Tenable Nessus and CyberArk Enterprise Password Vault Integration Guide

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Welcome to Tenable Nessus for CyberArk

Security administrators utilize CyberArk to access and manage usernames, passwords, and privileges. By integrating CyberArk with Tenable Nessus Manager, customers have more choice and flexibility.

> **Note:** CyberArk is only compatible with Tenable Nessus Manager. It is not compatible with Tenable Nessus Professional.

The benefits of integrating Tenable Nessus Manager with CyberArk include:

- Credential updates directly in Tenable Nessus Manager.
- Reduced time and effort to document credential storage locations in the organizational environment.
- Automatic enforcement of security policies in specific departments or business unit requirements, simplifying compliance.
- Reduced risk of unsecured privileged accounts and credentials across the enterprise.

CyberArk Integration

View one of the following options for CyberArk integration steps.

Database Integration

SSH Integration

Privilege Escalation

Windows Integration

Database Integration

Tenable Nessus Manager provides full database support for CyberArk. Complete the following steps to configure Tenable Nessus Manager with CyberArk Vault

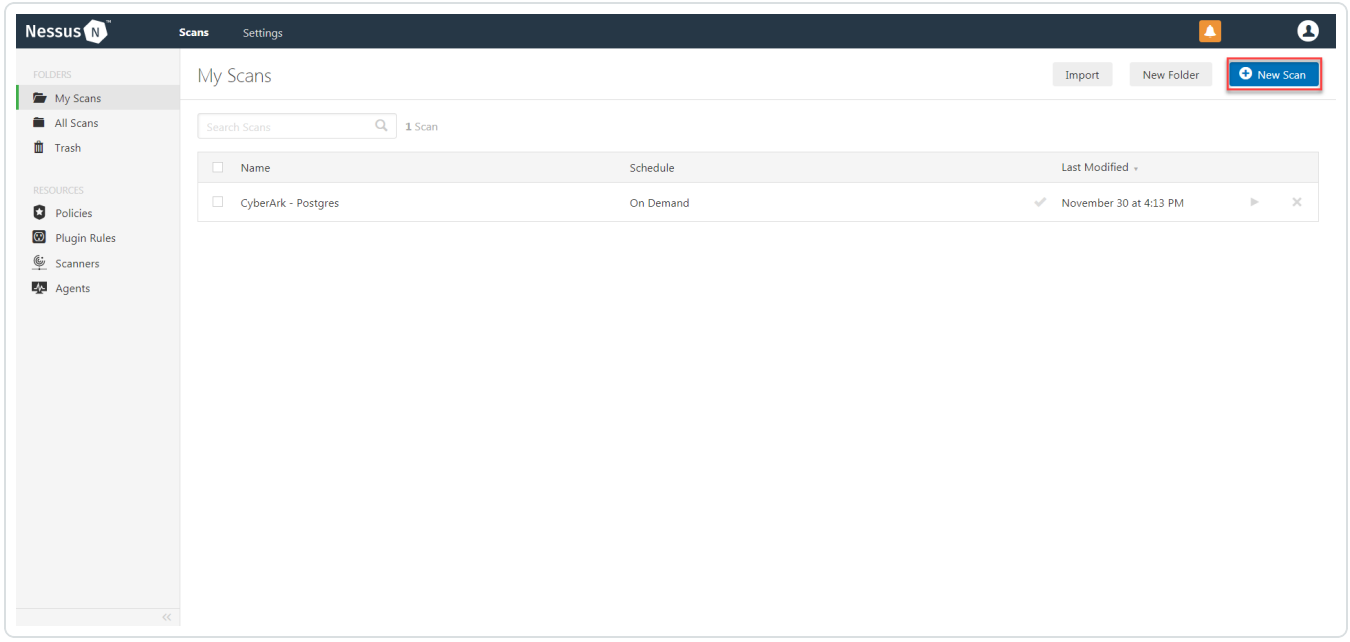
Requirements:

- CyberArk account
- Nessus Manager account

To configure Database integration:

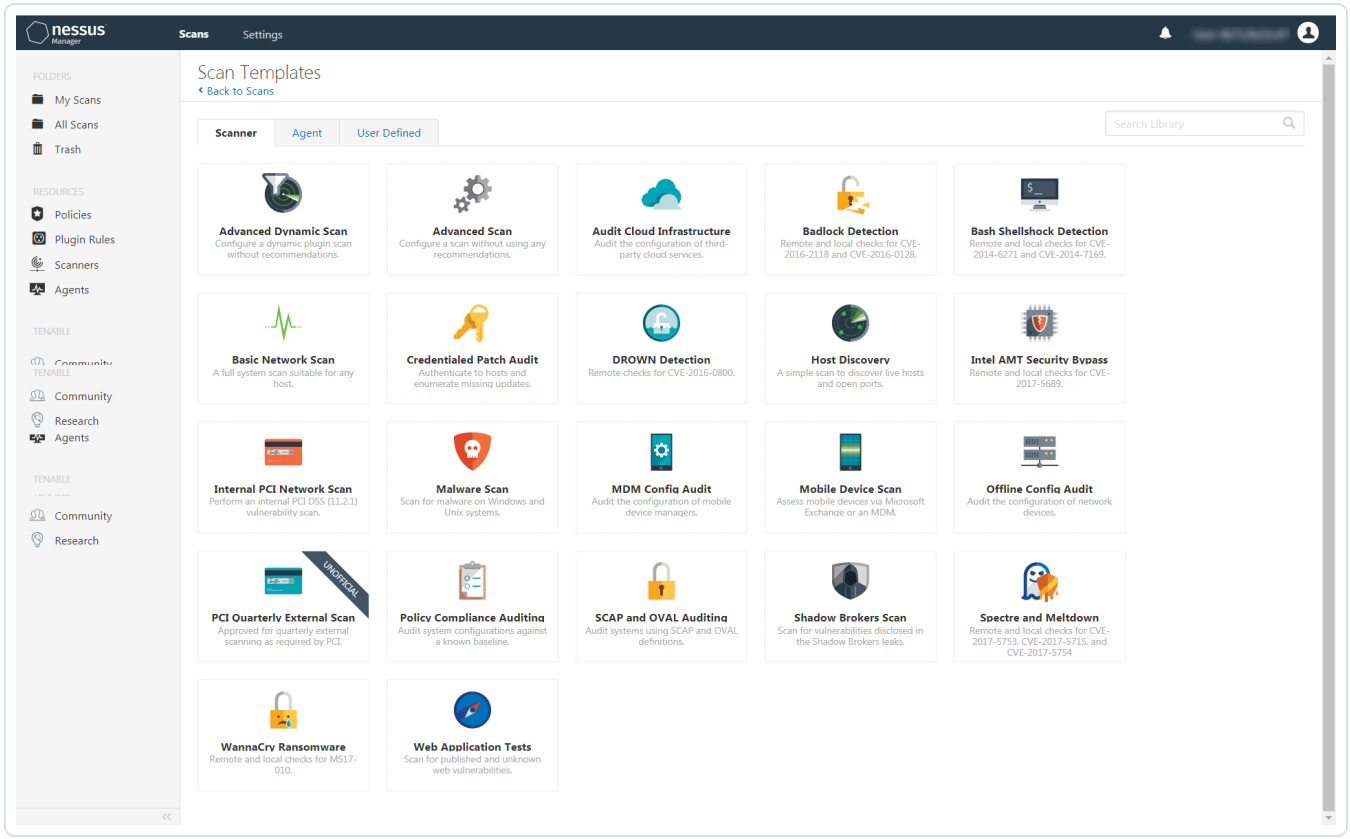
1. Log in to Tenable Nessus Manager.
2. Click **Scans**.

   The **My Scans** page appears.
3. Click **+ New Scan.**



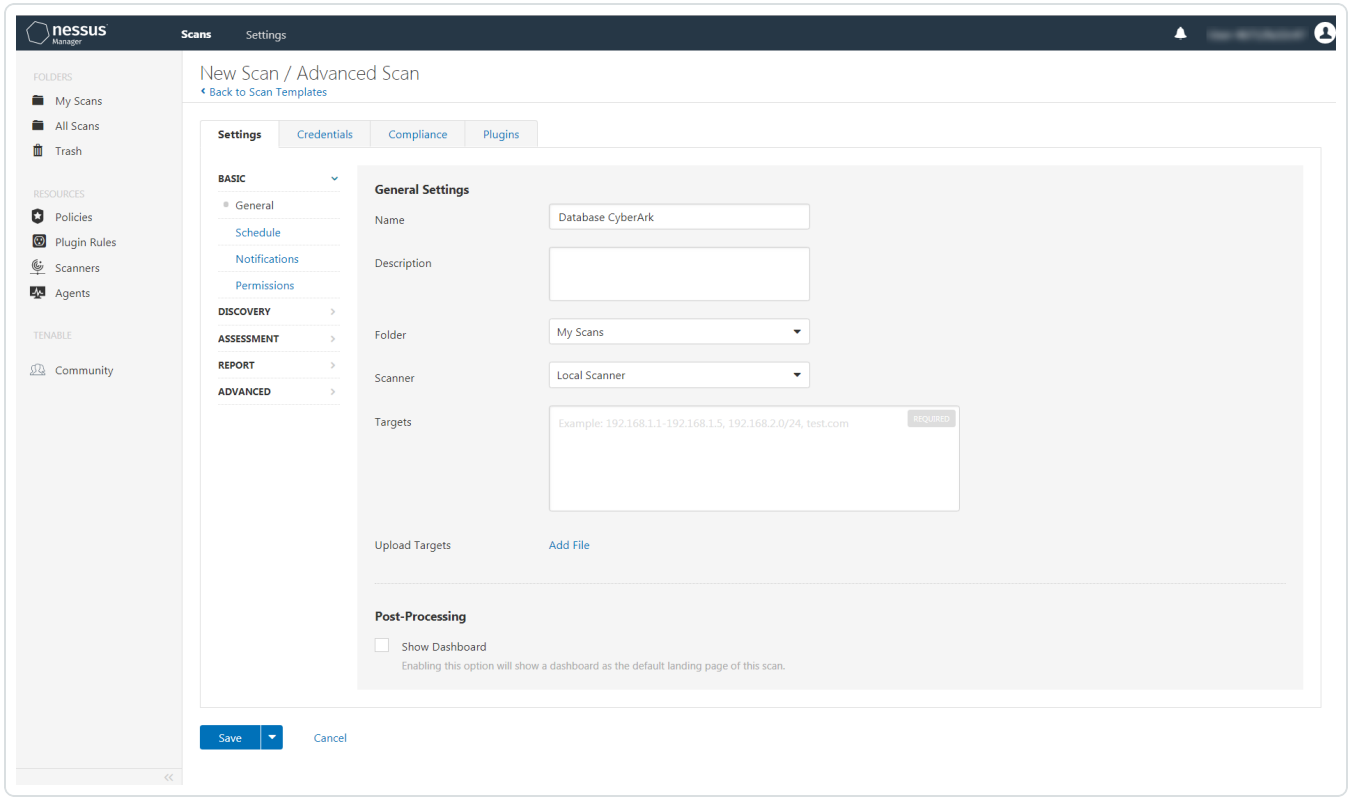
The **Scan Templates** page appears.

4. Select a **Scan Template**. For demonstration, the **Advanced Network Scan** template is used.



The scan configuration page appears.

5. In the **Name** box, type a name for the scan.
6. In the **Targets** box, type an IP address, hostname, or range of IP addresses
7. (Optional) You can add a description, folder location, scanner location, and specify target groups.



8. Click the **Credentials** tab.

   The **Credentials** options appear.

9. In the **Categories** drop-down, select **Database**.

   The **Database** options appear.

10. Click **Database**.

    The **Database** options appear.

11. Click the **Database Type** drop-down.
12. The **Database** field options appear.

13. From the **Database Type** drop-down, select **Oracle**.
14. From the **Auth Type** drop-down, select **CyberArk**.

    The **CyberArk** field options appear.
15. Configure each field for the **Database** authentication. See the Nessus User Guide to view detailed descriptions for each option.

Option	Description	Required
CyberArk Host	The IP address or FQDN name for the CyberArk AIM Web Service. This can be the host, or the host with a custom URL added on in a single string.	yes
Port	The port on which the CyberArk API communicates. By default, Tenable uses 443.	yes
AppID	The Application ID associated with the CyberArk API connection.	yes
Client Certificate	The file that contains the PEM certificate used to communicate with the CyberArk host. **Note:** Customers self-hosting CyberArk CCP on a Windows Server 2022 and above should follow the guidance found in Tenable's Community post about CyberArk Client Certification Authentication Issue.	no
Client Certificate Private Key	The file that contains the PEM private key for the client certificate.	yes, if private key is applied
Client Certificate Private Key Passphrase	The passphrase for the private key, if required.	yes, if private key is applied
Get credential by	The method with which your CyberArk API credentials are retrieved. Can be **Address**, **Identifier**, **Parameters**,	yes

Option	Description	Required
	or **Username**. **Note:** For more information about the **Parameters** option, refer to the **Parameters Options** table. **Note:** The frequency of queries for **Username** is one query per target. The frequency of queries for **Identifier** is one query per chunk. This feature requires all targets have the same identifier.	
Username	(If **Get credential by** is set to **Username**) The username of the CyberArk user to request a password from.	no
Safe	The CyberArk safe the credential should be retrieved from.	no
Account Name	(If **Get credential by** is **Identifier**) The unique account name or identifier assigned to the CyberArk API credential.	no
Use SSL	If enabled, the scanner uses SSL through IIS for secure communications. Enable this option if CyberArk is configured to support SSL through IIS.	no
Verify SSL Certificate	If enabled, the scanner validates the SSL certificate. Enable this option if CyberArk is configured to support SSL through IIS and you want to validate the certificate.	no

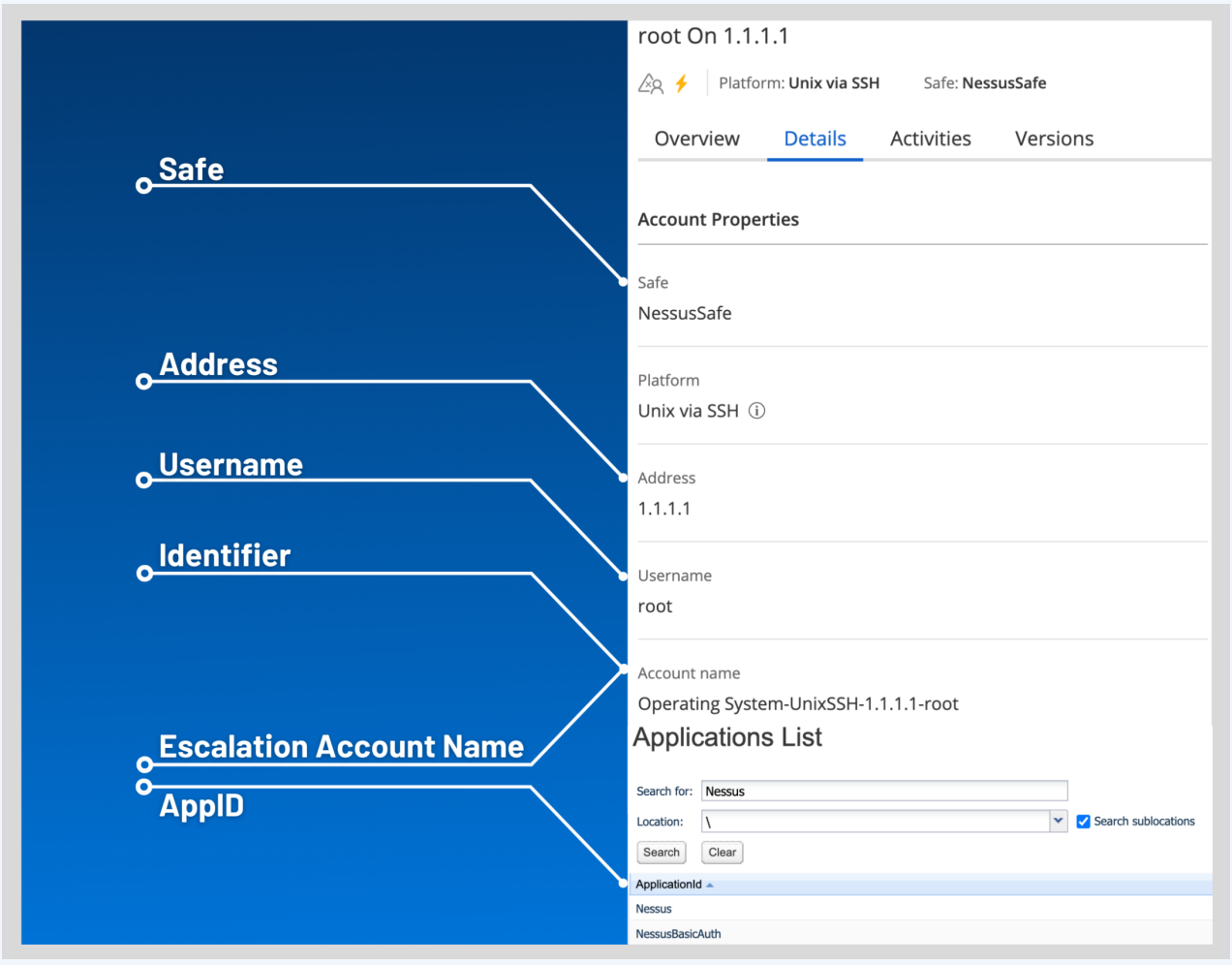
Parameters Options

The following options can be specified when **Get Credential By** is set to **Parameters**. These request parameters allow for advanced filtering of accounts based on their properties. The options correspond to the various options supported by the CyberArk REST API, as found in CyberArk documentation. These options can be specified in many different combinations to

filter account results by their properties. For example, specifying **Root** as the **Folder** option results in a REST API query containing `&Folder=Root`.

