VMware Aria Automation Reference Architecture Guide

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VMware Aria Automation 8.12

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https://docs.vmware.com/

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VMware Aria Automation 8.x Reference Architecture

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The Reference Architecture describes the structure and configuration of typical VMware Aria Automation deployments.

The Reference Architecture also provides information about high availability, scalability, port requirements, and deployment profiles for these components:

- VMware Aria Suite Lifecycle
- VMware Identity Manager
- VMware Aria Automation

For software requirements, installation, and support platforms, refer to the individual product documentation on docs.vmware.com.

Deployment and Configuration Recommendations

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Read the following topics next:

- Configuring Deployments
- Authenticating VMware Aria Automation 8
- Configuring Load Balancers
- Configuring Automation Orchestrator

Configuring Deployments

Deploy and configure all VMware Aria Automation components in accordance with VMware recommendations.

The clocks for VMware Aria Suite Lifecycle, VMware Identity Manager, VMware Aria Automation, and Automation Orchestratorcomponents must be synced to the same timezone. UTC+0 is recommended.

Install VMware Aria Suite Lifecycle, VMware Identity Manager, VMware Aria Automation, and Automation Orchestrator components on the same management cluster. Machines should then be provisioned on a separate cluster to keep user and server workloads isolated.

Authenticating VMware Aria Automation 8

VMware Aria Automation 8 requires an external VMware Identity Manager instance.

You can use an existing VMware Identity Manager instance or deploy a new one by using VMware Aria Suite Lifecycle. For information on how to deploy a new VMware Identity Manager instance, refer to Deployment of VMware Identity Manager.

Configuring Load Balancers

VMware Aria Automation 8 requires a configured load balancer to direct and manage traffic.

If you are deploying a large VMware Aria Automation 8 instance, you must configure two load balanced VIPs. However, no session persistence is required.

For detailed configuration information, refer to the Load Balancing Guide for Aria Automation.

VMware Aria Automation and VMware Identity Manager appliances require and use these ports:

- VMware Aria Automation
  - Port: 443
  - Health Monitor Port: 8008
  - Health Monitor URL: /health
- VMware Identity Manager
  - Port: 443
  - Health Monitor Port: 443
  - Health Monitor URL: /SAAS/API/1.0/REST/system/health/heartbeat

Configuring Automation Orchestrator

VMware Aria Automation 8 requires a configured Automation Orchestrator instance for extensibility functionality.

VMware Aria Automation 8 supports both an external and embedded Automation Orchestrator instance. For optimized performance with VMware Aria Automation 8, configure an embedded Automation Orchestrator instance.

Configuring High Availability

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You can configure high availability on VMware components by deploying clusters full stop. However, not all VMware components support high availability.

Table 3-1. Component High Availability

Product	High Availability Support
VMware Aria Suite Lifecycle	VMware Aria Suite Lifecycle does not support a highly available deployment.
VMware Identity Manager	Content is replicated in a VMware Identity Manager cluster. Deploy a cluster behind a load balancer to enable high availability.
VMware Aria Automation	Content is replicated in a VMware Aria Automation cluster. Deploy a cluster behind a load balancer to enable high availability.

Hardware Requirements

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Use these hardware specifications when configuring your system.

Table 4-1. Hardware Requirements

Component	vCPU	Memory (GB)	Storage (GB)
VMware Aria Suite Lifecycle	2	6	78
VMware Identity Manager **Note** For more information on the hardware requirements for VMware Identity Manager, see Upgrading to VMware Identity Manager documentation.	8	16	100
VMware Aria Automation	Medium profile: 12 XL profile: 24	Medium profile: 48 XL Profile: 96	Medium profile: 246 XL profile: 246

For more information, see System Requirements.

Scalability and Concurrency Maximums

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The scalability and concurrency limit tables outline the recommended maximums on VMware Aria Automation HA multi-tenant (clustered) deployments.

Table 5-1. Scalability Maximums

Component	Scale Targets	
	Medium Profile	XL Profile
Tenants	20	50
Cloud Accounts: Private Endpoints - vCenter, NSX, and NSXT	50	50
Cloud Accounts: Public Endpoints - AWS, Azure, GCP, and VMC	50	300
Compute resources - ESXi hosts on a single vCenter	600	2000
Compute resources - ESXi Hosts across 50 vCenters	2,000	10,000
Cloud Zones (for all endpoints)	400	1000
Cloud Zones for a single endpoint	20	100
Data collected machines (includes private and public cloud)	200,000	280,000
Images collected	150,000	150,000
Image and Flavor Mapping	150	150
Cloud Zones and images per Image Mapping	100	124
Cloud Zone and Flavors per Flavor Mapping	100	124
VPZ created from single endpoint by provider tenant	50	50
VPZ created across endpoints by provider tenant	300	300
VPZ assignment per tenant	60	60

