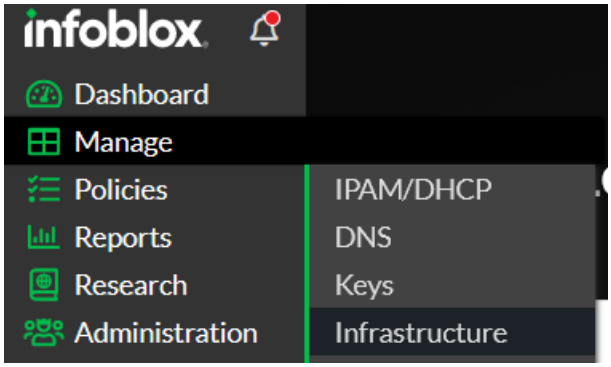
- (Optional) Input the permitted **Minimum** time between NTP packets via the *Minimum* textbox. *Note: this setting sets the minimum allowed time in seconds for an inter-packet pause between two NTP packets. The default for this setting is 1 second.*

- (Optional) Input the **Monitor** time via the *Monitor* textbox. *Note: this setting defines the amount of time in seconds after the rate limit has been exceeded by a server before accepting packets again from that same server. The default for this setting is 3000 seconds.*

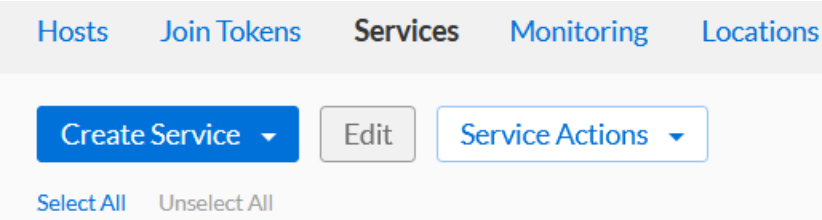
Create NTP Service

This section will cover how to create an NTP server, configure it's local settings, and how to assign the NTP service to a BloxOne host.

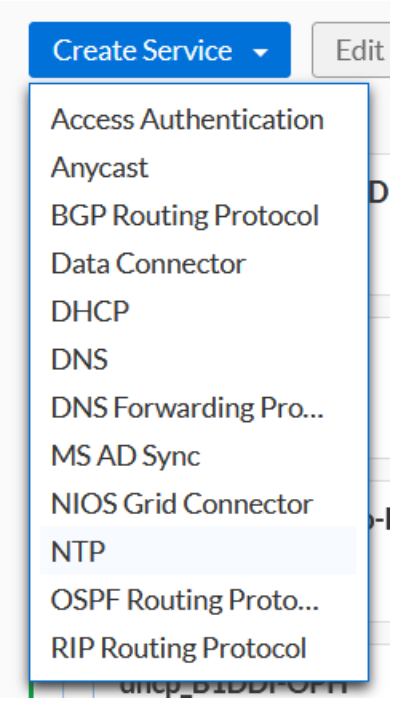
1. Navigate to the Infoblox CSP to *csp.infoblox.com* and **Log in**.
2. Once logged in, navigate to *Infrastructure*. Highlight **Manage** in the left-hand sidebar, then click on **Infrastructure**.



3. Click the **Services** tab.

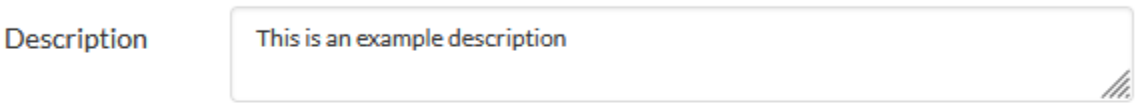


4. Click **Create Service**. Then click **NTP** in the list that is revealed.



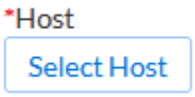
5. In the *Create NTP Service* panel, complete the following steps:
6. Give the NTP service a **Name**.

7. (Optional) Input a **Description** for the NTP service.

