# INFOBLOX — RED HAT ANSIBLE INTEGRATION

## Automating critical network services for Agility, Efficiency and Speed-to-Value

### SUMMARY

Environments are becoming extremely dynamic as virtualization of hardware becomes more prevalent, placing tremendous strain on traditional IP address management (IPAM) and Dynamic Host Configuration Protocol (DHCP) systems.

Organizations depend heavily on tools to automate or orchestrate tasks as much as possible, where new applications or servers can be deployed with a single request.

The Infoblox NIOS Collection for Ansible provides a centralized and automated way to manage DNS, DHCP and IPAM (DDI) across multiple platforms, enabling a customizable, centralized and granular view of all IPAM, DNS and DHCP data. Gain a single-point comprehensive perspective of the entire network combined with network security and control, thus allowing seamless management of multiple networks and resources.

### OVERVIEW

There are many significant benefits to automating the workflows and management processes in a data center: agility, efficiency, accuracy and effectiveness are just four. Organizations that are stepping through their cloud journey, redefining application delivery or adopting DevOps methodologies will profit from the speed and reliability of data center automation.
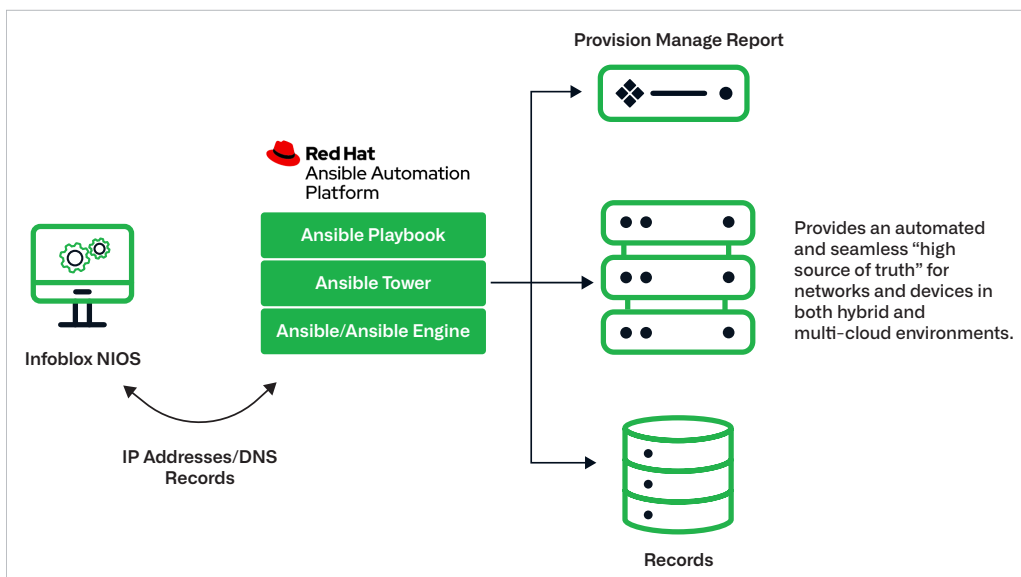


*Figure 1: Infoblox and Red Hat Ansible integration*

Red Hat Ansible Automation Platform extends beyond traditional tools for server and software installations to encompass the entirety of IT infrastructure, including network resources. The Infoblox NIOS Collection for Ansible Automation Platform is a package of modules and Plug-Ins that allows managing Infoblox Network Identity Operating System (NIOS) objects and functions through APIs leveraging Ansible playbooks. This enables network professionals to utilize Infoblox infrastructure for DNS and IP Address Management (IPAM) automation of VMs and containerized workloads deployed across multiple platforms.