Table 5-1. Scalability Maximums (continued)

Component	Scale Targets	
Resources per deployment	100	300
Cloud Template	8,000	10,000
Catalog items	8,000	10,000
Catalog - content sources	1,000	2,000
Projects across tenants	5,000	5,000
Projects per 5,000 admin users	5,000	5,000
Non-admin users per single project	5,000 maximum non-admin users that can be part of a single project	5,000 maximum non-admin users that can be part of a single project
5,000 Non-admin users per project	50 maximum projects that can contain 5,000 non-admin users each	50 maximum projects that can contain 5,000 non-admin users each
Projects per single non-admin user	5,000 maximum projects that a single non-admin user can be a part of	5,000 maximum projects that a single non-admin user can be a part of
5,000 Projects per non-admin users	50 maximum non-admin users that can be part of 5,000 projects	100 maximum non-admin users that can be part of 5,000 projects.
Custom Role Across tenants	500	1,000
Custom Roles per User	100	500
Subscriptions	3,000	3,000
Subscriptions per deployment	40	40
Blocking subscription per event topic	50	50
Non-Blocking subscription per event topic	50	50
Approval policies	4,500	4,500
Pipelines	3,000	5,000
ABX Actions - AWS lambda and Azure function providers	1,000	2,000
ABX Actions - On-prem provider	150	150
HCMP Active Alerts	70,000	70,000

Table 5-1. Scalability Maximums (continued)

Component	Scale Targets	
Maximum RTT Latency for Private Endpoints (ms)	300	300
Maximum Disks per vSphere managed Virtual Machine	59	59

Table 5-2. Concurrency Maximums

Action	Medium Profile Sustain Load	XL Profile Sustain Load
Concurrent Cloud Template resource provisioning, Day 2 actions on deployments, Provisioned Resources, ABX Action and vRO workflow. Additional Requests stay in the queue.	250 Active Requests	750 Active Requests
Concurrent pipeline executions	20/minute	50/minute
Bulk-Imported machines using workload on-boarding - Multiple plans	19,000/hour	30,000/hour
Bulk-Imported machines using workload on-boarding - Single Plan	3,500/hour	6,000/hour
Enforcement time taken by a single Day2 Actions Policy	25 minutes for 10,000 deployments 12 minutes for 5,000 deployments	15 minutes for 10,000 deployments 6 minutes for 5,000 deployments

Network and Port Communication

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Read the following topics next:

- Network Requirements
- Port Requirements

Network Requirements

Use these network requirements with your VMware Aria Automation 8 components.

All VMware Aria Automation 8 components must be deployed layer 2 adjacent. VMware Aria Automation 8 cannot be deployed with an IP address or access external services with IP addresses in these ranges.Reserve these network ranges for intra-service communication:

- 10.244.0.0/22
- 10.244.4.0/22

Port Requirements

The inbound and outbound ports for VMware components with VMware Aria Automation are outlined in the Port Requirements table.

To view all VMware Aria Automation ports in a single dashboard, refer to the Ports and Protocols tool.

Table 6-1. Port Requirements

Component	Inbound Ports	Outbound Ports
VMware Identity Manager Load Balanced VIP	User ■ HTTPS 443 VMware Aria Automation Appliance ■ HTTPS 443 VMware Aria Suite Lifecycle Appliance ■ HTTPS 443	VMware Identity Manager ■ HTTPS 443
VMware Aria Automation Appliance Load Balanced VIP	User ■ HTTPS 443	VMware Aria Automation ■ HTTPS 443 ■ Health Monitor 8008

Table 6-1. Port Requirements (continued)

Component	Inbound Ports	Outbound Ports
VMware Identity Manager Appliance	User ■ *HTTPS 443 VMware Identity Manager Load Balanced VIP ■ HTTPS 443 VMware Aria Automation Appliance ■ *HTTPS 443 VMware Aria Suite Lifecycle Appliance ■ *HTTPS 443	VMware Identity Manager Load Balancer ■ **HTTPS 443
VMware Aria Suite Lifecycle Appliance	User ■ HTTPS 443	VMware Identity Manager Load Balanced VIP ■ HTTPS 443 VMware Aria Automation Appliance Load Balanced VIP ■ HTTPS 443 VMware Identity Manager Appliance ■ SSH 22 ■ HTTPS 443 VMware Aria Automation Appliance ■ SSH 22 ■ HTTPS 443
VMware Aria Automation Appliance	User ■ *HTTPS 443 VMware Aria Automation Appliance Load Balancer VIP ■ HTTPS 443 ■ Health Monitor 8008 VMware Aria Suite Lifecycle Appliance ■ SSH 22 ■ HTTPS 443 VMware Aria Automation Appliance ■ **10250 ■ **6443 ■ **UDP 8285 ■ **2379 ■ **2380 ■ **UDP 500 ■ **UDP 4500 ■ ** SSH 22	VMware Identity Manager Appliance ■ *HTTPS 443 VMware Identity Manager Load Balanced VIP ■ HTTPS 443 VMware Aria Automation Appliance ■ **10250 ■ **6443 ■ **UDP 8285 ■ **2379 ■ **2380 ■ **UDP 500 ■ **UDP 4500 ■ ** SSH 22 ESXi host 902
* Direct access only. Required only in deployments that are not load balanced. ** Intra-cluster communication.		

