



# Neurons for Service Mapping- Discovery Application Requirements

**Discovery App sizing, system and access requirements**

**Ver. 3.1.1**

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# Introduction

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## **About This Document**

This document provides much of the information needed to properly scope and size the discovery portion of Ivanti Neurons for Service Mapping. It also provides a check list of the system requirements to run the Discovery Application (“DA”) on customer-hosted servers, the firewall rules to allow communication between the DA and cloud instance, and the credentials needed to accurately identify infrastructure assets, gather configurations, and detect application dependencies and inter-relationships. It is not a how-to-guide for implementing, configuring, or troubleshooting Ivanti Neurons for Service Mapping.

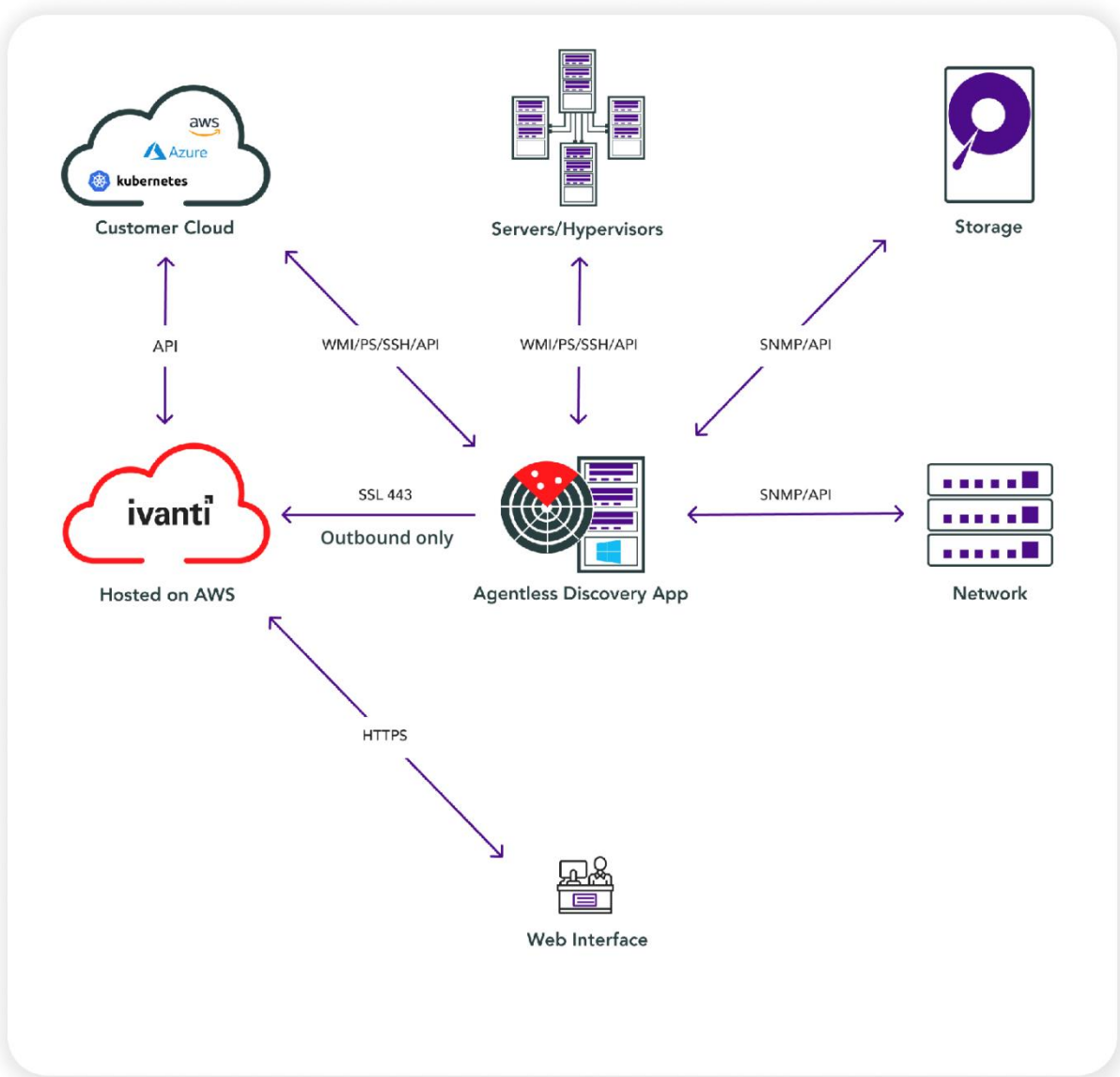
## **About Neurons for Service Mapping**

Ivanti Neurons for Service Mapping provides Ivanti and Cherwell CMDB customers with automatic inventory and configuration cataloging of on-premise and cloud compute, network and storage assets. The discovery process also detects physical and logical dependencies between applications and their host systems. From there, enterprise services are easily mapped across all supporting infrastructure components and viewable from within the Ivanti CMDB. Neurons for Service Mapping offers the ease of SaaS deployment and accessibility combined with the security and performance of on-premise discovery. Leveraging over 140 (and growing) agentless and extendable probes.