Option	Description	Required
Safe	The safe containing the credential.	no
Address	Limit the query to accounts matching the specified address.	no
Use Target IP Address	(Optional) When enabled, the integration appends the target address to the credential query, which limits the query to accounts matching the scan target's address. This is ignored if **Address** is set.	no
Username	The username of the credential.	no
Account Name	The unique identifier assigned to the credential.	no
Folder	The folder of the credential.	no
Database	The database of the credential.	no
Query	Specify a custom "free query" using account properties. When this method is specified, all other search criteria are ignored.	no
Query Format	Defines the query format. allowed values are **Exact** and **Regexp**. The default is **Exact**. This value is ignored unless the **Query** option was specified.	no

CyberArk credential field mapping to the CyberArk Accounts detail view in the CyberArk console:



Caution: Tenable strongly recommends encrypting communication between the Nessus scanner and the CyberArk AIM gateway using HTTPS and/or client certificates. For information on securing the connection, refer to the Nessus User Guide and the **Central Credential Provider Implementation Guide** located at cyberark.com (login required).

Note: The **Username** option also adds the **Address** parameter of the API query and assigns the target IP of the resolved host to the **Address** parameter. This may lead to failure to fetch credentials if the CyberArk Account Details **Address** field contains a value other than the target IP address.

16. Click **Save**.

SSH Integration

To configure SSH integration:

1. Log in to Tenable Nessus Manager.
2. Click **Scans**.
3. Click **+ New Scan**.

   The **Scan Templates** page appears.
4. Select a **Scan Template**.

   The selected scan template appears.
5. In the **Name** box, type a name for the scan.
6. In the **Targets** box, type an IP address, hostname, or range of IP addresses.
7. (Optional) Add a description, folder location, scanner location, and specify target groups.
8. Click the **Credentials** tab.

   The Credentials options appear.
9. In the left-hand menu, select **SSH**.
10. Click **Authentication method**.

    A drop-down appears.
11. Select **CyberArk**.

    The **CyberArk SSH** options appear.
12. Configure each field for **SSH** authentication.

Option	Description	Required
CyberArk Elevate Privileges With	The privilege escalation method you want to use to increase users' privileges after initial authentication. Your **CyberArk Elevate Privileges With** selection determines the specific options you must configure. For more information, see Privilege Escalation.	no
CyberArk Host	The IP address or FQDN name for the CyberArk AIM Web Service.	yes

Option	Description	Required
Port	The port on which the CyberArk API communicates. By default, Tenable uses 443.	yes
AppID	The Application ID associated with the CyberArk API connection.	yes
Client Certificate	The file that contains the PEM certificate used to communicate with the CyberArk host. **Note:** Customers self-hosting CyberArk CCP on a Windows Server 2022 and above should follow the guidance found in Tenable's Community post about CyberArk Client Certification Authentication Issue.	no
Client Certificate Private Key	The file that contains the PEM private key for the client certificate.	yes, if private key is applied
Client Certificate Private Key Passphrase	The passphrase for the private key, if required.	yes, if private key is applied
Kerberos Target Authentication	If enabled, Kerberos authentication is used to log in to the specified Linux or Unix target.	no
Key Distribution Center (KDC)	(Required if Kerberos Target Authentication is enabled) This host supplies the session tickets for the user.	yes
KDC Port	(Required if Kerberos Target Authentication is enabled.) The port on which the Kerberos authentication API communicates. By default, Tenable uses 88.	noyes
KDC Transport	(Required if Kerberos Target Authentication is enabled.) The KDC uses TCP by default in Linux	noyes

Option	Description	Required
	implementations. For UDP, change this option. If you need to change the KDC Transport value, you may also need to change the port as the KDC UDP uses either port 88 or 750 by default, depending on the implementation.	
Realm	(Required if Kerberos Target Authentication is enabled) The Realm is the authentication domain, usually noted as the domain name of the target (for example, example.com). By default, CyberArk_ NessusTenable Security Center uses 443.	yes
Get credential by	The method with which your CyberArk API credentials are retrieved. Can be **Address**, **Identifier**, **Parameters**, or **Username**. **Note:** For more information about the **Parameters** option, refer to the **Parameters Options** table. **Note:** The frequency of queries for **Username** is one query per target. The frequency of queries for **Identifier** is one query per chunk. This feature requires all targets have the same identifier.	yes
Username	(If **Get credential by** is set to **Username**) The username of the CyberArk user to request a password from.	no
Safe	The CyberArk safe the credential should be retrieved from.	no
Address	The option should only be used if the Address value is unique to a single CyberArk account credential.	no

Option	Description	Required
Account Name	(If **Get credential by** is **Identifier**) The unique account name or identifier assigned to the CyberArk API credential.	no
Use SSL	If enabled, the scanner uses SSL through IIS for secure communications. Enable this option if CyberArk is configured to support SSL through IIS.	no
Verify SSL Certificate	If enabled, the scanner validates the SSL certificate. Enable this option if CyberArk is configured to support SSL through IIS and you want to validate the certificate.	no
Targets to Prioritize Credentials	Specify IPs or CIDR blocks on which this credential is attempted before any other credential. To specify multiple IPs or CIDR blocks, use a comma or space-separated list. Using this setting can decrease scan times by prioritizing a credential that you know works against your selected targets. For example, if your scan specifies 100 credentials, and the successful credential is the 59th credential out of 100, the first 58 credentials have to fail before the 59th credential succeeds. If you use **Targets To Prioritize Credentials**, you configure the scan to use the successful credential first, which allows the scan to access the target faster.	no

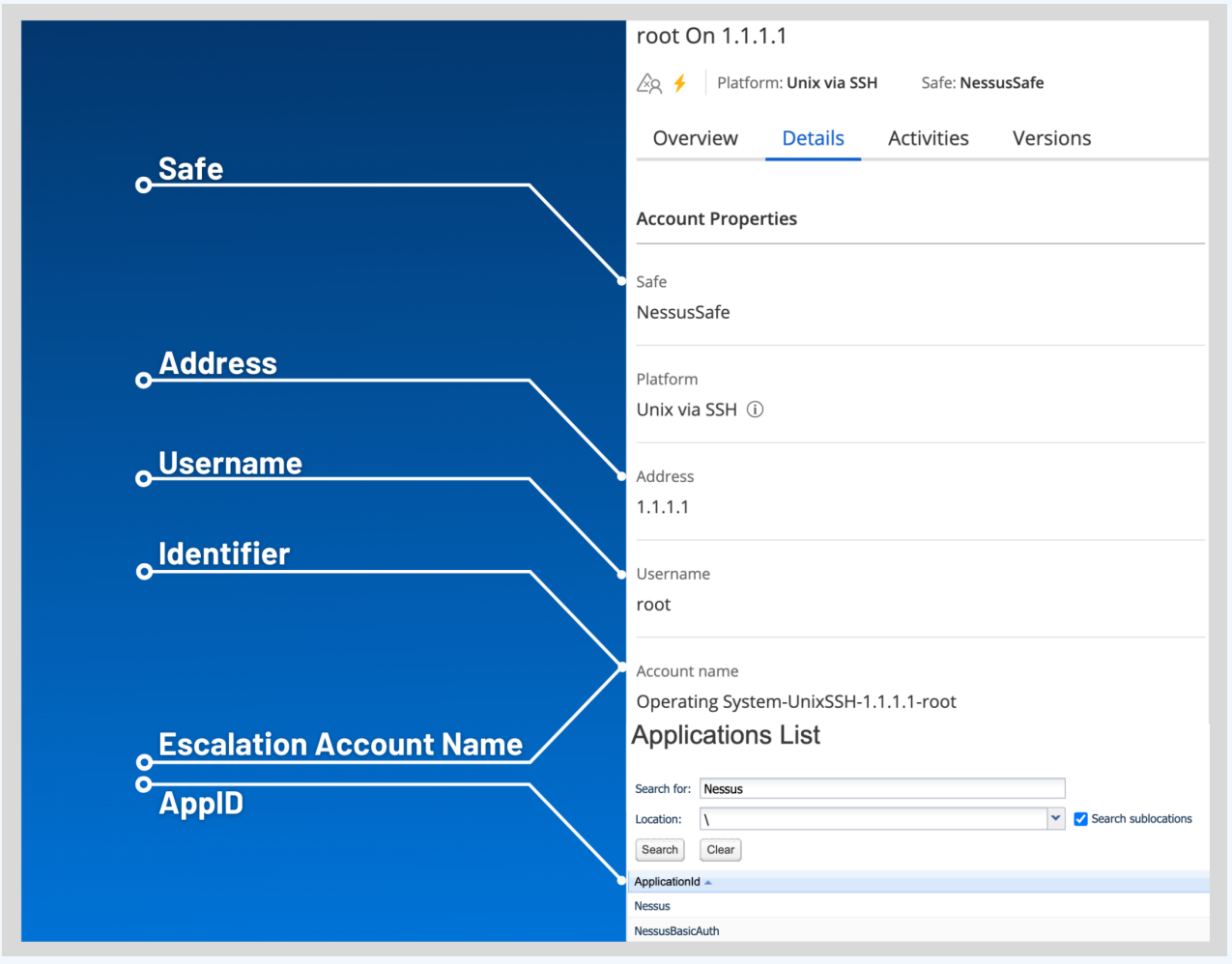
Parameters Options

The following options can be specified when **Get Credential By** is set to **Parameters**. These request parameters allow for advanced filtering of accounts based on their properties. The options correspond to the various options supported by the CyberArk REST API, as found in CyberArk documentation. These options can be specified in many different combinations to

filter account results by their properties. For example, specifying **Root** as the **Folder** option results in a REST API query containing `&Folder=Root`.

Option	Description	Required
Safe	The safe containing the credential.	no
Address	Limit the query to accounts matching the specified address.	no
Use Target IP Address	(Optional) When enabled, the integration appends the target address to the credential query, which limits the query to accounts matching the scan target's address. This is ignored if **Address** is set.	no
Username	The username of the credential.	no
Account Name	The unique identifier assigned to the credential.	no
Folder	The folder of the credential.	no
Database	The database of the credential.	no
Query	Specify a custom "free query" using account properties. When this method is specified, all other search criteria are ignored.	no
Query Format	Defines the query format. allowed values are **Exact** and **Regexp**. The default is **Exact**. This value is ignored unless the **Query** option was specified.	no

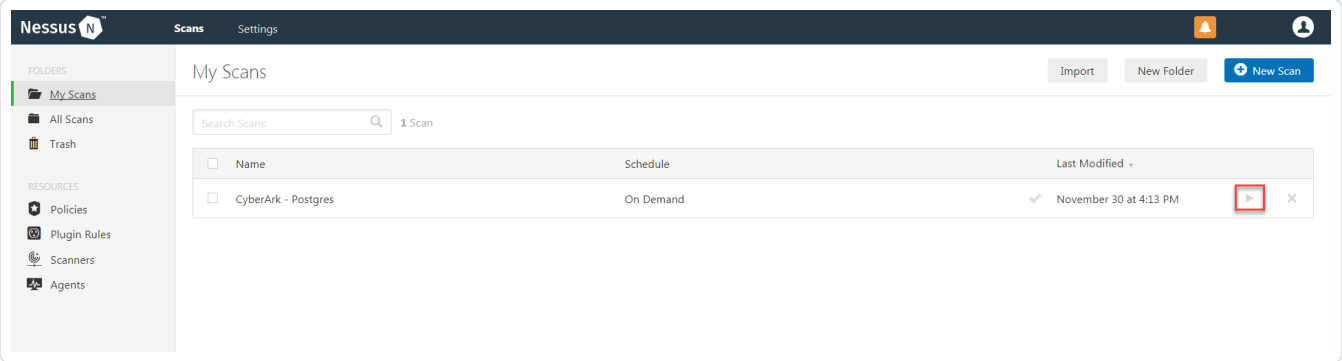
CyberArk credential field mapping to the CyberArk Accounts detail view in the CyberArk console:



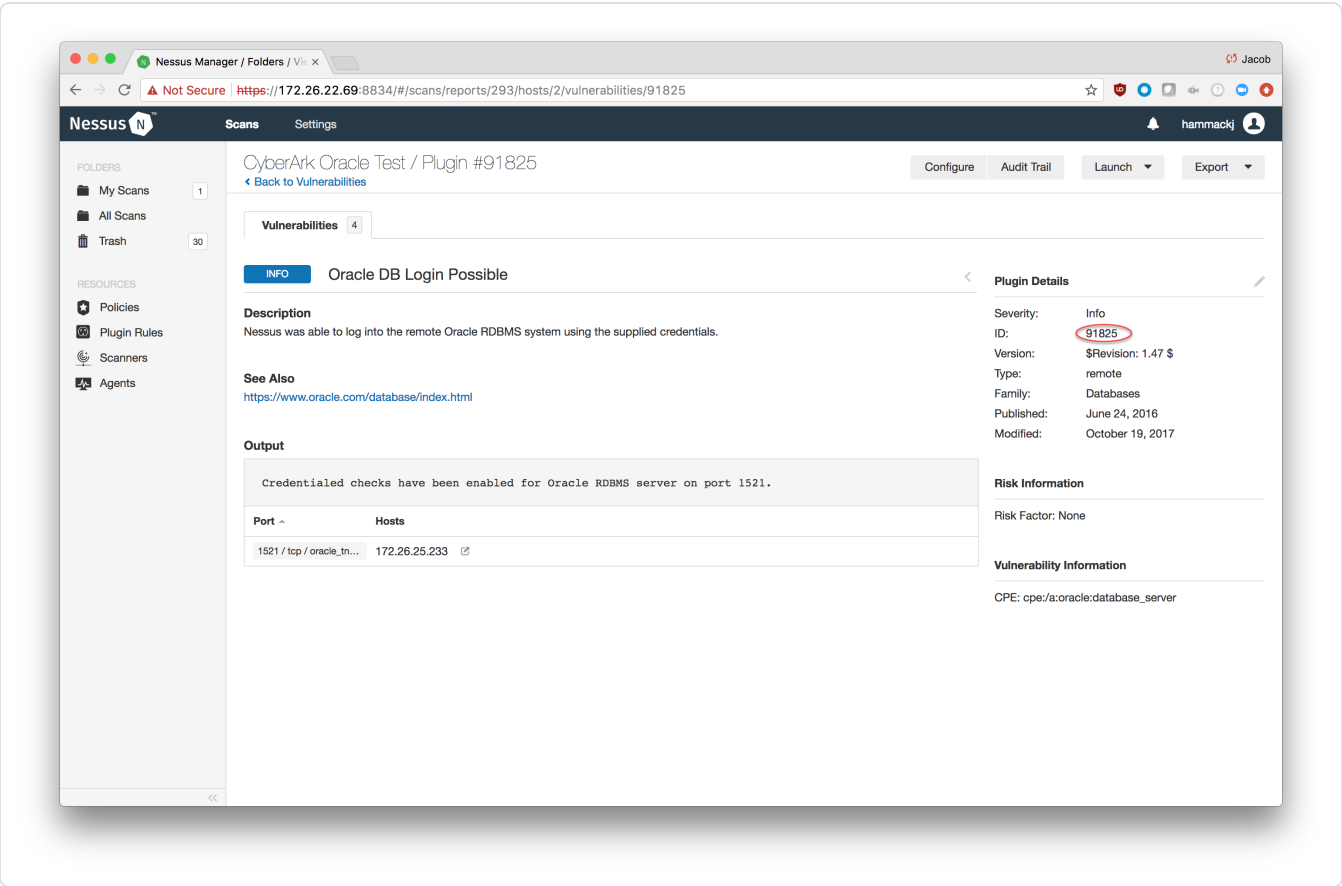
13. Click **Save**.

Verification

1. To verify the integration is working, click the **Launch** button (highlighted below) to initiate an on-demand scan.



2. Once the scan has completed, select the completed scan. Look for the corresponding **ID** (see chart below), which validates that authentication was successful. If the authentication is not successful, refer to the Debugging CyberArk Issues section of this document.



