# Tenable and Microsoft Azure Integration Guide

Last Revised: April 09, 2025

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# Welcome to Tenable for Microsoft Azure

Tenable for Microsoft Azure offers security visibility, auditing, and system hardening that allows you to reduce the attack surface and detect malware across your Microsoft Azure deployments.

Additional benefits of integrating Tenable with Microsoft Azure include:

- Improved ROI due to the removal of manual verification for misconfigurations on cloud virtual machines
- Reduced security exposure through the prioritization of vulnerable machines and compromised systems

For information about integrating different Tenable products in a Microsoft Azure cloud environment, see the following:

- Audit Microsoft Azure
- Tenable Core Nessus (BYOL)
- Tenable Core WAS (BYOL)
- Nessus Agent Scans of Microsoft Azure Cloud Instances

**Note:** For information on configuring Microsoft Azure Connectors with Tenable Vulnerability Management, see the Microsoft Azure Connector documentation in the *Tenable Vulnerability Management User Guide*.

# Install Microsoft Azure Sentinel

The Tenable integration for Microsoft Azure Sentinel combines Tenable's Cyber Exposure insights with Sentinel's collection, detection, and investigation capabilities. This integration supports Tenable Vulnerability Management and exports asset and vulnerability data from Tenable Vulnerability Management directly to Microsoft Sentinel.

Microsoft Azure Sentinel is a scalable, cloud-native, security information event management (SIEM), and security orchestration automated response (SOAR) solution. For more information about Microsoft Sentinel, see the Microsoft documentation.

**Required User Role:** Basic User

**Note:** The Tenable integration with Microsoft Azure Sentinel works with a **Basic User** if that user is assigned **Can View** permissions on the assets they are to export, along with **Can Use** permissions on tags the assets are assigned. Without the **Can Use** tag permissions, the assets return undefined or the integration fails to export vulnerabilities if a tag filter is used. For more information on Tenable Vulnerability Management permissions and user roles, refer to Permissions in the *Tenable Developer Portal*.

Before you begin:

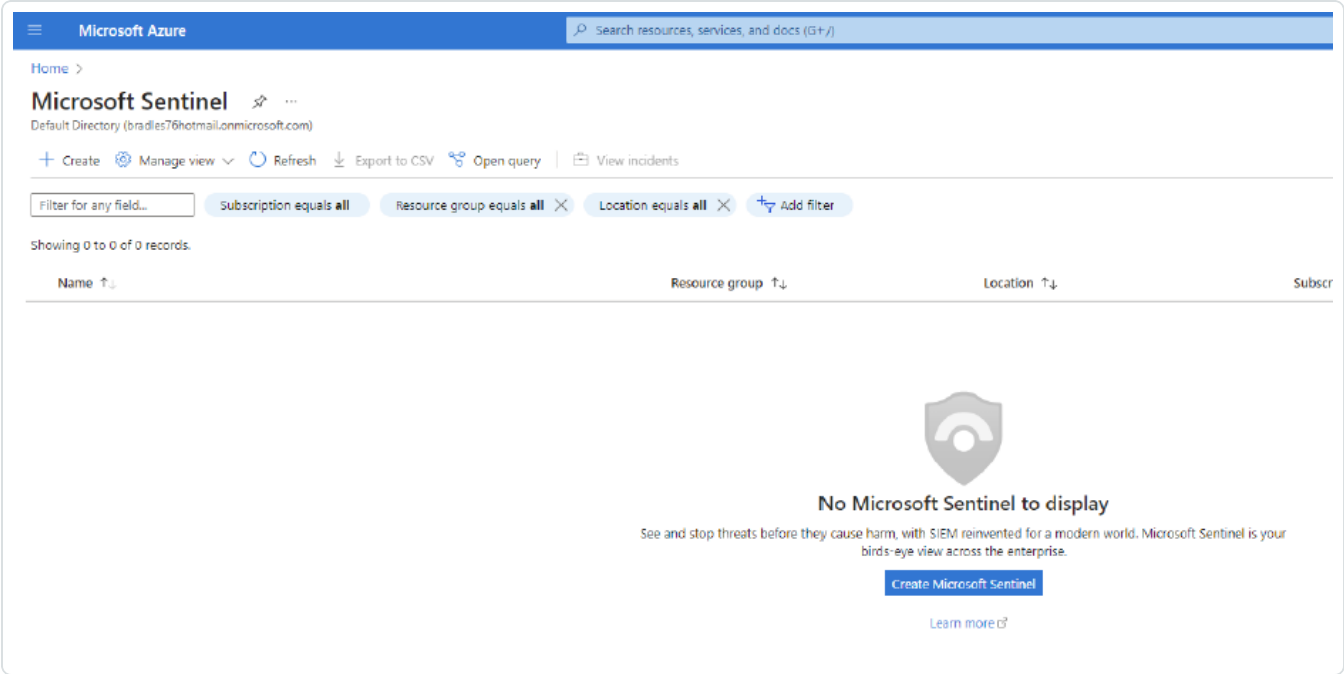
- You must have a Logs Analytics Workspace with Microsoft Sentinel enabled in your Azure subscription.
- For assistance with launching Microsoft Sentinel, see the Microsoft Sentinel quick start guide.

**Note:** The Microsoft Azure Sentinel integration does not export fixed vulnerabilities.

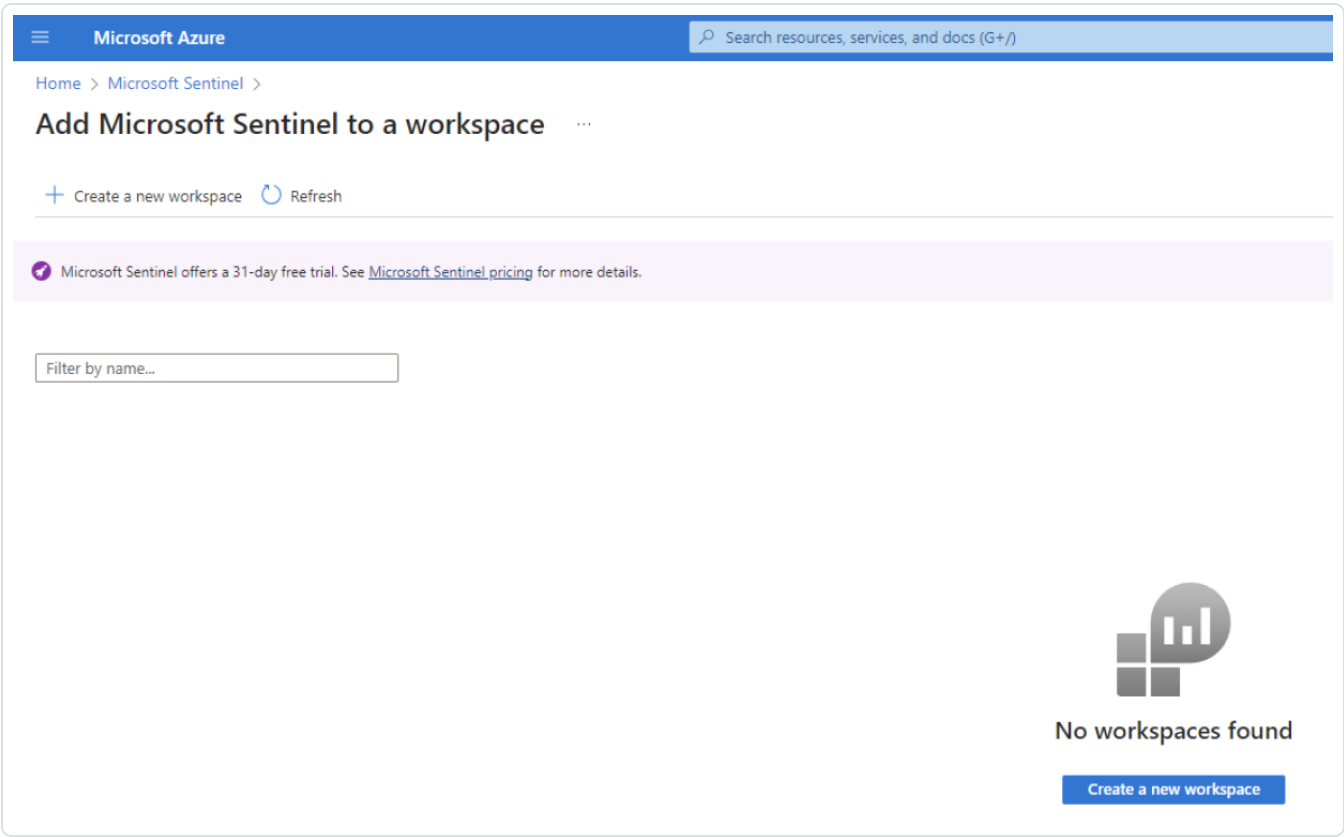
### Create the Log Analytics Workspace

1. Navigate to Microsoft Sentinel within the Microsoft Azure Portal and click **Create Microsoft Sentinel**.

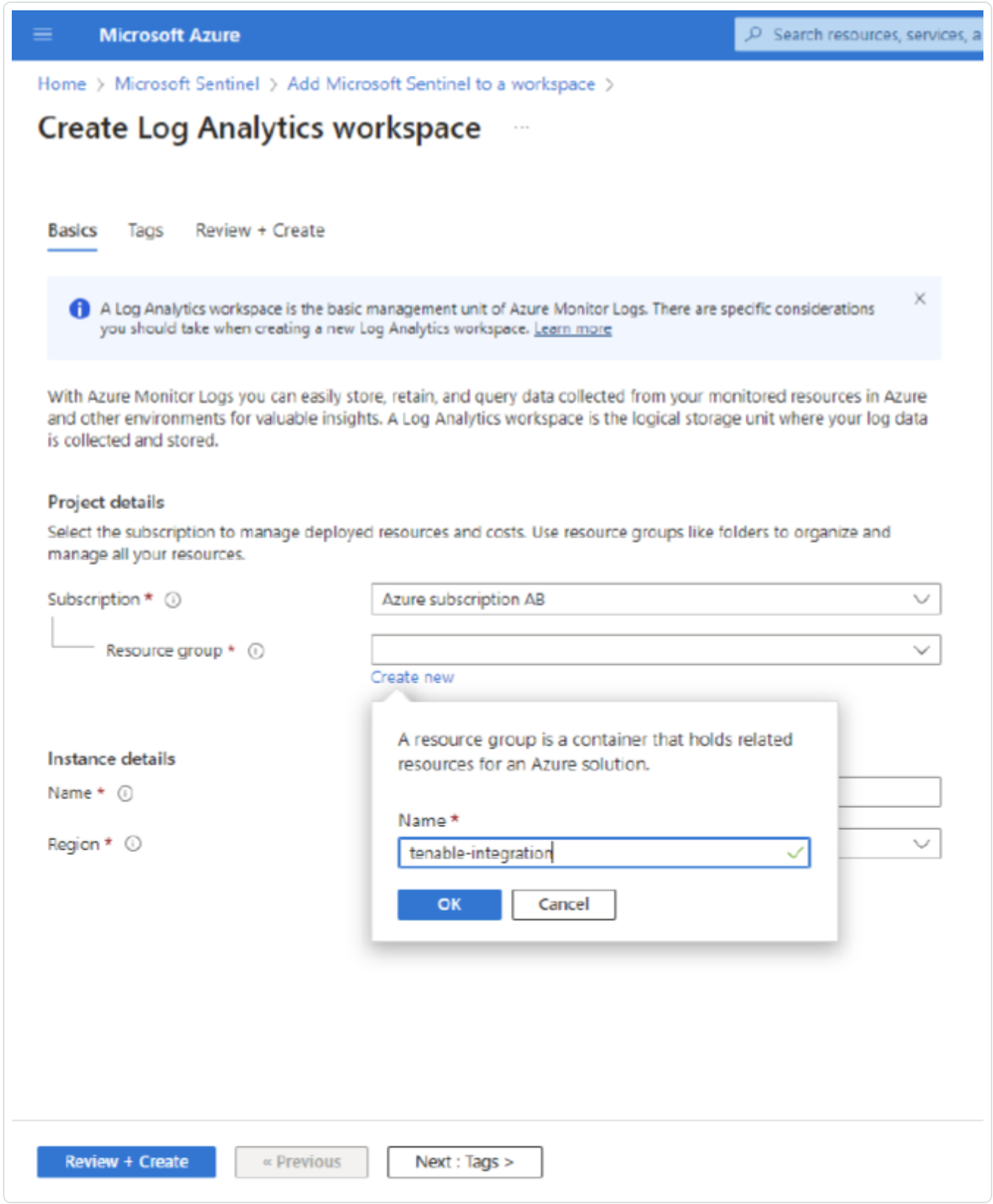
   The workspace homepage appears:




2. Add a workspace for Microsoft Sentinel. Click **Create a new workspace**.



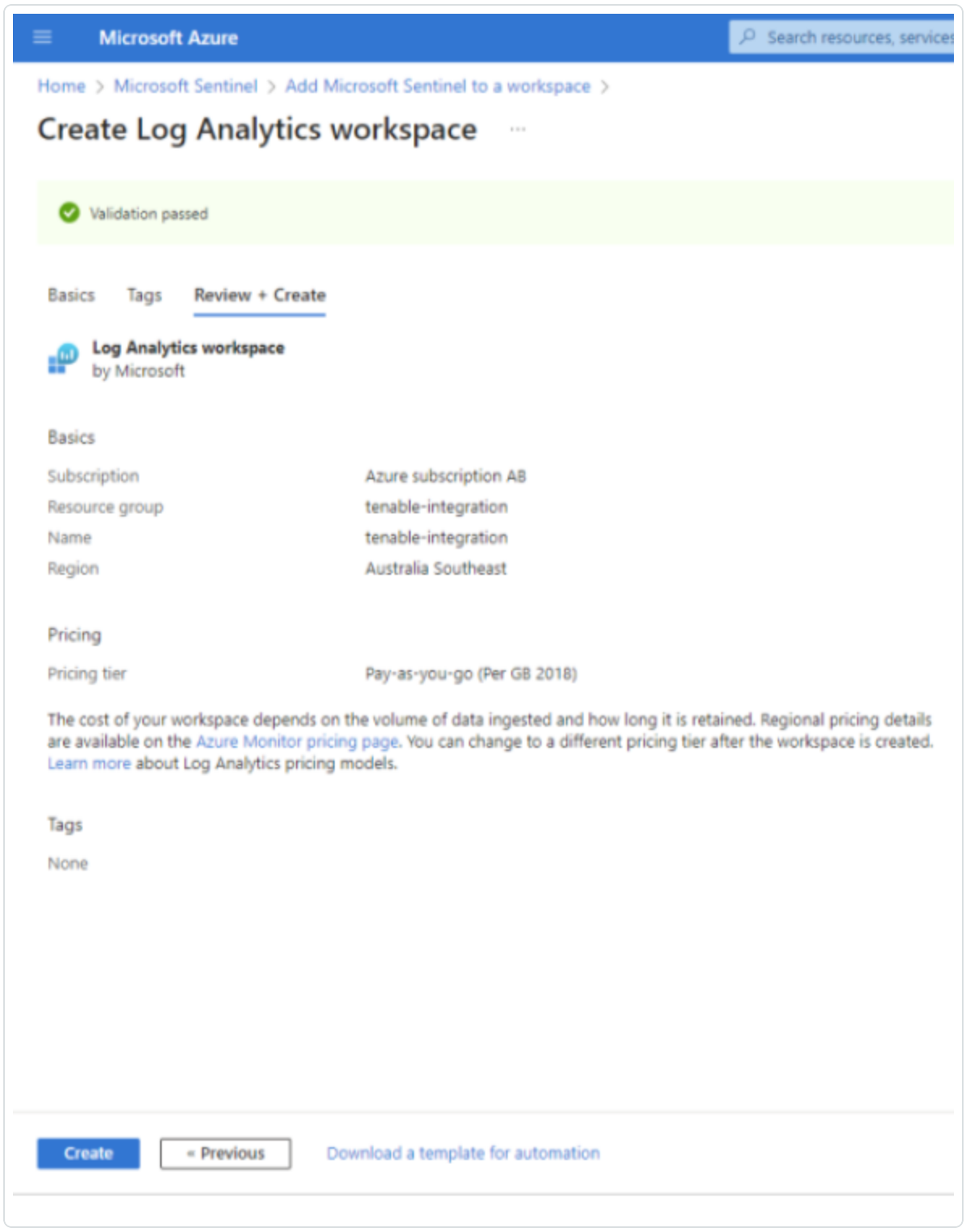
3. To create the Log Analytics workspace, you must first create a new Resource Group. Click **Create new** under Resource Group Connector.