Deployment Configurations

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The components and communication ports in your deployment depend on the deployment's size.

Small deployments require these components:

- 1 VMware Aria Suite Lifecycle Appliance
- 1 VMware Identity Manager Appliance
- 1 VMware Aria Automation Appliance

Note Small deployments do not require load balancers.

Large deployments require these components:

- 1 VMware Aria Suite Lifecycle Appliance
- 3 VMware Identity Manager Appliances
- 3 VMware Aria Automation Appliances

Note A Load Balancer VIP is required for the 3 VMware Identity Manager Appliances and the 3 VMware Aria Automation Appliances.

Read the following topics next:

- Small Deployment Configuration
- Large (Clustered) Deployment Configuration

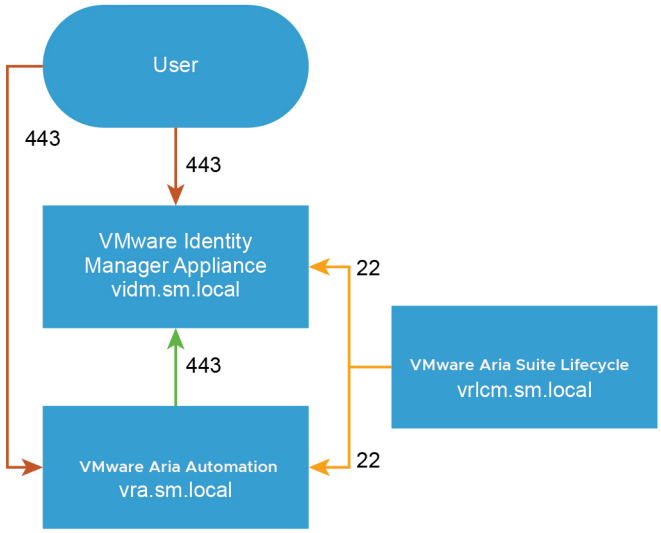
Small Deployment Configuration

Table 7-1. Small Deployment Hostnames

Component	Hostname
VMware Aria Suite Lifecycle Appliance	vrlcm.sm.local
VMware Identity Manager Appliance	vidm.sm.local
VMware Aria Automation Appliance	vra.sm.local

Table 7-2. Certificates

Server Role	Common Name or Subject Alt Name
VMware Identity Manager	Common name contains the hostname vidm.sm.local
VMware Aria Suite Lifecycle	Common name contains the hostname vrlcm.sm.local
VMware Aria Automation	Common name contains the hostname vra.sm.local



Large (Clustered) Deployment Configuration

Large (clustered) deployments include several component types and communication ports.

Large (clustered) deployments are comprised of these components:

- Identity Manager Appliance Load Balanced VIP
- VMware Aria Automation Appliance Load Balanced VIP
- VMware Aria Suite Lifecycle Appliance
- VMware Identity Manager Appliance x3
- VMware Aria Automation Appliance x3

Table 7-3. Large Deployment Hostnames

Components	Hostname
Identity Manager Appliance Load Balanced VIP	vidmlb.lg.local
VMware Aria Automation Appliance Load Balanced VIP	vralb.lg.local
VMware Aria Suite Lifecycle Appliance	vrlcm.lg.local