Privilege Escalation With CyberArk Credentials

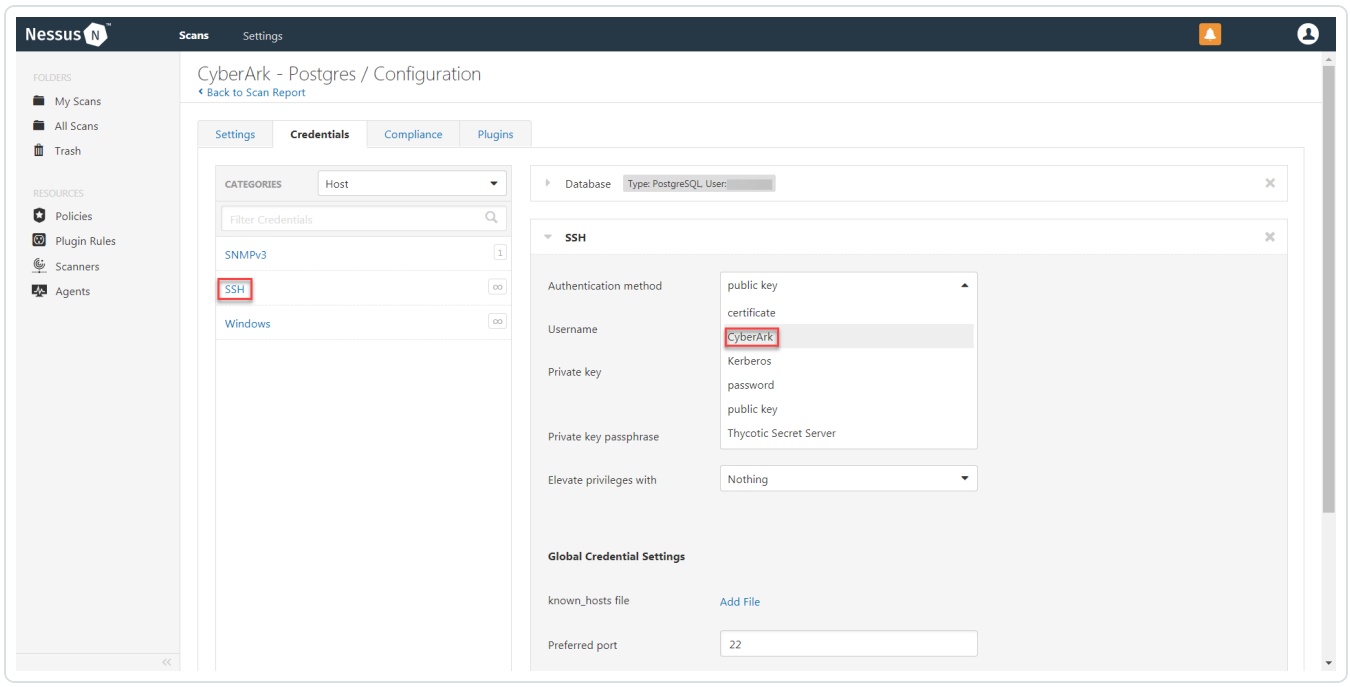
Tenable Nessus Manager supports the use of privilege escalation, such as *su* and *sudo*, when using SSH through the CyberArk authentication method.

Requirements:

- CyberArk account
- Nessus Manager account

To configure SSH integration:

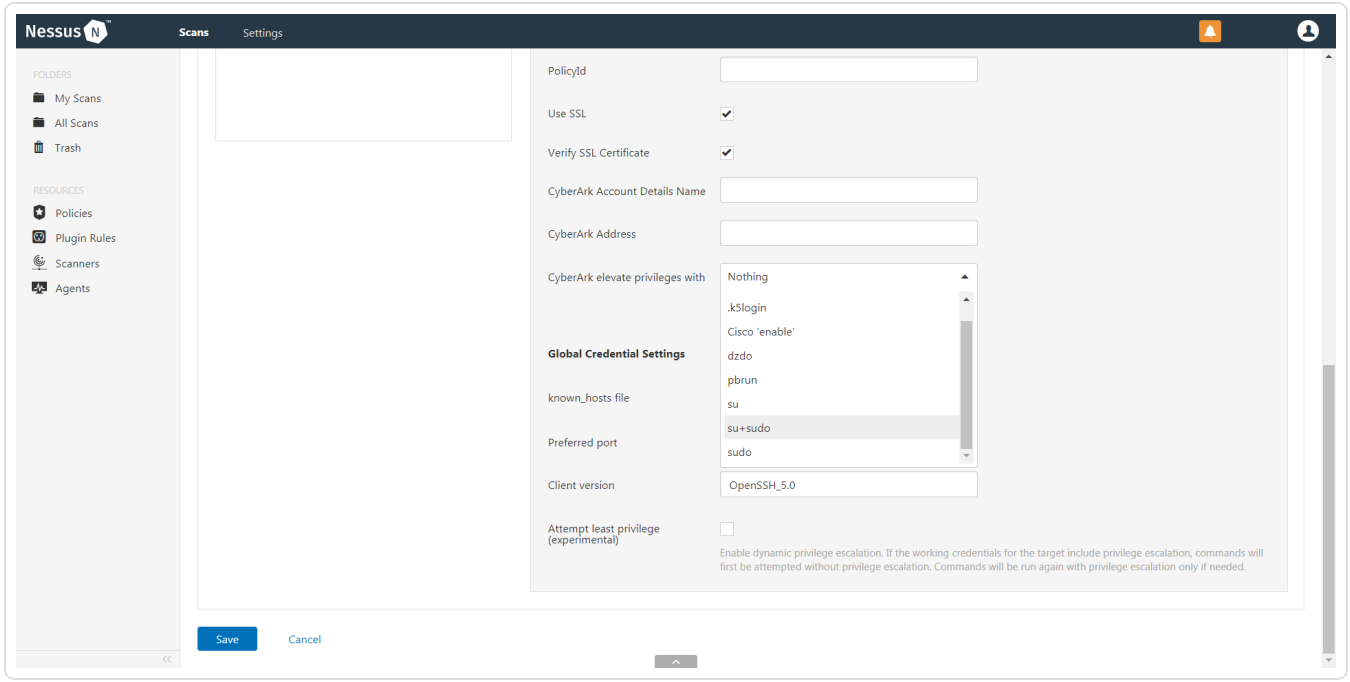
1. Select **SSH** as the **Type** and CyberArk as the **Authentication Method.**



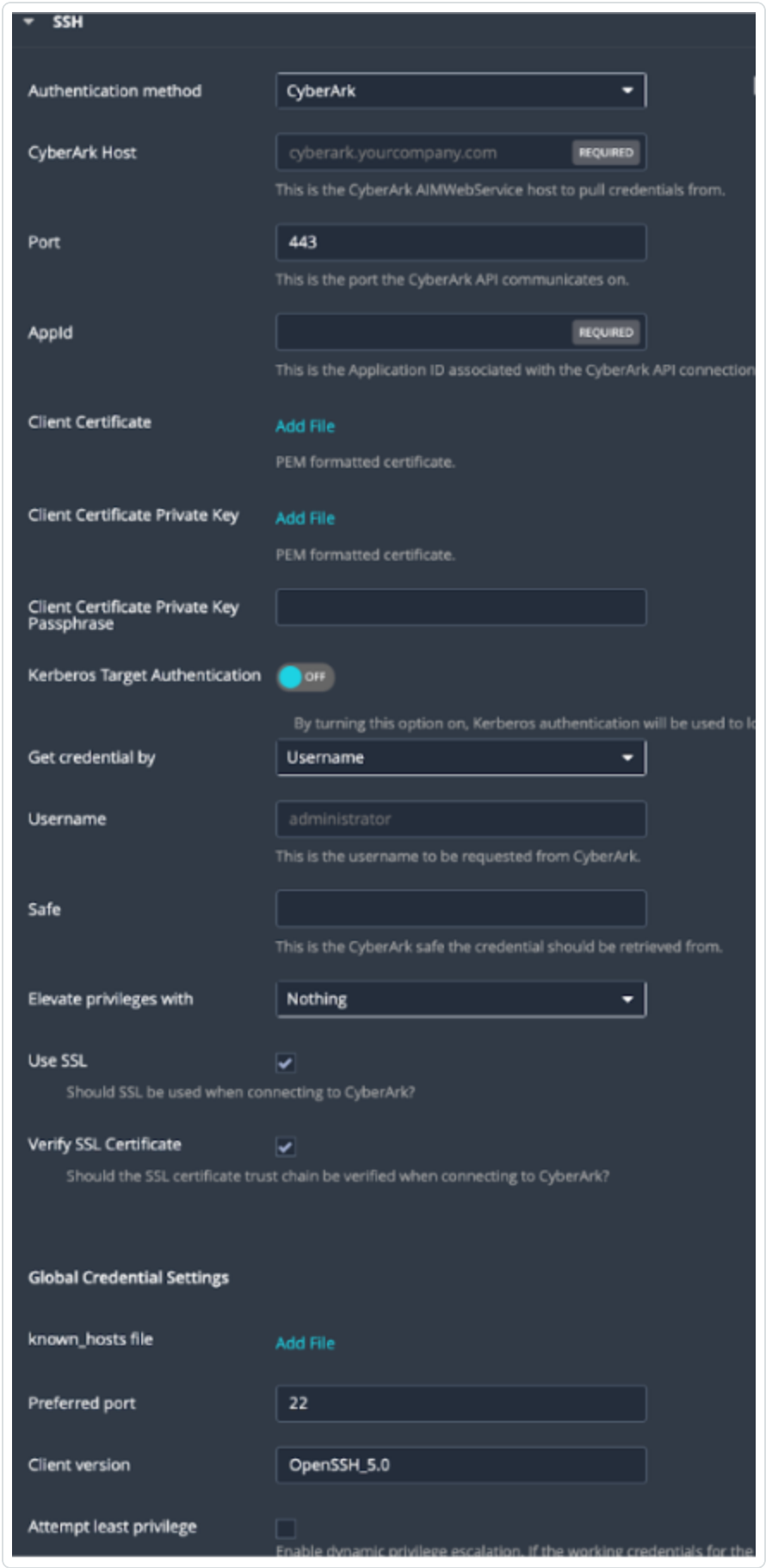
2. An option for **CyberArk elevate privileges with** appears near the bottom of the configuration page.

> **Note:** Multiple options for privilege escalation are supported, including *su*, *su+sudo* and *sudo*. For example, if **sudo** is selected, additional fields for **sudo user**, **Get Escalation Credential By**, and **Location of sudo** (directory) are provided and can be completed to support authentication and privilege escalation through CyberArk Password Vault.

> **Note:** Additional information about all of the supported privilege escalation types and their accompanying fields can be found in the Nessus User Guide.



3. Configure each field for SSH authentication. See the Nessus User Guide to get detailed descriptions for each option.


SSH
Authentication method
CyberArk
CyberArk Host
cyberark.yourcompany.com
REQUIRED
This is the CyberArk AIMWebService host to pull credentials from.
Port
443
This is the port the CyberArk API communicates on.
AppId
REQUIRED
This is the Application ID associated with the CyberArk API connection
Client Certificate
Add File
PEM formatted certificate.
Client Certificate Private Key
Add File
PEM formatted certificate.
Client Certificate Private Key Passphrase
Kerberos Target Authentication
OFF
By turning this option on, Kerberos authentication will be used to l
Get credential by
Username
Username
administrator
This is the username to be requested from CyberArk.
Safe
This is the CyberArk safe the credential should be retrieved from.
Elevate privileges with
Nothing
Use SSL
Should SSL be used when connecting to CyberArk?
Verify SSL Certificate
Should the SSL certificate trust chain be verified when connecting to CyberArk?
Global Credential Settings
known_hosts file
Add File
Preferred port
22
Client version
OpenSSH_5.0
Attempt least privilege
Enable dynamic privilege escalation. If the working credentials for the

> **Note:** The **Username** option also adds the **Address** parameter of the API query and assigns the target IP of the resolved host to the **Address** parameter. This may lead to failure to fetch credentials if the CyberArk Account Details **Address** field contains a value other than the target IP address.

4. Click **Save**.

Windows Integration

Tenable Nessus Manager provides an option for CyberArk Windows integration. Complete the following steps to configure Tenable Nessus Manager with CyberArk for Windows.

Requirements:

- CyberArk account
- Nessus Manager account

To configure Windows integration:

1. Log in to Nessus.
2. Click **Scans**.
3. Click **+ New Scans**.

   The **Scan Templates** page appears.
4. Select a **Scan Template.**

   The selected scan template appears.
5. In the **Name** box, type a name for the scan.
6. In the **Targets** box, type an IP address, hostname, or range of IP addresses.
7. (Optional) Add a description, folder location, scanner location, and specify target groups.
8. Click the **Credentials** tab.

   The **Credentials** options appear.
9. In the left-hand menu, select **Windows**.

10. Click **Authentication method**.

    A drop-down appears.

11. Select **CyberArk**.

12. Configure each field for **Windows** authentication.

    Caution: Tenable strongly recommends encrypting communication between the Nessus scanner and the CyberArk AIM gateway using HTTPS and/or client certificates. For information on securing the connection, refer to the Nessus User Guide and the **Central Credential Provider Implementation Guide** located at cyberark.com (login required).

Option	Description	Required
CyberArk Host	The IP address or FQDN name for the CyberArk AIM Web Service. This can be the host, or the host with a custom URL added on in a single string.	yes
Port	The port on which the CyberArk API communicates. By default, Tenable uses 443.	yes
AppID	The Application ID associated with the CyberArk API connection.	yes
Client Certificate	The file that contains the PEM certificate used to communicate with the CyberArk host. **Note:** Customers self-hosting CyberArk CCP on a Windows Server 2022 and above should follow the guidance found in Tenable's Community post about CyberArk Client Certification Authentication Issue.	no
Client Certificate Private Key	The file that contains the PEM private key for the client certificate.	yes, if private key is applied
Client Certificate Private Key Passphrase	The passphrase for the private key, if required.	yes, if private key is applied

Option	Description	Required
Kerberos Target Authentication	If enabled, Kerberos authentication is used to log in to the specified Linux or Unix target.	no
Key Distribution Center (KDC)	(Required if Kerberos Target Authentication is enabled) This host supplies the session tickets for the user.	yes
KDC Port	The port on which the Kerberos authentication API communicates. By default, Tenable uses 88.	no
KDC Transport	The KDC uses TCP by default in Linux implementations. For UDP, change this option. If you need to change the KDC Transport value, you may also need to change the port as the KDC UDP uses either port 88 or 750 by default, depending on the implementation.	no
Domain	(Required if Kerberos Target Authentication is enabled) The domain to which Kerberos Target Authentication belongs, if applicable.	yes
Get credential by	The method with which your CyberArk API credentials are retrieved. Can be **Address**, **Identifier**, **Parameters**, or **Username**. **Note:** For more information about the **Parameters** option, refer to the **Parameters Options** table. **Note:** The frequency of queries for **Username** is one query per target. The frequency of queries for **Identifier** is one query per chunk. This feature requires all targets have the same identifier.	yes
Username	(If **Get credential by** is set to **Username**) The username of the CyberArk user to request a	no

Option	Description	Required
	password from.	
Safe	The CyberArk safe the credential should be retrieved from.	no
Address	The option should only be used if the Address value is unique to a single CyberArk account credential.	no
Account Name	(If **Get credential by** is **Identifier**) The unique account name or identifier assigned to the CyberArk API credential.	no
Use SSL	If enabled, the scanner uses SSL through IIS for secure communications. Enable this option if CyberArk is configured to support SSL through IIS.	no
Verify SSL Certificate	If enabled, the scanner validates the SSL certificate. Enable this option if CyberArk is configured to support SSL through IIS and you want to validate the certificate.	no

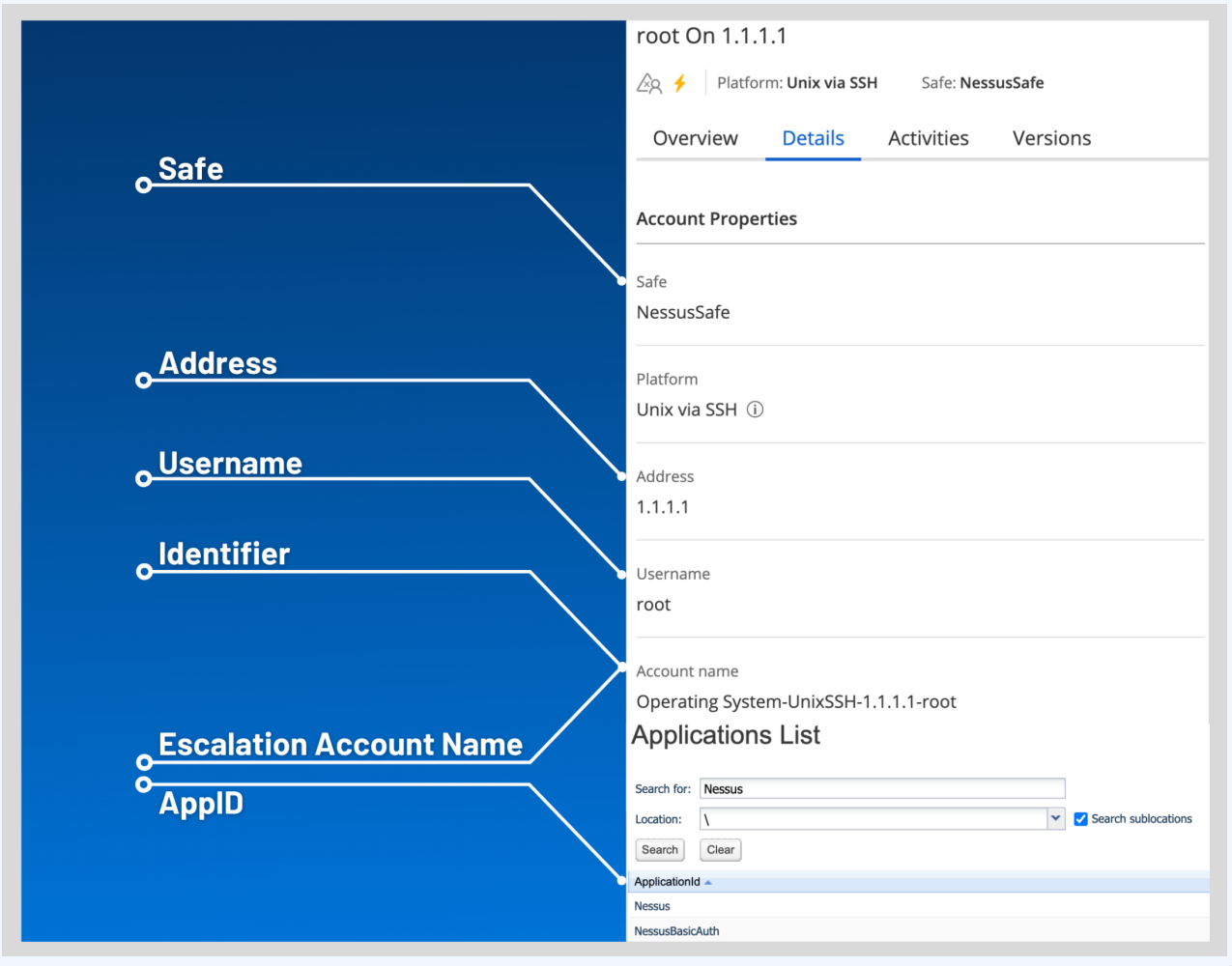
Parameters Options

The following options can be specified when **Get Credential By** is set to **Parameters**. These request parameters allow for advanced filtering of accounts based on their properties. The options correspond to the various options supported by the CyberArk REST API, as found in CyberArk documentation. These options can be specified in many different combinations to filter account results by their properties. For example, specifying **Root** as the **Folder** option results in a REST API query containing `&Folder=Root`.