Microsoft Azure
Search resources, services, a
Home > Microsoft Sentinel > Add Microsoft Sentinel to a workspace >
Create Log Analytics workspace
Basics
Tags
Review + Create
A Log Analytics workspace is the basic management unit of Azure Monitor Logs. There are specific considerations you should take when creating a new Log Analytics workspace. Learn more
With Azure Monitor Logs you can easily store, retain, and query data collected from your monitored resources in Azure and other environments for valuable insights. A Log Analytics workspace is the logical storage unit where your log data is collected and stored.
Project details
Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.
Subscription *
Azure subscription AB
Resource group *
Create new
A resource group is a container that holds related resources for an Azure solution.
Name *
tenable-integration
OK
Cancel
Instance details
Name *
Region *
Review + Create
« Previous
Next : Tags >

4. Input a **Name** for the instance detail and select the appropriate Azure **Region** from the drop-down menu.

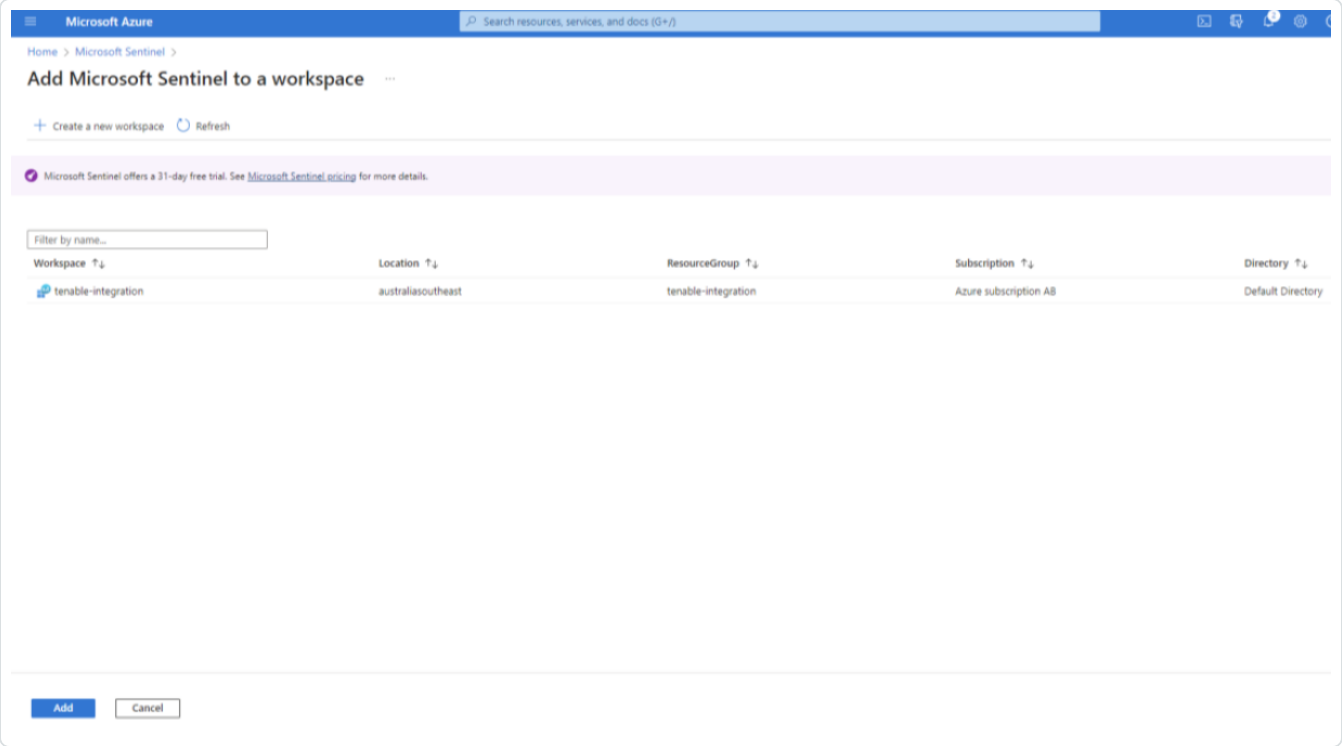
   Click **Review + Create**.

   The settings are finalized and the page updates:




5. Click **Create**.

   The workspace homepage appears with your new Microsoft Sentinel workspace:

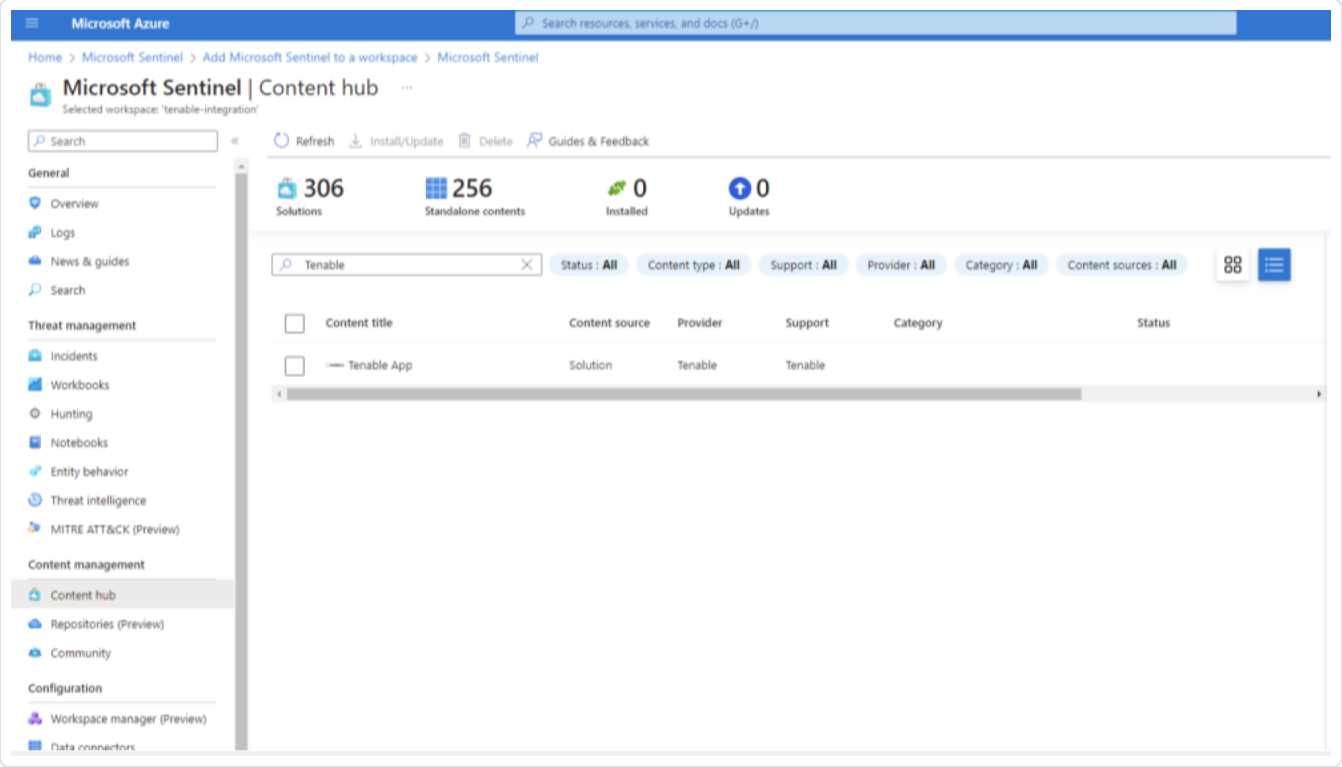



The Log Analytics Workplace for Microsoft Sentinel has been created.

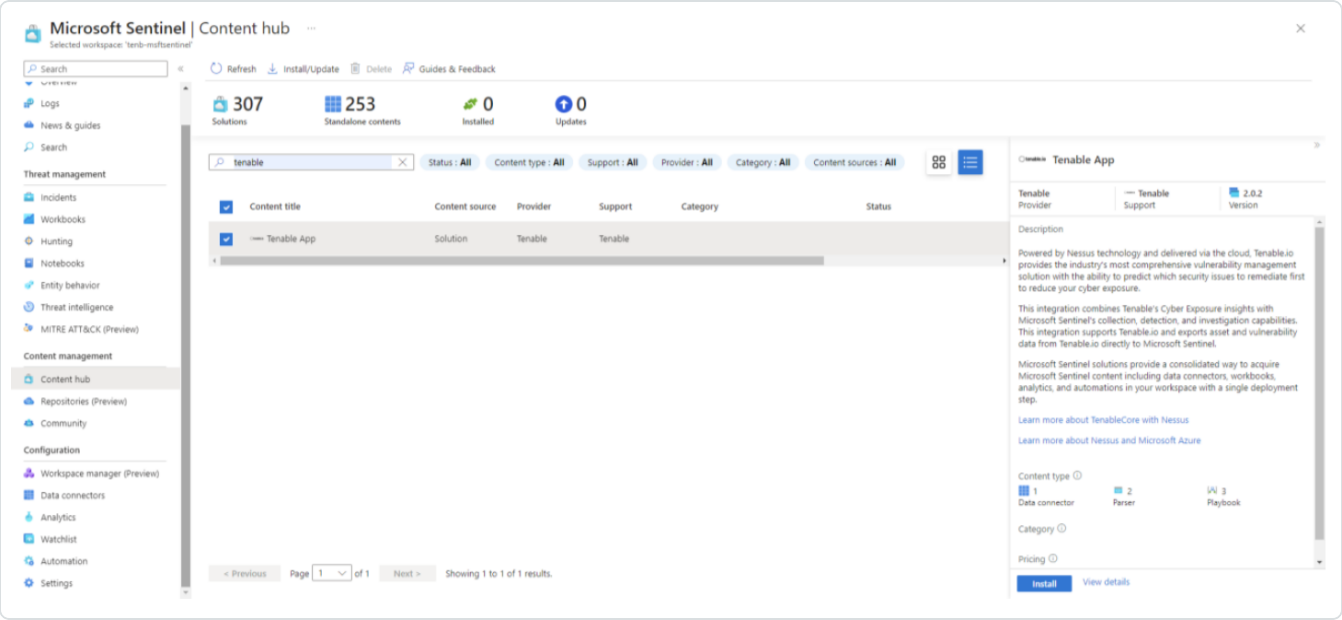
**Note:** Navigate to **Log Analytics workspace > Network Isolation** and ensure that the two **Virtual network access configuration settings** (required to accept data ingestion and queries from public networks not connected through a Private Link Scope) are set to **Yes**.

## Add the Tenable App to Microsoft Sentinel

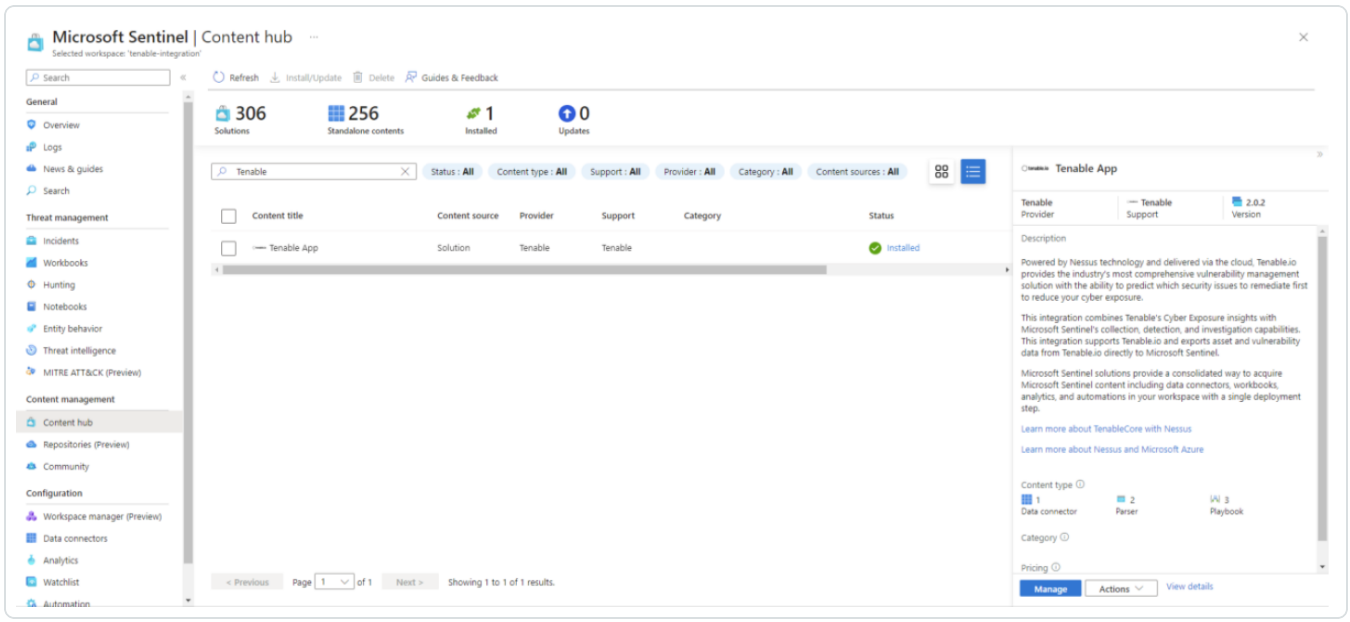
1. Go to the Content Hub and perform a search for "Tenable."




2. Select **Tenable App**. In the bottom-right corner click **Install**.




3. Once installed, in the bottom-right corner, click **Manage**.




What to do next (do one of the following):

- Configure the Tenable Vulnerability Management data collector app.
- Configure the Tenable Identity Exposure syslog collector app.

## Configure the Tenable Vulnerability Management Data Collector App

You can configure the Microsoft Azure Sentinel data collector to allow you to bring in Tenable Vulnerability Management assets and vulnerabilities into Sentinel for better risk management. This integration uses the Microsoft Azure Sentinel data collector framework and Azure functions to collect and insert data into Sentinel.

Microsoft Azure Sentinel is a scalable, cloud-native, security information event management (SIEM), and security orchestration automated response (SOAR) solution. For more information about Microsoft Sentinel, see the Microsoft documentation.

**Required User Role:** Basic User

**Note:** The Tenable integration with Microsoft Azure Sentinel works with a **Basic User** if that user is assigned **Can View** permissions on the assets they are to export, along with **Can Use** permissions on tags the assets are assigned. Without the **Can Use** tag permissions, the assets return undefined or the integration fails to export vulnerabilities if a tag filter is used. For more information on Tenable Vulnerability Management permissions and user roles, refer to Permissions in the *Tenable Developer Portal*.

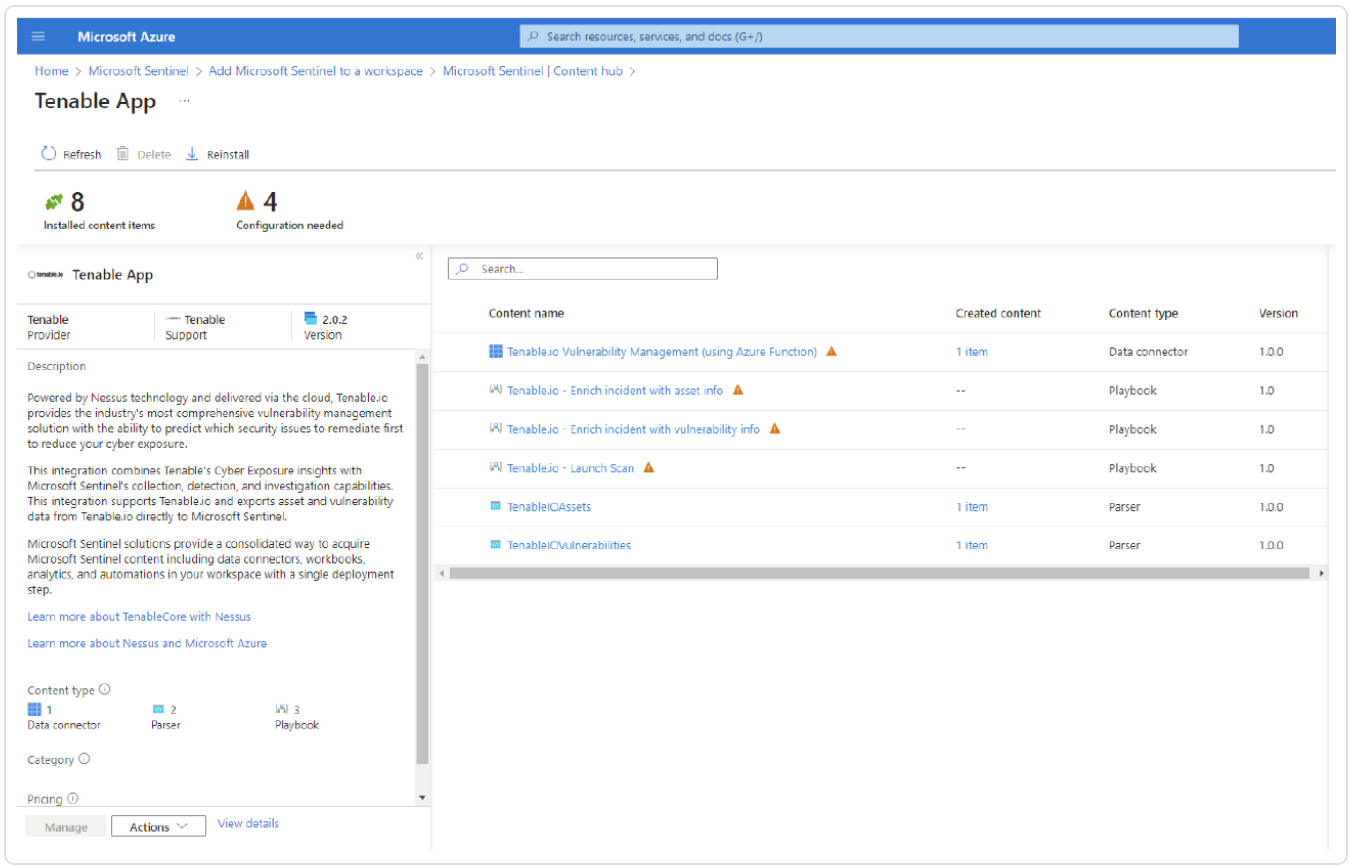
Before you begin:

- Install Microsoft Azure Sentinel.
- You must have a Logs Analytics Workspace with Microsoft Sentinel enabled in your Azure subscription.
- For assistance with launching Microsoft Sentinel, see the Microsoft Sentinel quick start guide.