# Discovery Architecture Overview

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The following graphic provides a visual representation of the methods Neurons for Service Mapping employs to perform agentless asset, configuration, software and relationship/dependency discovery.



## Discovery App Sizing Considerations

The number and locations of DA's depend on several factors. These include size of network to scan, number of discoverable assets, time required to complete all scans, and number of logically or physically separated networks. Here are some questions to consider:

- How many data centers or cloud environments to be scanned?
- What is the connectivity/bandwidth between each data center?
- Would any firewall rules/router settings prevent scanning between data centers? (see authentication requirements for necessary ports)

- How many IP subnets per DC/cloud environment?
- How many devices/virtual servers in total?
- Roughly how many devices/virtual servers per subnet?
- What is the desired scan frequency (i.e. daily, weekly, alternating)? Any exceptions or special considerations?

## Discovery App Scan Capabilities

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Each Discovery App is capable of scanning 4 subnets simultaneously. Scan times for each subnet, assuming the max of 256 devices per subnet, takes 20-40 minutes to complete. This means 4 subnets can be simultaneously scanned in an average time of 30 minutes. Figure 1 shows the estimated scan times for various subnet and IP totals.

**Figure 1: Estimated Scan Times**

Number of Subnets	Number of IPs	Number of Discovery Apps	Hours to complete scan (assumes 4 simultaneous subnets )
4	1,024	1	.5
25	6,400	1	3
100	25,600	1	13
200	52,200	2	13
400	102,400	4	13

As you can see, a single DA can easily scan over 20,000 IPs in a single day. If daily scans for each IP are not required, subnet scans can be configured to run on alternating days so even more IP's can be scanned from a single DA each week. If, however, the desired scan frequency is greater than once a week per IP, and the subnet count is higher than 100, more than one DA may be required.

## Discovery App Server Requirements

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The Discovery App must be installed on a Windows server regardless of the types of devices or operating systems to be discovered. The Discovery App will be downloaded from a link inside the solution that points to an AWS S3 bucket. Please be sure to have Chrome browser installed and download ability from an AWS S3 bucket on the Discovery App server or be able to download and copy the installer to the Discovery App server. Figure 2 shows the recommend requirements for the DA server.

**Figure 2: Discovery App System Requirements**

Operating System	Server Type	CPU	RAM	HD	Browser
Windows Server 2012 or newer	Dedicate Physical or Virtual	High performance (12-16 cores)	16 GB	50 GB	Chrome

## Firewall Rules

Discovery is performed when the Discovery App launches selective probes to the target systems. These scans are configured via the cloud-based UI which in turn commands the DA to launch the probes. The data collected by the probes is then returned to the DA which is then securely transmitted to the Ivanti cloud for processing and staging for synch into the Ivanti or Cherwell CMDB. Figure 3 shows the necessary communication that must be allowed between the DA's located in the customer's on-premise and/or cloud environments and the Ivanti cloud.

**Figure 3: Firewall Rule Requirements**

Discovery App communication to INSM cloud	
U.S. Hosting	U.K. Hosting
Ports 443 to the following URLs: <ul style="list-style-type: none"> <li>https://discoveryselector-usw2.ivanticloud.com</li> <li>https://discoveryserver1-usw2.ivanticloud.com</li> <li>https://servicemapping-usw2.ivanticloud.com</li> </ul>	Ports 443 to the following URLs: <ul style="list-style-type: none"> <li>https://discoveryselector-euw2.ivanticloud.com</li> <li>https://discoveryserver1-euw2.ivanticloud.com</li> <li>https://servicemapping-euw2.ivanticloud.com</li> </ul>
Note: Proxy server is not supported for outbound communication from Discovery App to INSM cloud	
Discovery App to target devices	
ICMP Ping to perform host up/down check (refer to Figure 4 for additional port requirements)	

# Authentication Requirements

As part of the Discovery App installation, customers enter the appropriate credentials for the types of systems they wish to scan. These credentials are stored and encrypted locally withing the DA and never go to the Ivanti cloud. An example of how this works on a Windows server is the DA will try and copy a few files to the admin\$ share on the server, and then try and launch a local service on that Windows box with the credentials provided, it will then scan the system with all the probe details, and then stop and remove the service, and clean up all the files from that server. This means the account being used must have remote file access to the admin\$ share, must have admin rights on the box being scanned, and must have logon as a service rights on the local Windows box. Figure 4 lists the most common types of credentials and communication methods required for the probes to successfully scan each asset type.