Option	Description	Required
Safe	The safe containing the credential.	no
Address	Limit the query to accounts matching the specified address.	no

Option	Description	Required
Use Target IP Address	(Optional) When enabled, the integration appends the target address to the credential query, which limits the query to accounts matching the scan target's address. This is ignored if **Address** is set.	no
Username	The username of the credential.	no
Account Name	The unique identifier assigned to the credential.	no
Folder	The folder of the credential.	no
Database	The database of the credential.	no
Query	Specify a custom "free query" using account properties. When this method is specified, all other search criteria are ignored.	no
Query Format	Defines the query format. allowed values are **Exact** and **Regexp**. The default is **Exact**. This value is ignored unless the **Query** option was specified.	no

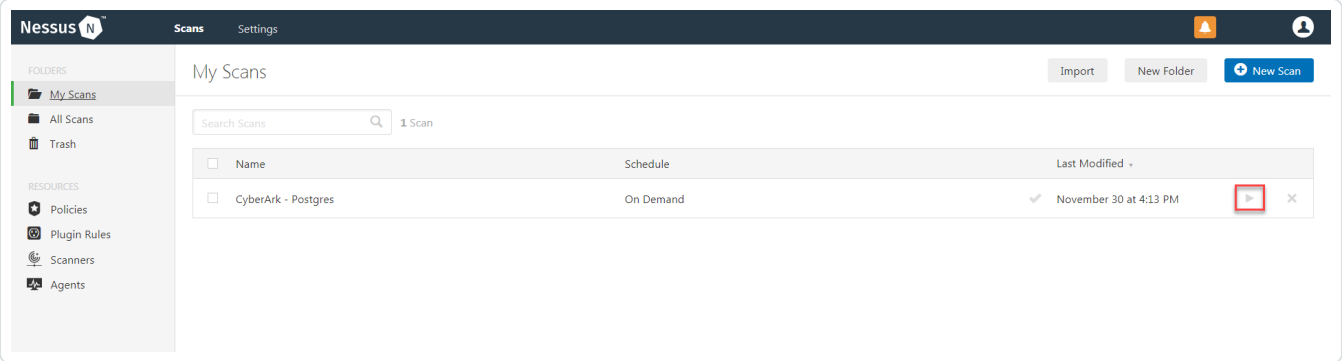
CyberArk credential field mapping to the CyberArk Accounts detail view in the CyberArk console:



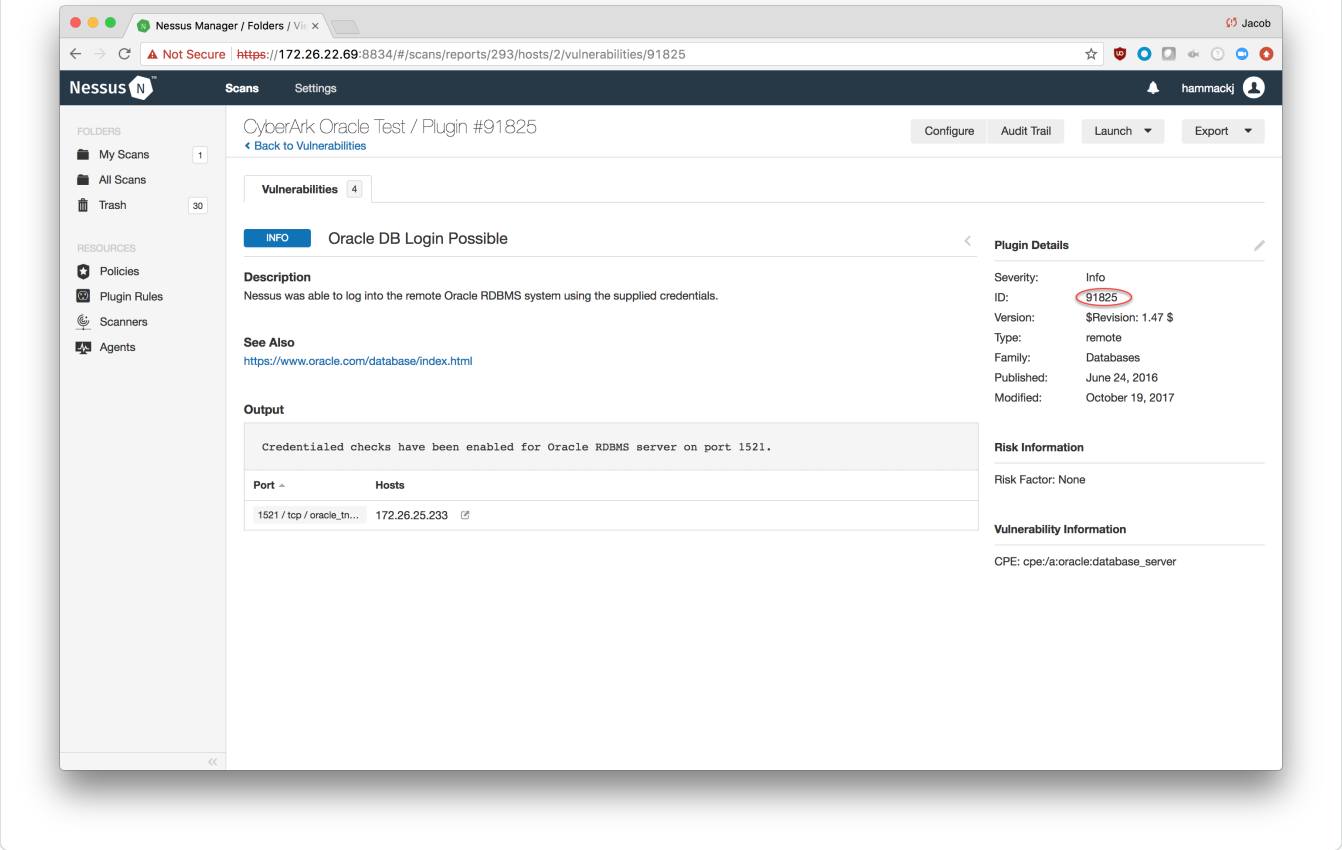
13. Click **Save**.

Verification

1. To verify the integration is working, click the **Launch** button (highlighted below) to initiate an on-demand scan.



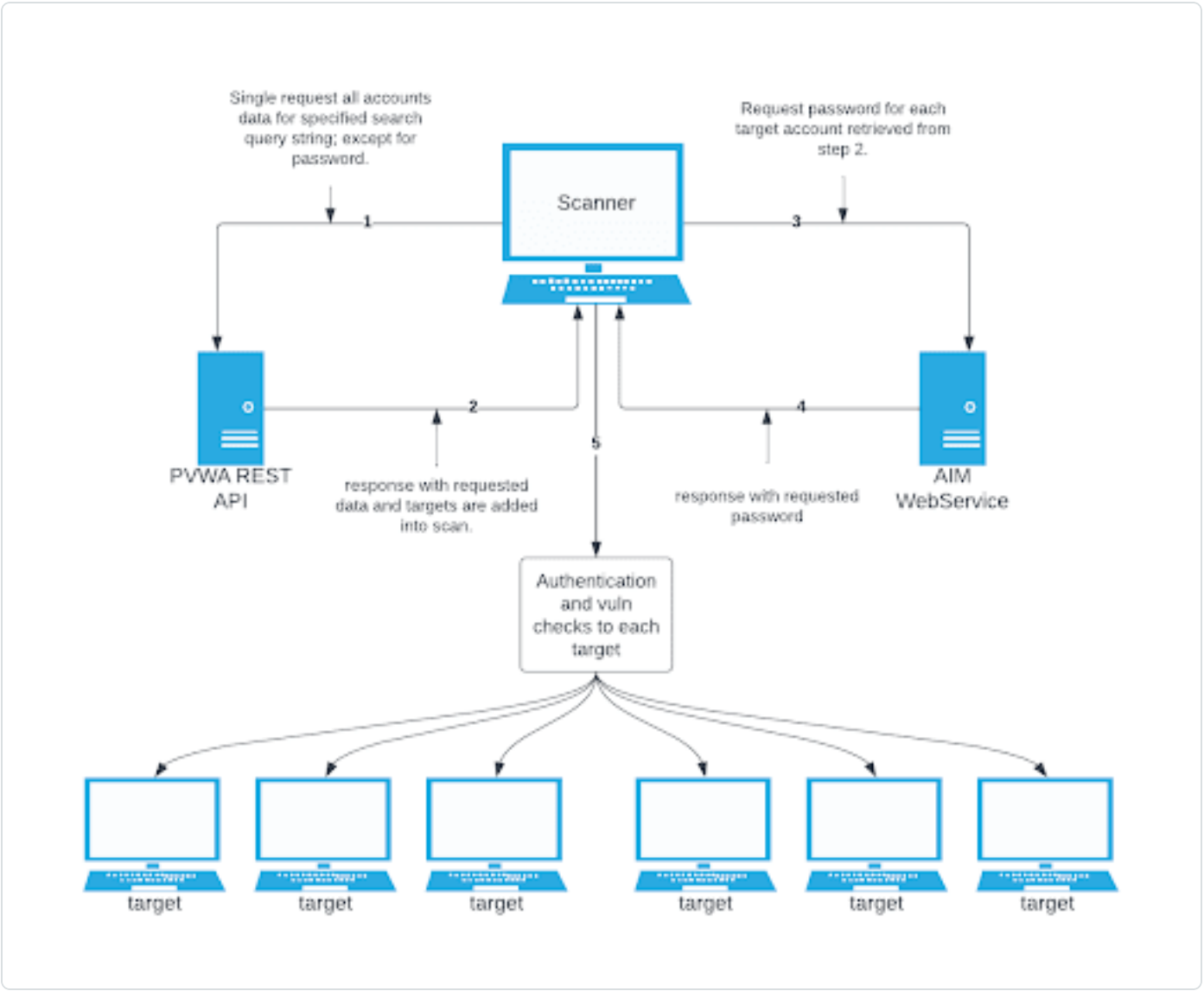
2. Once the scan has completed, select the completed scan. Look for the corresponding **ID** (see chart below), which validates that authentication was successful. If the authentication is not successful, refer to the Debugging CyberArk Issues section of this document.



CyberArk Dynamic Scanning

You can now take advantage of a significant improvement to Tenable's CyberArk integration which gathers bulk account information for specific target groups without entering multiple targets. You need to enter only one target in the settings (which is arbitrary and not used as an actual target). This target is used to kick off the process of collection and nothing more. You can configure up to five unique credentials in a scan policy that represent specific target groups.

The integration feature takes advantage of CyberArk's Password Vault Web Access (PVWA) REST API, by gathering bulk account information for a large volume of hosts, automatically adding them to the scan, and requesting the password on a host-by-host basis from CCP/AIM Web Service application. You must have a CyberArk version that contains the PVWA REST API to use this feature.



Collection

The initial collection of accounts (except the password) is done once and on the arbitrary target/host entered in the target settings of the scan policy mentioned in the beginning of each section (SSH, Windows, and Database). Logs for the collection can be found in the **Debugging Log Reporting** on this particular host in the following logs:

- Database = `pam_database_auto_collect.nbin~CyberArk`
- SSH = `pam_ssh_auto_collect.nbin~CyberArk`
- Windows = `pam_smb_auto_collect.nbin~CyberArk`

Adding targets to the scan automatically

After the collection process, the integration performs automatic addition of the hosts and necessary host's knowledge bases (KBs). Before adding hosts to the scan, the integration checks that an `address` value was present. This process is contingent upon that value. In addition, the integration tries to resolve that host (address value) within your network. Once it determines that a resolvable host (address value) is present, the integration adds the host (and certain data gathered as KBs) used to query the password and/or used for authentication to the host. As a supplemental log for identifying successfully resolved hosts against unsuccessfully resolved hosts, the integration provides logs present on the arbitrary host:

- Database = `pam_database_auto_collect.log`
- SSH = `pam_ssh_auto_collect.log`
- Windows = `pam_smb_auto_collect.log`

Database example:

```
[2023-07-19 17:24:35] Start injecting kb's and hosts for 4 accounts.
[2023-07-19 17:24:35] Attempting to resolve host from CyberArk Address :
172.26.25.107
[2023-07-19 17:24:35] Attempting to resolve host from CyberArk Address :
172.26.28.153
[2023-07-19 17:24:35] Attempting to resolve host from CyberArk Address :
172.26.25.107
[2023-07-19 17:24:35] Attempting to resolve host from CyberArk Address :
auditmsss2016
[2023-07-19 17:24:35] Failed to resolve host from CyberArk Address :
auditmsss2016
[2023-07-19 17:24:35] End injecting kb's and hosts
Number of hosts retrieved from CyberArk : 4
Number of hosts failed to resolve : 1
List of failed hosts. CyberArk Address  : make_nested_list(
  'auditmsss2016'
)
[2023-07-19 17:24:35] Auto-collection of database hosts complete for :
CyberArk
```

In the example database log, we have a host `auditmsss2016` that Tenable Nessus could not resolve on the network. This host is not added to the scan. An error returned from the function `fqdn_resolv()` triggers the creation of separate logs that show more detail called:

- Database = `pam_database_auto_collect_resolv_func.log`
- SSH = `pam_ssh_auto_collect_resolv_func.log`
- Windows = `pam_smb_auto_collect_resolv_func.log`

In addition, you can see in the example log that we have a `duplicate` host. The Tenable Nessus engine handles that naturally, so more than one record does not appear in the host table.

Password collection

After the collection and addition of host and KBs is complete, the authentication process kicks off on each of the hosts. To eliminate the possibility of requesting a password for either the arbitrary host (input by the user) or a host not containing the necessary query parameters, a condition is set in place within logins, `ssh_settings`, and `database_settings` to avoid this. Host by host, the integration calls AIM Web Service for the password using four unique query parameters that avoid requesting a password for the wrong target: safe, object, username, and address. As far as logs go, this is no different (on the host level) than "normal."

- Database = `database_settings.nasl~CyberArk`
- SSH = `ssh_settings.nasl~CyberArk`
- Windows = `logins.nasl~CyberArk`

Configuration methods:

- Database Auto-Discovery
- SSH Auto-Discovery
- Windows Auto-Discovery

Database Auto-Discovery

You need to configure new user interface field properties in addition to the default account properties in CyberArk and PrivateArk, as database authentication requires additional data. `Port` and `Database` are already available, but some database platforms in CyberArk need these added to

the user interface properties. `AuthType` and `ServiceType` are new, so you must add them to PrivateArk first, then configure them to the applicable database platform type user interface properties in CyberArk Web console.

Note: The Address field in the CyberArk Account Details for an account/host must contain a valid IP/FQDN and must be resolvable on the user's network. This value is vetted during the collection and discovery process. Address values that are null or unresolvable will not be added to the scan.

Note: All Database Type in Tenable are supported. (Oracle, DB2, Cassandra, MySQL, PostgreSQL, Sybase ASE, MongoDB, and SQL Server)

View the following tables for necessary fields and Database Types they apply to.

Oracle

Field name	Description	Field value
Port	The port database instance is running on.	Example: 1521
AuthType	Method to authenticate to database.	SYSDBA or SYSOPER or NORMAL
Database	Instance or database name.	Example: orcl
ServiceType	Type of service on database.	SID or SERVICE_NAME

MongoDB

Field name	Description	Field value
Port	The port database instance is running on.	Example: 27017
Database	Instance or database name.	Example: MongoDB 5

PostgreSQL

Field name	Description	Field value
Port	The port database instance is running on.	Example: 5432
Database	Instance or database name.	Example: Postgre

Cassandra

Field name	Description	Field value
Port	The port database instance is running on.	Example: 9042

DB2

Field name	Description	Field value
Port	The port database instance is running on.	Example: 50000
Database	Instance or database name.	Example: DB2_admin

MySQL

Field name	Description	Field value
Port	The port database instance is running on.	Example: 3306

SQL Server

Field name	Description	Field value
Port	The port database instance is running on.	Example: 1433
AuthType	Method to authenticate to database.	Windows or SQL
Database	Instance or database name.	Example: SQLEXPRESS

Requirements:

- CyberArk account
- Nessus Manager account

To configure database auto-discovery:

1. Log in to Tenable Nessus Manager.
2. Click **Scans**.

The **My Scans** page appears.

3. Click **+ New Scan.**

   The **Scan Templates** page appears.

4. Select a **Scan Template**. For demonstration, the **Advanced Network Scan** template is used.

   The scan configuration page appears.

5. In the **Name** box, type a name for the scan.
6. In the **Targets** box, type an IP address, hostname, or range of IP addresses.
7. (Optional) Add a description, folder location, scanner location, and specify target groups.
8. Click the **Credentials** tab.