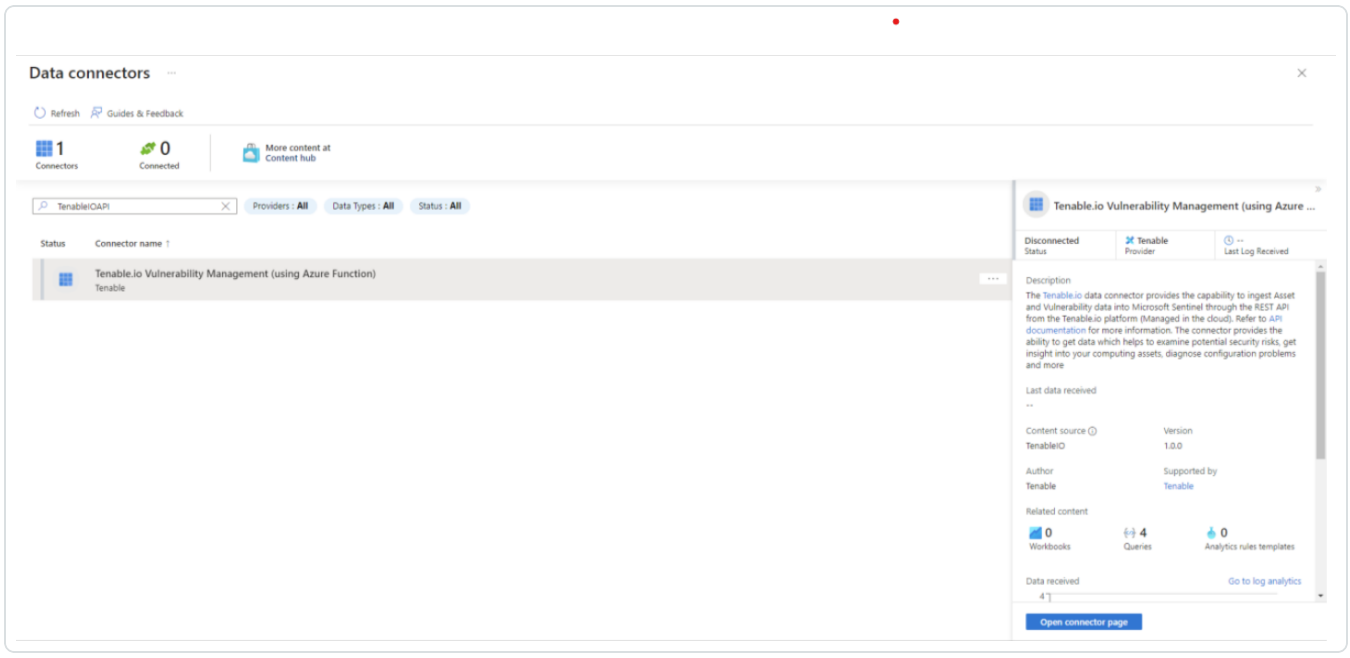
**Note:** The Microsoft Azure Sentinel integration does not export fixed vulnerabilities.

## Deploy the data connector

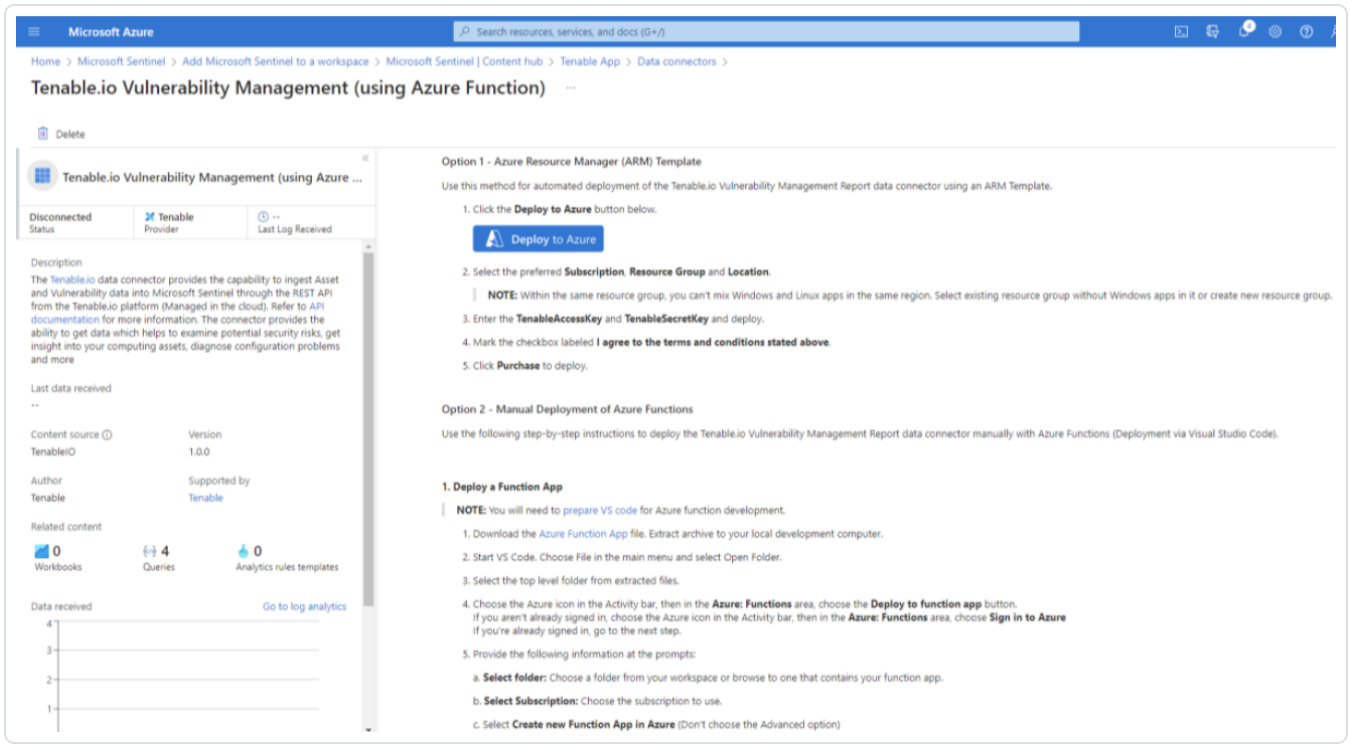
1. In your newly created Tenable App, click **Tenable.io Vulnerability Management (using Azure Function)** in the content list.




2. Select the name of the connector and in the bottom-right corner, click **Open connector page**.



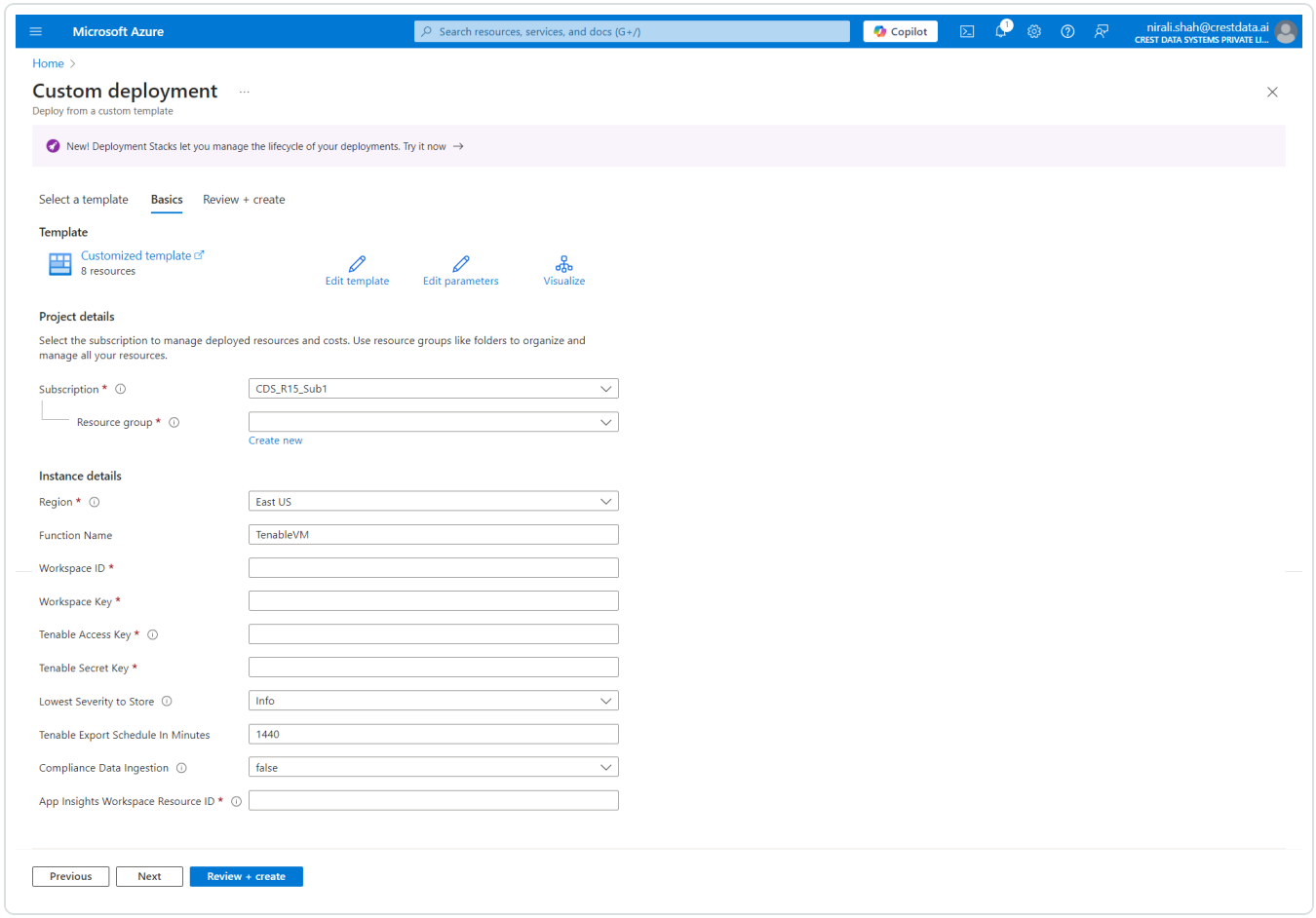

3. Deploy the ARM template by clicking **Deploy to Azure**.



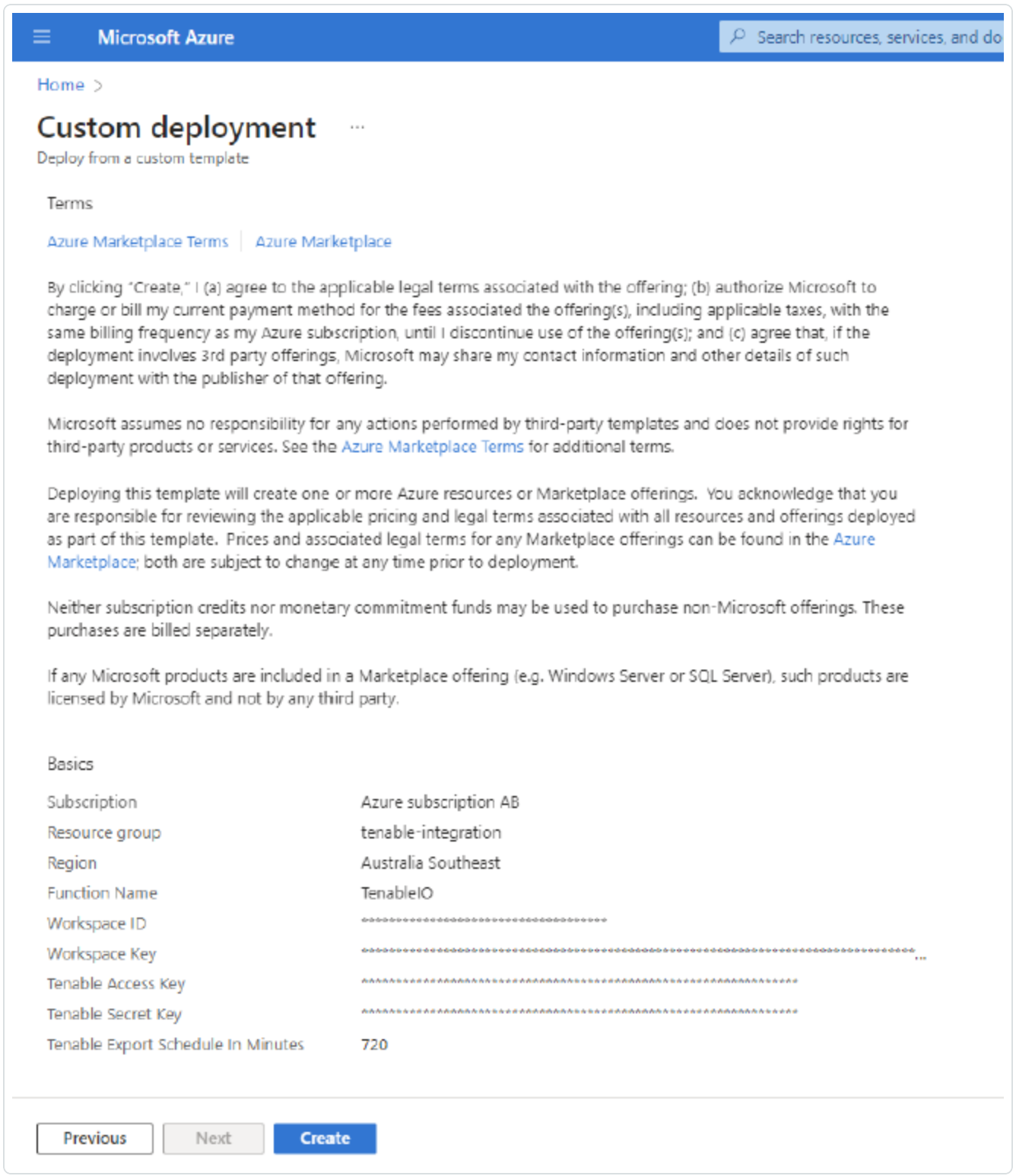

4. Select the **Resource Group** and populate the remaining four fields.

**Note:** The Tenable export schedule is set for every 24 hours (1440 minutes) by default. This can be adjusted to suit the requirements needed to gather asset and vulnerability data in a timely manner.