**Figure 4: Discovery App Credential Requirements**

Asset Type	Location Store	Method	Port/Protocol	Credentials
Windows Server	Discovery App	WMI w/ PAExec OR PowerShell	TCP: 135, 139 (WMI) and 445 (File and Print sharing) UDP: 137,138	Admin Username/Password Note: Requires Logon Service Rights with Elevated privileges (EP required for IP connections and mapping)
Unix, Linux, Mac, Solaris	Discovery App	SSH	22 (SSH)	SSH username/password or private keys
Network/Storage Devices	Discovery App	SNMPv2	161 (SNMP)	Community String (v1, v2) or User ID/password (v3)
Network/Storage Devices	Discovery App	SNMPv3	161 (SNMP)	Username, Security Level, Authentication Protocol, Authentication Password, Privacy Protocol, Privacy Password
Cisco	Discovery App	CDP (preferred over SNMP)	22 (SSH)	SSH User ID/Password
AWS import	Cloud	API	443/80	Account ID, Access key, Secret key, IAM policy
Azure import	Cloud	API	443/80	Account ID, Client ID, Tenant ID, Secret key, Role setup
VMWare vCenter	Discovery App	API	443/80	Username/Password
VMWare Esxi	Discovery App	API		Username/Password
Windows Active Directory	Discovery App	WMI/API	135, 88	Username/Password, Base DN, Domain Name, Domain Controller IP address
MS SQL Database	Discovery App	API		Username/Password
IIS Websites	Discovery App	WMI		Webserver Credentials, Requires IIS Management Tools installed with IIS Management Scripts and Tools selected

# AWS IAM Policy

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To allow the importing of AWS objects into the CMDB the following must be done within the AWS account. Note: EC2 operating system discovery is performed via the Discovery App per the Windows/Linux/Unix methods listed in the Credential Requirements Table above.

```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Sid": "VisualEditor0",
      "Effect": "Allow",
      "Action": [
        "ecr:Describe*",
        "ec2:Describe*",
        "rds:Describe*",
        "elasticloadbalancing:Describe*",
        "autoscaling:Describe*",
        "iam:GetUser",
        "dynamodb:Describe*",
        "s3:ListAllMyBuckets"
      ],
      "Resource": "*"
    }
  ]
}
```

# Azure Role Setup

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To allow the importing of Azure objects into the CMDB the following Azure Role Setup must be performed. Note: Azure Virtual Machine operating system discovery is performed via the Discovery App per the Windows/Linux/Unix methods listed in the Credential Requirements Table above.

1. Go to [https://portal.azure.com/#blade/Microsoft\\_AAD\\_RegisteredApps/ApplicationsListBlade](https://portal.azure.com/#blade/Microsoft_AAD_RegisteredApps/ApplicationsListBlade) and create a new App Registration and note down the below details from Overview
  - a. **Client ID** (Required in Virima to add Azure Credentials)
  - b. **Tenant ID** (Required in Virima to add Azure Credentials)
  - c. **Secret Key-Value** (Needs to be created from Certificates & Secrets ) (Required in Virima to add Azure Credentials)
2. Go to [https://portal.azure.com/#blade/Microsoft\\_Azure\\_Billing/SubscriptionsBlade](https://portal.azure.com/#blade/Microsoft_Azure_Billing/SubscriptionsBlade)
  - a. Note down the **Subscription ID** (Required in Virima to add Azure Credentials)
  - b. Go inside subscription details and click on **Access Control (IAM)**
  - c. Click **Add** and then select **Add Role Assignment**
  - d. Select **Reader** Role and click next



- c. Click on '**Select Members**' and search for the newly added App Registration and select it and click Select.
- e. Review and Assign the role.

## User Role Types for Credentials

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User Role Types	Host Scans	Pattern Scans	IP Connections	Process Scans
Standard user (No administrator access)	No	No	No	No
Local Administrator user with no elevated privileges	Yes	Yes	No	Yes
Local Administrator user with elevated privileges	Yes	Yes	Yes	Yes
System Administrator user	Yes	Yes	Yes	Yes
System Domain Administrator user (Only applicable to domain machines)	Yes	Yes	Yes	Yes

### Notes:

1. Enabled Domain File sharing profile is a mandatory requirement.
2. Ivanti Neurons for Service Mapping requires admin share folder access to perform even a basic scan. This access is default with elevated privileges. Users without elevated privileges can be manually given admin share privileges by adding an entry into the registry.
3. The Discovery App need not be running on a domain machine, but if it is, the service logon credentials are required to scan that domain machine.
4. The above applies to both Windows domain and workgroup machines.
5. Credentials are stored locally within the on premise Discovery App and never shared with Ivanti Neurons for Service Mapping web services. They are encrypted and not viewable to anyone.

## Additional Considerations

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This document is intended to help ensure the proper scoping and sizing of Ivanti Neurons for Service Mapping as well as prepare Ivanti Professional Services and customers for initial deployment. The information provided covers the majority of customer environments and will help identify any possible

exceptions that should be addressed early in the sales or professional services engagement.

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