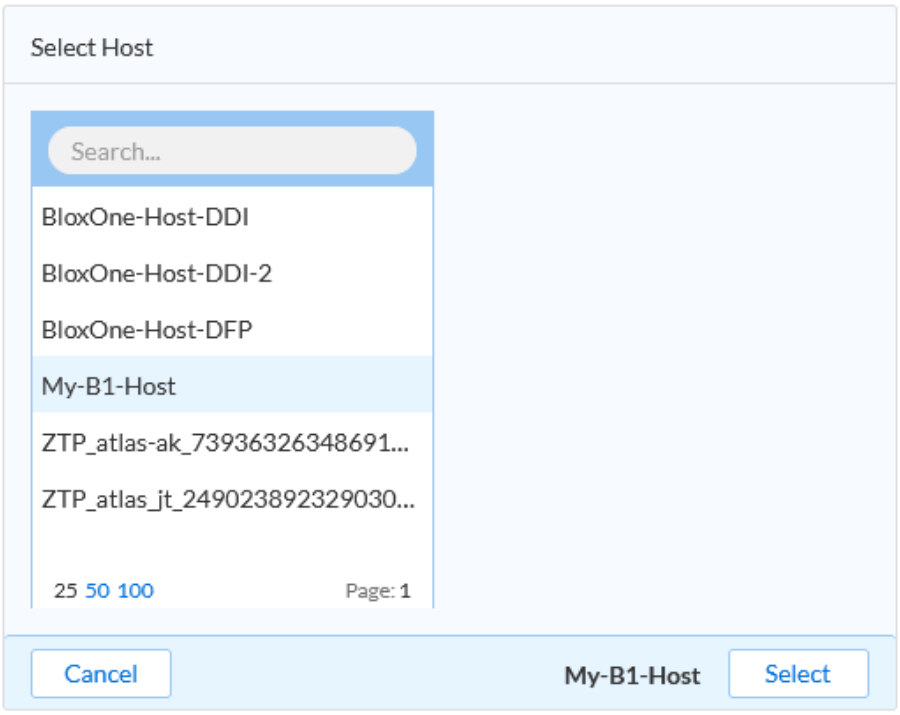


8. Ensure the Toggle switch is **Enabled**. If desired, you may also disable the service via this toggle switch.

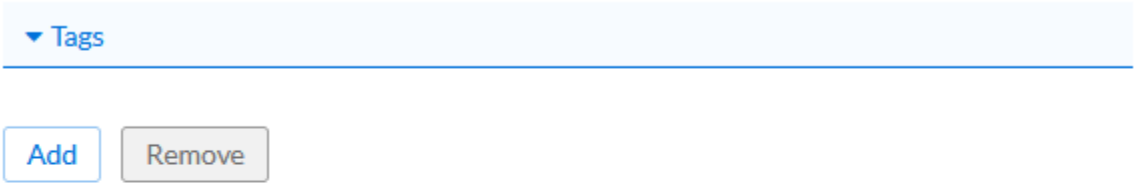
9. Select a Host. Click the **Select Host** button.



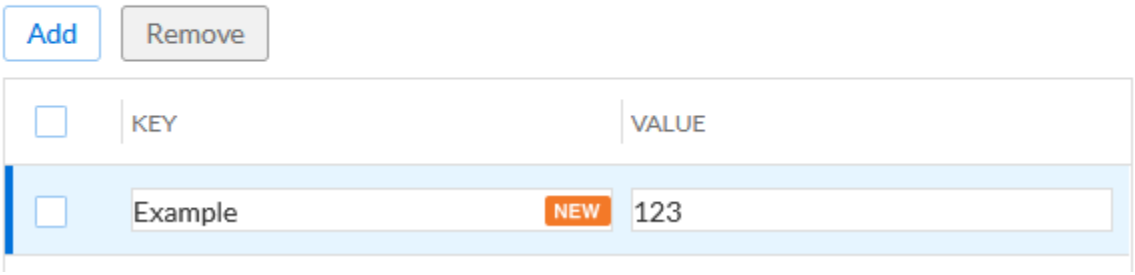
10. Locate and click on the **BloxOne Host** that will run the NTP service. Click **Select** to confirm the selection.



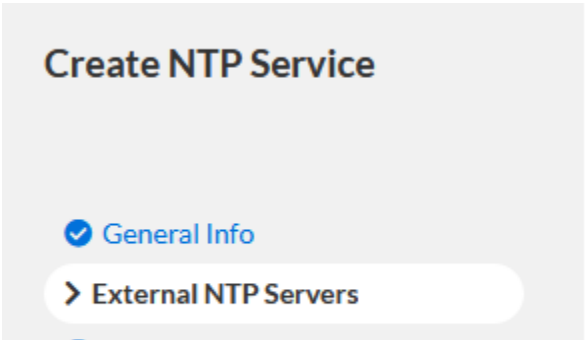
11. (Optional) Expand the Tags section and input one or many Tags. *Note: Tags are a type of metadata that is attached to this service.*
    - Click **Add** to add a Tag.