5. Once all fields have been populated, click **Review + create**.

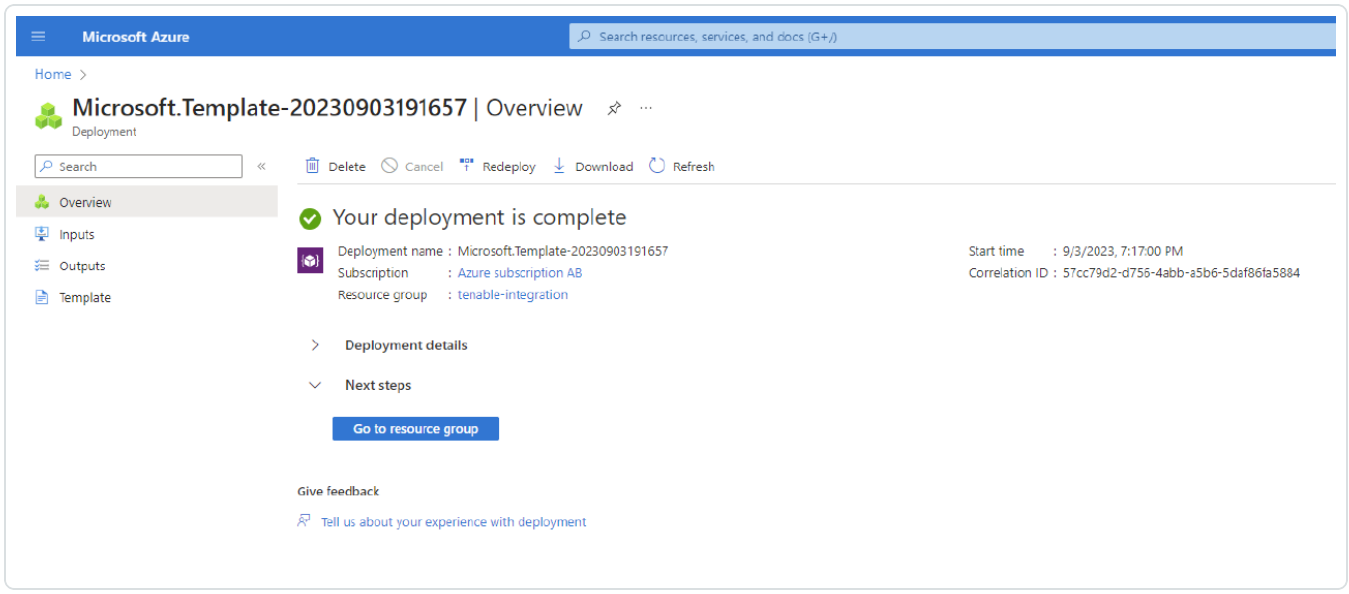



6. The fields are finalized. Click **Create**.



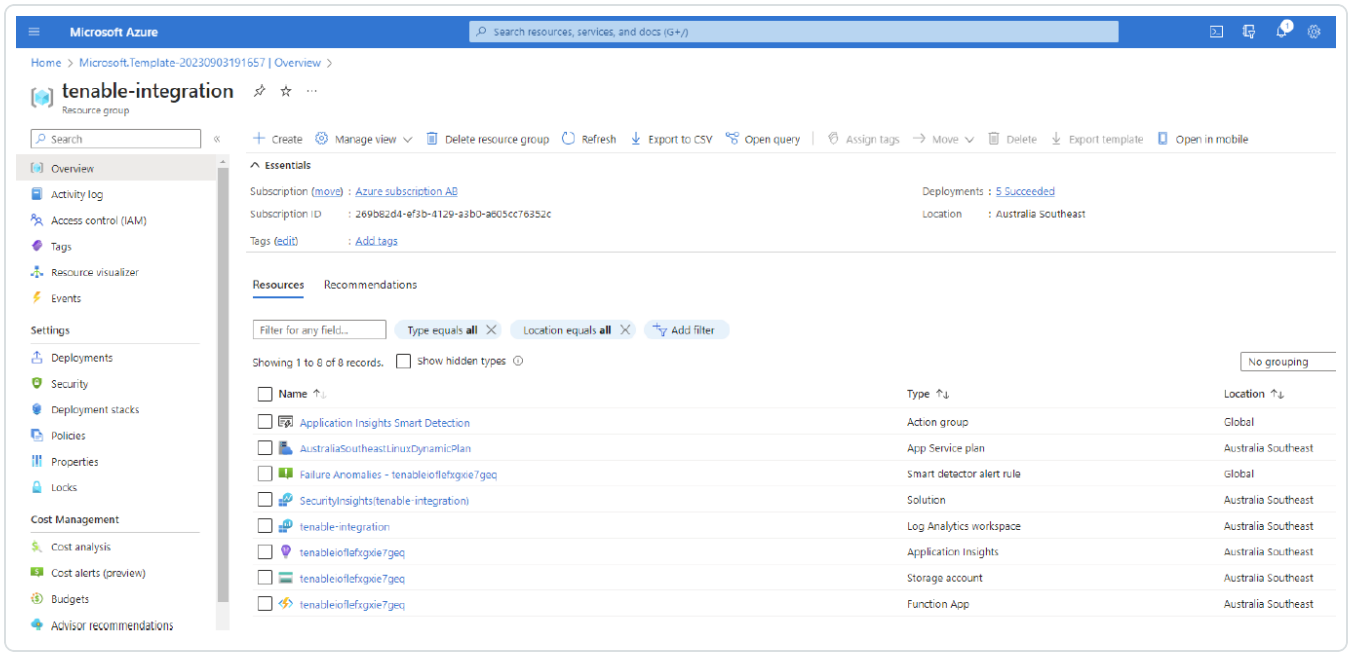

## Check for the resources

1. Once the deployment has been completed, click **Go to Resource Group** to see the resources that have been created.

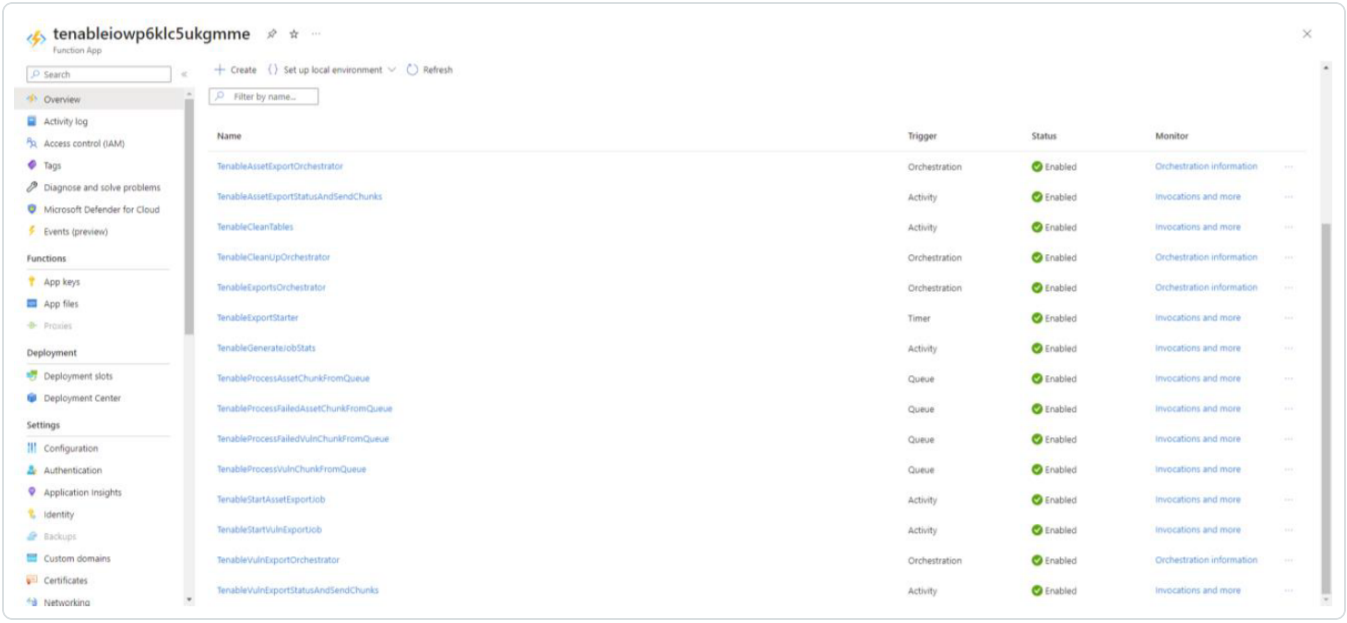



2. The app populates the following resources:

> **Note:** The app may take up to ten minutes to populate the resources.




3. In the **Function App**, verify that you can see the listed functions:




## Configure the Tenable Identity Exposure Syslog Collector App

The TIE syslog collector allows you to send TIE syslog messages to Microsoft Azure Sentinel for centralized alerting and reporting.

Microsoft Azure Sentinel is a scalable, cloud-native, security information event management (SIEM), and security orchestration automated response (SOAR) solution. For more information about Microsoft Sentinel, see the Microsoft documentation.

**Note:** This data connector depends on afad_parser based on a Kusto function to work as expected. This is deployed with the Microsoft Sentinel solution.

**Required User Role:** Basic User

**Note:** The Tenable integration with Microsoft Azure Sentinel works with a **Basic User** if that user is assigned **Can View** permissions on the assets they are to export, along with **Can Use** permissions on tags the assets are assigned. Without the **Can Use** tag permissions, the assets return undefined or the integration fails to export vulnerabilities if a tag filter is used. For more information on Tenable Vulnerability Management permissions and user roles, refer to Permissions in the *Tenable Developer Portal*.

Before you begin:

**Note**: Tenable Identity Exposure currently **does not support** the Azure Monitor Agent (AMA).

- Install Microsoft Azure Sentinel.
- You must have a Logs Analytics Workspace with Microsoft Sentinel enabled in your Azure subscription.
- For assistance with launching Microsoft Sentinel, see the Microsoft Sentinel quick start guide.

### Configure the Syslog server

**Note:** You need a Linux Syslog server that TenableIE can send logs to. Typically, you can run `rsyslog` on Ubuntu. You can then configure this server as you wish, but Tenable recommends that you ensure that you are able to output TenableIE logs in a separate file.

Configure `rsyslog` to accept logs from your Tenable IE IP address by running the following commands:

1. Set `TenableIE` source IP address:

```shell
sudo -i

# Set TenableIE source IP address
export TENABLE_IE_IP={Enter your IP address}
```

2. Create `rsyslog` configuration file:

```
# Create rsyslog configuration file
cat > /etc/rsyslog.d/80-tenable.conf << EOF
\$ModLoad imudp
\$UDPServerRun 514
\$ModLoad imtcp\n\\$InputTCPServerRun 514
\$AllowedSender TCP, 127.0.0.1, $TENABLE_IE_IP
\$AllowedSender UDP, 127.0.0.1, $TENABLE_IE_IP
\$template MsgTemplate,\"%TIMESTAMP:::date-rfc3339% %HOSTNAME%
%programname%[%procid%]:%msg%\
\"
\$template remote-incoming-logs, \"/var/log/%PROGRAMNAME%.log\"
```

```
*.* ?remote-incoming-logs;MsgTemplate
EOF
```

3. Restart `rsyslog`:

```
# Restart rsyslog\nsystemctl restart rsyslog
```
```



```shell
sudo -i
```

4. Set `Tenable IE` source IP:

```
# Set Tenable IE source IP address\nexport TENABLE_IE_IP={Enter your IP
address}
```

5. Create the `rsyslog` configuration:

```
# Create rsyslog configuration file\ncat > /etc/rsyslog.d/80-
tenable.conf << EOF
$ModLoad imudp
$UDPServerRun 514
$ModLoad imtcp
$AllowedSender TCP, 127.0.0.1, $TENABLE_IE_IP
$AllowedSender UDP, 127.0.0.1, $TENABLE_IE_IP
$template MsgTemplate,\"%TIMESTAMP:::date-rfc3339% %HOSTNAME%
%programname%[%procid%]:%msg%\
"\$template remote-incoming-logs, \"/var/log/%PROGRAMNAME%.log\"
*.* ?remote-incoming-logs;MsgTemplate
EOF
```

6. Restart `rsyslog`:
```

```
# Restart rsyslog
systemctl restart rsyslog
```

### Install and onboard the Microsoft agent for Linux

**Note:** The OMS agent receives the TenableIE syslog events and publish them in Microsoft Sentinel instructions.

1. Choose where to install the agent:
    a. Install agent on Azure Linux Virtual Machine
        i. Select the machine to install the agent on and then click **Connect**.
        ii. Find this URL: `InstallAgentOnLinuxVirtualMachine`
    b. Install agent on a non-Azure Linux Machine
        i. Download the agent on the relevant machine and follow the instructions
        ii. Find this URL: `InstallAgentOnLinuxNonAzure`

### Check agent logs on the Syslog server

```shell
tail -f /var/opt/microsoft/omsagent/log/omsagent.log
```

### Configure TenableIE to send logs to your Syslog server

1. In your **TenableIE** portal, go to **System** > **Configuration** > **Syslog**.
2. Create a new Syslog alert toward your Syslog server.
3. Check that the logs are correctly gathered on your server in a separate file (you can use the **Test the configuration** button in the Syslog alert configuration in TenableIE).

> **Note:** If you used the **Quickstart** template, the Syslog server listens by default on port 514 in UDP and 1514 in TCP, without TLS.

### Configure the agent to collect the custom logs

1. In Microsoft Sentinel, go to **Configuration** > **Settings** > **Workspace settings** > **Custom logs**.
2. Click **Add custom log**.
3. Upload a sample TenableIE.log Syslog file from the **Linux** machine running the **Syslog** server.
4. Click **Next**.
5. Set the record delimiter to **New Line** (if not already set).
6. Click **Next**.
7. Select **Linux** and enter the file path to the **Syslog** file and click the **+** icon.
8. Click **Next**.

   > **Note:** The default location of the file is `/var/log/TenableIE.log` if you have a Tenable version <3.1.0, you must also add this Linux file location `/var/log/AlsidForAD.log`.

9. Set the **Name** to **Tenable_IE_CL**.

   > **Note:** Azure automatically adds "_CL" at the end of the name. There must be only one addition, so make sure the name is not Tenable_IE_CL_CL.

10. Click **Next**.
11. Click **Create**.

# Audit Microsoft Azure

To audit Microsoft Azure, do the following:

- Configure Microsoft Azure for use with a compliance audit, as described in Configure Azure (Compliance Audit).
- Create an audit scan with Tenable Vulnerability Management or Tenable Nessus:
  - Audit Microsoft Azure in Tenable Vulnerability Management
  - Audit Microsoft Azure in Tenable Nessus

For more information on the Microsoft Azure audit, see Microsoft Azure Audit Compliance Reference in the *Compliance Checks Reference*.

## Configure Azure for a Compliance Audit

The Tenable integration for Microsoft Azure supports multiple methods for creating and registering the application: Key Authentication, Password Authentication, and Certificate Authentication. Choose either of the authentication methods, then complete the setup with the Assign API Permissions steps.

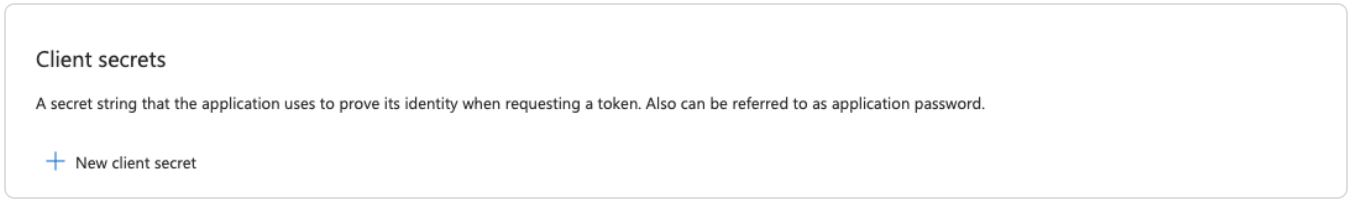
### Key Authentication Method

#### Register Application: Key

1. Click **Microsoft Entra ID > App Registrations**.
2. Click the **New Registrations** application.
3. Give the application a name.
4. Choose the supported account types for your environment.
5. Choose **Public Client/Native** for the redirect URI type.
6. (Optional) Add a redirect URI.
7. Click **Register**.

#### Create Application Client Secret

1. Click your registered application in **Microsoft Entra ID > App Registrations**.
2. Click **Certificates and Secrets**.
3. Click **+ New client secret**.




4. Give the secret a name and click **Add**.

> **Tip** Copy the secret somewhere safe for use in authenticating during a scan.

### Assign the Application to the Reader Role

1. Click **Subscriptions > Your Subscription > Access Control (IAM) > Role Assignments > + Add**.
2. Add the **Reader** role to the application you previously created for scanning.
3. Select **Reader** from the **Role** drop-down menu.
4. Assign access to **User**, **Group**, or **Service Principal**.
5. In the **Select** field, type the name of your created application.
6. Select the application.
7. Click **Save**.

## Password Authentication Method

### Create Microsoft Entra ID User Account

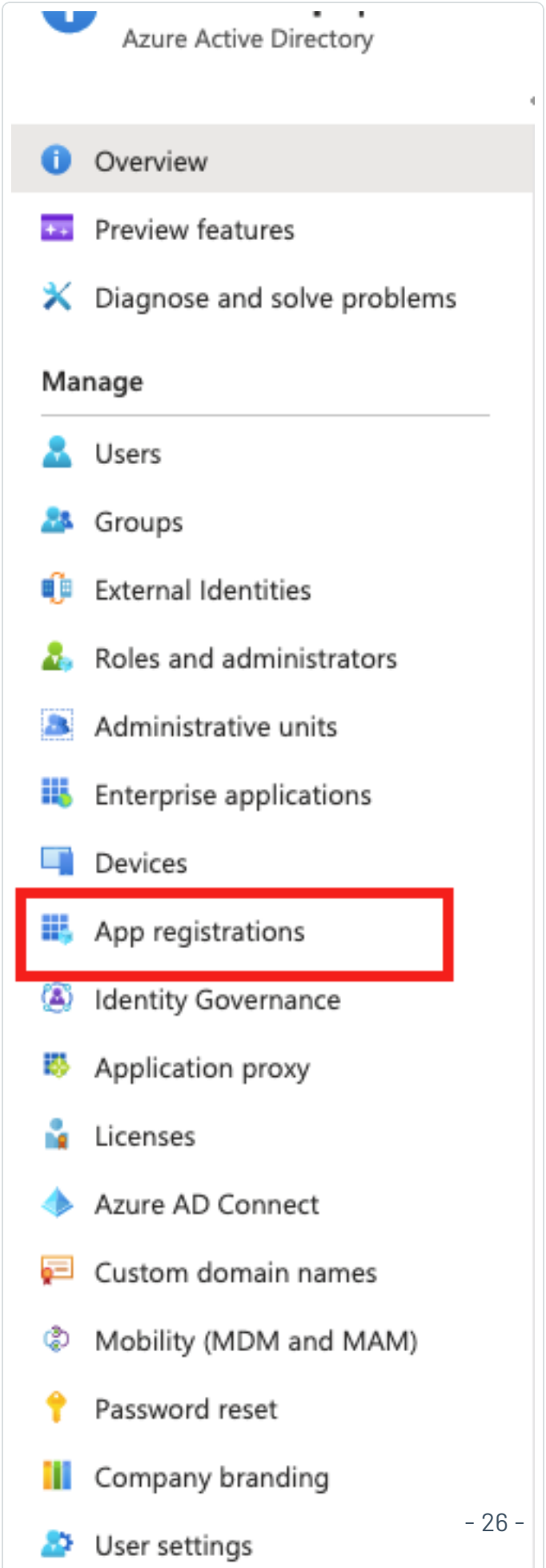
Create a new user to scan in the Microsoft Entra ID.  See the Microsoft Azure documentation for steps to add a new user.