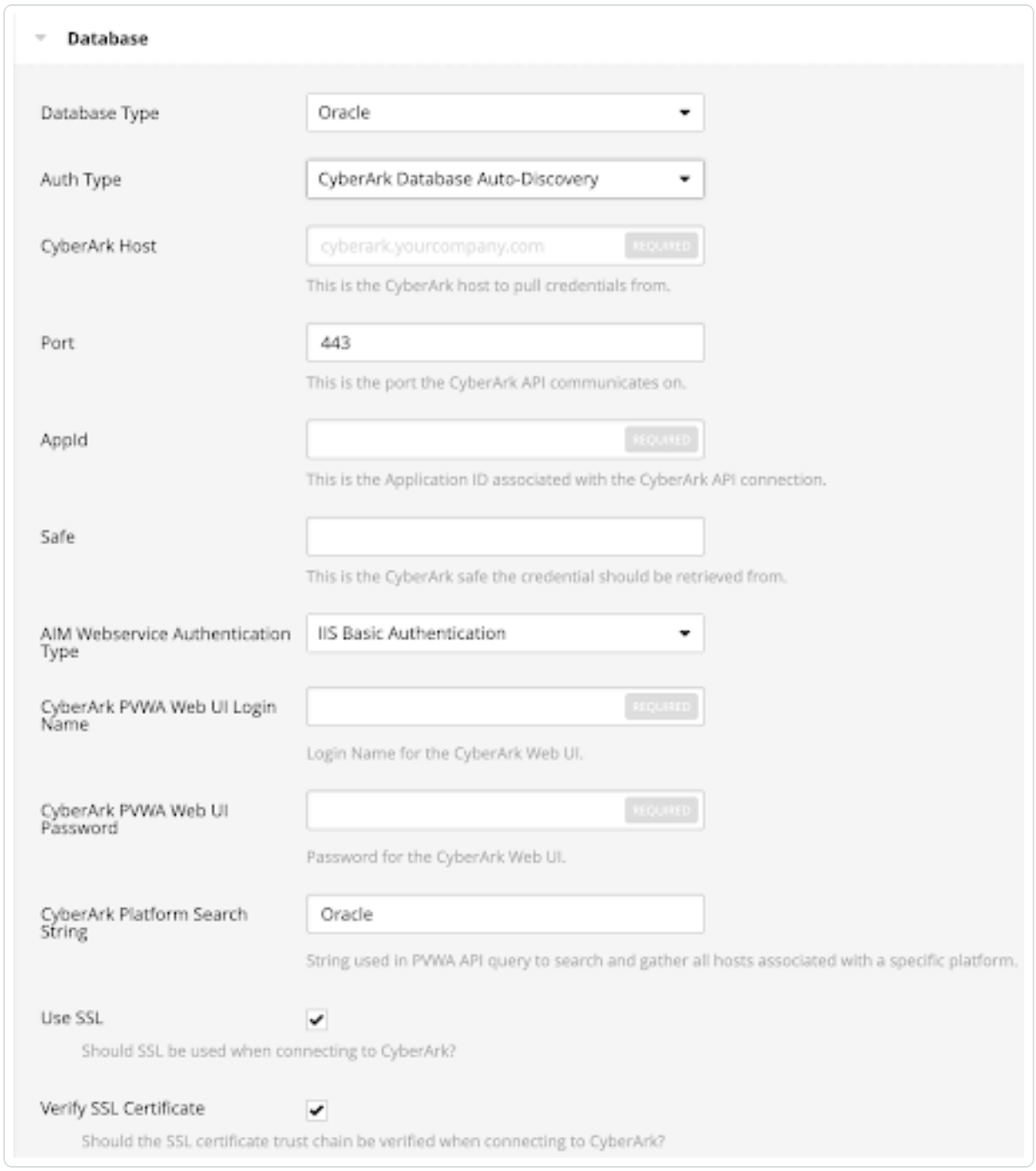
   The **Credentials** pane appears.

9. Click the **Database** option.

   The **Database** options appear.

10. From the **Database Type** drop-down, select **Oracle**.
11. From the **Auth Type** drop-down, select **CyberArk Database Auto-Discovery**.

    The **CyberArk Database Auto-Discovery** field options appear:



12. Configure each field for the **Database** authentication.

Option	Description	Required
CyberArk Host	The IP address or FQDN name for the user's CyberArk Instance.	yes

Option	Description	Required
	Note: Customers hosting the PVWA and CCP on separate servers should only use this field for the PVWA host.	
Port	The port on which the CyberArk API communicates. By default, Tenable uses 443. **Note:** Customers hosting the PVWA and CCP on separate servers should only use this field for the PVWA host.	yes
CCP Host	The IP address or FQDN name for the user's CyberArk CCP component. **Note:** Customers hosting the PVWA and CCP on separate servers should only use this field for the PVWA host.	no
CCP Port	The port on which the CyberArk CCP (AIM Web Service) API communicates. By default, Tenable uses 443. **Note:** Customers hosting the PVWA and CCP on separate servers should only use this field for the PVWA host.	no
AppID	The Application ID associated with the CyberArk API connection.	yes
Safe	Users may optionally specify a Safe to gather account information and request passwords.	no
AIM Web Service Authentication Type	There are two authentication methods established in the feature. IIS Basic Authentication and Certificate Authentication. Certificate Authentication can be either encrypted or	yes

Option	Description	Required
	unencrypted.	
CyberArk PVWA Web UI Login Name	Username to log in to CyberArk web console. This is used to authenticate to the PVWA REST API and gather bulk account information.	yes
CyberArk PVWA Web UI Login Password	Password for the username to log in to CyberArk web console. This is used to authenticate to the PVWA REST API and gather bulk account information.	yes
CyberArk Platform Search String	String used in the PVWA REST API query parameters to gather bulk account information. For example, the user can enter `Oracle Admin TestSafe`, to gather all Oracle platform accounts containing a username `Admin` in a Safe called `TestSafe`. **Note:** This is a non-exact keyword search. A best practice would be to create a custom platform name in CyberArk and enter that value in this field to improve accuracy.	yes
Use SSL	If enabled, the scanner uses SSL through IIS for secure communications. Enable this option if CyberArk is configured to support SSL through IIS.	yes
Verify SSL Certificate	If enabled, the scanner validates the SSL certificate. Enable this option if CyberArk is configured to support SSL through IIS and you want to validate the certificate.	no

Caution: Tenable strongly recommends encrypting communication between your on-site scanner and the CyberArk AIM gateway using HTTPS and/or client certificates. For information on securing the connection, refer to the Tenable Vulnerability Management User Guide and the **Central Credential Provider Implementation Guide** located at cyberark.com (login required).

13. Click **Save**.

SSH Auto-Discovery

> **Note:** The Address field in the CyberArk Account Details for an account/host must contain a valid IP/FQDN and must be resolvable on your network. This value is vetted during the collection and discovery process. Address values that are null, or unresolvable, are not added to the scan.

> **Note:** Privilege Escalation is available, but only using the SUDO method at this time. More research is needed to explore other escalation methods.

> **Note:** SSH Key authentication is supported, but escalated privileges after SSH Key authentication is not available at this time.

To configure SSH auto-discovery:

1. Log in to Tenable Nessus Manager.
2. Click **Scans**.

   The **My Scans** page appears.
3. Click **+ New Scan.**

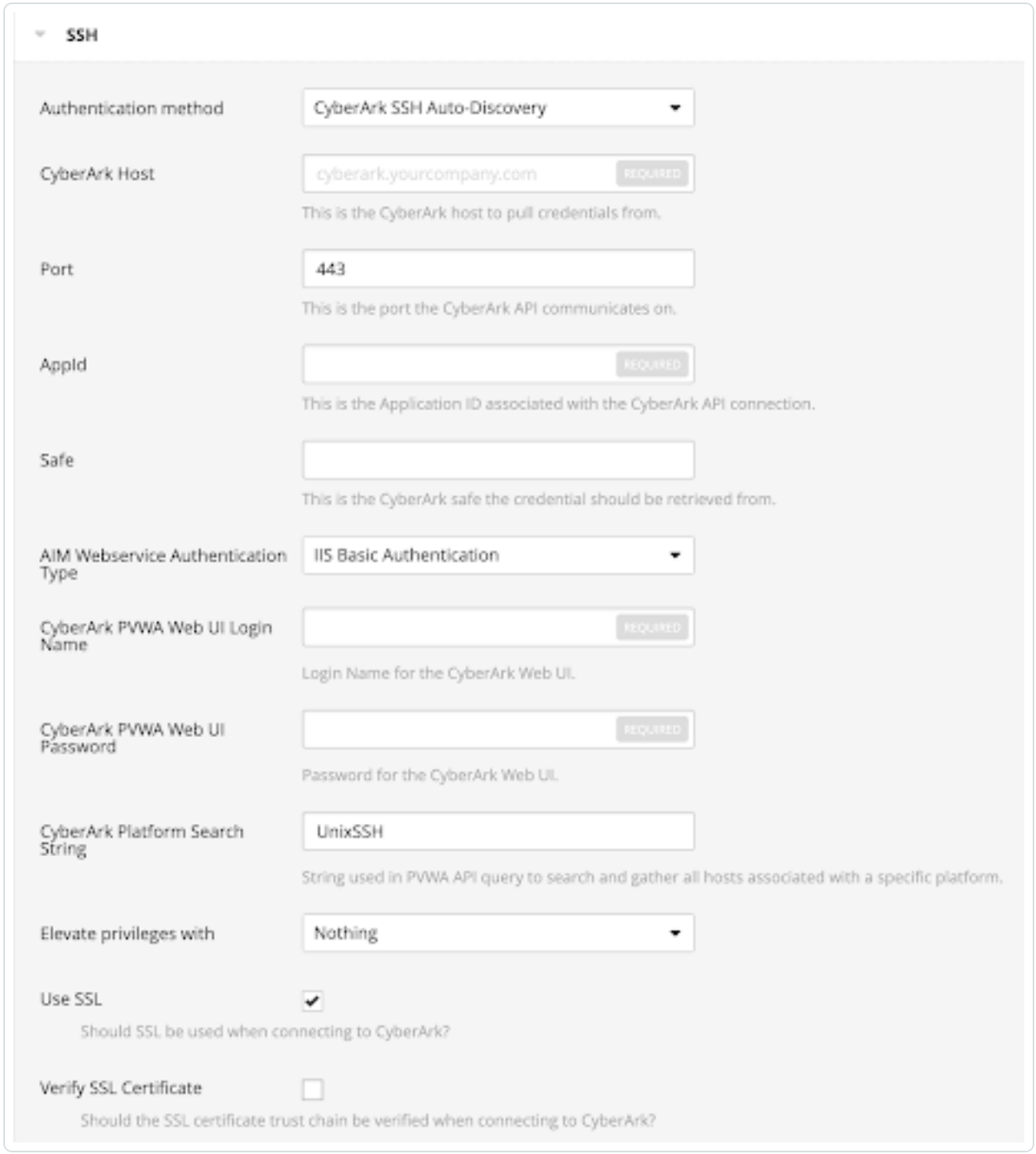
   The **Scan Templates** page appears.
4. Select a **Scan Template**.

   The scan configuration page appears.
5. In the **Name** box, type a name for the scan.
6. In the **Targets** box, type an IP address, hostname, or range of IP addresses.
7. (Optional) Add a description, folder location, scanner location, and specify target groups.
8. Click the **Credentials** tab.

   The **Credentials** pane appears.
9. In the **Select a Credential** menu, select the **Host** drop-down..
10. Select **SSH**.

11. From the **Authentication Method** drop-down, select **CyberArk SSH Auto-Discovery**.

    The **CyberArk SSH Auto-Discovery** field options appear:



12. Configure each field for the **SSH** authentication.

Option	Description	Required
CyberArk Host	The IP address or FQDN name for the user's CyberArk Instance. **Note:** Customers hosting the PVWA and CCP on separate servers should only use this field for the PVWA host.	yes
Port	The port on which the CyberArk API communicates. By default, Tenable uses 443. **Note:** Customers hosting the PVWA and CCP on separate servers should only use this field for the PVWA host.	yes
CCP Host	The IP address or FQDN name for the user's CyberArk CCP component. **Note:** Customers hosting the PVWA and CCP on separate servers should only use this field for the PVWA host.	no
CCP Port	The port on which the CyberArk CCP (AIM Web Service) API communicates. By default, Tenable uses 443. **Note:** Customers hosting the PVWA and CCP on separate servers should only use this field for the PVWA host.	no
AppID	The Application ID associated with the CyberArk API connection.	yes
Safe	Users may optionally specify a Safe to gather account information and request passwords.	no
AIM Web Service	There are two authentication methods established	yes

Option	Description	Required
Authentication Type	in the feature. **IIS Basic Authentication** and **Certificate Authentication**. Certificate Authentication can be either encrypted or unencrypted.	
CyberArk PVWA Web UI Login Name	Username to log in to CyberArk web console. This is used to authenticate to the PVWA REST API and gather bulk account information.	yes
CyberArk PVWA Web UI Login Password	Password for the username to log in to CyberArk web console. This is used to authenticate to the PVWA REST API and gather bulk account information.	yes
CyberArk Platform Search String	String used in the PVWA REST API query parameters to gather bulk account information. For example, the user can enter `UnixSSH Admin TestSafe`, to gather all UnixSSH platform accounts containing a username `Admin` in a Safe called `TestSafe`. **Note:** This is a non-exact keyword search. A best practice would be to create a custom platform name in CyberArk and enter that value in this field to improve accuracy.	yes
Elevate Privileges with	Users can only select Nothing or sudo at this time.	no
Use SSL	If enabled, the scanner uses SSL through IIS for secure communications. Enable this option if CyberArk is configured to support SSL through IIS.	yes
Verify SSL Certificate	If enabled, the scanner validates the SSL certificate. Enable this option if CyberArk is	no

Option	Description	Required
	configured to support SSL through IIS and you want to validate the certificate.	
Targets to Prioritize Credentials	Specify IPs or CIDR blocks on which this credential is attempted before any other credential. To specify multiple IPs or CIDR blocks, use a comma or space-separated list. Using this setting can decrease scan times by prioritizing a credential that you know works against your selected targets. For example, if your scan specifies 100 credentials, and the successful credential is the 59th credential out of 100, the first 58 credentials have to fail before the 59th credential succeeds. If you use **Targets To Prioritize Credentials**, you configure the scan to use the successful credential first, which allows the scan to access the target faster.	no

Caution: Tenable strongly recommends encrypting communication between your on-site scanner and the CyberArk AIM gateway using HTTPS and/or client certificates. For information on securing the connection, refer to the Tenable Vulnerability Management User Guide and the **Central Credential Provider Implementation Guide** located at cyberark.com (login required).

13. Click **Save**.

Windows Auto-Discovery

Note: The **Address** field in the CyberArk Account Details for an account/host must contain a valid IP/FQDN and must be resolvable on your network. This value is vetted during the collection and discovery process. Address values that are null or unresolvable will not be added to the scan.

Note: Domain support is included, but CyberArk accounts must make use of the **Domain** field provided in account set up.

To configure windows auto-discovery:

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

   The left navigation plane appears.
3. Click the **Credentials** tab.

   The **Credentials** pane appears.
4. In the left navigation plane, click **Settings**.

   The **Settings** page appears.
5. Click the **Credentials** widget.

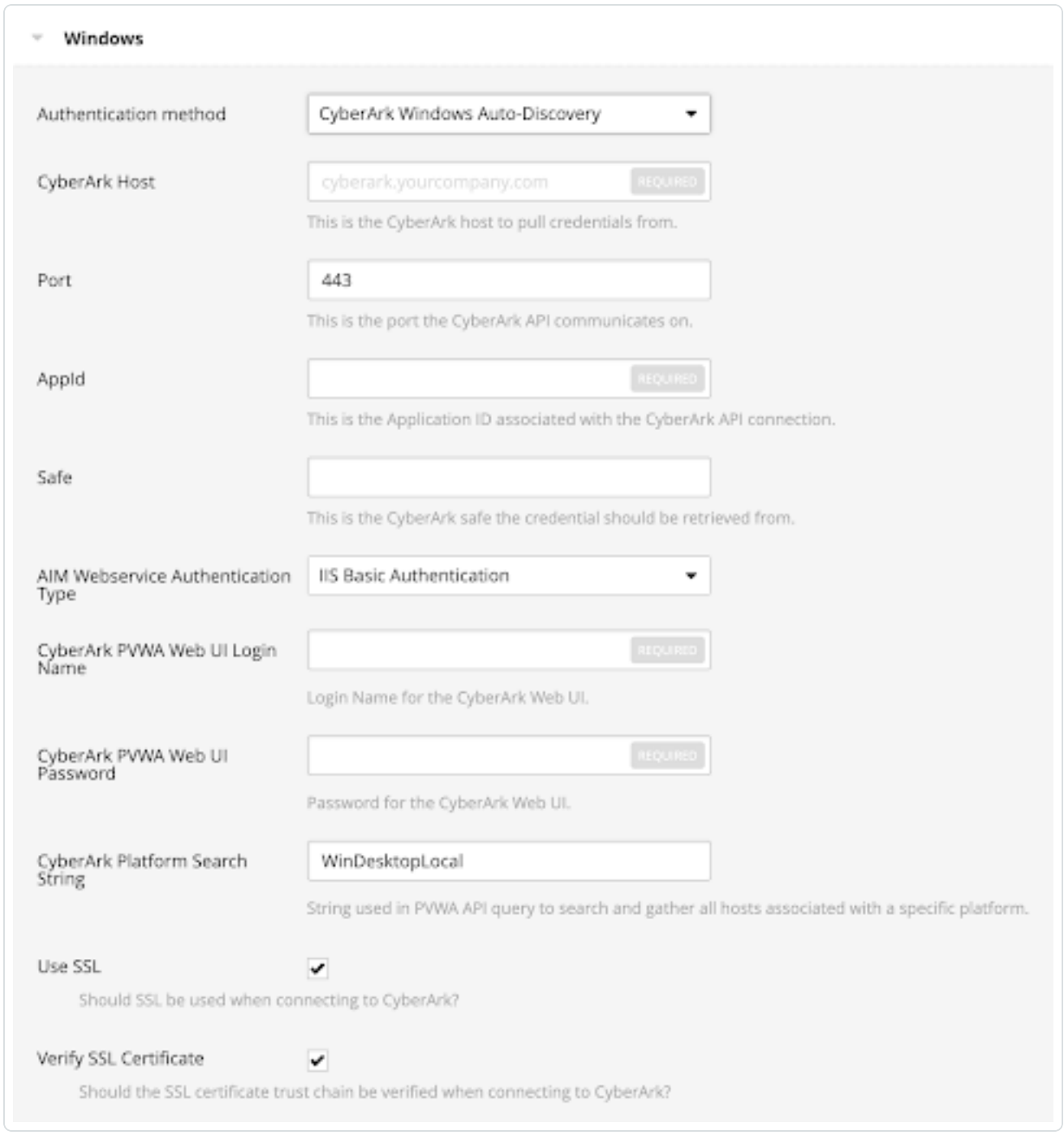
   The **Credentials** page appears. The credentials table lists the managed credentials you have permission to view.
6. Click the ⊕ button next to the **Credentials** title.