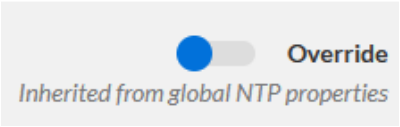
- For each Tag Input a **Key** and **Value**.



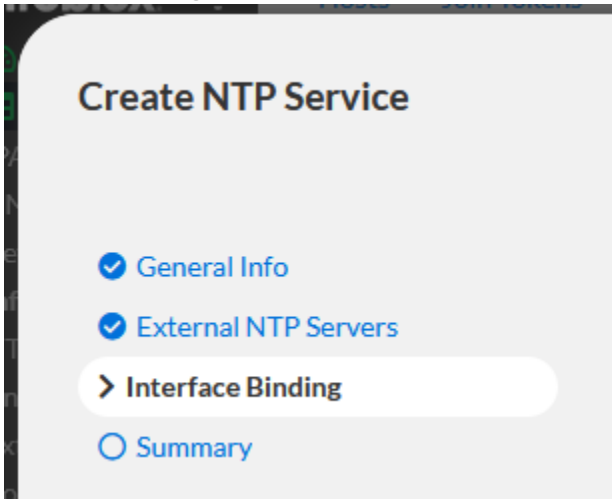
12. Click **External NTP Servers** in the left navigation panel.



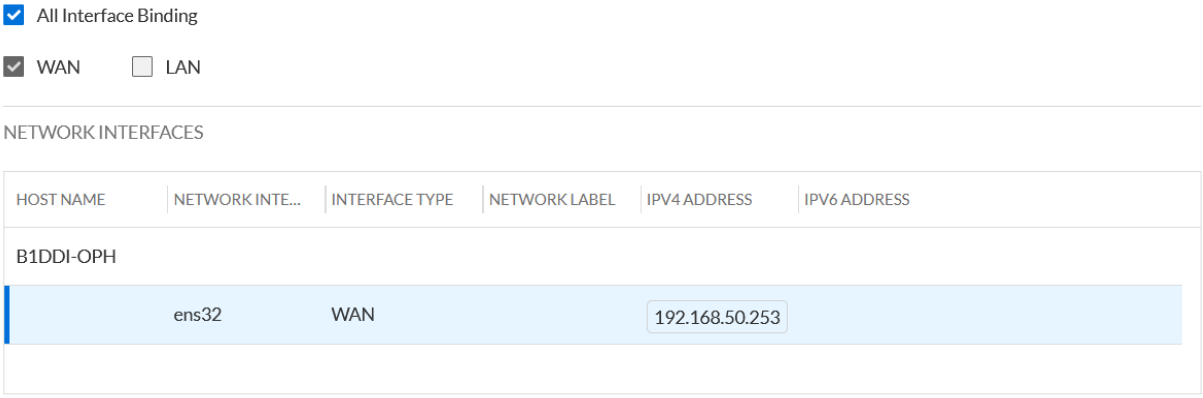
13. The settings in the External NTP servers section are sourced from the Global NTP settings. If alternative settings are required, you may override each individual section by using the **Override** toggle switch. *For more information about these settings, or the Global NTP Settings, please reference the Global NTP Configuration section of this document. Please note that at least one upstream NTP server must be input for the creation of the NTP service to be successful.*



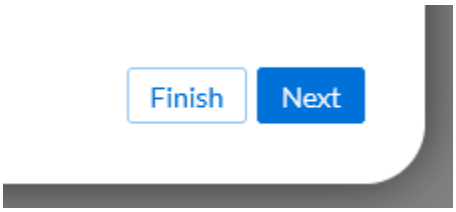
14. (Optional) Click **Interface Binding** in the left navigation panel.



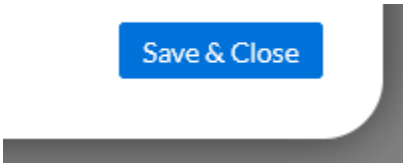
15. **Interface Bindings**: If desired you may select the interface the NTP service runs on. *Note the NTP service can be bound to WAN, LAN, a custom interface label, or all interfaces. This setting is set to All Interface Binding by default.*



16. To confirm the creation of the NTP service, click **Finish**.



17. Then, click **Save & Close**. *Note, when assigning the NTP service to a BloxOne host, the host may be Degraded momentarily.*



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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