## CAPABILITIES

The Infoblox NIOS Collection for Ansible is founded on NIOS publishing DDI information to Ansible Tower using Ansible Inventory and Lookup Plug-Ins. DDI information is then presented as variables to an Ansible Playbook: a YAML-based text file that performs tasks to automate managed systems found in Inventory. Playbooks allow an administrator to configure an entire environment by leveraging what is known as a module that executes on Linux and Windows systems, networks and cloud instances. The Infoblox NIOS Collection for Ansible specifically lets an Ansible Playbook automate the provisioning of the network service infrastructure. Its functions include:

- Get the next available IP address from Infoblox DDI
- Assign an IP address to a new VM or host
- Create a host record in Infoblox DDI
- Add/Remove Network Views
- DNS Views

- Networks
- DNS Zones
- Host Records
- Lookup Plug-In for next available IP address
- Dynamic inventory script to provide Infoblox data to Ansible inventory

- Manage and configure Infoblox DNS Traffic Control server records, pools, and load balanced domain name objects
- Improve security and control with certificate authentication in the Infoblox client and Ansible

## BENEFITS

The Infoblox NIOS Collection for Ansible enables networking teams to leverage Ansible NIOS modules and Plug-Ins to automate Infoblox Core Network Services for IPAM, DNS and Inventory tracking for workloads deployed across multiple platforms. It frees network administrators from performing frequent repetitive requests or tasks with high error rates, including IP address assignments, DNS record creation and cleanup of everything once a resource is no longer needed.

The Infoblox NIOS Collection for Ansible provides single-point comprehensive automation of VM and containerized workload deployments across multiple platforms. By integrating Infoblox DDI capabilities with Ansible automation, organizations can:

- **Reduce Time to Deployment:** Scripting the provisioning of IP addresses and DNS records in an Ansible Playbook reduces the elapsed time to bring a networked device and its attendant capabilities online. Rather than rely on human intervention and manual processes, this becomes a "push button" function within a Playbook.

- **Use Network Resources Efficiently:** Infoblox DDI provisions and recovers IP address and DNS records for networked devices, such as servers. Infoblox DNS Traffic Control (DTC) integrates GSLB functionality with core DDI network services. By automating these tasks, the use of IP addresses and DNS records is made efficient, while bringing devices onto a network is less exposed to address conflicts.

- **Improve Network Reliability:** Automation reduces the probability of random human error in network service provisioning and management. Fewer errors lead directly to greater network reliability and indirectly to better user experiences with applications running on that network.

- **Leverage Existing Skills and Investments:** Ansible is used by thousands of organizations to manage data center resources. DDI network and DTC load balancing services can now be seamlessly automated using Ansible's well-understood scripting language, rather than introducing new tools that require new skills.

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- **Single Control Plane:** By consolidating network service management within an Ansible playbook, the data center or network administrator has one less system to learn, use and maintain.

## USE CASES

The Infoblox NIOS Collection for Ansible provides a total of 16 modules and 4 Plug-Ins included (beginning with Ansible 2.9).

With the Infoblox NIOS Collection for Ansible, organizations can seamlessly automate and centralize all aspects of IP address provisioning and reliable DHCP server management with DNS through an integrated platform enabling organizations to confidently handle the most challenging IPAM, DNS and DHCP requirements in every type of network environment, data center and hybrid cloud environment.

- Provision systems in minutes, instead of days, with automated IP address provisioning for cloud infrastructure and services by enabling automatic IP allocation/ deallocation and DNS records creation/ deletion as applications or services are spun up and shut down.

- Leverage the next available IP address capability to assign the right IP addresses to the resources being spun up.

- Simplify troubleshooting and reduce downtime with real-time visibility into virtualized and physical network infrastructure.

- Leverage the lookup Plug-In to query for NIOS objects.

- Configure and manage NIOS objects such as networks, network views, zones, etc., directly from Ansible via playbooks.

- Manage movement between VM and container clusters easily with synchronization of critical DNS, DHCP and IP address services.

- Import your network node inventory from Infoblox NIOS using Infoblox dynamic inventory Plug-In.

- Automate the configuration and management of Infoblox's DNS Traffic Control (DTC) load balancing functionality in Ansible workflows. Create, read, update and delete data in DTC. Manage DTC health checks, topology rule sets, pools and LBDNs. Stay current with the latest Ansible releases and share workflows with the GitHub repository.

## CONCLUSION

The Infoblox NIOS Collection for Ansible further enables our platform to support our customers with operational simplicity, making it easier to deliver a secure and reliable connection to end-users and while reducing network operating expenses.

It enhances the Ansible experience by automating NIOS administrative tasks, saving time and money, reducing errors. Managing hosts, VMs, and the associated network infrastructure becomes efficient and effective.

To learn more, visit www.infoblox.com or contact your local Infoblox representative today.

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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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