   The credential form plane appears.
7. Click the **Host** option.

   The **Host** options appear.
8. In the **Host** section, click **Windows**.

   The selected credential options appear.
9. From the **Authentication Method** drop-down, select **CyberArk Windows Auto-Discovery**.

   The **CyberArk Windows Auto-Discovery** field options appear:



10. Configure each field for the **Windows** authentication.

Option	Description	Required
CyberArk Host	The IP address or FQDN name for the user's CyberArk Instance.	yes

Option	Description	Required
	Note: Customers hosting the PVWA and CCP on separate servers should only use this field for the PVWA host.	
Port	The port on which the CyberArk API communicates. By default, Tenable uses 443. **Note:** Customers hosting the PVWA and CCP on separate servers should only use this field for the PVWA host.	yes
CCP Host	The IP address or FQDN name for the user's CyberArk CCP component. **Note:** Customers hosting the PVWA and CCP on separate servers should only use this field for the PVWA host.	no
CCP Port	The port on which the CyberArk CCP (AIM Web Service) API communicates. By default, Tenable uses 443. **Note:** Customers hosting the PVWA and CCP on separate servers should only use this field for the PVWA host.	no
AppID	The Application ID associated with the CyberArk API connection.	yes
Safe	Users may optionally specify a Safe to gather account information and request passwords.	no
AIM Web Service Authentication Type	There are two authentication methods established in the feature. **IIS Basic Authentication** and **Certificate Authentication**. Certificate Authentication can be either encrypted or	yes

Option	Description	Required
	unencrypted.	
CyberArk PVWA Web UI Login Name	Username to log in to CyberArk web console. This is used to authenticate to the PVWA REST API and gather bulk account information.	yes
CyberArk PVWA Web UI Login Password	Password for the username to log in to CyberArk web console. This is used to authenticate to the PVWA REST API and gather bulk account information.	yes
CyberArk Platform Search String	String used in the PVWA REST API query parameters to gather bulk account information. For example, the user can enter `UnixSSH Admin TestSafe`, to gather all Windows platform accounts containing a username `Admin` in a Safe called `TestSafe`. **Note:** This is a non-exact keyword search. A best practice would be to create a custom platform name in CyberArk and enter that value in this field to improve accuracy.	yes
Use SSL	If enabled, the scanner uses SSL through IIS for secure communications. Enable this option if CyberArk is configured to support SSL through IIS.	yes
Verify SSL Certificate	If enabled, the scanner validates the SSL certificate. Enable this option if CyberArk is configured to support SSL through IIS and you want to validate the certificate.	no

Caution: Tenable strongly recommends encrypting communication between your on-site scanner and the CyberArk AIM gateway using HTTPS and/or client certificates. For information on securing the connection, refer to the Tenable Vulnerability Management User Guide and the **Central Credential Provider Implementation Guide** located at cyberark.com (login required).

11. Click **Save**.

CyberArk (Legacy) Integration

Caution: Support for SOAP requests are no longer be supported by CyberArk as of December 31, 2024. If you are using the CyberArk Legacy Integration which utilizes SOAP for API requests, Tenable recommends using our non-Legacy CyberArk Integration which supports REST API requests.

View one of the following options for CyberArk legacy integration steps.

Database (Legacy) Integration

SSH (Legacy) Integration

Privilege Escalation (Legacy)

Windows (Legacy) Integration

Database (Legacy) Integration

Caution: Support for SOAP requests are no longer be supported by CyberArk as of December 31, 2024. If you are using the CyberArk Legacy Integration which utilizes SOAP for API requests, Tenable recommends using our non-Legacy CyberArk Integration which supports REST API requests.

Tenable Nessus Manager provides full database support for CyberArk. Complete the following steps to configure Tenable Nessus Manager with CyberArk Vault

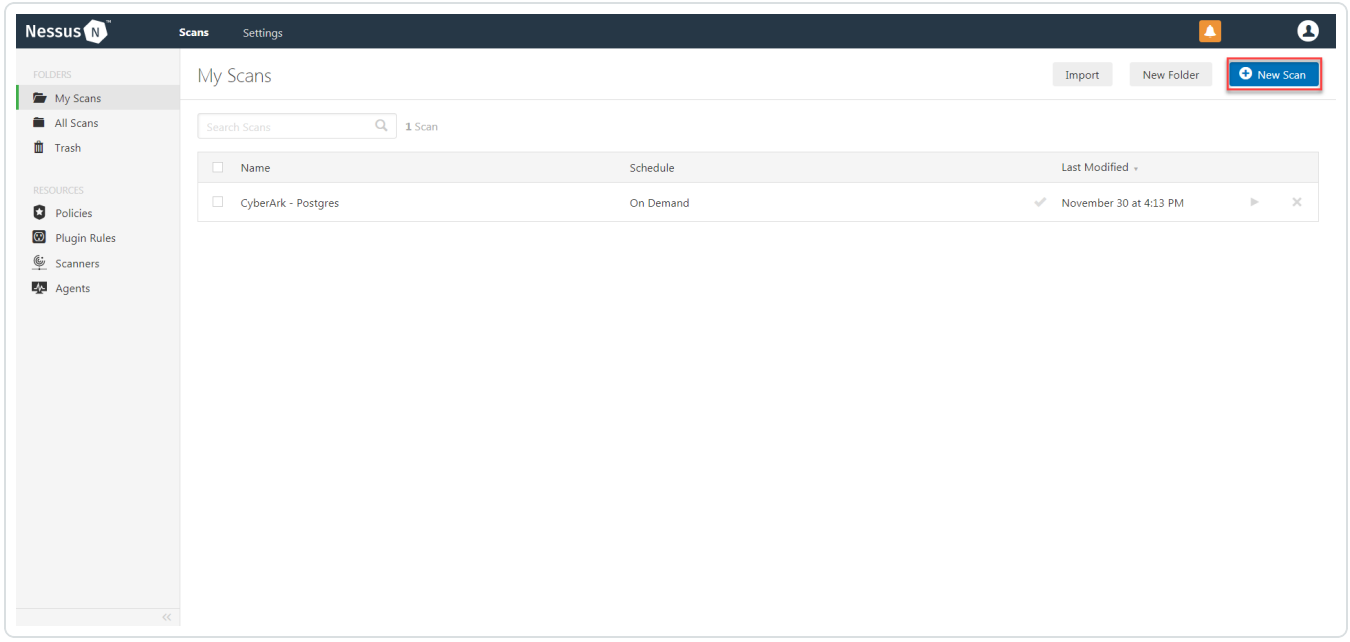
Requirements:

- CyberArk account
- Nessus Manager account

To configure Database integration:

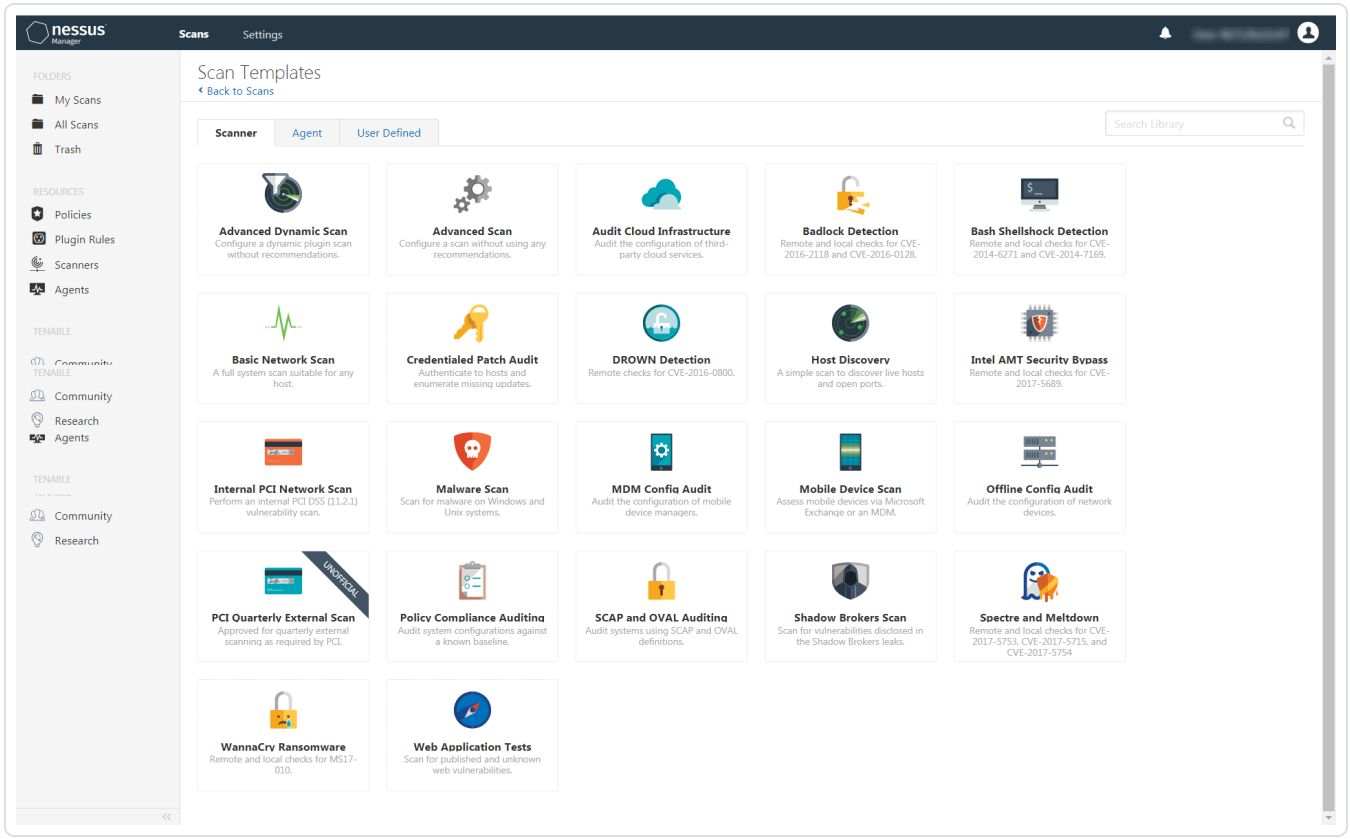
1. Log in to Tenable Nessus Manager-.
2. Click **Scans**.

   The **My Scans** page appears.
3. Click **+ New Scan.**



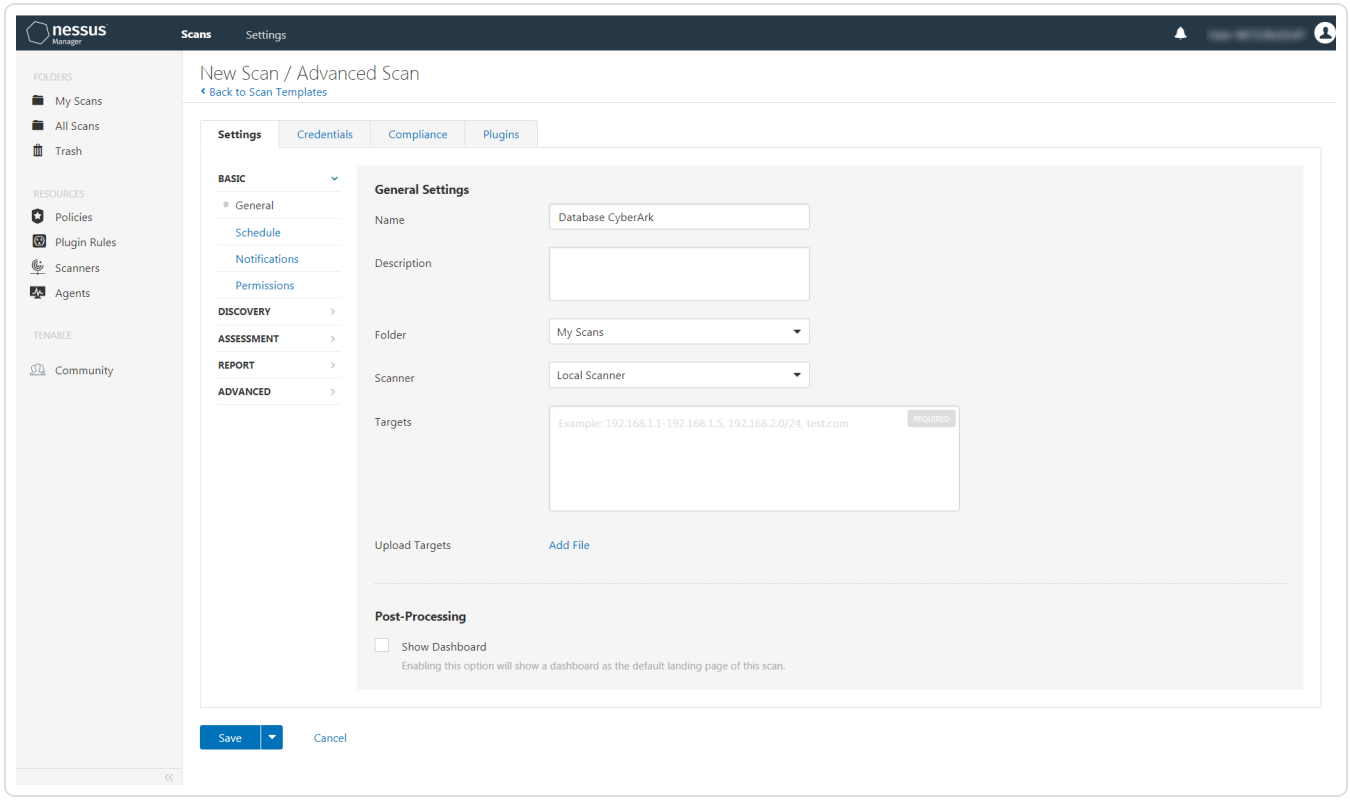
The **Scan Templates** page appears.

4. Select a **Scan Template**. For demonstration, the **Advanced Network Scan** template is used.



The scan configuration page appears.

5. In the **Name** box, type a name for the scan.
6. In the **Targets** box, type an IP address, hostname, or range of IP addresses
7. (Optional) You can add a description, folder location, scanner location, and specify target groups.



8. Click the **Credentials** tab.

   The **Credentials** options appear.

9. In the **Categories** drop-down, select **Database**.

   The **Database** options appear.

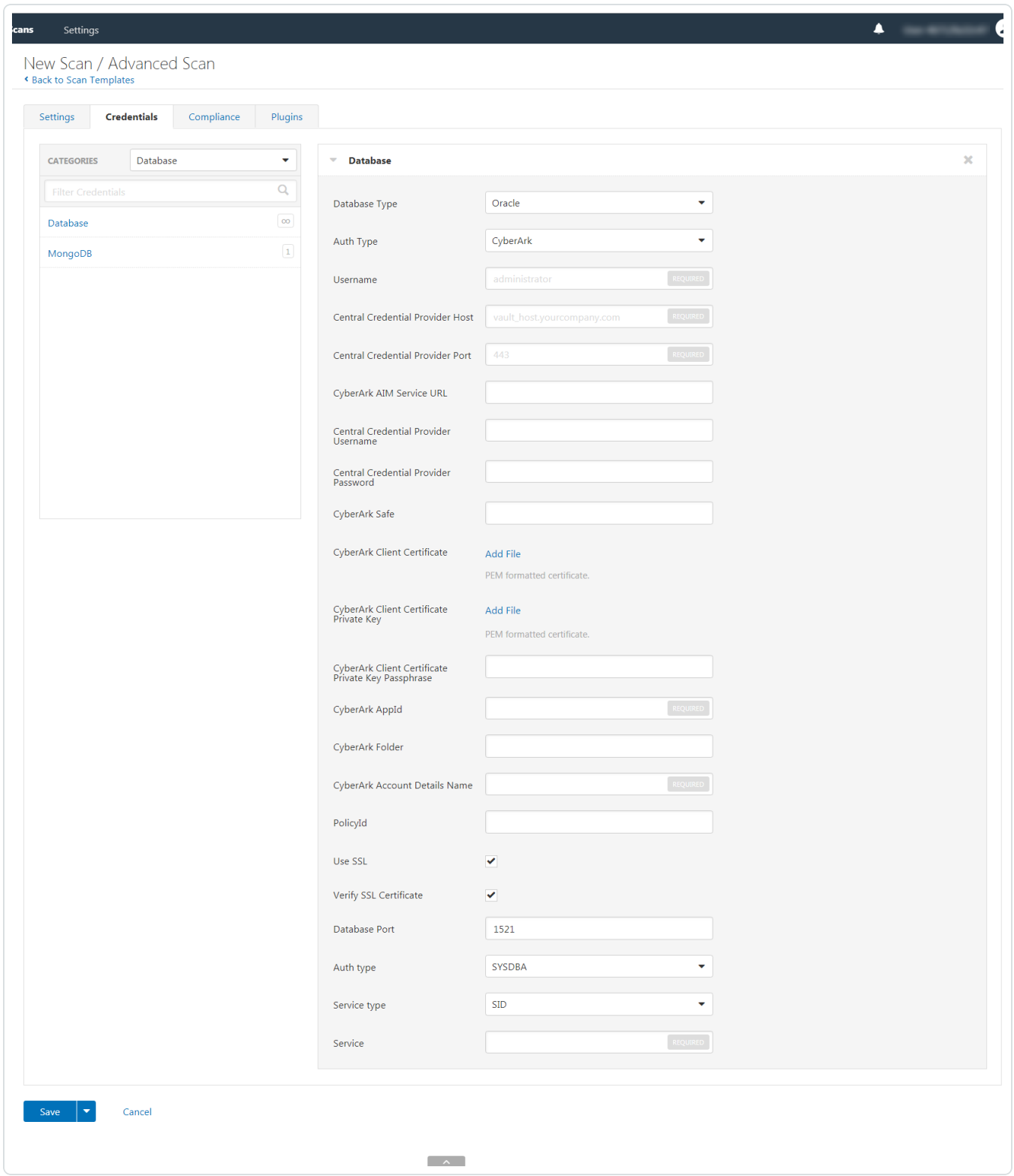
10. Click **Database**.