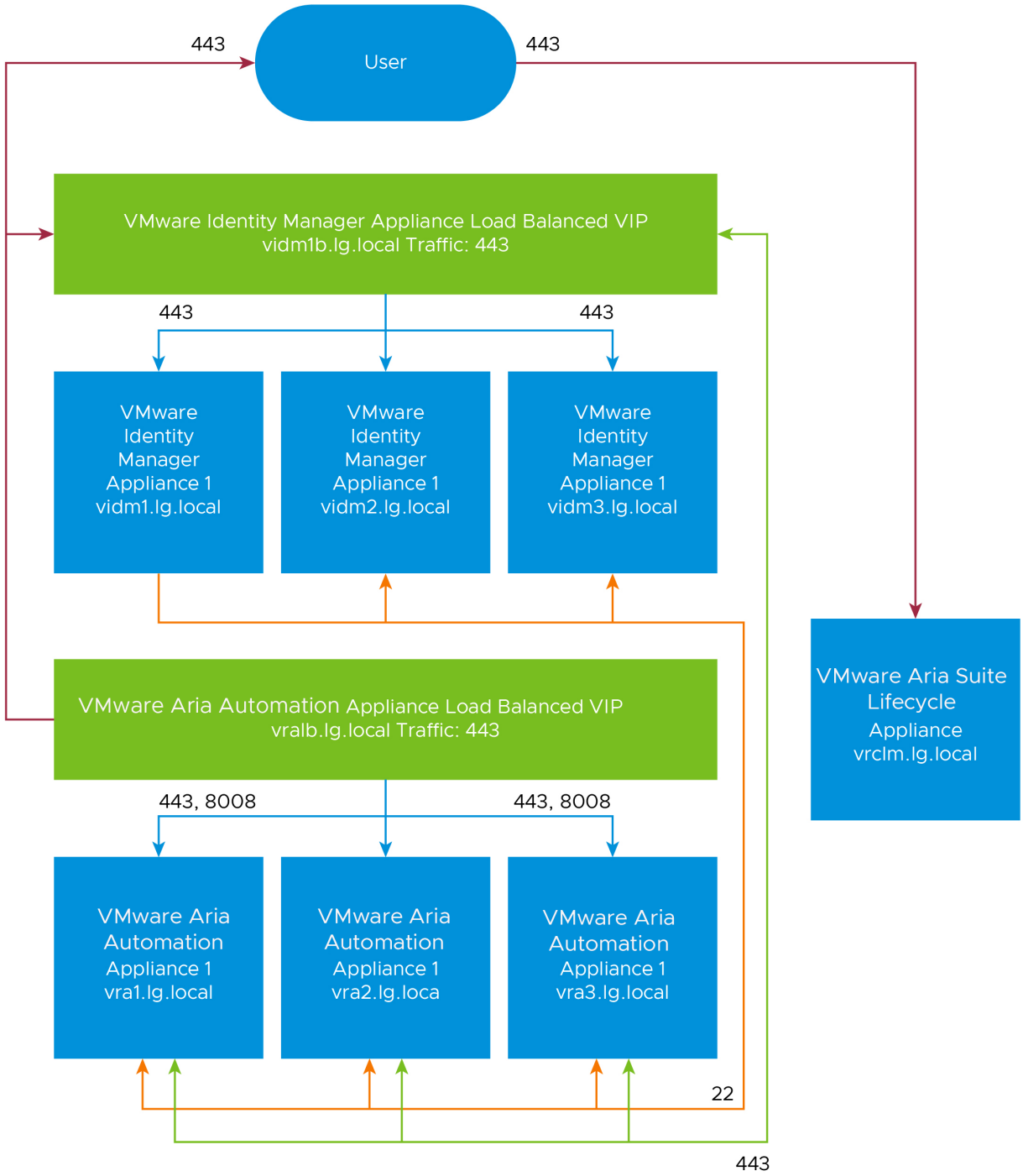
Table 7-3. Large Deployment Hostnames (continued)

Components	Hostname
VMware Identity Manager Appliance	■ vidm1.lg.local ■ vidm2.lg.local ■ vidm3.lg.local
VMware Aria Automation Appliance	■ vra1.lg.local ■ vra2.lg.local ■ vra3.lg.local

Table 7-4. Certificates

Server Role	Common Name or Subject Alt Name
VMware Identity Manager Appliance	Subject Alt name contains the hostnames: ■ vidmlb.lg.local ■ vidm1.lg.local ■ vidm2.lg.local ■ vidm3.lg.local
VMware Aria Suite Lifecycle	Common name contains the hostname vrlcm.lg.local
VMware Aria Automation	Subject Alt name contains the hostnames: ■ vralb.lg.local ■ vra1.lg.local ■ vra2.lg.local ■ vra3.lg.local

The diagram outlines the communication ports between large deployment components.


443
User
443
VMware Identity Manager Appliance Load Balanced VIP
vidm1b.lg.local Traffic: 443
443
443
VMware Identity Manager Appliance 1 vidm1.lg.local
VMware Identity Manager Appliance 1 vidm2.lg.local
VMware Identity Manager Appliance 1 vidm3.lg.local
VMware Aria Suite Lifecycle Appliance vrclm.lg.local
VMware Aria Automation Appliance Load Balanced VIP
vralb.lg.local Traffic: 443
443, 8008
443, 8008
VMware Aria Automation Appliance 1 vra1.lg.local
VMware Aria Automation Appliance 1 vra2.lg.loca
VMware Aria Automation Appliance 1 vra3.lg.local
22
443