### Assign User the Reader Role

1. Click **Subscriptions > Your Subscription > Access Control (IAM) > Role Assignments > + Add**.
2. Add the **Reader** role to the user account you created for scanning.

### Register Application: Password

1. Click on **Microsoft Entra ID > App registrations**.


Azure Active Directory
Overview
Preview features
Diagnose and solve problems
Manage
Users
Groups
External Identities
Roles and administrators
Administrative units
Enterprise applications
Devices
App registrations
Identity Governance
Application proxy
Licenses
Azure AD Connect
Custom domain names
Mobility (MDM and MAM)
Password reset
Company branding
User settings

2. Click **New Registrations application**.
3. Give the application a name.
4. Choose the supported account types for your environment.
5. Click **Register**.
6. Click **Authentication**.
7. Choose **Yes** for **Default Client Type/Treat application as a public client**.

### Certificate Authentication Method

#### Register Application: Certificate

1. Click **Microsoft Entra ID > App Registrations**.
2. Click the **New Registrations** application.
3. Give the application a name.
4. Choose the supported account types for your environment.
5. Choose **Public Client/Native** for the redirect URI type.
6. (Optional) Add a redirect URI.
7. Click **Register**.

#### Generate a Certificate

Execute the following PowerShell commands, replacing the appropriate values:

1. ```
   $certname = "{certificateName}"    ## Replace {certificateName}
   ```
2. ```
   $cert = New-SelfSignedCertificate -Subject "CN=$certname" -CertStoreLocation
   "Cert:\CurrentUser\My" -KeyExportPolicy Exportable -KeySpec Signature
   -KeyLength 2048 -KeyAlgorithm RSA -HashAlgorithm SHA256
   ```
3. ```
   Export-Certificate -Cert $cert -FilePath
   "C:\Users\admin\Desktop\$certname.cer"   ## Specify your preferred location
   ```
   ```

## Add Certificate

1. Click your registered application in **Microsoft Entra ID > App Registrations**.
2. Click **Certificates and Secrets**.
3. Click **Certificates**.
4. Click **Upload certificate**.
5. Select the certificate file you exported.
6. Give the certificate a description and click **Add**.

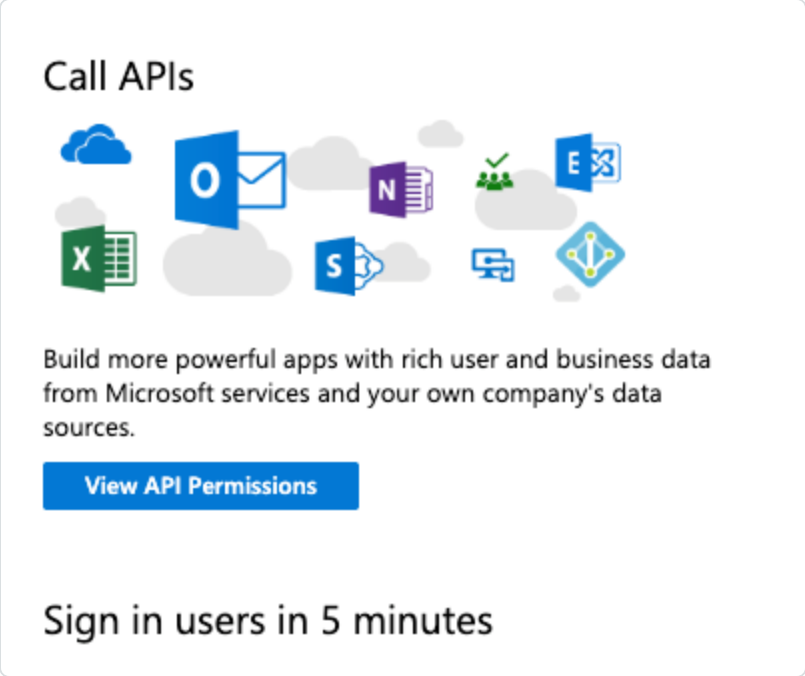
## Assign the Application to the Reader Role

1. Click **Subscriptions > Your Subscription > Access Control (IAM) > Role Assignments > + Add**.
2. Add the **Reader** role to the application you previously created for scanning.
3. Select **Reader** from the **Role** drop-down menu.
4. Assign access to **User**, **Group**, or **Service Principal**.
5. In the **Select** field, type the name of your created application..
6. Select the application.
7. Click **Save**.

## API Permissions

## Assign API Permissions

1. Click your registered application in **Microsoft Entra ID > App Registrations > Your Application > API Permissions**.




2. Select **Microsoft Graph**.

> **Note:** If adding permissions for Key Authentication, then select **Application permissions**. If adding permissions for Password Authentication, then select **Delegated permissions**.

3. In the **Configured permissions** section, click **Add a permission**.
4. Add the following permissions:

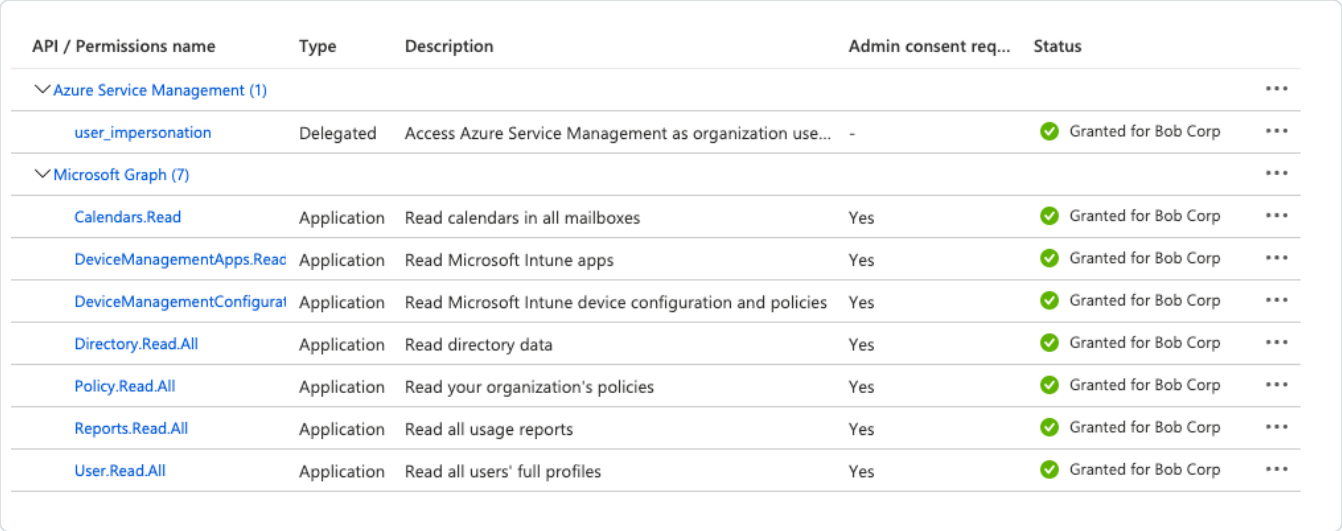
    - Azure Service Management — user_impersonation
    - Microsoft Graph — Calendars.Read
    - Microsoft Graph — DeviceManagementApps.Read.All
    - Microsoft Graph — DeviceManagementConfiguration.Read.All
    - Microsoft Graph — Directory.Read.All
    - Microsoft Graph — Policy.Read.All
    - Microsoft Graph — Reports.Read.All
    - Microsoft Graph — User.Read.All

Scanning Microsoft 365 environment:

- Microsoft Graph — SecurityEvents.Read.All

Scanning Microsoft Intune:

- Microsoft Graph — DeviceManagementApps.Read.All
- Microsoft Graph — DeviceManagementManagedDevices.Read.All



| API / Permissions name | Type | Description | Admin consent req... | Status |
|---|---|---|---|---|
| Azure Service Management (1) | | | | |
| user_impersonation | Delegated | Access Azure Service Management as organization use... | - | Granted for Bob Corp |
| Microsoft Graph (7) | | | | |
| Calendars.Read | Application | Read calendars in all mailboxes | Yes | Granted for Bob Corp |
| DeviceManagementApps.Read | Application | Read Microsoft Intune apps | Yes | Granted for Bob Corp |
| DeviceManagementConfigurat | Application | Read Microsoft Intune device configuration and policies | Yes | Granted for Bob Corp |
| Directory.Read.All | Application | Read directory data | Yes | Granted for Bob Corp |
| Policy.Read.All | Application | Read your organization's policies | Yes | Granted for Bob Corp |
| Reports.Read.All | Application | Read all usage reports | Yes | Granted for Bob Corp |
| User.Read.All | Application | Read all users' full profiles | Yes | Granted for Bob Corp |

5. Click **Grant admin consent**.
6. Click **Add permissions**.

> **Note:** Additional configuration is required to perform a ScubaGear audit against a Microsoft 365 environment. Refer to Configure Azure for ScubaGear Audit.

What to do next:

Create an audit scan in either Tenable Vulnerability Management or Tenable Nessus:

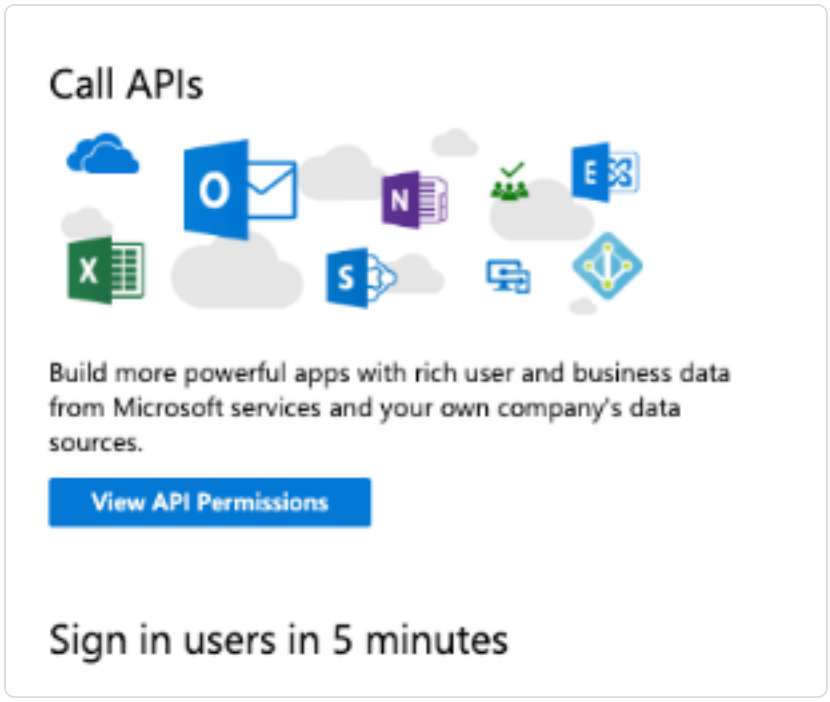
- Audit Microsoft Azure in Tenable Vulnerability Management
- Audit Microsoft Azure in Tenable Nessus

## Configure Microsoft Azure for ScubaGear Audit

Additional configurations are required to perform a ScubaGear audit against a Microsoft 365 environment:

### Assign API Permissions

1. Click your registered application in **Microsoft Entra ID > App Registrations > Your Application > API Permissions**.




2. Select **Microsoft Graph**.

   When adding permissions for **Certificate Authentication**, select **Application permissions**.

3. In the **Configured permissions** section, click **Add a permission**.
4. Add the following permissions:

   - Microsoft Graph
     - Directory.Read.All
     - GroupMember.Read.All
     - Organization.Read.All,
     - Policy.Read.All,
     - RoleManagement.Read.Directory,
     - User.Read.All

- PrivilegedEligibilitySchedule.Read.AzureADGroup
- PrivilegedAccess.Read.AzureADGroup
- RoleManagementPolicy.Read.AzureADGroup
- AuditLog.Read.All
- Calendars.Read
- DeviceManagementApps.Read.All
- DeviceManagementConfiguration.Read.All
- Directory.Read.All
- GroupMember.Read.All
- Organization.Read.All
- Policy.Read.All
- PrivilegedAccess.Read.AzureADGroup
- PrivilegedEligibilitySchedule.Read.AzureADGroup
- Reports.Read.All
- RoleManagement.ReadWrite.Exchange
- RoleManagementPolicy.Read.AzureADGroup
- SecurityActions.Read.All
- SecurityAlert.Read.All
- SecurityEvents.Read.All
- SharePointTenantSettings.Read.All
- Sites.Read.All
- User.Read

- Microsoft Teams Services
    - AdminAppCatalog.Read.All
- Office 365 Exchange Online
    - Exchange.ManageAsApp
- SharePoint
    - Sites.FullControl.All

### Configure Microsoft Entra ID Roles

1. In the **Manage** section of Microsoft Entra ID, click **Roles and administrator**.
2. Click the **Global Reader** role,
3. Click **Add assignments**.
4. Select the application you created, and click **Add**.

### Configure Power Platform

- As an account with Power Platform Administrator, or Global Administrator roles, register the service principal:

```
Add-PowerAppsAccount -Endpoint prod -TenantID <tenant id>
```

## Audit Microsoft Azure in Tenable Vulnerability Management

Tenable offers the ability to audit the Microsoft Azure Cloud environment to detect misconfigurations in the cloud environment and account settings using Tenable Vulnerability Management. Complete the following steps to Audit Microsoft Azure in Tenable Vulnerability Management.

For more information on the Microsoft Azure audit, see the Microsoft Azure Audit Compliance Reference in the *Compliance Checks Reference*.

Before you begin:

- Configure Azure as described in Configure Azure for a Compliance Audit.

**Note:** No pre-authorization is needed from Microsoft to perform the audit, but a Microsoft Azure account is required.

To audit Microsoft Azure in Tenable Vulnerability Management:

1. Log in to Tenable Vulnerability Management.
2. In the upper-left corner, click the ☰ button.

   The left navigation plane appears.
3. In the left navigation plane, in the **Vulnerability Management** section, click **Scans**.

   The **Scans** page appears.
4. In the upper-right corner of the page, click ⊕ **Create a Scan**.

   The **Select a Scan Template** page appears.
5. Select the **Audit Cloud Infrastructure** template.

   The **Audit Cloud Infrastructure** page appears.
6. In the **Name** box, type a descriptive name for the scan.
7. (Optional) In the **Description** box, enter information to describe your scan.
8. Click **Compliance**.
9. Click **Microsoft Azure**.

   Tenable offers pre-configured compliance checks and provides the ability to upload a custom Azure audit file.

   **Note:** For information on creating a custom audit, see the Microsoft Azure Audit Compliance Reference in the *Nessus Compliance Checks Reference Guide*.
10. Click each compliance check you want to add to the scan.
11. If you choose to add a custom audit file, click **Add File** and select the file to upload.
12. Click **Credentials**.
13. Click **Microsoft Azure**.

**Note:** See the Required User Privileges section in the Nessus User Guide for the required Microsoft Azure privileges.

14. Click the **Authentication Method** drop-down menu to select your preferred authentication method: **key**, **password**, or **certificate**.

    Configure the credentials for your selected authentication method.

    To configure key authentication:

| Option | Description | Required |
|---|---|---|
| Tenant ID | The Tenant ID or Directory ID for your Azure environment. | Yes |
| Application ID | The application ID (also known as client ID) for your registered application. | Yes |
| Client Secret | The secret key for your registered application. | Yes |
| Subscription IDs | List of subscription IDs to scan, separated by a comma. If this field is blank, all subscriptions are audited. | No |

    To configure password authentication:

| Option | Description | Required |
|---|---|---|
| Username | The username required to log in to Microsoft Azure. | Yes |
| Password | The password associated with the username. | Yes |
| Client ID | The application ID (also known as client ID) for your registered application. | Yes |
| Subscription IDs | List of subscription IDs to scan, separated by a comma. If this field is blank, all subscriptions are audited. | No |

    To configure certificate authentication:

| Option | Description | Required |
|---|---|---|
| Tenant ID | The Tenant ID or Directory ID for your Azure environment. | Yes |
| Application ID | The application ID (also known as client ID) for your registered application. | Yes |
| Private Key | A PEM formatted 2048-bit RSA private key and certificate. | Yes |
| Config File | Additional configuration parameters. Currently only applicable for SCuBA scans. | No |
| Subscription IDs | List of subscription IDs to scan, separated by a comma. If this field is blank, all subscriptions are audited. | No |

15. Do one of the following:

    - Click **Save**.
    - Click the drop-down arrow next to **Save** and select **Launch** to initiate the scan.