    The **Database** options appear.

11. Click the **Database Type** drop-down.
12. The **Database** field options appear.

13. From the **Database Type** drop-down, select **Oracle**.
14. From the **Auth Type** drop-down, select **CyberArk**.

    The **CyberArk** field options appear.
15. Configure each field for the **Database** authentication. See the Nessus User Guide to view detailed descriptions for each option.



Caution: Tenable strongly recommends encrypting communication between the Nessus scanner and the CyberArk AIM gateway using HTTPS and/or client certificates. For information on securing the

connection, refer to the Nessus User Guide and the **Central Credential Provider Implementation Guide** located at cyberark.com (login required).

16. Click **Save**.

SSH (Legacy) Integration

Caution: Support for SOAP requests are no longer be supported by CyberArk as of December 31, 2024. If you are using the CyberArk Legacy Integration which utilizes SOAP for API requests, Tenable recommends using our non-Legacy CyberArk Integration which supports REST API requests.

To configure SSH integration:

1. Log in to Nessus.
2. Click **Scans**.
3. Click **+ New Scan**.

   The **Scan Templates** page appears.
4. Select a **Scan Template**.

   The selected scan template appears.
5. In the **Name** box, type a name for the scan.
6. In the **Targets** box, type an IP address, hostname, or range of IP addresses.
7. (Optional) Add a description, folder location, scanner location, and specify target groups.
8. Click the **Credentials** tab.

   The Credentials options appear.
9. In the left-hand menu, select **SSH**.
10. Click **Authentication method**.

    A drop-down appears.
11. Select **CyberArk**.

The **CyberArk SSH** options appear.

12. Configure each field for **SSH** authentication.

Option	Description	Required
Username	The username of the target system.	yes
CyberArk AIM Service URL	The URL for the CyberArk AIM web service. By default, CyberArk_Nessus uses `/AIMWebservice/v1.1/AIM.asmx`.	no
Central Credential Provider Host	The CyberArk Central Credential Provider IP/DNS address.	yes
Central Credential Provider Port	The port on which the CyberArk Central Credential Provider is listening.	yes
Central Credential Provider Username	The username of the vault, if the CyberArk Central Credential Provider is configured to use basic authentication.	no
Central Credential Provider Password	The password of the vault, if the CyberArk Central Credential Provider is configured to use basic authentication.	no
Safe	The safe on the CyberArk Central Credential Provider server that contained the authentication information that you want to retrieve.	yes
CyberArk Client Certificate	The file that contains the PEM certificate used to communicate with the CyberArk host.	no
CyberArk	The file that contains the PEM private key for the	no

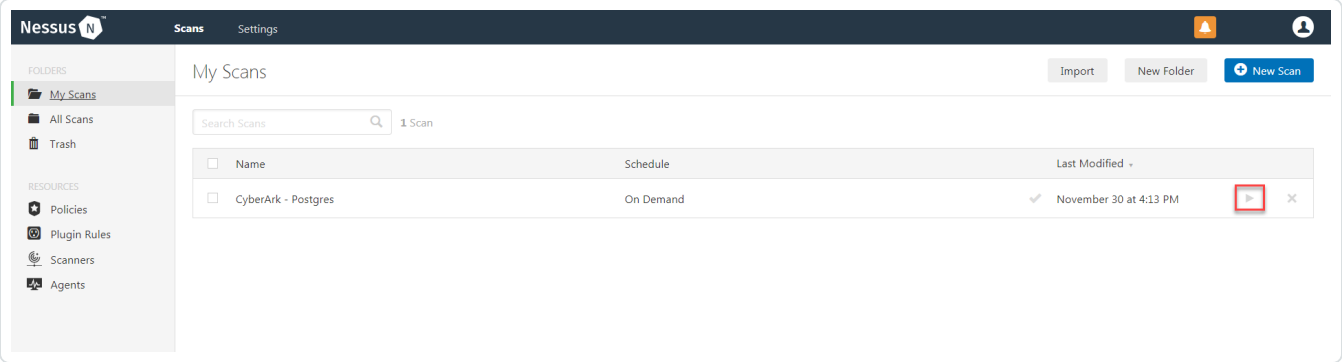
Option	Description	Required
Client Certificate Private Key	client certificate.	
CyberArk Client Certificate Private Key Passphrase	The passphrase for the private key, if required.	no
AppId	The AppId that has been allocated permissions on the CyberArk Central Credential Provider to retrieve the target password.	yes
Folder	The folder on the CyberArk Central Credential Provider server that contains the authentication information that you want to retrieve.	yes
PolicyId	The PolicyID assigned to the credentials that you want to retrieve from the CyberArk Central Credential Provider.	no
Use SSL	If CyberArk Central Credential Provider is configured to support SSL through IIS check for secure communication.	no
Verify SSL Certificate	If CyberArk Central Credential Provider is configured to support SSL through IIS and you want to validate the certificate check this. Refer to custom_CA.inc documentation for how to use self-signed certificates.	no
CyberArk Account Details Name	The unique name of the credential you want to retrieve from CyberArk.	no
CyberArk	The domain for the user account.	no

Option	Description	Required
Address		
CyberArk elevate privileges with	The privilege escalation method you want to use to increase users' privileges after initial authentication. Your selection determines the specific options you must configure.	no
Custom password prompt	The password prompt used by the target host. Only use this setting when an interactive SSH session fails due to CyberArk_Nessus receiving an unrecognized password prompt on the target host's interactive SSH shell.	no

13. Click **Save**.

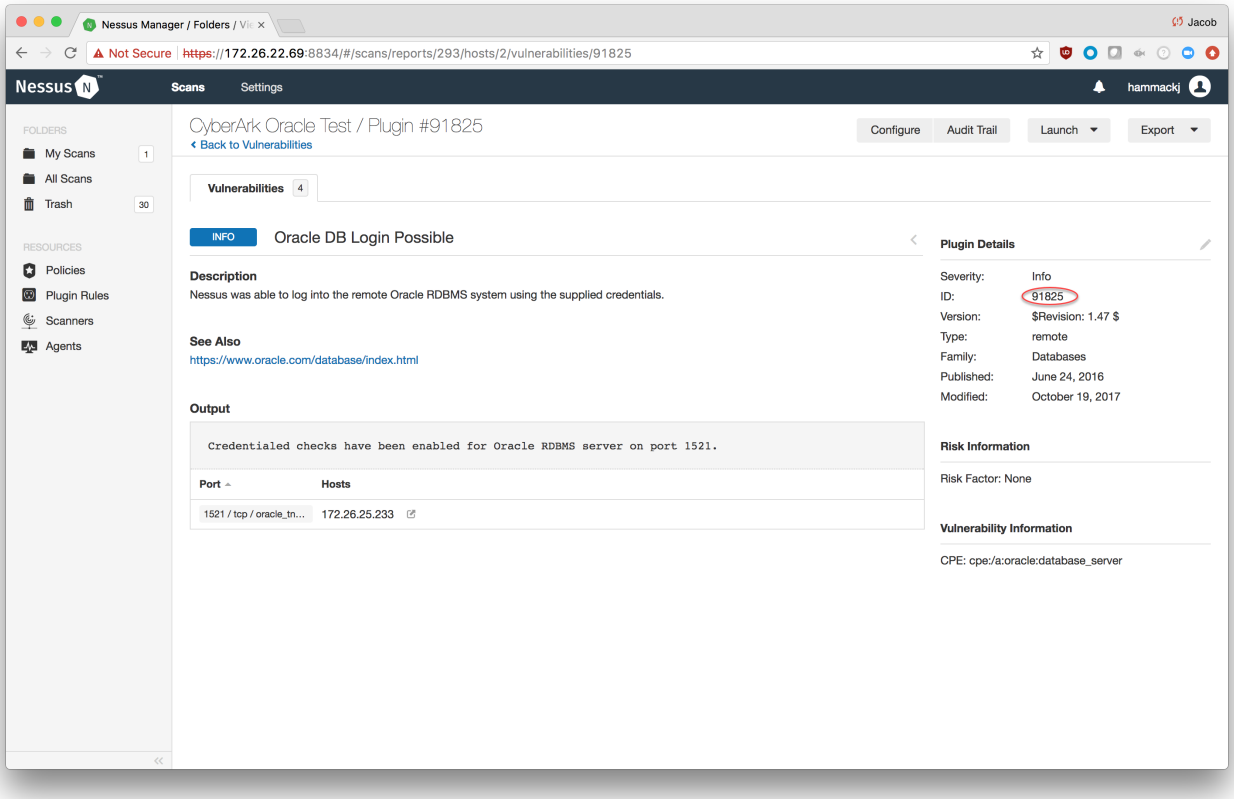
Verification

1. To verify the integration is working, click the **Launch** button (highlighted below) to initiate an on-demand scan.



2. Once the scan has completed, select the completed scan. Look for the corresponding **ID** (see chart below), which validates that authentication was successful. If the authentication is not

successful, refer to the Debugging CyberArk Issues section of this document.



Privilege Escalation With CyberArk (Legacy) Credentials

Caution: Support for SOAP requests are no longer be supported by CyberArk as of December 31, 2024. If you are using the CyberArk Legacy Integration which utilizes SOAP for API requests, Tenable recommends using our non-Legacy CyberArk Integration which supports REST API requests.

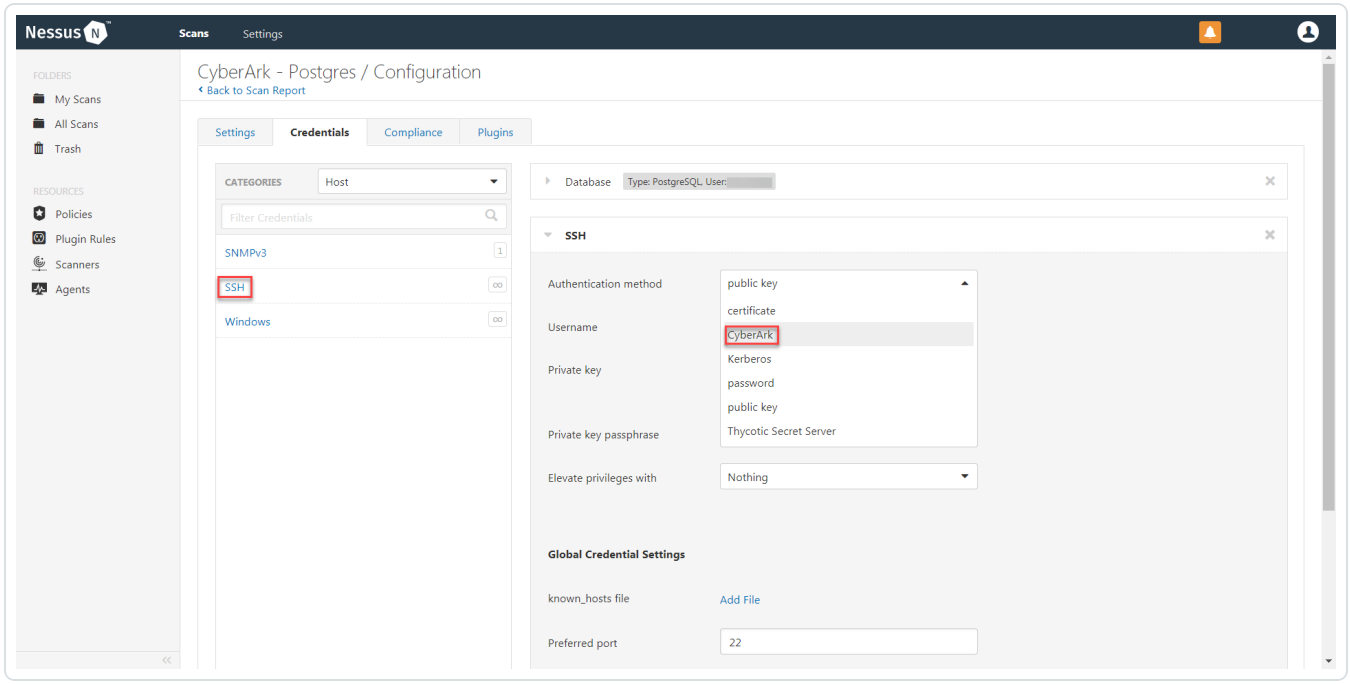
Tenable Nessus Manager supports the use of privilege escalation, such as *su* and *sudo*, when using SSH through the CyberArk authentication method.

Requirements:

- CyberArk account
- Nessus Manager account

To configure SSH integration:

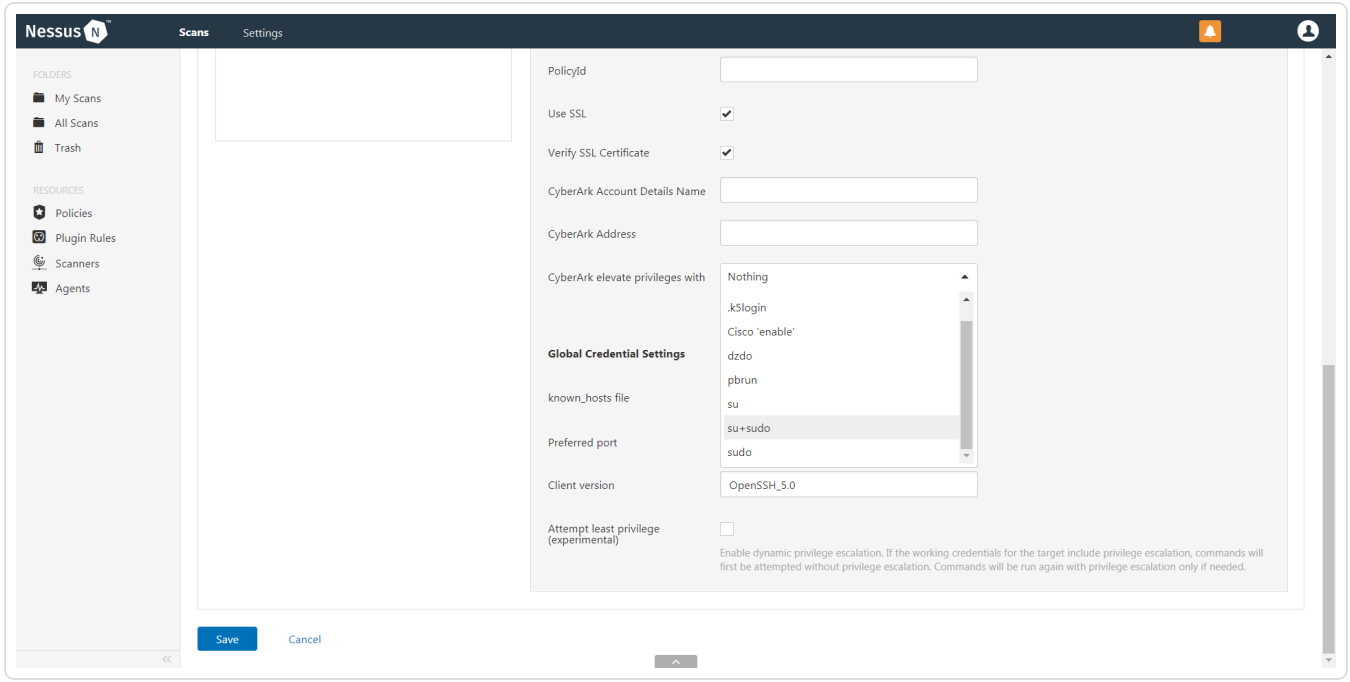
1. Select **SSH** as the **Type** and CyberArk as the **Authentication Method.**