**Note:** For additional information on configuring Tenable Vulnerability Management scans, refer to the Tenable Vulnerability Management User Guide.

## Audit Microsoft Azure in Tenable Nessus

Tenable offers the ability to audit the Microsoft Azure Cloud environment to detect misconfigurations in the cloud environment and account settings using Tenable Nessus. Complete the following steps to Audit Microsoft Azure in Tenable Nessus.

For more information on the Microsoft Azure audit, see the Microsoft Azure Audit Compliance Reference in the *Compliance Checks Reference*.

### Before you begin:

- Configure Azure as described in Configure Azure for a Compliance Audit.

**Note:** No pre-authorization is needed from Microsoft to perform the audit, but a Microsoft Azure account is required.

To Audit Microsoft Azure in Tenable Nessus:

1. Log in to Tenable Nessus.
2. In the upper-left corner, click the ☰ button.

   The left navigation plane appears.
3. In the left navigation plane, in the **Vulnerability Management** section, click **Scans**.

   The **Scans** page appears.
4. In the upper-right corner of the page, click ⊕ **Create a Scan**.

   The **Select a Scan Template** page appears.
5. In the **Compliance** section, select the **Audit Cloud Infrastructure** template.

   The **Audit Cloud Infrastructure** page **Settings** tab appears.
6. In the **Name** box, type a descriptive name for the scan.
7. (Optional) In the **Description** box, enter information to describe your scan.
8. Click the **Credentials** tab.
9. In the **Categories** section, click **Microsoft Azure**.

   The **Microsoft Azure** options appear.
10. Click the **Authentication Method** drop-down menu to select your preferred authentication method: **key**, **password**, or **certificate**.
11. Configure the credentials for your selected authentication method.

    To configure key authentication:

| Option | Description | Required |
|---|---|---|
| Tenant ID | The Tenant ID or Directory ID for your Azure environment. | Yes |

| | | |
|---|---|---|
| Application ID | The application ID (also known as client ID) for your registered application. | Yes |
| Client Secret | The secret key for your registered application. | Yes |
| Subscription IDs | List of subscription IDs to scan, separated by a comma. If this field is blank, all subscriptions are audited. | No |

To configure password authentication:

| Option | Description | Required |
|---|---|---|
| Username | The username required to log in to Microsoft Azure. | Yes |
| Password | The password associated with the username. | Yes |
| Client ID | The application ID (also known as client ID) for your registered application. | Yes |
| Subscription IDs | List of subscription IDs to scan, separated by a comma. If this field is blank, all subscriptions are audited. | No |

To configure certificate authentication:

| Option | Description | Required |
|---|---|---|
| Tenant ID | The Tenant ID or Directory ID for your Azure environment. | Yes |
| Application ID | The application ID (also known as client ID) for your registered application. | Yes |
| Private Key | A PEM formatted 2048-bit RSA private key and certificate. | Yes |
| Config File | Additional configuration parameters. Currently only applicable for SCuBA scans. | No |

| | | |
|---|---|---|
| Subscription IDs | List of subscription IDs to scan, separated by a comma. If this field is blank, all subscriptions are audited. | No |

12. Click **Compliance**.
13. Click **Microsoft Azure**.

    Tenable offers pre-configured compliance checks and provides the ability to upload a custom Azure audit file.

    **Note:** For information on creating a custom audit, see the Microsoft Azure Audit Compliance Reference in the *Nessus Compliance Checks Reference Guide*.

14. Click each compliance check you want to add to the scan.
15. If you choose to add a custom audit file, click **Add File** and select the file to upload.
16. Click **Save**.

    The credential saves and the **My Scans** page appears.

**Note:** For additional information on configuring Tenable Nessus scans, refer to the Tenable Nessus User Guide.

# Tenable Vulnerability Management

View the following sections for steps on how to configure Tenable Vulnerability Management with Microsoft Azure.

- Requirements
- Create a Scan
- Nessus Agent Scan
- Deploy a Nessus Agent

## Integration Requirements

To integrate Tenable Vulnerability Management with Microsoft Azure, you need the following:

- **Tenable Vulnerability Management account**

  To purchase a Tenable Vulnerability Management account or set up a free evaluation, visit http://www.tenable.com/products/tenable-io

- **Azure account**

  To create a free account, visit https://azure.microsoft.com/en-us/free/

- **Internet connection**

  You must have a *<user>@<somedomain>.onmicrosoft.com* account.

## Create a Scan

### Create a Tenable Vulnerability Management Scan

For instructions on creating a scan, see Create a Scan in the *Tenable Vulnerability Management User Guide*.

### Create an Agent Scan

For instructions on creating an Agent scan, see Create an Agent Scan in the *Tenable Vulnerability Management User Guide*.

# Nessus Agent Scan of Azure Virtual Instances

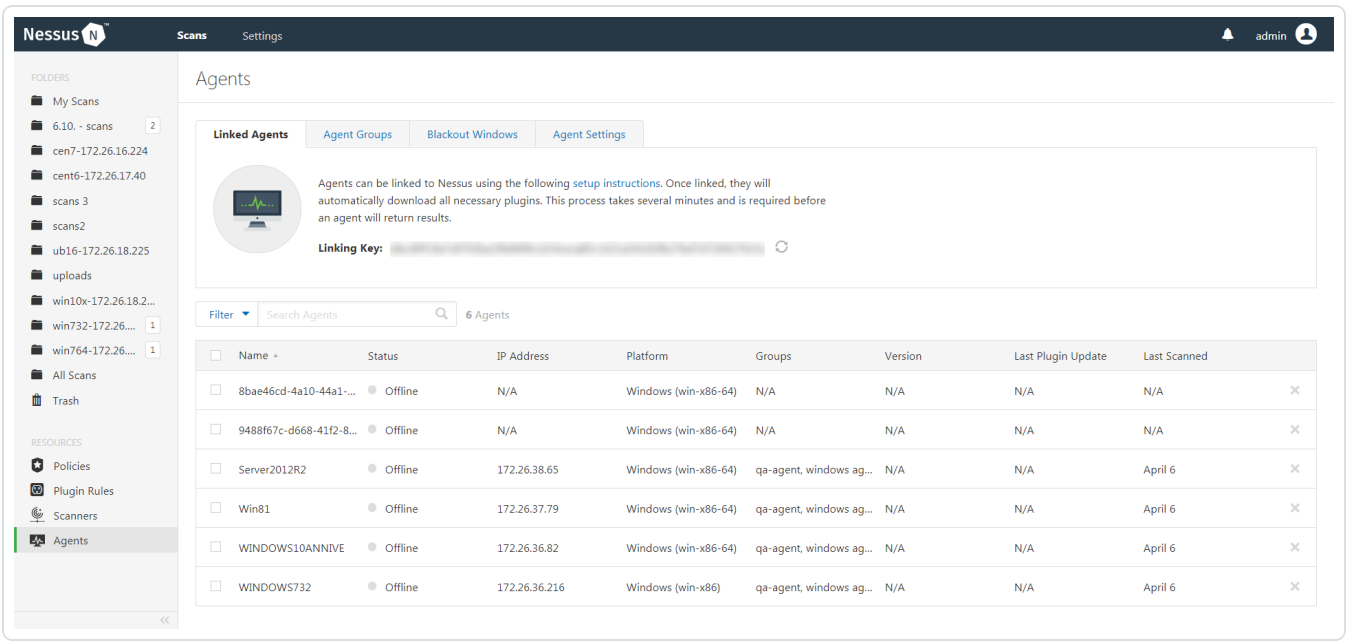
Tenable's Nessus Agents provide the ability to perform local scans on instances within the Microsoft Azure cloud environment. Nessus Agent Scans, which are configured, managed, and updated through Tenable Vulnerability Management or Tenable Nessus Manager, help identify vulnerabilities, compliance violations, misconfigurations, and malware.

Download Nessus Agents from the Tenable Downloads site, install it on an instance running in the Microsoft Azure cloud environment, and link it to Tenable Vulnerability Management or Nessus Manager.

> **Note:** Agents can be installed on your targets manually, via Group Policy, SCCM, or other third-party software deployment applications.

Nessus Agents are linked to Tenable Vulnerability Management or Nessus Manager in the same manner as linking to a secondary scanner. Before installing Nessus Agents, you must acquire the Agent Key from within Tenable Vulnerability Management or Nessus Manager.

1. To acquire the Agent Key, log in to Tenable Vulnerability Management or Nessus Manager.
2. Click **Settings** > **Scanners** > **Agents** > **Linked**.
3. A key is generated for the Nessus Agents to link to the scanner.




For more information on installing and configuring Nessus Agents, refer to the Nessus User Guide.

## Deploy a Nessus Agent

For instructions on deploying a Nessus Agent, see the Nessus Agent Deployment section in the *Nessus Agent and Deployment and User Guide*.

# Tenable Web App Scanning

View the following sections for steps on how to configure Tenable Web App Scanning with Microsoft Azure.

- Provision Tenable Core Web Application Scanner (BYOL) in Azure Marketplace
- Create a Tenable Web App Scanning Scan

## Provision Tenable Core Web Application Scanner (BYOL)

Tenable Core Web Application Scanner Bring Your Own License (BYOL) is an instance of a Tenable Vulnerability Management Web Application Scanner installed in Microsoft Azure that allows you to scan internal-facing web applications deployed in Microsoft Azure. The Tenable Core Web Application Scanner (BYOL) is used to perform vulnerability assessments of web applications.

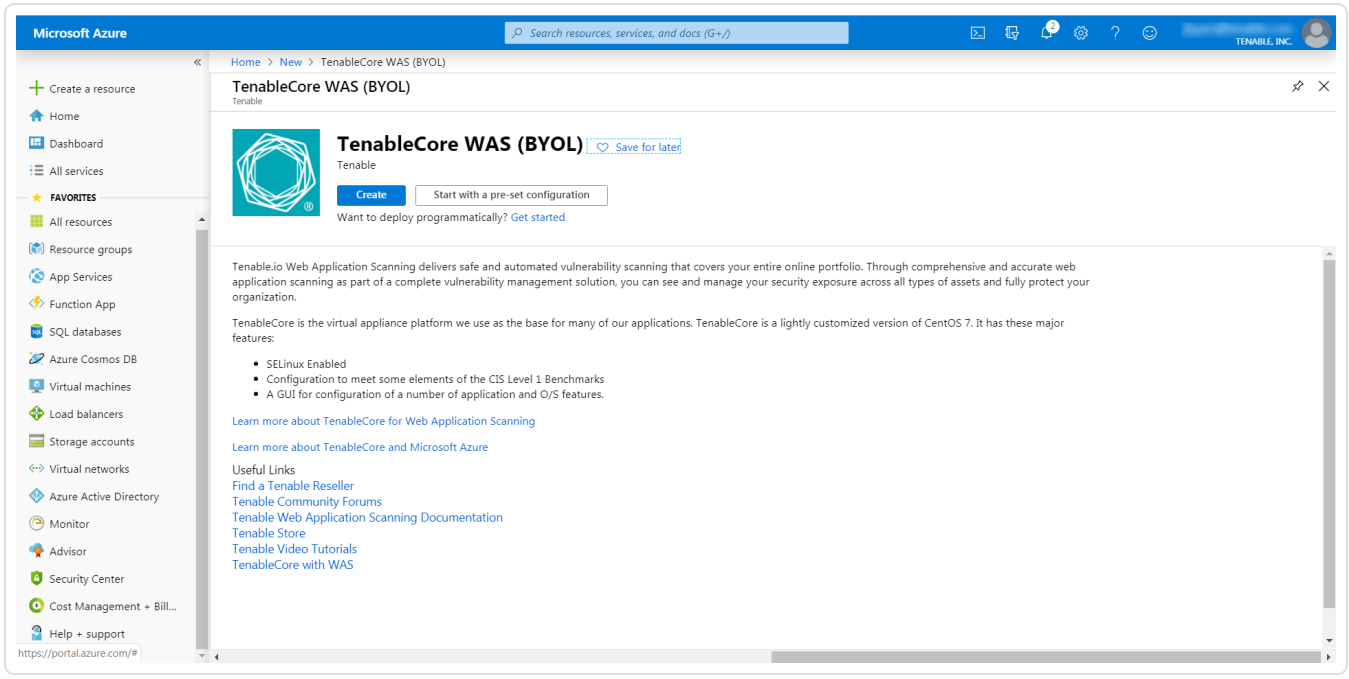
### To provision a Tenable Core Web Application Scanner BYOL instance:

1. Log in to the Microsoft Azure portal.
2. In the left-hand menu, click **+ Create a resource**.

   The **New** page appears.
3. In the search box, type TenableCore WAS (BYOL).

   As you type, Tenable options appear.
4. Select the **TenableCore WAS (BYOL)** option or press enter.

The **TenableCore WAS (BYOL)** page appears.




5. Click the **Create** button.

   The **Create a virtual machine** page appears.

6. On the **Basics** tab, enter the required information for each option in the **Project details**, **Instance details**, and **Administrator account** sections.

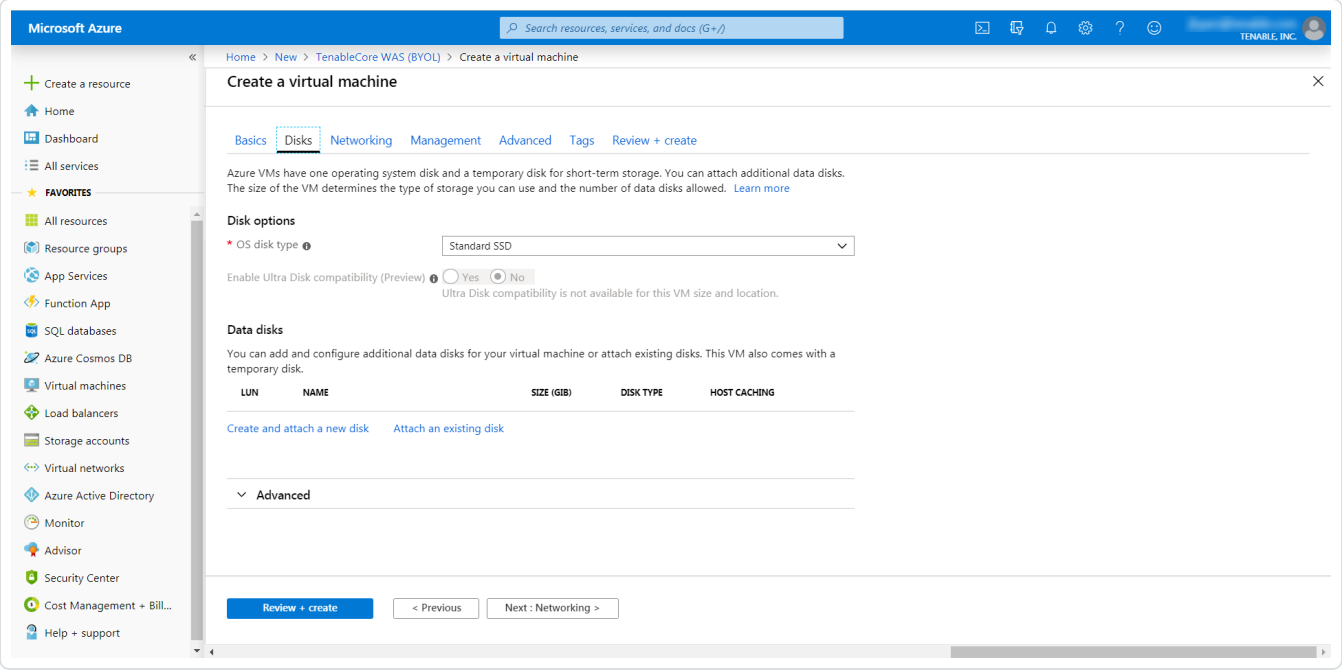
| Option | Description |
|---|---|
| Project Details | |
| Subscription | The account through which resources are reported and services are billed. |
| Resource Group | The collection of resources that share the same lifecycle, permissions, and policies. |
| Instance Details | |
| Virtual machine name | The name used for both, the virtual machine and host name.<br><br>**Note:** The virtual machine name cannot be changed after |

| | |
|---|---|
| | the virtual machine is created. You can change the host name when you log into the virtual machine. |
| Region | The regional location most suitable for you and your customers.<br><br>**Note:** Some virtual machine sizes are not available in certain regions. |
| Availability options | (Optional) Additional options to help manage availability and resilience of your applications. Provides options to use replicated virtual machines in availability zones or availability settings to protect your applications and data from outages and maintenance events. |
| Image | The base operating system or application for the virtual machine. |
| Size | The virtual machine size to support the workload you want to run. |
| Administrator Account | |
| Authentication Type | The type of authentication the administrator uses - SSH or password. |
| Username | The administrator username for the virtual machine. |
| SSH Key | (Only available when you select SSH for Authentication Type) The single-line RSA public key or multi-line PEM certificate.<br><br>For additional information on setting up your SSH account, see Create a Password for the Initial Administrator User Account. |
| Password | (Only available when you select Password for Authentication Type) The administrator password for the |

| | |
|---|---|
| | virtual machine. |
| Confirm Password | (Only available when you select Password for Authentication Type) Verification for the administrator password for the virtual machine. |