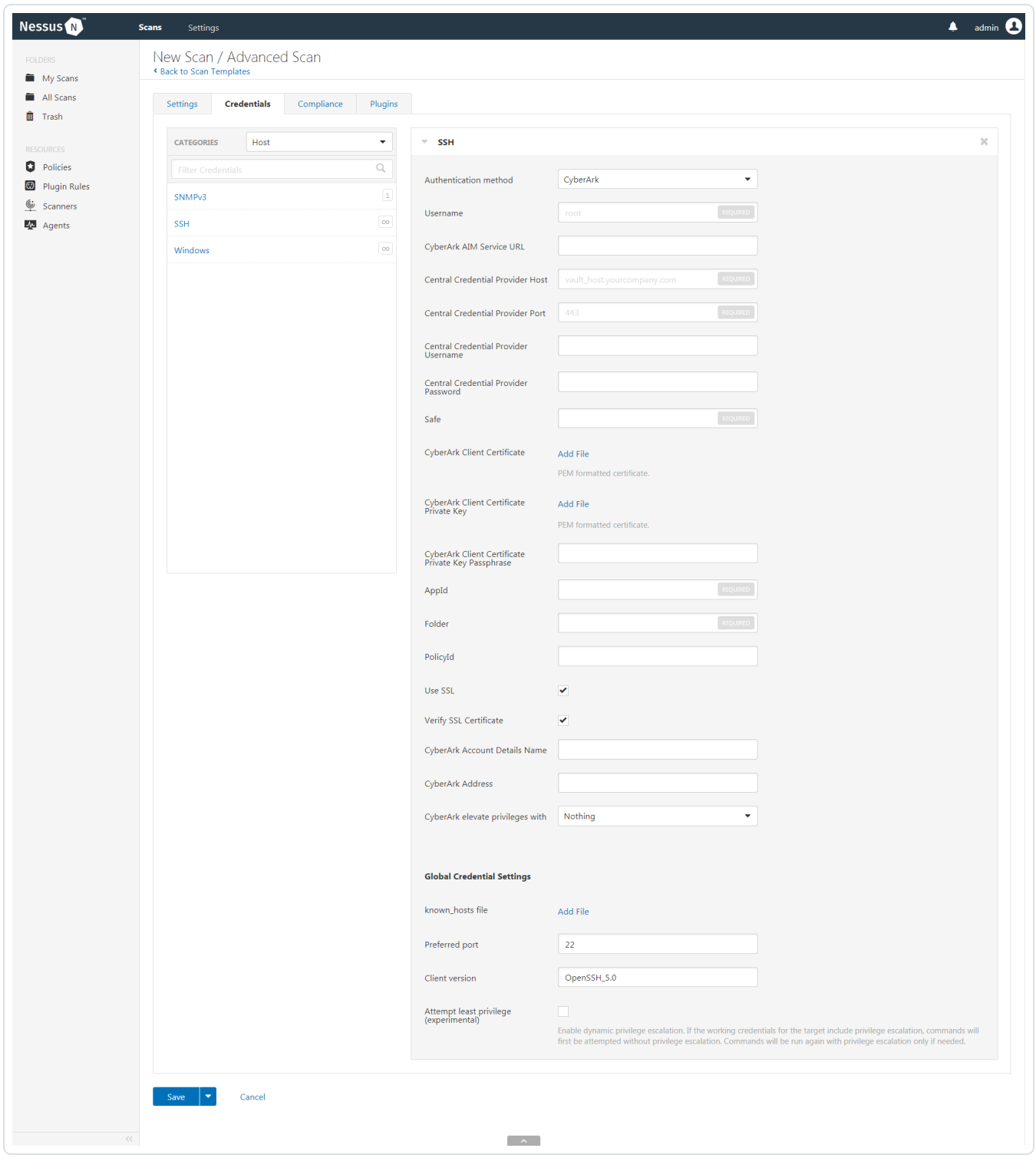
2. An option for **CyberArk elevate privileges with** appears near the bottom of the configuration page.

> **Note:** Multiple options for privilege escalation are supported, including *su*, *su+sudo* and *sudo*. For example, if **sudo** is selected, additional fields for **sudo user**, **CyberArk Account Details Name** and **Location of sudo** (directory) are provided and can be completed to support authentication and privilege escalation through CyberArk Password Vault.

> **Note:** Additional information about all of the supported privilege escalation types and their accompanying fields can be found in the Nessus User Guide.



3. Configure each field for SSH authentication. See the Nessus User Guide to get detailed descriptions for each option.



4. Click **Save**.

Windows (Legacy) Integration

Caution: Support for SOAP requests are no longer be supported by CyberArk as of December 31, 2024. If you are using the CyberArk Legacy Integration which utilizes SOAP for API requests, Tenable recommends using our non-Legacy CyberArk Integration which supports REST API requests.

Tenable Nessus Manager provides an option for CyberArk Windows integration. Complete the following steps to configure Tenable Nessus Manager with CyberArk for Windows.

Requirements:

- CyberArk account
- Nessus Manager account

To configure Windows integration:

1. Log in to Nessus.
2. Click **Scans**.
3. Click **+ New Scans**.

   The **Scan Templates** page appears.
4. Select a **Scan Template.**

   The selected scan template appears.
5. In the **Name** box, type a name for the scan.
6. In the **Targets** box, type an IP address, hostname, or range of IP addresses.
7. (Optional) Add a description, folder location, scanner location, and specify target groups.
8. Click the **Credentials** tab.

   The **Credentials** options appear.
9. In the left-hand menu, select **Windows**.
10. Click **Authentication method**.

    A drop-down appears.
11. Select **CyberArk**.
12. Configure each field for **Windows** authentication.

Option	Description	Required
Username	The username of the target system.	yes
CyberArk AIM Service URL	The URL for the CyberArk AIM web service. By default, Tenable Nessus uses `/AIMWebservice/v1.1/AIM.asmx`.	no
Domain	The domain to which the username belongs.	no
Central Credential Provider Host	The CyberArk Central Credential Provider IP/DNS address.	yes
Central Credential Provider Port	The port on which the CyberArk Central Credential Provider is listening.	yes
Central Credential Provider Username	The username of the vault, if the CyberArk Central Credential Provider is configured to use basic authentication.	no
Central Credential Provider Password	The password of the vault, if the CyberArk Central Credential Provider is configured to use basic authentication.	no
Safe	The safe on the CyberArk Central Credential Provider server that contained the authentication information that you want to retrieve.	yes
CyberArk Client Certificate	The file that contains the PEM certificate used to communicate with the CyberArk host.	no
CyberArk Client	The file that contains the PEM private key for the client certificate.	no

Option	Description	Required
Certificate Private Key		
CyberArk Client Certificate Private Key Passphrase	The passphrase for the private key, if required.	no
AppId	The AppId that has been allocated permissions on the CyberArk Central Credential Provider to retrieve the target password.	yes
Folder	The folder on the CyberArk Central Credential Provider server that contains the authentication information that you want to retrieve.	yes
PolicyId	The PolicyID assigned to the credentials that you want to retrieve from the CyberArk Central Credential Provider.	no
Use SSL	If CyberArk Central Credential Provider is configured to support SSL through IIS check for secure communication.	no
Verify SSL Certificate	If CyberArk Central Credential Provider is configured to support SSL through IIS and you want to validate the certificate check this. Refer to custom_CA.inc documentation for how to use self-signed certificates.	no
CyberArk Account Details Name	The unique name of the credential you want to retrieve from CyberArk.	no

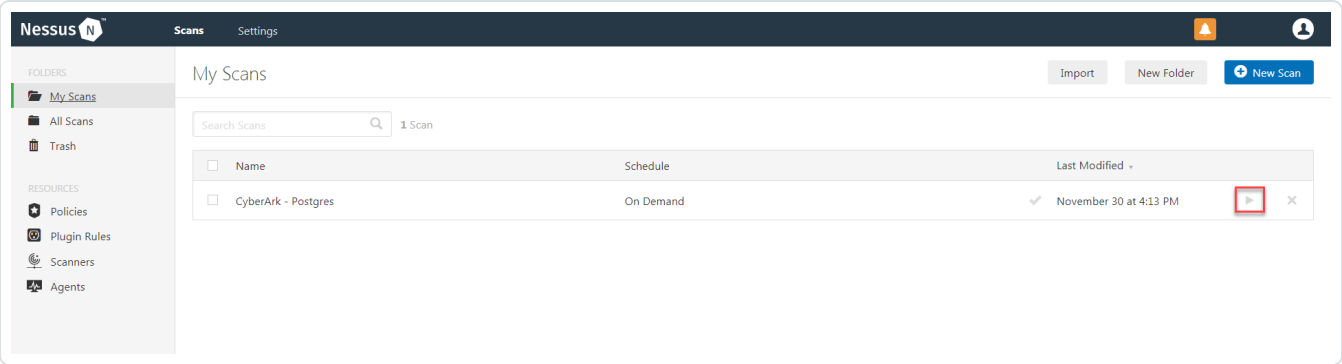
Caution: Tenable strongly recommends encrypting communication between the Nessus scanner and the CyberArk AIM gateway using HTTPS and/or client certificates. For information on securing the

connection, refer to the Nessus User Guide and the **Central Credential Provider Implementation Guide** located at cyberark.com (login required).

13. Click **Save**.

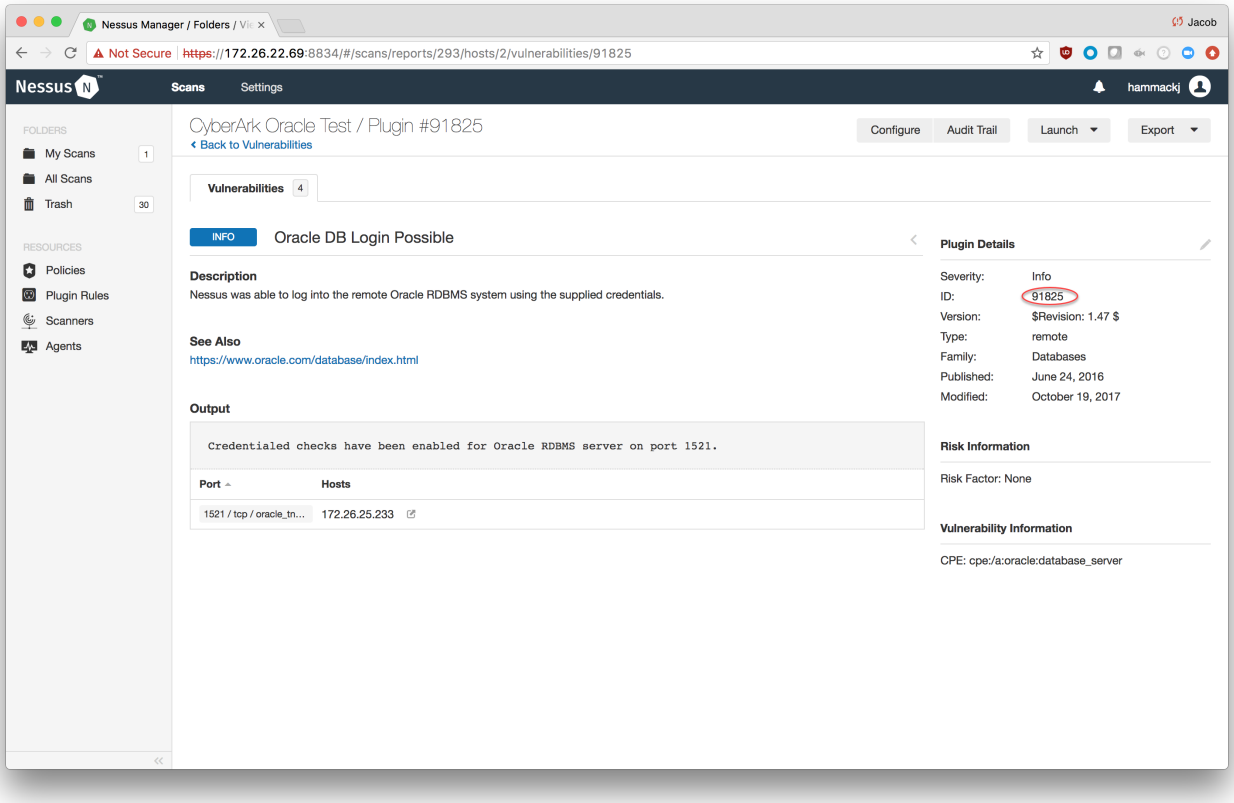
Verification

1. To verify the integration is working, click the **Launch** button (highlighted below) to initiate an on-demand scan.



2. Once the scan has completed, select the completed scan. Look for the corresponding **ID** (see chart below), which validates that authentication was successful. If the authentication is not

successful, refer to the Debugging CyberArk Issues section of this document.



Additional Information

[CyberArk Domain and DNS Support]

[Nessus Priority Scanning for CyberArk]

[Retrieving Addresses to Scan from CyberArk]

[Debugging CyberArk Issues]

CyberArk Domain and DNS Support

Tenable's support for CyberArk has been extended to allow Nessus to use its target list to query CyberArk Enterprise Password Vault for the target system's credentials, and Tenable's solutions can now use a flexible system to allow for DNS and domain support. See Nesssus Priority Scanning for CyberArk for explanation of the logic used by Nessus for scans using credentials from CyberArk Enterprise Password Vault.

Nessus Priority Scanning for CyberArk

Nessus sets a priority system that allows for flexible querying. The following is set out to describe the order Nessus tries values and the logic behind it.

1. Nessus will query CyberArk with the target value entered into the Nessus **Targets** configuration field. For example, if you put a FQDN in the target list, Nessus will query CyberArk with the address value of the FQDN. If you enter an IP address or range such as 192.0.2.1-20, Nessus will try to query using the IP address or IP range of the target system(s) in the CyberArk **Address** value. If the target system uses FQDN and can be resolved, then it will be contacted.
2. If the target value fails, Nessus will then look to see if there is a domain value (for a Windows system). If a domain value is present, Nessus will query CyberArk using the domain value for the address value to attempt to use domain credentials.
3. If the configured target value and the domain value both fail, Nessus will then pull the IP address of the system. If the IP address does not match one of the IP addresses supplied in the target list, Nessus will then query CyberArk using the IP address of the target itself. This is checked against the target value in the configuration to prevent querying CyberArk twice with the same value.

Retrieving Addresses to Scan from CyberArk

Use Tenable Nessus Manager to access a feature in CyberArk to pull a list of targets to scan. Complete the following steps to pull target system values.

Note: You cannot retrieve a target address with a default administrator account. You must create an account that is a member of the PVWAMonitor group to generate the following reports.

1. Log in to CyberArk.
2. At the top of the page, click **Report**.
3. Click **Generate Report**.
4. Choose **Privileged Account Inventory**.
5. Click **Next**.
6. Specify the search parameters for the systems you want to scan.
7. Click **Next**.
8. Click **Finish**.
9. Download the CSV or XLS report.
10. Confirm the targets for Nessus to scan.
11. Confirm that all values can be resolved by Nessus.
12. Copy the values from the **Target system address** column.
13. Enter the values into Tenable Nessus Manager using one of the following methods.
    a. Paste the values from addresses into the target list in Nessus.
    b. Paste the values into a file and use that file as the target list in Nessus.

Debugging CyberArk

To enable debugging when you configure a scan in Nessus, go to **Settings->Advanced->Debug Settings** and Check **Enable plugin debugging**. If an issue is found, review the results of plugin

Debugging Log Report (84239). If debug output for the system exists in the debug log, one or more of the following files will be present:

- logins.nasl: Used for Windows credentials. Shows higher level failures in Windows authentication
- logins.nasl~CyberArk: Used to output specific CyberArk- related debug information
- ssh_settings: Used for SSH credentials. Shows higher level failures in SSH authentication
- ssh_settings~CyberArk: Used to output specific CyberArk-related debug information

Example of output:

```
[2015-11-17 22:17:04] HTTP/1.1 500 Internal Server Error returned
[2015-11-17 22:17:04] HTTP 500 : Server was unable to process request. ---
&gt; APPAP004E Password object matching query [Safe=Unix
Accounts;UserName=credtester;Folder=Root;Address=192.0.2.26] was not found
(Diagnostic Info: 5). Please check that there is a password object that
answers your query in the Vault and that both the Provider and the
application user have the appropriate permissions needed in order to use the
password.
[2015-11-17 22:17:04] HTTP/1.1 500 Internal Server Error returned
[2015-11-17 22:17:04] HTTP 500 : Server was unable to process request. ---
&gt; APPAP004E Password object matching query [Safe=Unix
Accounts;UserName=admin;Folder=Root;Address=192.0.2.26] was not found
(Diagnostic Info: 5). Please check that there is a password object that
answers your query in the Vault and that both the Provider and the
application user have the appropriate permissions needed in order to use the
password.
[2015-11-17 22:17:04] HTTP/1.1 500 Internal Server Error returned
[2015-11-17 22:17:04] HTTP 500 : Server was unable to process request. ---
&gt; APPAP229E Too many password objects matching query [Safe=Unix
Accounts;UserName=admin;Folder=Root] were found: (Safe=Unix
Accounts;Folder=Root;Object=Operating System-WinDesktopLocal-192.0.2.205-
admin, Safe=Unix Accounts;Folder=Root;Object=Operating System-
```

```
WinDesktopLocal-192.0.2.66-admin and more. See trace log for more
information). (Diagnostic Info: 41)
```

The Nessus Priority Scanning for CyberArk section shows that a single system may send multiple requests that fail before finding a successful one. Because of this, the output to the debugging log may not show an issue with the scan, but it can be used as an audit trail if there is an issue. To address issues using the log, look for the parameters to match the intended query and see what error output was reported for that query. For example, if you intended to scan target 192.0.2.66 using parameters of (`Safe=Unix Accounts;UserName=admin;Folder=Root`), then you could discern from the log above that the reason the scan failed is because there were too many matching items to this query, and therefore no results were returned.

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.