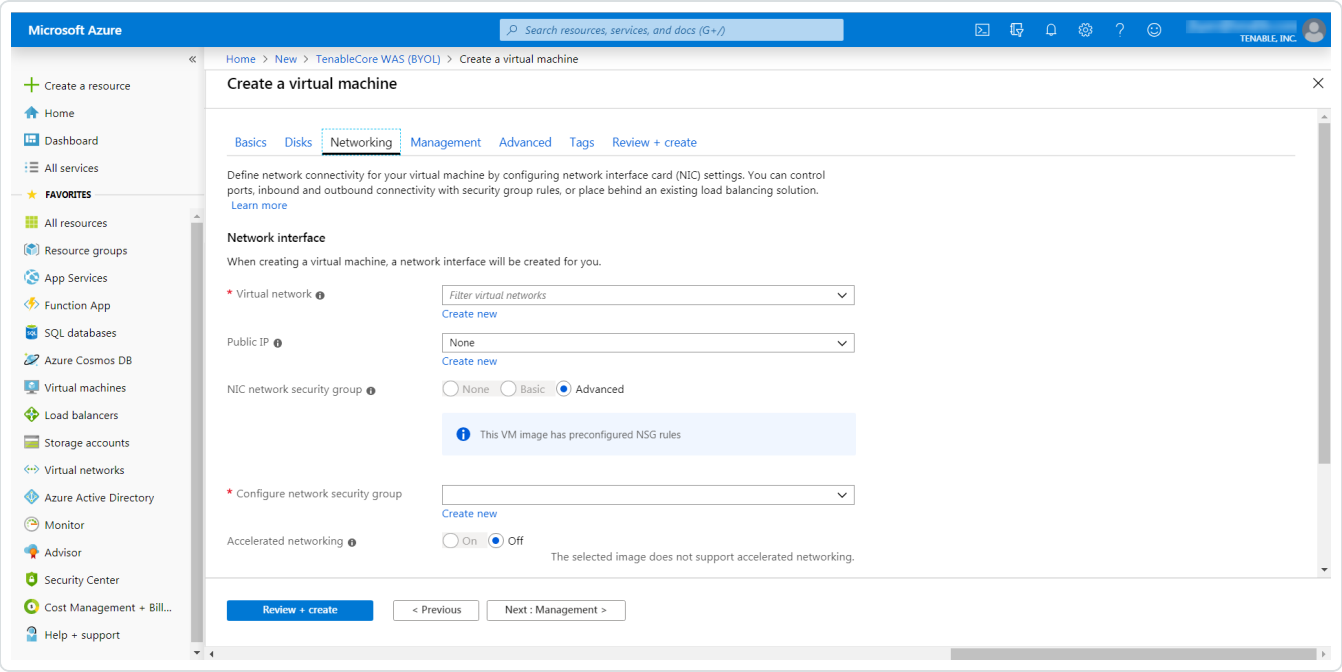
7. Click the **Disks** tab.

   The **Disks** page appears.




8. On the **Disks** page, in the **Disks option** section, select an **OS disk type** from the drop-down.
9. (Optional) In the **Data disks** section, you can add and configure additional data disks or attach existing disks.
10. Click the **Networking** tab.

    The **Networking** page appears.




11. In the **Virtual Network** drop-down box, select a network.
12. (Optional) Select a **Public IP** and **NIC network security group**.
13. In the **Configure network group** drop-down box, select a resource group.

    **Note:** You can create a new group by clicking the **Create new** link beneath the drop-down box.

14. (Optional) Enable or disable **Accelerated networking** option.
15. (Optional) In the **Load balancing** option, select to place the virtual machine behind an existing load balancing solution.
16. Click the **Management** tab.

    The **Management** page appears.

17. Enter your management preferences.

| Options | Description |
|---|---|
| Monitoring | |
| Boot diagnostics | (Optional) Enable to capture the serial |

| | |
|---|---|
| | console output and screenshots of the virtual machine running on a host. |
| OS guest diagnostics | (Optional) Enable to receive metrics for your virtual machine. |
| Diagnostic storage account | The account used to store your metrics. |
| Identity | |
| System assigned managed identity | (Optional) Enable to grant permissions using the Azure role-based access control. |
| Microsoft Entra ID | |
| Login with AAD credentials (preview) | (Optional) Enable to use your corporate Active Directory credentials to log in to the virtual machine, enforce MFA, and enable access via RBAC roles. |
| Auto-shutdown | |
| Enable auto-shutdown | (Optional) Enable to automatically shutdown your virtual machine daily. |

18. (Optional) Click the **Advanced** tab.

    The **Advanced** page appears.

19. (Optional) On the Advanced page, enter information for the **Extenstions**, **Cloud init**, **Host**, and **VM generation** sections.

20. (Optional) Click the **Tags** tab.

    The **Tags** page appears.

21. (Optional) On the **Tags** page, use the drop-down boxes to create tags to help categorize your resources.

22. Click **Review + Create**.

The **Create a virtual machine** page appears, and the system begins a validation process.

After the validation completes, a success message appears at the top of the screen.

23. Click **Create**.

    Azure begins the virtual machine deployment.

    After the validation completes, a success message appears.

    The TenableCore WAS (BYOL) virtual machine is added to your **Resource Groups**.

What to do next:

- To complete the configuration, see Deploy Tenable Core + Tenable Web App Scanning in Microsoft Azure in the *Tenable Core for Tenable Web App Scanning* user guide.

  **Note:** Microsoft does not require pre-approval to conduct vulnerability scans against Azure resources.

## Web Application Scan

For instructions on creating a web application scan, see the Create a Scan section in the *Tenable Vulnerability ManagementUser Guide*.

# Deploy a Tenable Nessus Scanner

View the following links for steps on how to deploy a Tenable Nessus Scanner with Microsoft Azure.

- Provision Tenable Core for Nessus (BYOL) in Azure Marketplace
- Install Nessus on an Azure virtual machine
- Deploy One-Click Nessus Agent

## Provision Tenable Core Nessus (BYOL) in Azure Marketplace

Tenable Core Nessus Bring Your Own License (BYOL) is an instance of Nessus installed in Microsoft Azure that allows you to scan Azure cloud environments and assets. Tenable Core Nessus (BYOL) features include vulnerability detection, compliance misconfiguration detection, and malware detection.

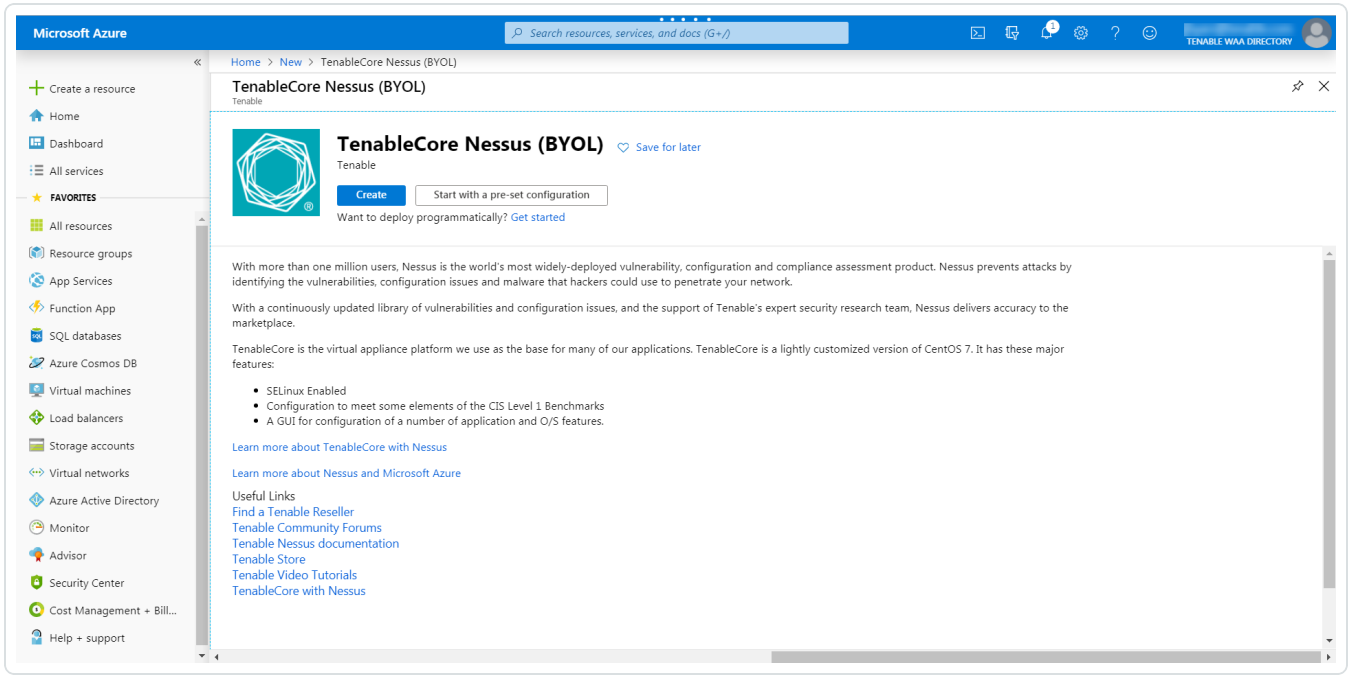
To provision a Tenable Core Nessus (BYOL) instance:

1. Log in to the Microsoft Azure portal.
2. In the left-hand menu, click **+ Create a resource**.

   The **New** page appears.
3. In the search box, type TenableCore Nessus (BYOL).

   As you type, Tenable options appear.
4. Select the TenableCore Nessus (BYOL) option or press enter.

The TenableCore Tenable Nessus (BYOL) page appears.




5. Click the **Create** button.

   The **Create a virtual machine** page appears.

6. On the **Basics** tab, enter the required information for each option in the **Project details**, **Instance details**, and **Administrator account** sections.

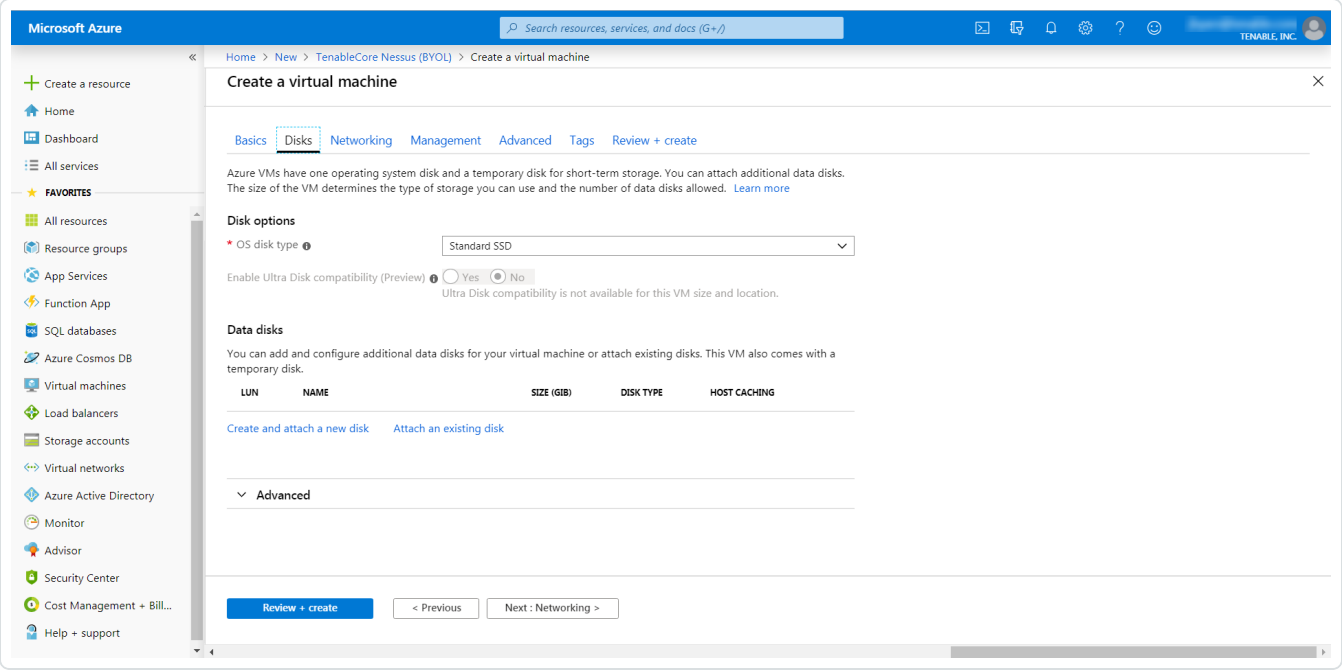
| Option | Description |
|---|---|
| Project Details | |
| Subscription | The account through which resources are reported and services are billed. |
| Resource Group | The collection of resources that share the same lifecycle, permissions, and policies. |
| Instance Details | |
| Virtual machine name | The name used for both, the virtual machine and host name.<br><br>**Note:** The virtual machine name cannot be changed after |

| | |
|---|---|
| | the virtual machine is created. You can change the host name when you log into the virtual machine. |
| Region | The regional location most suitable for you and your customers.<br><br>**Note:** Some virtual machine sizes are not available in certain regions. |
| Availability options | (Optional) Additional options to help manage availability and resilience of your applications. Provides options to use replicated virtual machines in availability zones or availability settings to protect your applications and data from outages and maintenance events. |
| Image | The base operating system or application for the virtual machine. |
| Size | The virtual machine size to support the workload you want to run. |
| Administrator Account | |
| Authentication Type | The type of authentication the administrator uses - SSH or password. |
| Username | The administrator username for the virtual machine. |
| SSH Key | (Only available when you select SSH for Authentication Type) The single-line RSA public key or multi-line PEM certificate.<br><br>For additional information on setting up your SSH account, see Create a Password for the Initial Administrator User Account. |
| Password | (Only available when you select Password for Authentication Type) The administrator password for the |

| | |
|---|---|
| | virtual machine. |
| Confirm Password | (Only available when you select Password for Authentication Type) Verification for the administrator password for the virtual machine. |

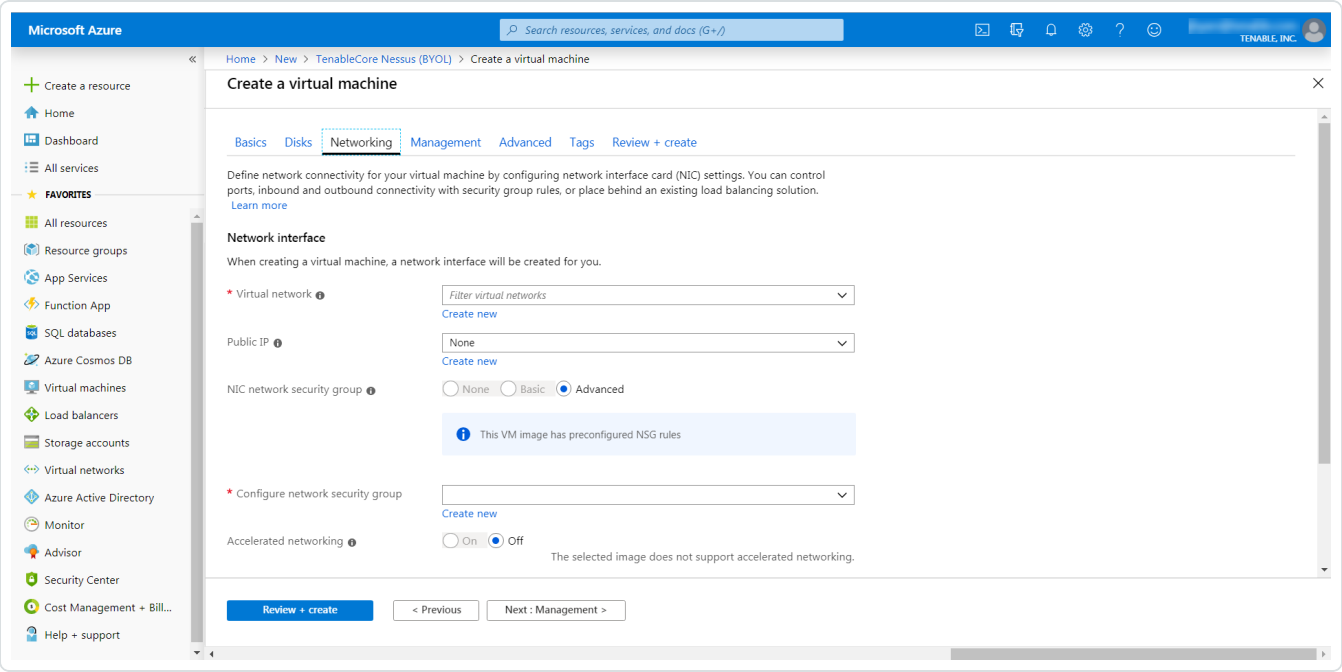
7. Click the **Disks** tab.

   The **Disks** page appears.




8. On the **Disks** page, in the **Disks option** section, select an **OS disk type** from the drop-down.
9. (Optional) In the **Data disks** section, you can add and configure additional data disks or attach existing disks.
10. Click the **Networking** tab.

    The **Networking** page appears.




11. In the **Virtual Network** drop-down box, select a network.
12. (Optional) Select a **Public IP** and **NIC network security group**.
13. In the **Configure network group** drop-down box, select a resource group.

    **Note:** You can create a new group by clicking the **Create new** link beneath the drop-down box.

14. (Optional) Enable or disable **Accelerated networking** option.
15. (Optional) In the **Load balancing** option, select to place the virtual machine behind an existing load balancing solution.
16. Click the **Management** tab.

    The **Management** page appears.

17. Enter your management preferences.

| Options | Description |
|---|---|
| Monitoring | |
| Boot diagnostics | (Optional) Enable to capture the serial |

| | |
|---|---|
| | console output and screenshots of the virtual machine running on a host. |
| OS guest diagnostics | (Optional) Enable to receive metrics for your virtual machine. |
| Diagnostic storage account | The account used to store your metrics. |
| Identity | |
| System assigned managed identity | (Optional) Enable to grant permissions using the Azure role-based access control. |
| Microsoft Entra ID | |
| Login with AAD credentials (preview) | (Optional) Enable to use your corporate Active Directory credentials to log in to the virtual machine, enforce MFA, and enable access via RBAC roles. |
| Auto-shutdown | |
| Enable auto-shutdown | (Optional) Enable to automatically shutdown your virtual machine daily. |

18. (Optional) Click the **Advanced** tab.

    The **Advanced** page appears.

19. (Optional) On the Advanced page, enter information for the **Extenstions**, **Cloud init**, **Host**, and **VM generation** sections.

20. (Optional) Click the **Tags** tab.

    The **Tags** page appears.

21. (Optional) On the **Tags** page, use the drop-down boxes to create tags to help categorize your resources.

22. Click **Review + Create**.

    The **Create a virtual machine** page appears, and the system begins a validation process.

23. Click **Create**.

    Azure begins the virtual machine deployment.

    After the validation completes, a success message appears.

    The TenableCore Tenable Nessus (BYOL) virtual machine is added to your **Resource Groups**.

What to do next:

- To complete the configuration, see Deploy Tenable Core + Nessus in Microsoft Azure in the *Tenable Core + Nessus* user guide.

  **Note:** Microsoft does not require pre-approval to conduct vulnerability scans against Azure resources.

## Install Nessus on an Azure Virtual Machine

For instructions on installing Nessus, see the Install Nessus section in the *Nessus User Guide*.

## Deploy One-Click Tenable Nessus Agent

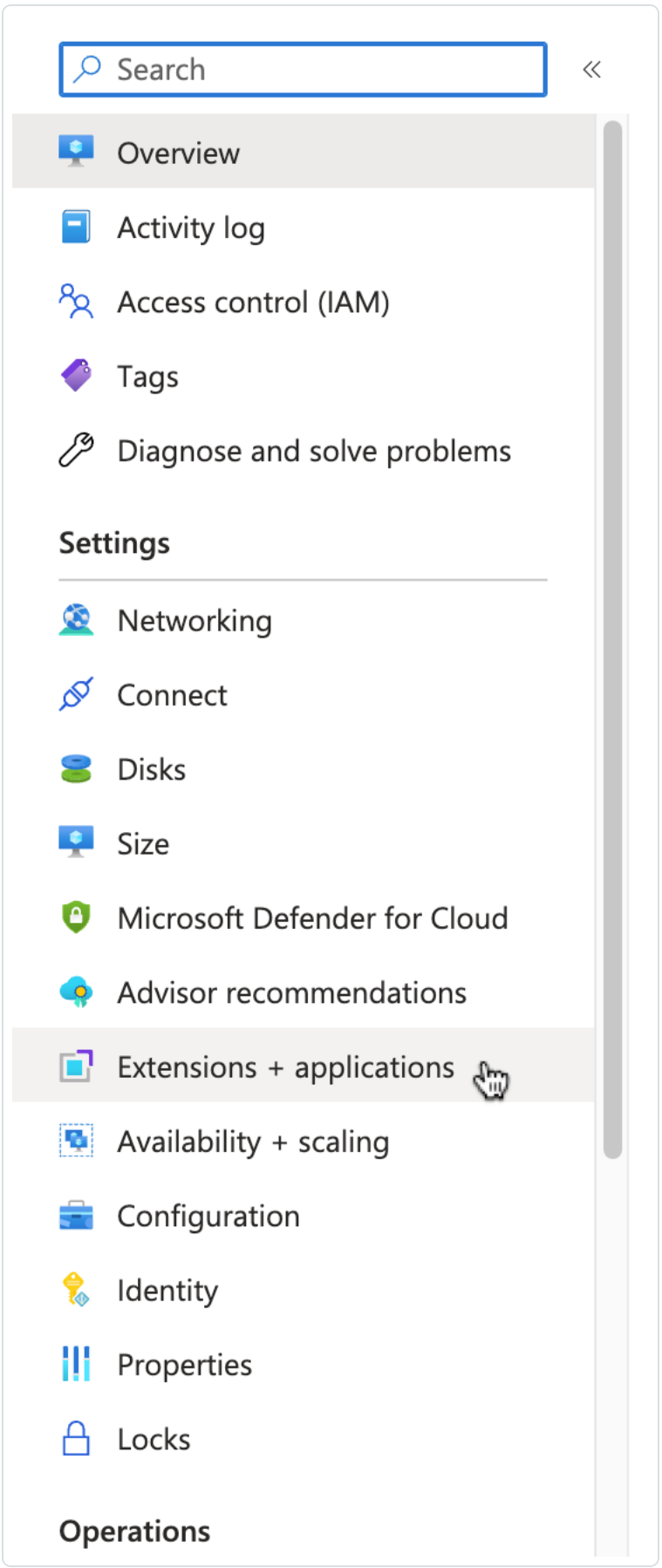
Tenable now supports a one-click deployment of the Tenable Nessus Agent via the Microsoft Azure portal. This solution provides an easy way to install the latest version of Tenable Nessus Agent on Azure virtual machines (whether Linux or Windows) by either clicking on an icon within the Microsoft Azure Portal, or by writing a few lines of PowerShell script.

### Before you begin:

- Ensure you have a Tenable Vulnerability Management or Nessus Manager account.
- Ensure you have a Microsoft Azure account with one or more Windows or Linux virtual machines.

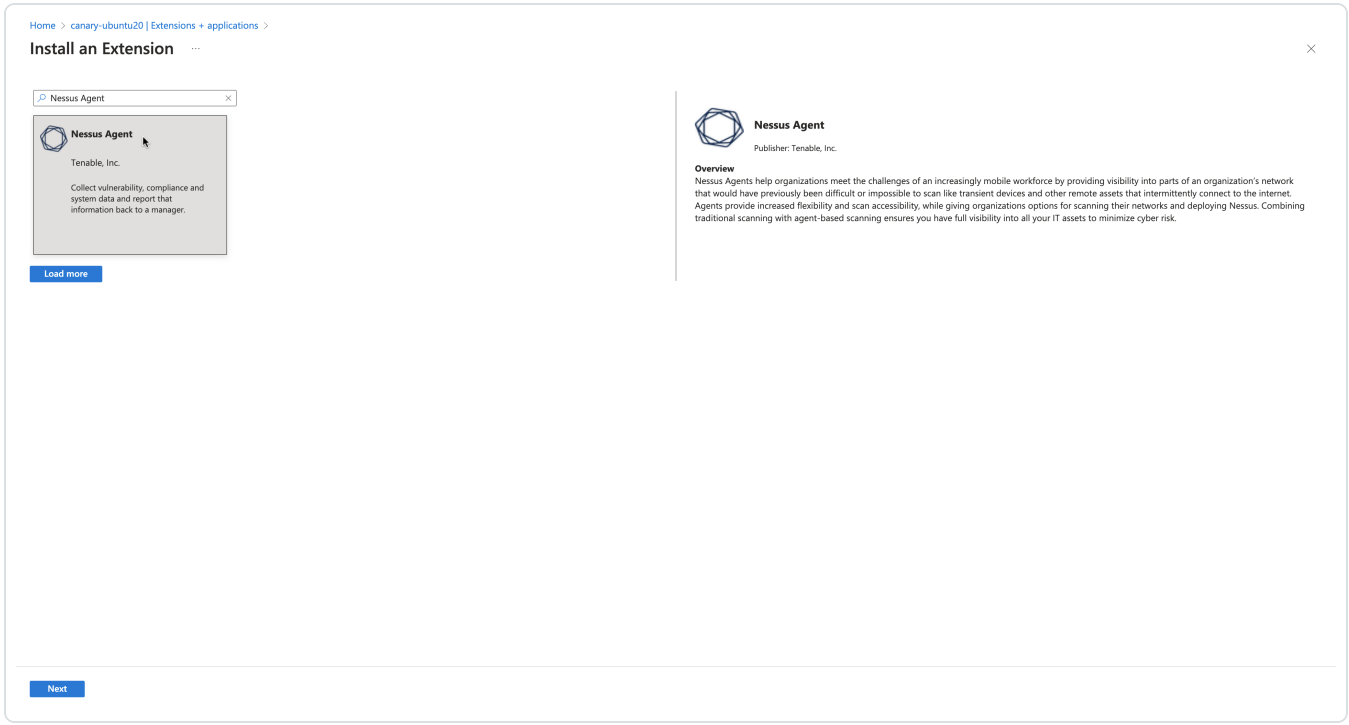
### Deploy with the Microsoft Azure Portal and Tenable Vulnerability Management user interface:

1. Log in to Microsoft Azure.
2. Select one of your virtual machines.
3. In the left column click **Extensions + applications**.


Search
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
Settings
Networking
Connect
Disks
Size
Microsoft Defender for Cloud
Advisor recommendations
Extensions + applications
Availability + scaling
Configuration
Identity
Properties
Locks
Operations

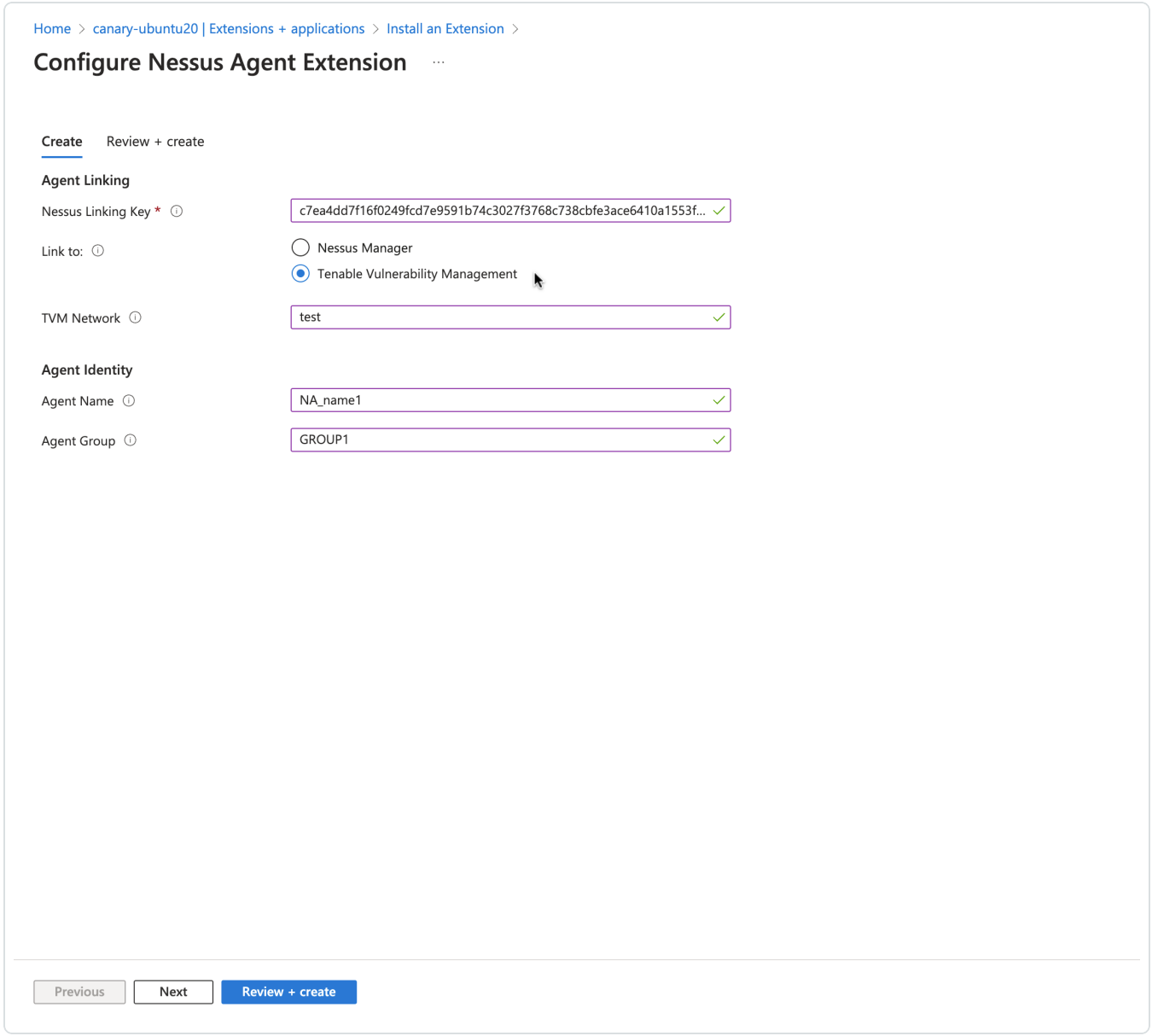
4. Click **+ Add**.

5. In the gallery, scroll down to **N** (for Nessus Agent) or type *nessus* in the search bar.




6. Select the **Nessus Agent** tile and click **Next**.

7. Enter configuration parameters in the **Configure Nessus Agent Extension** user interface.




8. Click **Review + create**.

## Deploy from the command-line interface:

You can deploy from the command-line interface available through PowerShell. For example, you can type:

```
PS> $publisherName="Tenable.NessusAgent"
PS> $typeName="Linux" (or $typeName="Windows")
PS> $name = $publisherName + "." + $typeName
PS> $version="1.0"
```

```
PS> $Settings = @{"nessusManagerApp" = "cloud"; "nessusAgentName" = "example1";
"nessusAgentGroup" = "EXAMPLE1"}
PS> $ProtectedSettings = @{"nessusLinkingKey" =
"abcd1234vxyz5678abcd1234vxyz5678abcd1234vxyz5678abcd1234vxyz5678"}
PS> Set-AzVMExtension -ResourceGroupName "EXAMPLE-resource-group" -Location "East US 2"
-VMName "canary-example" -Name $name -Publisher $publisherName -ExtensionType $typeName
-TypeHandlerVersion $version -Settings $Settings -ProtectedSettings $ProtectedSettings
```

**Note:** Lines 1-4 identify the one-click agent extension. Lines 5-6 in the PowerShell example are equivalent to Step 5 in the user interface procedure. This is where you enter your configuration parameters for your Nessus Agent installation.

#### Nessus Linking Key

The most important field is the Nessus Linking Key (**nessusLinkingKey**). It is always required. For information on where to find the linking key, see Retrieve the Tenable Nessus Agent Linking Key. In the PowerShell interface, specify **nessusLinkingKey** under `-ProtectedSettings` so that Azure encrypts it. All other fields are passed unencrypted through `-Settings`. You can choose whether to link with Tenable Nessus Manager or Tenable Vulnerability Management (formerly known as Tenable.io). Do this by setting `nessusManagerApp` (**nessusManagerApp**) to `cloud`, or to `local` in the command-line interface. You have the following two choices:

- If you choose Tenable Nessus Manager, you must provide the Tenable Nessus Manager host (**nessusManagerHost**) and port number (**nessusManagerPort**). The extension accepts an IP address or fully qualified domain name.
- If you choose **Tenable.io** (Tenable Vulnerability Management), there is an optional field called **tenableIoNetwork**.

The Agent Name (**nessusAgentName**) and Agent Group (**nessusAgentGroup**) are always optional.

**Note:** Both Agent Name and Agent Group are each a comma-separated list of group names.

For more definitions of these parameters, see Nessuscli Agent.

## Parameters

| Parameter names | Equivalent Nessuscli parameters | Required |
|---|---|---|

| | | |
|---|---|---|
| `nessusLinkingKey` | `--key` | yes |
| `nessusManagerApp` | N/A (unique to One-Click Agent) | yes |
| `nessusManagerHost` | `--host` | no |
| `nessusManagerPort` | `--port` | no |
| `tenableIoNetwork` | `--network` | no |
| `nessusAgentName` | `--name` | no |
| `nessusAgentGroup` | `--groups` | no |

# About Tenable

Tenable transforms security technology for the business needs of tomorrow through comprehensive solutions that provide continuous visibility and critical context, enabling decisive actions to protect your organization. Tenable eliminates blind spots, prioritizes threats, and reduces exposure and loss. With more than one million users and more than 20,000 enterprise customers worldwide, organizations trust Tenable for proven security innovation. Tenable's customers range from Fortune Global 500 companies, to the U.S. Department of Defense, to mid-sized and small businesses in all sectors, including finance, government, healthcare, higher education, retail, and energy. Transform security with Tenable, the creators of Nessus and leaders in continuous monitoring, by visiting tenable.com.